ISSN 2226-6771
VOLUME 6 December 2017 NUMBER 2
GRADUATE INSTITUTE OF INTELLECTUAL PROPERTY,
NATIONAL TAIPEI UNIVERSITY OF TECHNOLOGY

NTUT Journal of Intellectual Property Law and Management

The NTUT Journal of Intellectual Property Law and Management is published twice a year by the National Taipei University of Technology ("Taipei Tech."), a national university located in Taipei City, Taiwan. The Journal is run by the Graduate Institute of Intellectual Property, an educational organization of Taipei Tech. The address of Taipei Tech. is No. 1, Sec. 3, Chung-hsiao E. Rd., Taipei City 10608, Taiwan.

EDITORIAL TEAM

The **NTUT Journal of Intellectual Property Law and Management** is published twice a year by the National Taipei University of Technology ("Taipei Tech."), a national university located in Taipei City, Taiwan. The Journal is run by the Graduate Institute of Intellectual Property, an educational organization of Taipei Tech. The address of Taipei Tech. is No. 1, Sec. 3, Chung-hsiao E. Rd., Taipei City 10608, Taiwan.

EDITORIAL NOTE ON THE VOLUME 6, ISSUE 2, 2017

Editorial Note

Dr. Kuang-Cheng Chen,

Associate Professor,

Graduate Institute of Intellectual Property, National Taipei University of Technology (Taiwan).

This journal has been included in the SCOPUS and WESTLAW citation databases since 2015. This shows our continuous efforts in keeping the standard and quality of our academic publications and increases the visibility of the articles published in it. We would like to express our appreciation to all the authors, reviewers, editors, and advisors of this journal. The editorial board welcomes submissions from legal, managerial, or interdisciplinary areas related to IP issues from all over the world. In order to cover all aspect IP issues, we do not limit the scope of this journal to any single jurisdiction.

In this issue, the selected articles are derived from legal analyses concerned that patent eligibility of computer-implemented inventions and copyright issues of the U.S. computer software program and electronic database protection. Etsuko Yoshida's article describes the current situation in Japan and speculates as to parallels that might emerge between the current situation in US and Europe. This article makes efforts for international systemic harmonization by considering the requirement for patent eligibility from the viewpoint of comparative law. I Jou Lin's article shows that through the dispute of the *Oracle v. Google* case, it will discuss the remain issues of copyright protection for software program; as well as, whether copyright, among the IP rights, is an eligible aspect in protecting software programs. This article provides a suggestion of a comparatively appropriate method of IP protection for computer programs to the software developers and legal professions. Qing Hui Chang's article examines the main characteristics of several copyright protection directives, based in several different countries or regions. In addition to expressing our gratitude to all contributors who made this issue possible, we hope you continue to support us and maintain the goal and quality of this journal.

Dr. Kuang-Cheng Chen

Associate Professor

Graduate Institute of Intellectual Property

National Taipei University of Technology (Taiwan).

CALL FOR PAPERS

NTUT Intellectual Property Law and Management is a multidisciplinary journal which concerned with legal, economic and social aspects of IP issues. This journal is included in the SCOPUS, WESTLAW, WESTLAW HK, LAWDATA, AIRITI LIBRARY citation databases, and it welcomes contributions to address IP topics at national, regional and international level.

Submission:

1. A manuscript has to follow the citation format of The Bluebook: A Uniform System of Citation. If the citation format for a particular reference is not provided, please give a citation in a form: [Author], [article title], [volume number] [Journal Title] [first page] (publication year), for instance, Zvi Griliches, Patent Statistics as Economic Indicators: A Survey, 8 Journal of Economic Lirerurure 1661, 1661-707 (1990). If your article relates to management or business, pin-point citation is not required. For all manuscripts, a list of references is not required.

2. A regular manuscript is expected to be 6000-8000 words in length, including the main text and footnotes. Potential authors are encouraged to contact Dr. Kuang-Cheng Chen for a manuscript template.

3. A regular manuscript has to include an abstract of at most 300 words and at most five keywords.

4. The authors are responsible for the factual or legal accuracy of their papers. No payment is for contribution. Two copies of the journal will be supplied to the authors free of charge.

5. Manuscripts must be typewritten in English. Electronic submissions are preferred. Please provide Microsoft Word files and email to iipjournal@ntut.edu.tw.

Review:

In general, all submissions will be subject to a peer-review process.

Copyrights:

By submitting manuscripts, all authors shall grant to the National Taipei University of Technology a non-exclusive license to disseminate their papers through the instruments of the National Taipei University of Technology or other affiliating entities.

Publication Ethics and Malpractice Statement:

This journal is committed to maintain ethics and quality standard of publication. Authors, editors, reviewers, and staff are required to follow general standards of ethical behaviors. Authors shall submit their original works without infringing intellectual property rights of others. Editors and reviewers shall evaluate manuscripts according to their academic values. Reviewers shall not take advantage of the original ideas drawn from the reviewed manuscripts. Reviewers shall keep the reviewed content confidential until it is published.

TABLE OF CONTENTS

A Study of Patent Eligibility of Computer-Implemented Inventions - from the standpoint of Japan -

Etsuko Yoshida
Research Fellow
Intellectual Property Center, Osaka University

ABSTRACT

Inventions have shown variation in association with industrial development and progress in science and technology. Since the Patent Act is a law in which the protection and use of inventions are placed at the center of its purpose and its framework is closely related to innovation on a continuous basis, flexible responses must always be made to the needs of the time. In examining the invention's subject matter that is eligible for protection, it is difficult to derive uniquely because it is a problem between law interpretation and policy problems. Patent eligibility of computer-implemented inventions (hereinafter: CII) has been hotly debated since 1960s in many countries. Each country's laws and practices have significantly evolved over time. For instance, Japan has made revisions to the Examination Guidelines, as well as legal amendments as appropriate, In U.S., the issue of patent eligibility of business method inventions has led to the increase in the number of litigations over patent eligibility and vigorous discussions have been conducted. In Europe, they try to conduct harmonization has been sought about various methods difference between the EPO and member states. In addition, Protection eligibility of CII is one of study questions topics for International Association for the Protection of Intellectual Property (AIPPI) world congress 2017.

In this situation show that it is time to revisit patent eligibility of CII. In particular, focus on the three legal systems in determining patent eligibility. (1. Japan: Definition, 2. United States: non-statutory subject matter, 3. Europe: Ineligible subject matter exclusion). Below, this paper describes the current situation in Japan and speculates as to parallels that might emerge between the current situation in US and Europe. This research study aims to be of some help to the efforts made for international systemic harmonization by considering the requirement for patent eligibility from the viewpoint of comparative law.

Keywords: Patent eligibility, Computer implemented inventions, Patent protection, creation of technical ideas, Alice/Mayo test

I. Introduction

Inventions have shown variation in association with industrial development and progress in science and technology. Since the Patent Act is a law in which the protection and use of inventions are placed at the center of its purpose and its framework is closely related to innovation on a continuous basis, flexible responses must always be made to the needs of the time. In examining the invention's subject matter that is eligible for protection, it is difficult to derive uniquely because it is a problem between law interpretation and policy problems. Patent eligibility of CII has been hotly debated since 1960s in many countries. Each country's laws and practices have significantly evolved over time. However, the development of the various practices has not linear at all. In addition, Protection eligibility of CII is one of study questions topics for AIPPI world congress 2017.

In this situation show that it is time to revisit each country's position on patent eligibility of CII. In particular, focus on the three legal systems in determining patent eligibility. (1. Japan: Definition, 2. United States: non-statutory subject matter, 3. Europe: Ineligible subject matter exclusion). Below, this paper describes the current situation in Japan and speculates as to parallels that might emerge between the current situation in US and Europe.

II. Current law and practice in Japan[1]

The current status of Japan describes based on the activity report examined by AIPPI-JAPAN CII Committee 2017 composed of IP experts.[2].

A. Current law and practice

1. Statutory Provisions

In the Japanese Patent Act, Article 1 prescribes the purpose of the Act while Article 2, paragraph (1) defines inventions and the main paragraph of Article 29(1) of the Patent Act provides that a patent shall be granted for an invention as defined in the Patent Act; an "invention" is clearly defined to mean a "highly advanced creation of technical ideas utilizing the laws of nature." Currently, with respect to "the laws of nature" as prescribed in Article 2, paragraph (1) of the Japanese Patent

[1] Study Report from AIPPI Japanese Group to Study Question on Patentability of computer implemented invention, 2017; <http://aippi.org/wp-content/uploads/2017/05/2017_JP_Study_Question_Patentability_of_computer_implemented_inventions_2017-05-10.pdf >(2017/06/01)

[2] I appreciate the insightful comments and feedback offered by AIPPI-JAPAN CII committee member about current situation in Japan. The members are as follows; Kay KONISHI, Yuzuru OKABE, Shigeru INABA, Mitsuhiro Kato, Tsuyoshi SUEYOSHI, Manabu MIYAJIMA, Kazuhiro YAMAGUCHI, Etsuko YOSHIDA, Hideki TAKAISHI, Nobuyuki TANIGUCHI.

Act, "the laws of nature" is regarded as referring to fundamental rules and principles that have physical, chemical or biological rules such as mere mental activities, simple academic rules and man-made agreements. Yet, technical ideas utilizing such fundamental rules or principles are regarded as inventions[3], [4]. Accordingly, as in the case of inventions of other subject matters, CII must meet the definition of "invention" in order to be patented. More specifically, the common eligibility test applicable to both CII and inventions of other subject matters is whether the invention "utilizes the laws of nature" and embodies "technical ideas."

2. Practice: the Examination Guidelines

Japan has responded flexibly to progress in computer technology by the examination guidelines revisions (to include recording media in which computer programs are recorded in the scope of protection in 1997, and include computer programs, etc. in the scope of "invention of a product" in 2000). The provisions in Chapter 1 "Computer software related Inventions" of Annex B "Application examples of the specific technical fields" in the Examination Handbook for Patent and Utility Model in Japan (hereinafter "Examination Handbook"), are rules that apply only to CII under the case law or judicial or administrative practice. However, it should be clarified that Annex B of the Examination Handbook only explains the points to note when applying the Examination Guidelines to CII, or more specifically, only sets forth the criteria for interpretation of the "use of the laws of nature" in CII, and it does not lay down a different criteria for CII from those for inventions of other subject matters. The following is cited as the points to note when applying the Examination Guidelines to CII.

a. Eligibility

A two-stage test is provided for the determination of eligibility of CII (or construed in the context of the Japanese law as determination as to whether CII meets the definition of an "invention," that is, whether it is "creation of a technical idea utilizing a law of nature").

The first test is whether CII meets the definition of an "invention," which is a general test prescribed in the Examination Guidelines as one that applies to all types of inventions including CII. With regard to the first test, Annex B of the Examination Handbook gives the following as examples of an invention that is found to be eligible for patent under the general criterion: (i) those concretely performing control of an apparatus or processing with respect to the control and (ii) those concretely performing information processing based on the technical properties such as physical, chemical, biological or electric properties of an object. Also in relation to the first

[3] Nobuhiro Nakayama "Tokkyohou (Patent Act)" at 98 to 102 (Koubundou, 2nd ed., 2012).
[4] Ryu Takabayashi "Hyoujun Tokkyohou 5th ed. (Standard Patent Law 5th ed.)" at 26 to 33 (Yuhikaku, 5th ed., 2014).

test, the Examination Guidelines list the following as subject matters that do not meet the definition of "invention": (I) a law of nature as such; (II) mere discoveries and not creations; (III) those contrary to a law of nature; (IV) those in which a law of nature is not utilized; (V) those not regarded as technical ideas; and (VI) those for which it is clearly impossible to solve the problem to be solved by any means presented in a claim. Among these categories, (IV) and (V) are related to CII. The Examination Guidelines subdivide Category (IV), those in which a law of nature is not utilized, into the following: (i) any laws other than a law of nature (e.g., economic laws); (ii) artificial arrangements (e.g., a rule for playing a game as such); (iii) mathematical formula; (iv) mental activities of humans; and (v) those utilizing only (i) to (iv) (e.g., methods for doing business as such). Category (V), those not regarded as technical ideas, includes, for example, the mere presentation of information (where the feature resides solely in the content of the information, and the main object is to present information).

