

17 Comparative Study on Legal Protection in the USA, EU, Japan and Korea for Computer Programs —Focus on Program Reverse Engineering—

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Computer programs have been protected under copyright from the late 1970's, and the leading countries in IP law area, like USA, EU, Korea and Japan, have the same or similar legal system for the protection of computer programs. We can find several reasons of the same or similar legal system's adoption, in the short history of the protection of computer programs, the agreement among countries for harmonization of legal system, the boundlessness for electric commerce, and the effect of network.

Although most of countries have the same or similar legal system for computer programs, there are delicate differences among those legal systems, especially in the determination of the limit of copyright. In USA, there was an important case dealing with the limit of copyright. In this case, USA's Federal Circuit ruled that the contractual terms, prohibiting from reverse engineering the computer program, are not preempted by federal law under the Copyright Act. Relating to this decision, many scholars criticize the reason and the background of the decision. Unlike USA's decision, EU adopted the directive prescribing that any contractual provisions contrary decompilation shall be null and void, and Korea adopted the statute for allowing the reverse engineering as a free use.

I think that these differences are from the historical and theoretical background of each country. Therefore, based on these statues and theories, I recommend the best solution of enacting a mandatory statute for Japan and for the desirable future of international society and for the development of computer program industry.

I Introduction

According to the report of CONTU (Commission on New Technological Uses of Copyrighted Works) of 1978, the U.S. Parliament revised the copyright law in 1980 for protecting programs.^(*)

Regarding major discussion on protection of programs, there are the "Convention and Model Provisions on the Protection of Computer Program"^(*) and "the sui-generis approach of the Ministry for International Trade and Industry (MITI) in Japan".

However, all countries in the world have adopted the protection of copyright^(*); therefore, each country is largely alike in the protection method of programs. However, owing to discrepancies of legal culture and program industry competition in each country, the protection method and standard of programs occasionally

show differences, for example, 'restriction of copyright by reverse engineering'.

Therefore, this study inspects the significance of reverse engineering as well as issues in the copyright law, and compares differences and features in the countries laying stress on by which legal interpretation reverse engineering can be allowed.

II Reverse engineering and the Copyright law

1 Significance of reverse engineering

The term "reverse engineering" generally means that industrial products developed by other companies are investigated, interpreted and studied, and the technical idea or information therein or know-how useful for manufacturing the products is flowing out of the product by reverse

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(*)1 Raymond T. Nimmer, Law of Computer Technology, LCOMTECH § 1:9 (Database updated September 2005).

(*)2 Copyright, UN WIPO at 271-279, UN Doc. LPCS/11/3 (Sep. 1983) (draft treaty); WIPO, Model Provisions on the Protection of Computer Software §§3-4 (1980).

(*)3 Dennis S. Karjala, Copyright protection of operating software, copyright misuse, and antitrust, 9 Cornell J.L. & Pub. Pol'y 161 (1999) at 178.

engineering.^(*4) However, reverse engineering was not required for a work whose expression is open to the public.

Nevertheless, programs are distributed as object programs, and so their expression could not be seen; therefore reverse engineering was required. Reverse engineering of programs is a series of processes by which an object program corresponding to finished product is reconstructed to an original program by disassembling or decompilation.

In addition, the term “reverse analysis” is sometimes used instead of reverse engineering. Though reverse engineering is allowed, it is not recognized that an act using the result of reverse engineering infringes the exclusive right of the right holder of the subject program of investigation; therefore, reverse analysis rather than reverse engineering would be reasonable in that it is only for interpreting the action to investigate programs for test studies.^(*5)

The significance of the term “reverse analysis” can be said to be very meaningful in suggesting in which range reverse engineering of programs may be allowed.

2 Necessity for reverse engineering

Reverse engineering is widely used in the industry world, and its meaning is as following:^(*6)

Firstly, reverse engineering provides a measure for technology innovation by obtaining technical idea or information;

Secondly, it gives a measure for ensuring compatibility or mutual connection;

Thirdly, it offers a measure for either

repairing programs or removing bugs; and

Fourthly, it furnishes a measure for discovering infringement by programs of others having copyright for the programs.

3 Infringement on copyright by reverse engineering

(1) Against copyright of reverse engineering

Even though the copyright law does not provide for reverse engineering, there are a few opinions interpreting that reverse engineering should not be prohibited.^(*7)

On the contrary, an opposite view indicates that reverse engineering is automatically executed so that there is no room for adding new creativity. Besides, both original program and the program made by reverse analysis are substantially alike, and therefore, it shall come under general ‘replication’.^(*8) This viewpoint is the prevailing opinion as well as the standpoint of cases in the major countries.

(2) Infringement range of copyright by reverse engineering

For the purpose of confirming the above legal range, the life cycle of programs will be explained. A computer program is created with an original program A. To begin with, A is changed into object program B by compiling, and then distributed. B is sold to a third party, in which an obligatory license agreement to use is concluded between a copyright owner and a purchaser. The third party decompiles B and abstracts an original program C. Afterwards, he analyzes and studies C, and occasionally creates a new program D, which

(*4) 『ソフトウェアの法的保護(新版)』(有斐閣, 1988年)127頁; 根岸哲編 『コンピュータ知的財産権』(東京布井出版, 1993年)121頁から再引用

Nakayama Nohiburo, Legal protection of software, Yuhikaku, 1988, at 127. ; Negishi, Computer intellectual property, Tokyo Nuno Publishing company, 1993, p. 121

(*5) 同旨として根岸哲編『コンピュータ知的財産権』(東京布井出版, 1993年)124-125頁; 中山信弘『ソフトウェアの法的保護(新版)』(有斐閣, 1988年)128頁

Negishi, supra note p. 124-125; Nakayama, supra note, at 128.