If the eligibility of CII can be determined by applying the first test (general criterion), the second test (specific criterion for CII) is not applied. Courts deny the patent eligibility of an invention if the substance of the invention is an artificial arrangement as such or is focused directly on the mental activities of humans[5]. In the past, both the JPO and courts used to apply a strict criterion to determine the eligibility of CII. However, over the last decade, the JPO seems to have relaxed the criterion and more often found CII to be eligible for patent. For example, the Intellectual Property High Court found that an idea which utilizes mental activity of a human being is an invention utilizing computer software as the technical means (Interactive dental treatment network case; judgment of the Intellectual Property High Court of June 24, 2008, (Gyo-Ke) No. 10369). Accordingly, in most court cases in which the patent eligibility of CII was raised as a question, the claimed invention did not contain computer-related elements as its constituent elements and none of these cases denied the patent eligibility of CII for the said reasons.

The second test is specific to the eligibility of CII and this applies if the first test does not work. The second test determines the eligibility of a software-related invention by examining "whether information processing by the software is specifically implemented by using hardware resources," or more specifically, by examining, "based on the statement of the claims, whether or not specific calculation or processing of information depending on the intended use is implemented by specific means or procedures on which software and hardware resources cooperate." If it is obvious that information processing by the software is specifically implemented by using hardware resources, the software-related invention may be

[5] Judgment of the Tokyo District Court of January 20, 2003, 2002 (Wa) 5502 (Case of funds classification balance sheet), judgment of the Tokyo High Court of December 21, 2004, 2004 (Gyo-Ke) 188, Hanji No. 1891 at 139 (Circuit simulation method case), judgment of the Intellectual Property High Court of February 29, 2008, 2007 (Gyo-Ke) 10239 (Hash function case).

found to be eligible for patent even when the hardware resources are not explicitly recited in the claim.

b. Novelty, Inventive-step

In connection with the determination of novelty and inventive step, when recognizing a software related invention, it is considered appropriate to understand the claimed invention as a whole, rather than dividing it into an artificial arrangement or the like and a systemization method. Thus, there are no rules specific to CII regarding the determination of novelty and inventive step. It does not distinguish between the technical and non-technical features of the claimed invention, and not determine by excluding non-technical features.

3. Non-patentable subject matter

Any subject matter, not limited to those relating to CII, is excluded from patentability per se if it falls within the categories of subject matters that are excluded from patentability in the course of determining eligibility under the main paragraph of Article 29(1) of the Patent Act, such as " those in which a law of nature is not utilized" and " those not regarded as technical ideas." In other words, whether the claimed invention meets the definition of an "invention" is examined explicitly as the common test that is applicable regardless of whether the subject matter is related to CII or not[6].

The Examination Guidelines enumerate the following as "those in which a law of nature is not utilized":

(1) any laws other than a law of nature (e.g., economic laws);

(2) artificial arrangements (e.g., a rule for playing a game as such);

(3) mathematical formula;

(4) mental activities of humans; and

(5) those utilizing only (1) to (4) (e.g., methods for doing business as such).

"Those not regarded as technical ideas" refers to, for example:

the mere presentation of information (where the feature resides solely in the content of the information, and the main object is to present information).

[6] Part III Patentability Chapter 1 Eligibility for Patent and Industrial Applicability (Main Paragraph of Article 29(1) of Patent Act)
<http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/files_guidelines_e/03_0100_e.pdf> (2017/06/01)

In addition to the above, inventions that are liable to injure public order as prescribed in Article 32 of the Patent Act (e.g. a method used exclusively for committing a massacre of people) are excluded from patentability per se[7].

4. Requirement of a contribution in a field of technology

In the novelty and inventive step test of CII, the contribution the claimed CII makes to the state of the art is necessarily examined, whereas this point is not examined in the course of determining whether the claimed CII is eligible for patent as prescribed in the main paragraph of Article 29(1) of the Patent Act. The "contribution to the state of the art" referred to in the question means the contribution to prior art. In Japan, the state of the art is considered to consist of both technical and non-technical features. Therefore, including non-technical features in the scope of the state of the art. Under the Patent Act of Japan, the claimed invention is not regarded as an "invention" as defined in Article 2(1) of the Act unless it is "the highly advanced creation of technical ideas utilizing the laws of nature." The phrase "highly advanced" used here is interpreted as meaning the degree of advancement as compared to the requirement under the Utility Model Act, rather than referring to an "inventive step," which is a patentability requirement.

The novelty and inventive step test does not derive a conclusion based only on the areas of human endeavor the claimed invention is related to. Accordingly, non-technical features of the claimed invention are also taken into consideration together with its technical features in the course of determining its inventive step.

As regards any specific requirements as to sufficiency of disclosure and/or enablement which are applicable to CII, There is no particular requirement as to the sufficiency of disclosure or enablement that is applicable to CII. Therefore, no greater disclosure is required for CII beyond the general level of sufficiency of disclosure or enablement, such as disclosure of a detailed algorithm. In other words, in determining the sufficiency of disclosure, a common test applies to CII as it applies to inventions in other areas, i.e. whether the claimed subject matter can be understood by persons skilled in the art as something that can solve the target problem. Similarly, in determining enablement, whether the detailed explanation of the invention describes the invention clearly and sufficiently to the extent that it enables any person skilled in the art to practice the invention is a common test that applies not only to CII but also to inventions in other areas.

B. Policy consideration

[7] Part III Patentability Chapter 5 Category of Unpatentable Invention (Patent Act Article 32) <http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/files_guidelines_e/03_0500_e.pdf > (2017/06/01)

1. Current Law and practice

As mentioned above, Current law and practice, it is considered appropriate in Japan to examine and determine the eligibility of the claimed CII as a whole, by applying the Patent Act, the Examination Guidelines, and the Examination Handbook, and by following the procedures for determining the eligibility of CII. This process of determining eligibility is specific to CII and therefore relies on claim drafting in some aspects, but it effectively works as a clear and highly predicable test. In the stage of determining eligibility, the claimed CII's contribution to the state of the art is not determined. This also facilitates predictability in the determination of eligibility of CII. Even if an invention that is not eligible for patent is mistakenly patented, a third party is guaranteed a means for invalidating the patent ex post fact on the grounds of lack of eligibility.

2. Economic perspective

Analyzing current law and practice from an economic perspective, Japan catches up with progress in computer technology by adapting the patent practice to it quickly. More specifically, Japan has made revisions to the Examination Guidelines, etc. as well as legal amendments as appropriate (to include recording media in which computer programs are recorded in the scope of protection in 1997, and include computer programs, etc. in the scope of "invention of a product" in 2000). In the examination of CII, eligibility is determined first and then novelty and inventive step are determined. The patent grant rate for business-related CII, which was below 10% in 2000, has been on a gradual rising trend, recently reaching around 70%, almost on a level equal to the rate for inventions in other technical areas[8]. Actives efforts have also been made in addressing the research and development of IoT-related technology and the application thereof in business. Case examples of IoT-related technology have been added to the Examination Handbook (in September 2016 and March 2017)[9]. In particular, the case examples introduced in March 2017 show clear standards for handling trained models (AI-related technology) and 3D printing data. As in the case of other computer software-related inventions, the determination of eligibility of inventions involving IoT-related technology is conducted in accordance with the current legal provisions as well as the provisions of the Examination Guidelines, Part III, Chapter 1 Eligibility for Patent and Industrial Applicability, and the Examination Handbook, Annex B, Chapter 1 Computer software related Inventions. Furthermore, with a view to ensuring that patents necessary for promoting innovation can be obtained and put into use with certainty in the areas of business using IoT, the Japanese patent authorities will, by the end of FY2017, review the Examination Guidelines, etc. focusing on software-related inventions that

[8] <http://www.jpo.go.jp/seido/bijinesu/biz_pat.htm> (2017/06/01) [Only in Japanese]

[9] Case examples pertinent to IoT related technology
<https://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/files_handbook_sinsa_e/app_z_e.pdf> (2017/06/01)

are closely connected with IoT-related inventions, and discuss methods for using patents for business-related inventions through the use of IoT, and will disseminate the outcomes of such review and discussion at home and abroad in due course. More information will be made available with regard to procedures and methods to obtain and use patent rights for these inventions[10].

3. Copyright protection of computer implemented inventions

Under the Copyright Act of Japan, works of computer programming are enumerated as a type of copyrightable work (Article 10(1)(ix)). The term "computer program" refers to "something expressed as a set of instructions written for a computer, which makes the computer function so that a specific result can be obtained" (Article 2(1)(x)-2). Instructions given from CII to hardware deserve protection under the Copyright Act. However, "work" as defined under the Copyright Act means a "production in which thoughts or sentiments are creatively expressed and which falls within the literary, academic, artistic, or musical domain" (Article 2(1)(i)). In short, a copyrightable work is not an idea but its expression. Consequently, the protection of works of computer programming is limited within the area of expressions. On the other hand, the main role of a computer program resides in its function of having a computer perform a desired calculation or processing, rather than its expression. However, a function falls within the category of ideas, which are outside the scope of protection under the Copyright Act. Furthermore, there is a limit to expressions that can fulfill the intended function. As a result, computer programs are less likely to be recognized as copyrightable, and even if they are found to be copyrightable, the scope of adaptation right is limited. In consequence, protection under the Copyright Act for computer programs is likely to be limited (e.g. protection against slavish imitations). Thus, copyright protection cannot be regarded as sufficient, the substance of CII is not expressions but ideas, and the protection of ideas should be realized by the Patent Act.

[10] <http://www.meti.go.jp/press/2017/04/20170419002/20170419002-1.pdf > (2017/06/01)[Only in Japanese]

III. Current law and practice in US and EU

A. United States

1. After Alice decision

The US court of Appeal for the Federal circuit (CAFC) and the US District Courts increasing the number of litigations concerning patent eligibility under 35 U.S.C §101[11] since Alice v. CLS Bank (Supreme Court, 2014)[12]. Generally, US examiner apply the following test to determine whether patent is eligible under 35 U.S.C §101. The key to understanding is the test, is referred to as Alice/Mayo test (two part test). In the background of this test are based on the theory of preemption concerning the adverse effect on the subsequent invention. In determining patent eligibility of CII, focus on whether or not it falls under the non-statutory subject matters[13] (abstract ideas) relevant to Article 101. Under Step1, determine whether the claim is directed to a statutory category of invention. If so, Step2A, whether the claim is directed to a judicial exception. If so, under Step2B, whether the claim recite significantly more than the judicial exception. However, Alice/Mayo test greatly confused under CAFC and district courts after Alice, because how to apply "significantly more than judicial exception" was not clear in supreme court. Especially patent eligibility in the computer software field is determined strictly. Therefore, the USPTO has repeatedly released the memorandum regarding examination instructions to the Patent Examining Corps relating to subject matter eligibility of claims under 35 U.S.C. § 101[14]. As to the determination of patent eligibility, it is determined whether there is a technical solution different from conventional on technical problems on the basis of Alice /Mayo test. The adverse effects on subsequent inventions that have been concerned up to now it seems to be mitigation. Recently, CAFC rendered several decisions to grant patent eligibility[15].

---

[11] 35 U.S.C. § 101：Whoever invents or discovers any new and useful process machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent thereor, subject to the conditions and requirements of this title.

[12] *Alice Corp. v. CLS Bank Int'l*, 134 S.Ct. 2347 (2014)

[13] The non-statutory subject matters relevant to Article 101 of the U.S. Patent Law is following. (i) law of nature, (ii) natural phenomenon and (iii) abstract ideas.

[14] 2014 Interim Guidance on Patent Subject Matter Eligibility, Federal Register, vol. 79, No.241, p.74618 -74633 (December 16, 2014) <http://www.uspto.gov/patents/law/exam/myriad-mayo_guidance.pdf> (2017/06/01); <http://www.uspto.gov/sites/default/files/documents/ieg-july-2015-qrs.pdf> (2017/06/01); <http://www.uspto.gov/sites/default/files/documents/ieg-may-2016-sme_crt_dec.pdf> (2017/06/01).

[15] *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 113 U.S.P.Q.2d 1097 (Fed. Cir. 2014); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 118 U.S.P.Q.2d 1684 (Fed. Cir. 2016); *Bascom Global Internet Svcs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 119 U.S.P.Q.2d 1236 (Fed Cir. 2016); *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299, 120 U.S.P.Q.2d 1091 (Fed. Cir. 2016); *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 120 U.S.P.Q.2d 1527 (Fed. Cir. 2016)

However, it will take a little more time to see how the Alice/Mayo test set out are implemented by CAFC, the lower Courts and the USPTO.

B. Europe

1. EPC

In Europe, Article 52 of the EPC[16] prescribes patentable inventions and those which may excluded from the category of "inventions." Currently, the determination on patent eligibility is made by determining whether or not the relevant invention has "technical character"[17] and then the invention is found to have patent eligibility if it does not fall under the exclusions prescribed in said Article.

Many trial decisions rendered over patent eligibility dealt with the issue of whether or not the relevant invention falls under the exclusions prescribed in Article 52 of the EPC and in particular, the construction of computer programs "as such" was the focal point.[18] Until the 1990s, the court adopted the technical contribution approach and from around 2000, the court started to adopt the means of determining whether or not the invention has technical nature. This change in the EPO's determination method affected the determination on patent eligibility of computer software related invention in the U.K. mentioned below and as a result, the President of the EPO made G3/08 referral[19] to the Enlarged Board of Appeals, questioning the consistency in the EPO's determinations on patent eligibility of computer software related inventions.

---

[16] Article 52 of the European Patent Convention
<https://www.jpo.go.jp/shiryou/s_sonota/fips/pdf/epo/mokuji.pdf> (2017/06/01)
(1) European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible to industrial application.
(2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
(a) discoveries, scientific theories and mathematical methods;
(b) aesthetic creations;
(c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
(d) presentations of information.
(3) Paragraph 2 shall exclude the patentability of the subject-matter or activities referred to therein only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

[17] "Technical character" is also called "technical features" and although it may not be read from the provisions, a detailed explanation is provided in Rules 42 and 43 of the Implementing Regulations to the European Patent Convention and G-I2(II) of the Guidelines for Examination in the European Patent Office

[18] Benkard/ Melullis, Europäisches Patentübereinkommen, 2. Aufl. (2012), EPÜ Art. 52 Rn. 190-199.

[19] Referral to the Enlarged Board of Appeals: OJ EPO 2009, 32, Opinion of the Enlarged Board of Appeal with respect to the referral: OJ EPO 2011,10.

2. Referral to the Enlarged Board of Appeals (G3/08)

The President of the EPO took it seriously that no consistency could be found in the determinations made in past trial decisions concerning patent eligibility of computer programs (i.e. T1173/97: IBM trial decision, T424/03: Microsoft trial decision and T258/03: Hitachi Trial Decision) and made referral to the Enlarged Board of Appeals on October 22, 2008. However, in May 2010, the Enlarged Board of Appeals determined that all of the questions did not satisfy the requirements for referral to the Enlarged Board of Appeals (Article 112, paragraph (1) of the EPC) and showed its stance to support the EPO trial decisions by daring to state its opinion that there are no discrepancies in the trial decisions in the course of the development of laws (G3/08).[20]

3. Germany[21, 22]

One of the important German decisions that is referred to in the Guidelines for the Examination Procedure of Germany to serve as a guideline for determining patent eligibility is XZB 11/98 (Logikverifikation; logic verification; 1999)[23, 24]. In this case, the court stated that "even if the means to solve the problem does not directly utilize controllable natural forces, if it develops the possibility of manufacturing useful products by making use of knowledge based on technical considerations, such means to solve the problem would, by no means, be excluded from patent protection." Accordingly, there is a common concept concerning patent eligibility in German decisions that the technical problem must be presented and solved rather than technical means being used.[25, 26] This means that a patent right would not be

[20] OJ EPO 2011, 10. For explanation, see Jun Sugiura, Seiko Saku, "Compyūtā Sofutowea Kanren Hantsumei ni Kansuru Nichi Bei Ou no Shinsakijun to Tokkyo Tekikakusei Youken ni Kansuru Kousatsu (Consideration on the examination guidelines used in Japan, the U.S. and the E.U. and patent eligibility requirements with respect to computer software related inventions)" Chizaiken Forum Vol. 84 (2009) at 27.

[21] Michele Baccelli, Markus Müller, translated by Mitsuyoshi Hiratsuka and the Secretariat of AIPPI, "Computer implemented inventions in Germany and a comparative view with the EPO" AIPPI (2010) Vol. 55 No. 12 at 12 to 24.

[22] Schulte/ Moufang, Patentgesetz mit EPÜ (Kommentar), 9. Aufl. (2014),"Patentfahige Erfindungen," Rn. 131 to 133.

[23] GRUR 2000, 498; 33 IIC 2002 231.

[24] Yasuhide Ono, Kazuo Harada, Kenji Ushiku "Doitsu Saikou Saibansho 'Rojikku Kenshoho' Jiken ("Logic verification' case in the German Supreme Court")" Patent Vol. 55 (2002) at 21 to 30.

[25] Schulte,ibid, Rn. 134.

[26] Katsuya Tamai "'Hatsumei' no Gainen – Tokuni Shinposei tono Kanren ni tsuite- (Concept of 'Invention' - Especially in relation to inventive steps-)" Monya Nobuo Koki Kinen Chitekizaisanho to Kyosoho no Gendaiteki Tenkai (Recent development of the academic disputes on the intellectual property laws and the competition law: publication of articles in commemoration of the 70th birthday of professor Dr. Nobuo Monya) on pages 147 to 148 (Japan Institue for Promoting Invention and Innovation, 2006)

granted if the means used in the invention only solves problem other than technical problems such as problems found in economic activities.

4. United Kingdom[27]

Since a common law system is adopted in the U.K., future court decisions would be bound by precedents. In the past, court decisions were developed by citing the trial decisions rendered by the EPO. However, the U.K. court held in the Aerotel & Macrossan decision (2006)[28] that the EPO's policy change since 2000 has no consistency and adopted the Four Part Test (Aerotel test)[29] as its own determination method. In the U.K., in determining patent eligibility, the invention's contribution must be determined, and based on the determination on novelty and inventive steps, the invention's technical contribution to the technical problems of prior art shall be determined.

IV. Discussion

As mentioned above, Each country's laws and practices have significantly evolved over time. The direction to determine whether it is a technical solution different from the conventional one about technical problems is in harmony with US, Europe and Japan. Yet, in terms of the solution of the technical problem, the issue of whether or not the relevant invention exceeds the basic principles per se in social activities is determined based on its technical effects in Europe and the U.S. In contrast, in Japan, the technical significance of the invention is found in the specific method used for realizing the invention and if such technical significance is specified in the claim, the relevant invention is found to be statutory.

It also seems that there are several parallels between the Alice/Mayo test and the tests used in Europe for determining patent eligibility of CII. In both jurisdictions it remains possible to CII provided they also make a "technical" (in Europe) or "not abstract" (in the U.S.) contribution. The precise definition of "technical" and "abstract" remain unspecified, and whether any particular invention makes the necessary contribution will be difficult to predict. On this regards in Japan, it might be easy to determine by the definition provisions. However, whether or not a definition requirements are necessary for that country is another theme. In order to avoid further confusion, it is necessary to set at least certain criteria by courts and examination guidelines. Criterion setting tends to be thought of as modeling, formatting, formalizing, but it is not so. The criterion is a guide to the thought process,

[27] Brad Sherman "The Patentability of Computer-related Inventions in the United Kingdom and the European Patent Office" [1991] 3 EIPR 85.

[28] Aerotel Limited v Telco Limitd; Macrossan's Appication [2007] R.P.C.7; [2006] EWCA Civ 1371.

[29] See UK Intellectual Property Office, Manual of Patent Practice-Patent Act 1977, Part 1: New Domestic Law, Patentability, Section 1: Patentable inventions (Jan. 2015), at 1.18.

and it would be prevent it from becoming reliance on claim-drafting technique and formalization by continue to review it. The adverse effects on subsequent inventions that have been concerned up to now could be avoided by requirements such as definiteness requirement, not by patent eligibility. It is better to have a policy towards solving technical problems in the advanced information age.

V. Conclusion

In this paper, the respective requirements for determining whether or not an invention is patent eligibility used in Japan, the U.S. and Europe were studied from a comparative perspective the standpoint of Japan. In analysis of current situation about patent eligibility in Japan, US and Europe, the method of determination is different each other, however, since each country is promoting the solution of technical problems, each countries are in a direction to harmonize. From now on, it would be necessary to think about how to find technical significance from the invention without forcing the patent eligibility too much. In addition, since the balance adjustment with the advanced information society for harmonization is expected to continue in the future, it would be necessary to consider in further the consistency between the patent system and the framework for objective evaluation of the scope of invention to be protected.

Copyright Issues for Computer Software Program in the United States after *Oracle. v. Google*: Are the Laws Making the Intellectual Property Protections Easier or Harder?

I Jou Lin[•]

PhD Candidate

Chief Operating Officer, National Cheng Kung University

ABSTRACT

In light of the decisions made by both the District Court of Northern District of California and U.S. Court of Appeals for Federal Circuit on *Oracle v. Google* case, the intellectual property protections for software program and its eligibility were again brought to the attention not only to software developers but also to law professions and general publics. Despite Oracle's intention in bringing patent and trade secret issues into the present case, it turned out focusing on copyright issue. This paper intends to make a thorough review on the present case and discuss the legal development of the copyright law including copyright subject matter, copyrightability and its legality in software program in the United States. In addition, through the dispute of the case, it will discuss the remain issues of copyright protection for software program; as well as, whether copyright, among the intellectual property protection rights, is an eligible aspect in protecting software programs. Finally, it will try to provide a suggestion of a comparatively appropriate method of intellectual property protection for computer programs to the software developers and legal professions.

Keywords: computer software program, intellectual property, copyright, copyrightability, fair use

I. Introduction

Oracle v. Google[1] is a dispute between Oracle America, Inc. and Google, Inc. on Oracle's patent and copyright claims to Google's Android operating system. This case has viewed on the trend of the law for software programs in the intellectual

• PhD Candidate, Department of Law, National Cheng Kung University; Chief Operating Officer, Asia Regional Office, Northwest Analytics, Inc.; Lecturer, Department of Business and Economic Law, CTBC Financial Management College. Email: U28031031@mail.ncku.edu.tw. This paper has made a thorough study in the copyright issues of computer software program occurred in the six-year-long and proceeding law suits between Oracle America, Inc. and Google, Inc; it may contribute as part of my degree dissertation regarding intellectual property issues in mergers and acquisitions.

[1] *See* Oracle America, Inc. v. Google, Inc., 872 F.Supp.2d 974 (N.D. Cal. 2012).

property regime; in May 2012 the jury in this case found that Google did not infringe on Oracle's patents,[2] and the trial judge ruled that the structure of the Java Application Programming Interfaces (APIs) used by Google was not copyrightable.[3] Further in May 2014, the Federal Circuit partially reversed the district court's ruling, and ruled in Oracle's favor on the copyrightability issue, and remanded the issue of fair use to the district court.[4] In May 2016, the jury of District Court of Northern District of California ruled Google's action to be fair use.[5]

Our modern world is dominated by digital information systems, and these digital systems in turn owe their capability to the strength and operation of software programs (software). The practice of law in the software intellectual property law field often require the integrative thinking; as well, to understand the adequacy of existing laws to the challenges posed by computer software may encourage the development of technologies and achieve the best solution in helping the industry grow. Though the laws to protect computer software nowadays among the international communities are covered by copyright, patent, semiconductor chip protection, trade secret, contract, trademark, unfair competition, international trade, criminal law, design and consumer protection;[6] the present case discussed merely only about copyright law.

Patent law is an almost complete form of intellectual property protections; it is the main protection for computer hardware systems and become more important as an option for protection for software programs in USA. Copyright law was not in the main focus of software prior to 1980's before the software programs protection amendment to the copyright law has been passed in the United States.[7] Copyright law protects the expression of the software programs. Ideas, processes, and functions are not protected under copyright law, but may be protected under trade secret or patent law. The main protection of software programs historically was trade secret law in the United States and similar protections elsewhere.[8]

---

[2] The U.S. Patent No. 6,910,205 ("the '205 patent") is specifically mentioned in this paper for the replication of the SSO of the APIs by Google; Oracle's complaint claimed on seven patent infringements by Google, including U.S. Patent No.: 6,125,447 ("the '447 patent"), 6,192, 476 ("the '476 patent", 5,996,702 ("the '702 patent"), 7,426,720 ("the '720 patent"), RE38, 104 ("the '104 patent"), 6,910, 205 ("the '205 patent"), and 6,061, 520 ("the '520 patent").

[3] *See Oracle America, Inc. v. Google, Inc.*, *supra* note 1 at 988.

[4] *See* Oracle America, Inc. v. Google Inc., 750 F. 3d 1339 (Fed. Cir. 2014).

[5] *See* Oracle Am., Inc. v. Google Inc., 2016 U.S. Dist. LEXIS 74931, 2016 Copy. L. Rep. (CCH) P30,939 (N.D. Cal. June 8, 2016).

[6] *See* ROBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE, 12 (2nd ed., Aspen Publishers 2000).

7 See Raymond T. Nimmer, The Law of Computer Technology I-2 (4th ed., West Publishing 2009).

8 Id. at I-4~5.

The case *Oracle v. Google* creates another trend for the court when evaluating intellectual property protections for open source software;[9] however, for the limitation of time and space, this paper may not discuss the complexity of open source software. The following sections of this paper will provide firstly the copyright discussion for software programs in the United States, then the *Oracle v. Google* case and its copyright issues. Finally, in the conclusion, this paper will provide a view on whether copyright protection is a proper way protecting software, how developers do or shall do under current trends of intellectual property laws and an industry-wide suggestion.

II. Copyright Protection for Computer Software

Copyright law in the United States is part of federal law, and is authorized by the U.S. Constitution, pursuant to the constitutional clause, Congress adopted a copyright statute in 1790 and since that time, the law has substantially revised or rewritten four times in 1831, 1870, 1909 and 1976.[10] Besides the patent protection, copyright is also considered as important aspects when software programs seek for intellectual property protections.[11] The copyright law of the United States governs the legally enforceable rights of creative and artistic works under the laws of the United States.[12] Until recently, copyright was not regarded as being of much relevance to the sale of products other than traditionally "artistic" products[13] such as books and gramophone records.[14] Today, copyright laws in the United States protects virtually all "original works of authorship,"[15] all of the Acts have required deposit or registration of the protected work to varying degrees either with a United States District Court, the Secretary of State or, as is presently the case, the Register of Copyrights.[16] However, in addition to these traditional areas, copyright has

9 See Maxim V. Tsotsorin, Open Source Software Compliance: The Devil Is Not So Black as He Is Painted, 29 Santa Clara Computer & High Tech. L.J. 559, 577 (2013).

10 Bob Zeidman, The Software IP Detective's Handbook 63 (Prentice Hall 2011), ("Two short software programs were submitted on April 20, 1964 by John Francis Banzhaf III, a Columbia University Law School student assigned to research and draft a note for the Columbia L. Rev. on whether software programs and other software could be protected under U.S. copyright law; One software programs were submitted as a printout published in the Columbia Law School News on April 20, 1964, while the other was on magnetic tape. The copyrights for both student software programs were registered in May 1964, and North American Aviation's software programs was registered in June 1964.")

11 See Thorne D. Harris III, the Legal Guide to Computer Software Protection: A Practical Handbook on Copyrights, Trademarks, Publishing and Trade Secrets 43 (Prentice-Hall, Inc.1985).

12 See Roger D. Blair and Thomas F. Cotter, Intellectual Property – Economic and Legal Dimensions of Rights and Remedies 26 (Cambridge University Press 2005).

13 *See* OBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 349 (2nd ed., Aspen Law & Business 2000).

14 *See* LEE GURGUNDER, LEGAL ASPECTS OF MANAGING TECHNOLOGY 7 (4th ed., Thomson West 2007).

15 17 U.S.C. §101 (1976).

16 *See* ARTHUR R. MILLER AND MICHAEL H. DAVIS, INTELLECTUAL PROPERTY IN A NUTSHELL –

become an extremely important weapon in preventing piracy of computer software[17] and preventing copying of various useful items to which "art" has been applied.[18] While many of the legal principles and policy debates concerning software copyright have close parallels in other domains of copyright law, there are a number of distinctive issues that arise with software. Not every software developer has either the time or the funds to register every software product they develop with the Copyright office of the Library of Congress.[19] Besides, during the development state, the software product matures and changes so rapidly that copyright protection at this stage simply is not the best means of protecting a developer's intellectual property. In this scenario, some may think it is best for the software developer to rely upon trade secret protection for software.[20]

PATENTS, TRADEMARKS AND COPYRIGHT 284 (West Publishing 1990).

[17] *See* Irah Donner, *The Copyright Clause of the U. S. Constitution: Why Did the Framers Include It with Unanimous Approval?* 36 AM. J. L. HIS. 361,363 (1992).

[18] *See* PETER B. MAGGS, JOHN T. SOMA, & JAMES A. SPROWL, COMPUTER LAW 3 (West Publishing 1992).

[19] *See* SHELDON W. HALPERN, CRAIG ALLEN NARD, KENNETH L. PORT, FUNDAMENTALS OF UNITED STATES INTELLECTUAL PROPERTY LAW : COPYRIGHT, PATENT, TRADEMARK 280-1 (2nd ed., Kluwer Law International 2007).

[20] *See* Maayan Perel, *Reviving the Gatekeeping Function: Optimizing the Exclusion Potential of Subject Matter Eligibility*, 23 ALB. L.J. SCI. & TECH. 237, 241 (2013).

A. The Protection and Scope of Software Copyright

The Copyright Office had prior to the passage of the present copyright statute, accepted certain software programs for registration; [21] moreover, after 1980, Congress erased any doubt that software programs any embody the subject matter of statutory copyright.[22] Software programs have been accepted by the Copyright office for copyright registration for years;[23] mere registration did not make them copyrightable, but did reflect that programs have sufficient originality and authorship to be copyrightable and do not suffer from the fata defects of the utility-nonutility or idea-expression dichotomies.[24] The Copyright Act defines a software programs as "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result."[25] With certain highly specific exceptions, software programs are not treated by the Copyright Act as a special category of intellectual property, subject to idiosyncratic rules.

1. Source code and object code

With respect to the literal work constituting the software programs in which the literary work is written, "source code" is written in a programming language while "object code" is understood by the machine from the translation of computers. In computer science, source code is any collection of computer instructions; software programmers write in a programing language and there is no doubt about the availability of copyright protection for source code, [26] though most cases programmers keep the source code as a trade secret and do not distribute it. The source code of a programming language is specially designed to facilitate the work of software programmers, who specify the actions to be performed by a computer mostly by writing source code. Copyright can protect source code for it involves substantial individuality and reflects personal choices in selecting variable names,

---

[21] *See* U.S. COPYRIGHT OFFICE, COPYRIGHT REGISTRATION FOR SOFTWARE PROGRAMS 361 (Bull. Copyright Society 1964); *see also* Pamela Samuelson, *Creating A New Kind of Intellectual Property: Applying the Lessons of the Chip Law to Software programs*, 70 MINN. L. REV. 471, 472 (1985).

[22] *See* NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT 12-3 (1979), *see also* Michael S. Keplinger, *Computer Software--Its Nature and Its Protection*, 30 EMORY L. J. 483, 487 (1981).

[23] *See* Tyler T. Ochoa, *Copyright Duration: Theories and Practice*, in PETER K. YU, INTELLECTUAL PROPERTY AND INFORMATION WEALTH, ISSUES AND PRACTICES IN THE DIGITAL AGE VOL. 1 COPYRIGHT 133, 142-4 (Praeger Publishers 2007).

[24] *See* MILLER & DAVIS, *supra* note 16 at 307.

[25] 17 U.S.C. §101(1976).

[26] 17 U.S.C. §117(1976), ("the 1976 Act was amended in 1980 to allow for the copyrightability of software programs; CONTU made three recommendations: (1) that software programs be copyrightable, (2) that the new Act apply to all computer uses of copyrighted programs, and (3) that owners of copyrighted programs be allowed to copy those programs to the extent necessary to use them effectively without incurring liability for infringement.")

organizing how they appear in sequence, developing output, and designing other aspects of the program, and they constitute expression.[27]

Object code, or sometimes object module, is what a computer compiler produces. In a general sense object code is a sequence of statements or instructions in a computer language, usually a machine code language or an intermediate language. The object code may also be copyrightable and classified as a literary work and thus under the protection of copyright[28] and there is no difference for legal purposes between the source code and the object code and emphasized the copyrightability of both source code and object code.[29]

2. Processes

While source code and object code is copyrightable, processes are unprotected.[30] The essentially utilitarian nature of a software programs further complicates the task of distilling its idea from its expression; in order to describe both computational processes and abstract ideas, its content "combines creative and technical expression."[31] The legislative history indicates that section 102(b) was intended to make clear that the expression adopted by the programmer is the copyrightable element in a software programs. It is a method of operating and a choice to create a particular command system and specific words are essential to operating something, which is unprotectable.[32] However, there is a critical consideration whether more than a limited number of ways exist to process or express the idea of the operating system and whether operating system programs are not per se excluded from copyright.[33]

3. Subject Matter and Its Copyrightability

These categories are not meant to be exclusive, rather they function as administrative categories employed in registering copyrighted works. The fundamental concept is that, except as specifically excluded, all original creative expression fixed in a tangible medium of expression is eligible for copyright protection.[34] Purely utilitarian objects are not subject to copyright protection;

---

[27] *See* NIMMER, *supra* note 7 at I-43.

[28] *See* Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240,1243 (3d Cir. 1983), ("the definition of "literary works" in Section 101 includes expression not only in words but also "numbers, or other…numerical symbols or indicia", thereby expanding the common usage of "literary works" thus a software programs, whether in object code or source code, is a "literary work" and is protected from unauthorized copying, whether from its object or source code version.")

[29] *See GCA Corporation v. Chance* et al., 217 U.S.P.Q. 718,719 (N.D.Cal.1982).

[30] 17 U.S.C. §102(b)(1976).

[31] *See* SAS Inst., Inc. v. S&H Computer Sys., Inc., 568 F. Supp. 416,422-3 (M.D. Tenn. 1983).

[32] *See* Lotus Development Corporation v. Borland International, Inc., 516 U.S. 233, 245 (1996).

[33] *See Apple Computer, Inc. v. Franklin Computer Corp., supra* note 28 at 1243-5.

[34] *See* SHELDON W. HALPERN, CRAIG ALLEN NARD, KENNETH L. PORT, FUNDAMENTALS OF UNITED

however, to the extent a work is non-utilitarian or with respect to those separable portions of a work that are non-utilitarian, there is no reason to deny copyright protection assuming it is statutorily authorized.[35]

B. Issues in Copyright Protection for Software programs

As described set forth in the previous section, software programs, to the extent that they embody an author's original creation, are proper subject matter of copyright; in 1980, the United States Congress added the definition of "software programs" to Copyright Act[36] and amended to allow the owner of the program to make another copy or adaptation for use on a computer[37] and plus court decisions such as *Apple v. Franklin* clarified that the Copyright Act gave software programs the copyright status of literary works.

In software design, look and feel is a term used in respect of a graphical user interface (GUI) and comprises aspects of its design, including elements such as colors, shapes, layout, and typefaces (the "look"), as well as the behavior of dynamic elements such as buttons, boxes, and menus (the "feel"). The term can also refer to aspects of an API, mostly to parts of an API which are not related to its functional properties; it is used in reference to both software and websites. However, user interfaces are governed by market standards and functional considerations; therefore, the significant problems and controversial issues relating to software programs is to determine when and how to protect the detailed structural elements of a program. The designation of the first of the so-called "look-and-feel" computer cases *Whelan v. Jaslow*[38] was derived from the court's willingness to have copyright protect the structure, sequence and organization of a program. It is frequently difficult to distinguish the idea from the expression since the decision is inevitably ad hoc.[39] Most of the object codes is compiled by computer, when the courts use the view of the works of authorship standard, issues may occurred, if a copyright is claimed in a work written in machine-readable codes and the copying is of the literal aspect of a software programs, the results favor the claimant.[40]

STATES INTELLECTUAL PROPERTY LAW: COPYRIGHT, PATENT, TRADEMARK 5 (2nd ed., Alphen an den Rijn, The Netherlands : Kluwer Law International 2007).

35 17 U.S.C. §102(a) (1976); see also MILLER & DAVIS, *supra* note 16 at 296-297.

36 17 U.S.C. §101 (1976).

37 17 U.S.C. §117 (1976).

38 *See* Source Material. Whelan Association v. Jaslow Dental Lab, Inc., 797 F.2d 1222, 1230 (3d Cir. 1986).

39 *Id.* at 1230.

40 *See* Atari Games Corp. v. Oman, 693 F. Su 1204,1205 (D.D.C. 1988), ("the Copyright clause of the Constitution has been interpreted by the United States Supreme Court to limit the term authors and also to limit Congress' authority to determine what subject matter may be covered by copyright legislations.")

Originality is another doctrine which limits the scope of protection. The concept of "authorship" has been reproduced and transformed in U.S. copyright law regarding computer software; the notion of authorship is arguably the most central concept of the copyright doctrine. Most of software are programmed in certain 'language', such as Java in the present case, developers or programmers usually use common libraries or codes to write the applications. What makes them different is when different combinations are used by programmers and compiled into new applications; therefore, it is difficult to identify which part can be considered as original. There also exists in any claim of statutory copyright, including one relating to a software programs, an issue of originality; it is the work of authorship issue that has proven most controversial in the area of software programs. As to the originality issue, any claim to statutory copyright requires at a minimum the act of independent intellectual creations.[41]

III. Oracle v. Google, the Copyright Case and the Legal Issues

Although the case between Oracle and Google involves not only about copyright, but also patent infringement and issues regarding trade secret;[42] as to this day on October 26th, 2016 when Oracle officially filed an appeal to its loss in "fair use" on the ground to Federal Circuit, this case has turned into copyright infringement dispute only.[43] In this session, the paper will briefly introduce the facts presenting from the very beginning and why it has turned to solely copyright dispute and the issue remained and discuss how the findings impact both to copyright law and software developers**.**

A. Factual Background

Oracle accuses Google of infringing some of Oracle's Java-related copyrights in portions of Google's Android software program. These specific accusations are regarding 12 code files and 37 specifications for APIs[44] packages. The Java technology and the basics of object-oriented programming were explained in the

---

[41] *Id.at* 1207.

[42] *See Oracle America, Inc. v. Google, Inc., supra* note 1 at 976-8.

[43] *See Oracle America, Inc. v. Google, Inc., supra* note 4 at 1347.

[44] Java™ Platform Standard Edition 7 API Specification, *available at* https://docs.oracle.com/javase/7/docs/API/ ("An API allows software programs to communicate with each other. It is a set of definitions controlling how the services of a particular program can be summoned, including what types of input the program must be given and what kind of output will be returned; APISs are usually made of "methods" or "functions," which are software programs that perform particular services. Methods must be defined before usage, by stating its name and describing its argument(s) and return(s) according to syntax conventions. Once a method has been declared, it can be documented and implemented. Documentation is not a code; it is a reference item providing programmers with information about the method, its requirements, and its use. Implementation is a code that actually tells the computer how to carry out the method. Multiple implementations are likely for a given method." last visited Feb. 5, 2017).

claim construction order. An overview of APIs and their role in Java and Android are as follows. Java was originally developed by Sun Microsystems starting in 1991. It comprised a new programming language, a virtual machine, and a set of libraries for use with the language.[45] Java and Android are both complex software platforms with several components. Java programming has been made freely available for use by anyone without charge; both sides agree on this. Oracle alleges that other aspects of the Java platform, such as the virtual machine and class libraries, however, are protected by patents and copyrights. The Android platform uses the Java programming language, thereby allowing software developers who already use the Java language to continue using the same language to write programs for Android. Google released a beta of the Android platform on November 5, 2007, noting that it would use some Java technologies including some of the APIs from Java SE; Google negotiated with Sun about possible partnership and licensing deals for Java, but no agreement was reached. In 2010, Oracle became the owner of Java when it acquired Sun Microsystems and subsequently sued Google over allegations that the Android mobile operating system violated copyrights and patents on Java and Oracle sued Google for copyright and patent infringement in August 2010.

[45] Jon Byous, *Java Technology: The Early Years*, SUN DEVELOPER NETWORK (April 2003), *available at* http://web.archive.org/web/20080530073139/http://java.sun.com/features/1998/05/birthday.html (last visited Feb. 5, 2017).

B. Issues

The central issues of the case involve whether Oracle's Java APIs are subject to copyright protection and if so, whether Google's Android Operating System infringed this protection. The copyrightability was brought out in the lower court regarding the structure, sequence and organization and after the appealed court reversing the decision and return the "fair use" part, it became the major issue in discussion of the present case.

C. Holdings

The case was brought to the United States District Court for the Northern District of California, and was assigned to Judge William Alsup, who split the case into three phases: copyright, patent, and damages. This paper may not introduce or discuss the underlying arguments regarding patent and other issues than copyright.

The copyright phase consisted of several distinct claims of infringement: a nine-line rangeCheck function, several test files, the structure, sequence and organization of the API, and the API documentation as well as 8 decompiled security files. The jury ruled that the API was infringed, but deadlocked on Google's fair use defense for this claim. They also found that rangeCheck was infringed, but that neither the documentation nor the other literal code was.[46] The court upheld the jury verdict on rangeCheck, though it was described as "overblown"; the ruling found that the structure Oracle was claiming was not copyrightable under section 102(b) of the Copyright Act because it was a "system or method of operation.[47] Both Oracle and Google appealed, the Federal Circuit reversed the copyrightability ruled by the district court, remain the ruling of the 8 decompiled security files, but reversed 'fair use' part to the district court. Google then appealed to the Supreme Court, but was certiorari denied.[48] As to the 'fair use' part, the jury has ruled in the favor to Google. Oracle appealed again in its loss on 'fair use' ground to the US Court of Appeal for Federal Circuit.[49]

---

[46] *See Oracle America, Inc. v. Google, Inc., supra note* 4.at 1351.

[47] *See* Josh Lowensohn, *Jury clears Google of infringing on Oracle's patents,* BETWEEN THE LINES (May 23, 2012), *available at* http://www.zdnet.com/blog/btl/jury-clears-google-of-infringing-on-oracle-patents/77897, (last visited Feb. 5, 2017); *see also* Joe Mullin, *Google wins crucial API ruling, Oracle's case decimated,* ARS TECHNICA (May 31, 2012), *available at* http://arstechnica.com/tech-policy/2012/05/google-wins-crucial-api-ruling-oracles-case-decimated/ (last visited Feb. 5, 2017).

[48] *See* Google, Inc. v. Oracle Am. (Google II), 750 F.3d 1339 (Fed. Cir. 2014), cert. denied, 135 S.Ct. 2887 (U.S. Jun. 29, 2015) (No. 14-410).

[49] *See* Joe Mullin, *It's Official: Oracle Will Appeal Its 'Fair Use' Loss Against Google*, ARS TECHNICA, Oct. 28, 2016, *available at* https://arstechnica.com/tech-policy/2016/10/its-official-oracle-will-appeal-its-fair-use-loss-against-google/ (last visited Feb. 7, 2017).

D. Discussion

Copyright protection exists in "original works of authorship fixed in any tangible medium of expression."[50] To succeed in a copyright infringement claim, a plaintiff must show that it owns the copyright and that the defendant copied protected elements of the work.[51] Only expressive elements that are "original" are protected. Google advances many arguments as to why Oracle supposedly cannot prove all or part of its copyright infringement claim. The most significant doctrine limiting the copyrightability of works is the "idea-expression" dichotomy, which is codified in section 102(b);[52] furthermore, section 101 of the Copyright Act defines a "useful article" as an "article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information".[53] Java APIs are commonly used throughout the computer industry to make applications operable across other systems and devices.[54] The decision is crucial because it impacts standard industry practices.[55] Neither courts in present case to this day has directly addressed whether APIs copyrightable.[56] In consideration all relevant cases of computer software, courts shall provide a more comprehensive approach.

As the case proceeds, the debate will likely to continue and may not be reconciled any sooner. If Oracle had won, it would have been a novel case of a company being able to essentially reverse the open-source process by making any commercial use of Java a pay-to-play endeavor. Some speculated an Oracle win could have scared programmers away from Java, but that kind of ruminating is a moot point now and for the Java programmers of the world, things won't really change much.[57] Nevertheless, to the software industry, the issue did not pop up from nowhere and may remain and revolve as even more complicated. Although the decision for now would ensure that programmers or software developers might not be stopped to create newer and perhaps better software, the loss of Oracle might stop those strong and big developers with great resources to invent revealing their sources and turn into trade secret protection. The intellectual property laws are supposed to protects and improve technology. We enjoy what new technology can bring to the

---

[50] *See Oracle America, Inc. v. Google, Inc.*, *supra* note 4 at 1354.
[51] *See* Maayan Perel, *supra* note 20 at 243.
[52] 17 U.S.C. §102(b)(1976); see also *Atari Games Corp. v. Nintendo of Am., Inc.*, 975 F.2d 832, 838 (Fed.Cir.1992).
[53] 17 U.S.C. §101(1976), ("an article that is normally a part of a useful article is considered a 'useful article'.")
[54] *See* Oren J. Warshavsky, et. al, *With High Court Mum on Java Copyright, Is Innovation Safe?* LAW 360, *available at* https://www.law360.com/articles/674082/with-high-court-mum-on-java-copyrights-is-innovation-safe-, (last visited Feb. 7, 2017).
[55] *See* Deba Alam, *Oracle America, Inc. v. Google, Inc.: The Battle Over APIs Continues*, 26 DEPAUL J. ART TECH. & INTELL. PROP. L. 39, 39 (2015).
[56] *Id*. at 39.
[57] *See* Alexander D. Northover, "*Enough and as Good" in the Intellectual Commons: a Lockean Theory of Copyright and the Merger Doctrine*, 65 EMORY L.J. 1363, 1393 (2016).

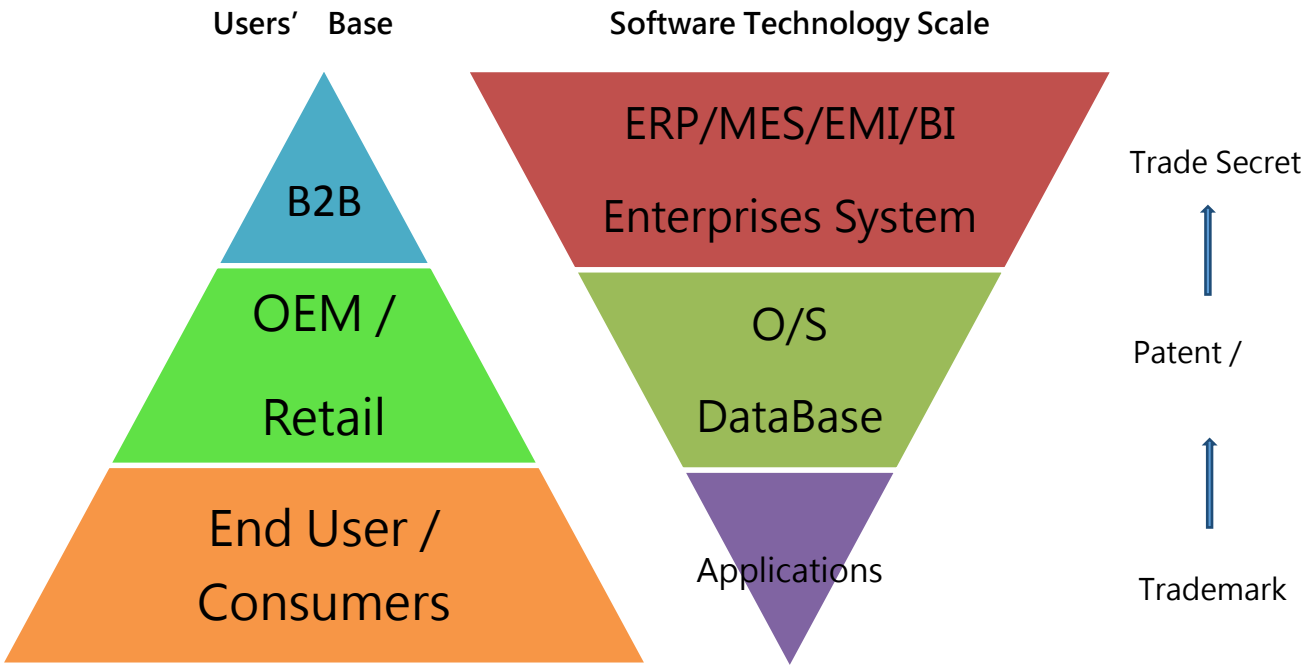
convenience of our lives, and we will enjoy more if the protection from the laws may encourage more inventions. It is hoped that, software industry and the law will mature to the extent that the conflicts and the problems will diminish and all concerned will make benefit only and for the industry to legally protect the works while maximizing the usefulness and ultimately the best law system of all.

IV. Conclusion

Copyright protection for software program is not efficient, and is not sufficient. It happens only with the past decades, those major computer-related products providers started an intellectual property war in different courts all over the world.58 Oracle spent many millions or tens of millions on the legal crusade, it somehow came up empty at this time. The issues associated with four elements of a software program: the program function, the external design, the user interface design, and the program code. Copyright covers the later part of the program code only, and that is why I believe when the present case leaves the argument to copyright, Oracle has fewer chance to a material win.

The company may have a sales strategy and a long-range view of know-how, but the legal protection of its intellectual property becomes an after-thought. Before making any suggestion to software developers and/or legal professions in the industry, we have to recognize that the industry is actually no longer a simple and single type of industry. It is not just what makes machines or hardware functioning; software applications grow to used on all kinds of devices, the program to communicate between devices, handshaking between systems, web technology, applications on computers and mobile devices, and cloud services.

[58] *See* Brittany Hort, *Jury Decides Google Did Not Infringe Oracle Patents but Question of Whether APIs Can Be Copyrighted Remains*, 26 HARV. J. L. & TECH 69,133 (May 30, 2012).



Understanding the feature of software industry is very important, and it makes more sense to view on the above graph that how the users' base reacts with software technology scale, hence why and what different IP protection they shall seek for. The largest base of users is those applications on computers and mobile devices, including personal daily use and plant floor instruments (ie. manufacturing equipment, inspection devices, barcode readers, etc.), and the threshold of this kind of software is relatively low. Therefore, those independent developers may not have the intend to care about protecting their intellectual properties of any kind for the rapid change of the development and the functions are common in the most current trend. Trademark may be the only consideration for developers, such as Microsoft, Apple or Google, to seek for IP protection to be recognized by users. In the mid-level software, it is dominant by a few providers, Windows (Microsoft, Inc.), OSx (Apple, Inc.), and Unix (Novell, Inc.) for computers, and iOS (Apple, Inc.), Android (Google, Inc.) and Windows (Microsoft, Inc.) for mobile devices. As their adopters are those OEM vendors or retailers, and the competition among those providers is not diametrically opposed, patent protects the idea while copyright protects the appearance, shall be the most effective portfolio for their IP protections. Finally, the B2B software, ERP (Enterprises Resources Plans), MES (Manufacturing Execution System), EMI (Enterprises Manufacturing Intelligence), and BI (Business Intelligence), these system-wise software requires full-skilled implementations and high-threshold technologies. GE (General Electronics), IBM (International Business Machine), NI (National Instrument), SAP, Oracle, Honeywell, Rockwell, those giant system developers, play the major roles in this part. The complexity of their

technologies contains tons of domain knowledge, trade secret is the only way they use and they shall use for their IP protections. Almost all of them compile program codes before release to their customers. Hence, this article found that although the case draws lots of discussions, specifically on copyright protection, software industry may not be impacted too much for protecting their programs intellectually.

BIBLIOGRAPHY

Books

Blair , Roger D. & Cotter , Thomas F., Intellectual Property – Economic and Legal Dimensions of Rights and Remedies (Cambridge University Press 2005).

Gurgunder, Lee, Legal Aspects of Managing Technology (4th Ed., Thomson West 2007).

Halpern, Sheldon W., Nard, Craig Allen, & Port, Kenneth L., Fundamentals of United States intellectual property law : copyright, patent, trademark (2nd Ed., Alphen an den Rijn, The Netherlands : Kluwer Law International 2007).

Harris III , Thorne D., the Legal Guide to Computer Software Protection: A Practical Handbook on Copyrights, Trademarks, Publishing and Trade Secrets (Prentice-Hall, Inc.1985).

Maggs, Peter B., Soma, John T. & James A. Sprowl, Computer Law (West Publishing 1992).

Merges, Robert P., Menell , Peter S. & Lemley, Mark A., Intellectual Property in the New Technological Age (2nd Ed., Aspen Publishers 2000).

Miller , Arthur R. & Davis, Michael H., Intellectual Property in a Nutshell – Patents, Trademarks and Copyright (West Publishing 1990).

Nimmer, Raymond T., The Law of Computer Technology (4th Ed., West Publishing 2009).

Periodicals

Alam, Deba, *Oracle America, Inc. v. Google, Inc.: The Battle Over APIs Continues*, 26 DePaul J. Art Tech. & Intell. Prop. L. 39 (2015).

Donner, Irah, *"The Copyright Clause of the U. S. Constitution: Why Did the Framers Include It with Unanimous Approval?* 36 Am. J. L. His. 361 (July 1992).

Hort, Brittany, *Jury Decides Google Did Not Infringe Oracle Patents but Question of Whether APIs Can Be Copyrighted Remains,* 26 Harv. J. L. & Tech 69 (May 30, 2012).

Keplinger, Michael S., *Computer Software--Its Nature and Its Protection*, 30 Emory L. J. 483 (1981).

Northover, Alexander D., "*Enough and as Good" in the Intellectual Commons: a Lockean Theory of Copyright and the Merger Doctrine*, 65 Emory L.J. 1363 (2016).

Ochoa, Tyler T., *Copyright Duration: Theories and Practice*, in Peter K. Yu, Intellectual Property and Information Wealth, Issues and Practices in the Digital Age Vol. 1 Copyright 133 (Praeger Publishers 2007).

Perel, Maayan, *Reviving the Gatekeeping Function: Optimizing the Exclusion Potential of Subject Matter Eligibility*, 23 Alb. L.J. Sci. & Tech. 237 (2013).

Samuelson, Pamela, *Creating A New Kind of Intellectual Property: Applying the Lessons of the Chip Law to Software programs*, 70 Minn. L. Rev. 471 (1985).

A Comparative Study Of Electronic Database And Copyright Protection

Qing Hui Chang

Graduate student

Graduate Institute of Intellectual Property, National Taipei University of Technology, Taiwan

ABSTRACT

The overall characteristics and applications of databases, in particular those which are electronic, are described in the context of the protection of intellectual property rights. Although databases may contain vast quantities of highly important and useful data, and may in some cases be the result of hundreds of thousands of man-hours of work (data collection, database management systems…), copyright protection of this work is not always guaranteed. This study presents the main characteristics of several copyright protection directives, based in several different countries or regions, showing that under some circumstances a database can be granted copyright protection, whereas under different circumstances, or in different countries, the same database may not receive a similar legal protection.

Keywords: database, data, copyright protection, European Database Directive, WIPO, Berne Convention

I. Introduction

A database is an organized collection of data,[1] which may include collections of drawings, queries, reports, statistics, and many other types of object. This data is typically organized in such a way as to model several aspects of reality, and to support the electronic (or other) processes used to access and filter this information. As a simple example, a database containing information from all of the world's airlines should allow travelers to find all possible flight connections and prices, between a selected point of departure and a required destination, on any given date.

Databases can be classified according to the nature of their contents, for example: document-text, statistical, bibliographic or multimedia objects. Another approach is to classify databases according to their field of application area, such as: books, films, banking, musical compositions, manufacturing, or insurance. A third approach involves the identification of various technical aspects of the database, such as its structure or type of interface.

When combined with various other forms of digital technology, the internet provides the modern world with many different tools, allowing individuals, administrations and businesses to access enormous quantities of data that can be used for research and many other information-related requirements. In recent years, an increasing number of abstracting services have begun to publish information in electronic format only. This means that, instead of using a printed index, a user can now search for relevant information from his/her computer. The benefits of using electronic resources are that they provide us with vast amounts of information, which in many cases require further analysis in order for the most useful and pertinent details to be identified.

For decades, the question of how and whether databases should be protected by law has never been easy to answer, since it is necessary to find a balance between the needs of society and those of its business activities: the former can be satisfied by ensuring that the public has access to the information contained in databases, whereas the expectations of the database owners can be met by providing adequate incentives to keep companies profitable and lean. At different points in time, and in different societies, the balance has been struck in different ways and in different places.

The value of a database can be measured by the completeness and accuracy of the information it contains, as well as the efficiency with which it has been organized and its data can be searched. Considerable time, effort, expense, together with specific skills and specialized equipment, are needed to ensure the completeness of a database, whereas ingenious, creative design and excellent computer programs are

[1] Database – Definition of database by Merriam-Webster, https://www.merriam-webster.com/dictionary/database (last visited May 31,2017)

key requirements when it comes to ensuring its accuracy and efficiency. A well-known example of a fast and efficient database is given by the (almost) universally accessible Google search engine.

The purpose of this report is to provide an overall description of electronic databases, while focusing on various issues related to copyright legislation in the context of international treaties, as well as in the legal systems of some specific countries. In particular, the copyright legislation of two neighboring Asian countries is compared with that enacted by several different international conventions and treaties.

II. Database copyright protection in international treaties

A. The Berne Convention

The Berne Convention for the Protection of Literary and Artistic Works, usually known as the "Berne Convention", is the preeminent treaty in the field of copyright protection, which was first established in Bern, Switzerland, in 1886.[2] Countries bound by the Berne Convention are required to protect "Collections of literary or artistic works such as encyclopedias and anthologies which, by reason of the selection and arrangement of their contents, constitute intellectual creations."[3]

Although the Berne convention's reference to "literary and artistic works" and "intellectual creations" means that it may protect databases, which constitute a creative compilation, this does not extend to the protection of non-creative databases. In particular, the Berne Convention recognizes the following exclusive rights of authorization for authors: the right to translate, the right to make adaptations and arrangements of the work, the right to perform dramatic and musical works in public, the right to recite literary works in public, the right to communicate the performance of such works to the public, the right to broadcast (radio, television, etc.), and the right to make reproductions.[4]

Specific examples of protected collections are given by encyclopedias and anthologies, which consist in independently copyrightable contributions. The

[2] Berne Convention for the Protection of Literary and Artistic Works, September 9, 1886, as last revised at Paris, July 24, 1971 (admended 1979), [hereinafter Bern Convention], 25 U.S.T. 1341, 828 U.N.T.S 221

[3] Id, art.2(5)

[4] Summary of the Berne Convention (1886), http://www.wipo.int/treaties/en/ip/berne/summary_berne.html (last visited May 31, 2017)

convention's specific reference to "collections of literary and artistic works" may raise the question as to whether the copyright protection of databases can include that of non-copyrightable data elements. In fact, most valuable databases frequently comprise both copyrightable and non-copyrightable data elements that are selected and organized in a manner that creates economic and societal value.

B. The TRIPS Agreement

The TRIPS Agreement[5] requires its signatories to enact minimum substantive standards of protection in virtually all fields of intellectual property. With regard to databases, Article 10.2 of the TRIPS Agreement requires that "compilations of data or other material" shall be protected by copyright, only if the arrangement of the contents constitutes the author's own "intellectual creation".[6]

The TRIPS Agreement also improves the scope of protection with respect to that provided by the existing Berne Convention. The TRIPS Agreement clarifies that databases and other compilations of data or other material shall be protected under copyright, even where the databases include data that are not protected under copyright. The provision also confirms that databases are protected regardless of whether they are in machine readable or any other form. It is stated that copyright protection for compilations under the TRIPS Agreement "shall not extend to the data or material itself, and that it shall be without prejudice to any copyright subsisting in the data or material itself".[7]

In addition, the TRIPs Agreement contains another provision stating that "copyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such."[8]

---

[5]Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C; LEGAL INSTRUMENTS-RESULTS OF THE URUGUAY ROUND vol. 31, 33 I.L.M. 81 (1994) [hereinafter TRIPS Agreement].

[6] TRIPS Agreement, art 10(2]: "Compilations of data or other material, which in machine readable or other form, which by reason of the selection or arrangement of their contents constitute intellectual creations shall be protected as such. Such protection, which shall not extend to the data or material itself, shall be without prejudice to any copyright subsisting in the data or material itself. "

[7] Id.

[8] Id, art 9(2)

Consequently, under the TRIPS agreement, the compilation of copyright and non-copyright material is protected, provided the requisite level of originality in the selection or arrangement is satisfied.

C. The WIPO Copyright treaty

The WIPO Copyright Treaty originated in a WIPO work program, and was intended to update the Berne Convention. This work program, which began in 1989, was known as the "Berne Protocol" process. In February 1996, it was adopted by the member states of the World Intellectual Property Organization (WIPO).[9]

Concerning database protection, Article 5 of the WIPO Copyright Treaty is substantially similar to the provisions of Article 10.2 in the TRIPS Agreement. This new intellectual property treaty establishes a legal obligation to protect compilations of data which are a result of intellectual effort. It provides that "Compilations of data or other material, in any form, which by reason of the selection or arrangement of their contents constitute intellectual creations, are protected as such. This protection does not extend to the data or the material itself and is without prejudice to any copyright subsisting in the data or material contained in the compilation". In other words, the elements of data themselves are not subject to copyright protection, unless they already contain copyrighted materials; it is only the database itself (the way in which the data is collected and arranged) that is subject to the directive.

The 1996 Geneva Diplomatic Conference also adopted an "agreed statement," with the aim of interpreting the database protection obligations under the Berne Convention, the TRIPS Agreement, and the WIPO Copyright Treaty. This statement reads as follows:

"The scope of protection for compilations of data (databases) under Article 5 of this Treaty, read with Article 2, is consistent with Article 2 of the Berne Convention and on a par with the relevant provisions of the TRIPS Agreement."

[9] WIPO Copyright Treaty, December 20, 1996, 36 I.L.M. 65 (1997), http://www.wipo.int/treaties/en/text.jsp?file_id=295166 (last visited May 31, 2017).

III. Protection for databases in the European database directive

A. Background

The European directive concerning the legal protection of databases was adopted in February 1996.[10] There were a number of factors that led the European Union (EU) to harmonize the law concerning database protection. The rapid expansion of the Internet raised the EU's awareness of *"the exponential growth, in the Community and worldwide, in the amount of information generated and processed annually in all sectors of commerce and industry,"* and the important role of databases *"in the development of an information market within the community".*[11] The EU also expressed concerns about the *"very great imbalance in the level of investment in the database sector both as between the Member States and between the Community and the world's largest database-producing third countries".*[12]

As adopted, the directive establishes a dual system for database protection. One component is copyright protection for the "structure" of the database.[13] In other words, the Directive provides that databases shall be protected under copyright law, whenever the selection or arrangement of the contents constitutes the author's own intellectual creation. The other component is a *sui generis* intellectual property right with respect to the contents of the database. This right prohibits the extraction or reutilization of any database in which there has been a substantial investment in either obtaining, verifying, or presenting the data contents. Under this second right, there is no requirement for creativity or originality.[14]

---

[10] Directive 96/9/EC of the European Parliament and of the Council of the European Union of 11 March 1996 on the legal protection of databases, 1996 O.J. (L 77/20) [hereinafter Database Directive].

[11] Database Directive, recitals (10), (9)

[12] Id. recitals (11)

[13] Id. recitals (15)

[14] Daniel A.Tysver, Database Legal Protection (2015), http://www.bitlaw.com/copyright/database.html (last visited May 31, 2017).

B. Copyright protection

Copyright protection for databases is regulated in Article 3.2 of the directive. Accordingly, databases, "*by reason of the selection or arrangement of their contents, constitute the author's own intellectual creation*", are protected by collections and "*shall not extend to their contents and shall be without prejudice to any rights subsisting in those contents themselves.*"[15] There is a slight difference between this article and the criterion for the protection of collections under the Berne Convention for the Protection of Literary and Artistic Works, which covers collections "of literary and artistic works" and requires creativity in the "selection and arrangement" of the contents.

The exclusive rights of the copyright owner ("restricted acts") under the directive are reproduction, adaptation, distribution, and communication, display or performance to the public.[16] Authorization is not required for a lawful user to engage in any restricted act "which is necessary for the purposes of access to the contents of the database and normal use of the contents."[17]

In addition, the directive permits member states to provide for limitations on restricted acts in the following cases:

(a) in the case of reproduction for private purposes of a non-electronic database;

(b) where there is use for the sole purpose of illustration for teaching or scientific research, as long as the source is indicated and to the extent justified by the non-commercial purpose to be achieved;

(c) where there is use for the purposes of public security or for the purposes of an administrative or judicial procedure;

(d) where other exceptions to copyright which are traditionally authorized under national law are involved, without prejudice to points (a), (b) and (c).[18]

[15] *Supra* note 11, art.3(2)
[16] Id. art.5
[17] Id. art.6(1)
[18] Id. art.6(2)

C. Sui Generis Protection

A *sui generis* database right is considered to be a property right, which is comparable to, but distinct from copyright. This right was introduced as a means to recognize the investment that is made in compiling a database, even when this does not involve the "creative" aspect that is reflected by copyright.[19]

Chapter 3 of the directive also specifically establishes a *sui generis* form of protection for database content. The stated justification for database protection is that *"in the absence of a harmonized system of unfair-competition legislation or of case-law, other measures are required in addition to prevent the unauthorized extraction and/or re-utilization of the contents of a database",* [20]and the making of the database *"requires the investment of considerable human, technical and financial resources while such databases can be copied or accessed at a fraction of the cost needed to design them independently*[21]".

Under this second right, there is no requirement for originality or creativity. In particular, it provides databases in Europe with "sweat of the brow" protection for their investments in terms of time, money and effort, irrespective of whether the database is itself an innovative, "non-original" database. The *sui generis* protection runs for fifteen years, starting from "*the date of completion of the making of the database."*[22]

The *sui generis* right granted under the Database Directive is applicable only to databases makers who are EU nationals or habitual residents.[23] For purpose of the directive, this would include companies and firms that have "registered office, central administration, principal place of business" or "ongoing operational link with the economy of a member state" in the Europea Union."[24] Therefore, European companies benefit from greater database protection than non-European companies.

---

[19] The Copyright and and Rights in Databases Regulations (1997). UK Government: "A property right ("database right") subsists, in accordance with this Part, in a database if there has been a substantial investment in obtaining, verifying or presenting the contents of the database."

[20] *Supra* note 11, recitals (6)

[21] Id, recitals (7)

[22] Id, art.10 (1)

[23] Id, art.11 (1)

[24] Id, art.11 (2)

Today, "all Member States of the European Community have transposed the Directive into their national legislation and have acquired considerable positive experience with the functioning of the *sui generis* right."[25]

IV. Copyright protection for databases in the United States

A. Prior to the Feist Case

A compilation is defined under the copyright law of the United State of America as "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. The term "compilation" includes collective works".[26]

Prior to the Feist case, copyright protection for databases in the member states could be divided into two rationales. One rationale, which has come to be known as the "sweat of the brow" doctrine, focused on the effort and investment of the compiler. The other focused on the compiler's judgment and creativity in the selection and arrangement of the materials comprising the compilation.[27]

B. Feist Case

The Rural Telephone Service Company (Rural) (plaintiff) is a providing service in northwest Kansas. Under state regulations, Rural is required to issue an annually updated telephone directory comprising both white pages and yellow pages of northwest Kansas. The white pages contain the names and telephones numbers, in addition to the addresses, of the subscribers. The yellow pages contain names, addresses, and telephone numbers, and feature classified advertisements in various sizes, of business subscribers.

Feist Publications (Feist) (defendant) is a publishing company that specializes in the compilation of a telephone directory covering a large geographic area. The Feist directory covers 11 different telephone service areas in 15 counties, and contains 46,878 white pages listings, compared to Rural's approximately 7,700 listings. Similarly to the Rural directory, the Feist directory is distributed without charge and comprises both white pages and yellow pages.

---

[25] Małgorzata Gajos &, The Legal Protection of Databases in European Union (2003)
[26] 17 U.S.C. § 101.
[27] U.S. Copyright Office, Report on Legal Protection for Databases (1997)

Since Rural is the sole provider of telephone services in its service area, it is easy for it to obtain subscriber-related information, whereas Feist lacks independent access to subscriber information, because it is not a telephone company. To obtain white pages listings for its area-wide directory, Feist offered to pay for the right to use the white pages listings of 11 telephone companies operating in northwest Kansas. Among these 11 telephone companies, only Rural refused to license its listings to Feist, because the two companies compete for advertising revenue. As Feist was unable to license Rural's white pages listings, it used them without Rural's permission. When Rural discovered this, it sued Feist for copyright infringement.

The issue here was to determine whether the white pages of Rural's telephone directory which were the result of "sweat of the brow" or "industrious collection" should have been protected by copyright law.

C. The Court's decision

In The District Court for the district of Kansas, Rural took the position that Feist, in compiling its own directory, could not use the information included in Rural's white pages. Rural asserted that Feist's employees should travel door-to-door or conduct a telephone survey to discover the same information for themselves. Feist responded that such efforts were economically impractical and, in any event, unnecessary because the information copied was beyond the scope of copyright protection.

The case concerns two well-established principles in United States copyright law. The first is that facts are not copyrightable; the other, that compilations of facts can be protected by copyright.

The District Court granted summary judgment to Rural, explaining that "*The issue of whether telephone directories are copyrightable is well-settled. Courts have consistently held that telephone directories are copyrightable*".[28]

However, the United State Supreme Court reversed the District Court's decision, holding that "Rural's white pages telephone directory was not entitled to copyright protection; Rural's selection of listings was "obvious," and its arrangement was "*not only unoriginal, it was practically inevitable*", and that Feist's use of them therefore did not constitute an infringement.[29]

[28] Rural Tel. Service Co. v. Feist Publications, Inc., 663 F. Supp. 214, 218 (D. Kansas. 1987)

[29] Feist Publications, Inc. v. Rural Telephone Service Co., Inc., 499 U.S. 340, 111 S.Ct. 1282, 113

Rural claimed collection copyright for its directory. However, the court clarified that the primary objective of copyright is not to reward the labor of authors that could be described as "sweat of the brow", but "to promote the Progress of Science and useful Arts".[30] This means that it is designed to encourage creative expression.

Concerning the collection of facts, the court stated that a compilation, which is a collection of pre-existing material, facts, or data, is copyrightable only if it satisfies the requirement of being creative or original. However, there was nothing remotely creative about arranging names alphabetically in Rural's white pages directory: "it is an age-old practice, firmly rooted in tradition and so commonplace that it has come to be expected as a matter of course." The fact that Rural spent considerable time and money collecting the data was irrelevant to copyright law, and Rural's copyright claim was dismissed.

This represented a complete reversal of the earlier judicial approach, in which copyright was described as a means for protecting writings that were "*the fruits of intellectual labor*"[31], "*productions of intellect or genius*" [32], or "*original intellectual conceptions of the author*"[33], and that copying of any material from such a compilation could be considered as an infringement of copyright protection.

L.Ed.2d 358 (1991)

[30] Id at 349- 350. See also U.S. CONST. art. 1, § 8, cl. 8

[31] The Trademark Cases, 100 U.S. at 94. See also Higgins, 140 U.S. at 431.

[32] American Tobacco Co. v. Werckmeister, 207 U.S. 284, 291 (1907).

[33] Burrow-Giles, 111 U.S. at 59-60.

V. Copyright protection in Taiwan

A. Taiwan Copyright Act

The protection of databases is regulated under Article 7 of the Taiwan Copyright Act: "A compilation work is a work formed by the creative selection and arrangement of materials, and shall be protected as an independent work. Protection of a compilation work shall not affect the copyright in the work from which the material was selected and arranged".[34]

In addition, a summary judgment was granted by the Taiwan Supreme Court No. 940 (2002) for copyright protection in a civil case: compilation work that is based on the selection and arrangement of materials must present a certain level of creativity, and the individuality of the author, are eligible for copyright protection. If the compilation simply involves hard work for the collection of data, but the selection and arrangement of materials are lacking in creativity, then although the authors may have invested considerable time and expense, it is still difficult to claim copyright protection for their work.[35]

As described above, it can be seen that under Taiwanese law, copyright protection for compilation work is rather stringent. The Taiwan Copyright Act emphasizes the importance of creativity in the selection and arrangement of the compiled data. As a consequence, the concepts of "sweat of the brow" or "the fruits of intellectual labor", for those who invested a significant amount of time and energy in their work, but are lacking in creativity, are still not protected by copyright.

B. Case Study and Decision

The Angle publishing Co., Ltd (Angle) (defendant) illegally hired students at NTD$0.7 to NTD$0.8 per document, to copy, paste and save the new files which were retrieved from the legal online database of Lex Data Information Inc. (Lex) (plaintiff), in order to create a database for a legal system. Angle copied a total of 138.000 legal documents and also changed the name of the legal database from

[34] Taiwan Copyright Act, art. 7

[35] 最高法院 91 年台上字第 940 號民事判決: "著作權法第七條第一項規定，就資料之選擇及編排具有創作性者，為編輯 著作，以獨立之著作保護之。故編輯著作，必須就資料之選擇及編排，能表現一定程度之創意及作者之個性者，始足當之，若僅辛勤收集事實，而就資料之選擇、編排欠缺創作性時，即令投入相當時間、費用，自難謂係編輯著作享有著作權。"

"Source of legal information" to "Yuedan Knowledge of Law". Lex subsequently brought civil and criminal actions against Angle.[36]

The defendant claimed that in accordance with Article 9, Section 1, Clause 1 of the Copyright Act, "The constitution, acts, regulations, or official documents" shall not be "the subject matter of copyright"[37], and can therefore be freely used.

The Intellectual Property Court identified that the legal database of Lex is not a mere accumulation of databases, but is rather a selection of data, taken from different sources such as the website of The office of the Judiciary, which had then been classified and rewritten by legal professional employees of the company. It is thus different to other on-line legal databases, and is a form of "compilation works" or "literary works", such that it is protected by the Copyright Law. [38]

This case can be considered as the most important judgment on copyright disputes. By this judgment, the Court made an important statement to the effect that, although the existing law had not regulated specific *sui generis* protection for non-creative electronic databases, if the selection and arrangement of information in a database is creative, rather than a mere accumulation of information, it can still be protected by copyright law under the form of "compilation works". In addition, information that is originally owned by the public is still free to be used by everyone. It cannot be monopolized by the database owners, simply because it has been protected by copyright law.

VI. Copyright protection in Vietnam

A. International Conventions and Treaties on Copyright and Related Rights

On February 20, 1987, the Copyright Protection Agency, the predecessor of the Copyright Office of Vietnam (COV), was established. In order to ensure their integration into the international community, legal documents were enacted and amended in accordance with the new situation. More recently, Vietnam joined five international conventions and treaties concerning copyright and related rights, including: the Berne Convention for the protection of Literary and Artistic Works;

[36] 程平、王寓中, 不當黨產處理委員 羅 承宗遭指控 曾違反著作權法(2016), https://udn.com/news/story/6656/1920888 (last visited May 31, 2017).

[37] Taiwan Copyright Act, art.9: "The following items shall not be the subject matter of copyright: 1.The constitution, acts, regulations, or official documents…."

[38] 臺灣臺北地方法院 95 年偵字第 22081 號 刑事、臺灣臺北地方法院 96 年訴字第 146 號 刑事判決、智慧財產法院 97 年刑智上訴字第 41 號 刑事判決.

the Rome convention (1961) - International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations; the Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms; the Convention Relating to the Distribution of Program-Carrying Signals Transmitted by Satellite; and the Agreement on Trade-related Aspects of Intellectual Property Rights (The TRIPS Agreement).[39]

The first convention to take effect in Vietnam was the Berne Convention, which became applicable on 04 May 2004. The TRIP Agreement entered into force on 11 May 2007, simultaneously with Vietnam's membership in the World Trade Organization (WTO).[40]

Vietnam has also signed three bilateral agreements dealing with copyright and related rights: the Agreement between Vietnam and the United States of America on the establishment of copyright relations; the Agreement between Vietnam and the Swiss Federal Council on the Protection of Intellectual Property and on Co-operation in the field of Intellectual Property; and the Agreement of Trade Relations with the United State of America.[41]

B. Copyright protection for databases

Database copyright protection is regulated in Article 22.2 of the Vietnam Intellectual Property Law: "A compilation is a collection of data organized in a creative manner, as evidenced by the selection or arrangement of documents in electronic form or other".

"The copyright protection of compilations does not include the protection of documents themselves and must not prejudice the copyrights of these documents".[42]

Basically, database copyright protection under Vietnamese law meets the general principles of the TRIPS Agreement requirements, which are applicable to all WTO members. Accordingly, compilation works may receive copyright protection only if the selection and arrangement of the corresponding database clearly represents a reasonable level of creativity. This protection does not extend to the document or material itself, and does not prejudice the copyright protection of its

[39] The Copyright Office of Vietnam (2009), http://www.kenfoxlaw.com/ip-directory/ip-organizations/13356-the-copyright-office-of-vietnam.html (last visited May 31, 2017)
[40] Id.
[41] Id.
[42] Vietnam Intellectual Property Law, art .22(2)

materials. Database copyright protection does not include the protection of an individual item of material itself, however it grants protection for the work involved in selecting, coordinating, and arranging the data, which is the result of creative labor of the author, and has been provided in order to *help make database access more user-friendly*.

However, under Vietnamese law there are still many areas of overlapping and unclear regulations, concerning the protection of compilation work.

In practice, it can be difficult to distinguish between compilation work, which is a derived form of work (derivative work) under Clause 8, Article 4 of the Intellectual Property Law, and original work, since compilation work can also be original.

Here, "derivative work" is defined as "a work translated from one language to another, adapted, modified, transformed, compiled, annotated and selected work"[43]. However, Article 14 of the same law regulates that protected works (including compilations of data) *"must be created directly by the author's intelligence without reproducing others' works."*[44]. This means that compilation work is defined as the creation of work that is entirely new, and is not based on any existing work. As a result, collections of documents are not works, as defined under Article 14 of the Intellectual Property law.

This regulation is therefore contrary to the definition of a compilation, which is considered to be: *"the action or process of producing something, especially a list or book, by assembling information collected from other sources"* or "*a thing, especially a book, record, or broadcast programme, that is put together by assembling previously separate items*." [45]

[43] Id, art. 4(8)

[44] Id, art. 14:

"1. Literary, artistic and scientific works protected including:

….. m) Computer programs and compilations of data.

2. Derivative works shall only be protected according to paragraph 1 of this Article if they do not infringe the copyrights in respect of the works used to make derivative works.

3. Protected works stipulated in paragraphs 1 and 2 of this Article must be created directly by author's intelligence without reproducing others' works."

[45] English Oxford dictionaries, https://en.oxforddictionaries.com/definition/compilation (last visited May 31, 2017)

VII. Conclusion

To conclude, the legal protection of databases is very important, since it is designed to prevent unauthorized reproduction, distribution or communication of its contents. There are various differences in the legislation of different countries, in terms of database copyright protection: some countries grant copyright protection for non-creative databases, whereas others have created a sui generis right which is usually applied less restrictively, although it is still based on a certain level of effort or investment. In some countries, such as the USA (since the Feist ruling in 1991), there is no proper legal protection for non-creative databases.

In general, legal systems protect those databases, which constitute a creative compilation under copyright law. However, the level of creativity required for copyright protection has not been defined internationally, and the position of databases with respect to copyright protection still remains unclear.

In my opinion, the most important aspect of a copyright claim, concerning compilations formed by the creative selection and arrangement of information (generally referred to as a 'database'), is that this selection and arrangement should rely on human activity (or "input"). If this selection and arrangement can be performed easily using a computer-run algorithm, then it is difficult to claim that it meets the requirement of being "creative". On the other hand, if the data is selected, arranged and organized by humans rather than software, and if the production of this database relies on the creativity of an individual or a team, then these designers and/or their businesses should have the right to obtain copyright protection for their database.

TABLE OF CONTENTS