(*6) 根岸哲編『コンピュータ知的財産権』(東京布井出版, 1993年)121-124頁

Negishi, supra note, at 121-124.

(*7) 이혜광, “개정 컴퓨터프로그램보호법과 프로그램코드 역분석(decompilation)”, 21세기 한국민사법학의 과제와 전망(심당 송상현선생 화갑기념논문집), 2002, 972쪽; 손승우, “저작권과 쉬링크랩 라이선스 상의 S/W Reverse Engineering의 법적 지위”, 산업재산권(제14호), 2003. 11., 199쪽.

Lee, Hyekwang, “Revised computer program protection law and program decompilation” in: ‘Problem and Prospect of the Korean Civil law in 21 century (the 60th celebration of Prof. Song, Sanghyun), 2002, at 972; Son, Seungwoo, “Legal protection on Copyright and on S/W reverse engineering on the shrink wrap licence”, Sanwobzaisankwon, Vol. 14, 2003.11., at 199.

(*8) 오승중·이혜완, 저작권법, 박영사, 1999, 633쪽; 임준호, “컴퓨터 프로그램의 법적 보호, 지적소유권에 관한 제문제(하)”, 법원행정처, 1992, 501쪽.

Oh, Seungjong/Lee, Haewan, Copyright Law, Parkyoungsa, 1999, p. 633; Lim, Junho, “Legal protection of the computer program” in: ‘Problems regarding intellectual property (II)’, The Office of Court Administration, 1992, at 501.

is called 'forward programming'.

If so, the problem is raised as to which part of above actions infringes copyright. Firstly, it is the problem as to whether the program D created by forward programming infringes A's copyright, and secondly, whether C abstracted by decompiling infringes A's copyright.

At first, the problem as to whether D infringes A's copyright or not, absolutely depends on the general principle of copyright. In other words, it falls under an obvious infringement on copyright if D is substantially similar to A, and if D's creation is based on A.

Secondly, it can be discussed on the problem as to whether C's abstraction infringes A's copyright or not.

A is generally transformed into B to be distributed. It is reverse engineering that B is re-transformed into C for anyone to understand. At this moment, the process of transforming B into C is automatically performed through a decompilation program. B is made by compiling A; however, it does not correspond exactly to one-to-one mapping because any information to be required for execution such as allotment of memory spots or optimization has been attached. The expression is not substantially similar even if B is decompiled into C; namely, the relationship of $A \neq B \neq C$ is formed.

Because of this reason, namely, C's expression is substantially different from A's, there may be a point of view that decompilation is regarded as 'translation'.

However, there is no space for adding creativity such as mental activity into a mechanical substitution by compiler or decompiler; therefore, substantial similarity between A and C is acknowledged, and they should be regarded as 'replication'.

A Court in Japan presumed infringement on a right to reproduce in the Microsoft Case in 1987.^{(*)9} After changing the basic interpreter object program of Microsoft co. into 16 antilogarithm code in the case the defendant published a manual by performing disassembly and adding a label and a comment. The Court made a decision that a difference of both works is nothing but a label mark so that infringement on

the right to reproduce is recognized. This case is evaluated as having a precedent significance determining the range of dead copy.^{(*)10}

In conclusion, illegal range by reverse engineering comes into existence when C infringes A's right to reproduce.

(3) Role of reverse engineering in copyright infringement

If reverse engineering is an act within the range allowed to the user according to the purpose of the copyright law, the defense right to restrict the copyright should be given to those who have conducted reverse engineering. In other words, allowance of reverse engineering means restriction of copyright.

4 Arrangement of legal disputes as to reverse engineering

With respect to reverse engineering, some problems are mainly discussed: firstly, the reason why reverse engineering is necessary for computer program which is a type of works; secondly, the problem as to whether reverse engineering infringes the copyright or not. This problem should be considered from the viewpoint of whether the copyright would be restricted by granting a defence right to those who have infringed the copyright by reverse engineering; thirdly, the problem as to which legal provision of the copyright law should be applied concerning reverse engineering; and fourthly, the problem as to the validity of the contract to prohibit reverse engineering.

III Attitude on reverse engineering in U.S.

1 Provision of the Statute

(1) Constitution

The structure and relationship of the U.S. Federal Constitution and the Copyright Act suggest that there is an agreement to the fact that the power as federal provision with national authority is bestowed to the Copyright Act. Accordingly, it draws a conclusion that either a contract against the Federal Copyright Act establishing a statutory right entrusted by the

(*)9 東京地判昭和 62 年 1 月 30 日判時 1219 号
Tokyo District Court, 1987. 1. 30. No. 1219.

(*)10 榎山敬士著『ソフトウェアの著作権・特許権』(日本評論社, 1999 年) 12 頁
Sugiyama, "Copyright and Patent of software", Nippon Hyoronsha, 1999, at 12.

constitution or the contract law supporting it is against the constitution.^(*11)

(2) Federal Copyright Act

The U.S. has newly established a special chapter in Article 117 of the Digital Millennium Copyright Act in 1998 called copyright protection and management systems, and therefore recognizes that reverse engineering is one of exceptions to avoid technical protection management.

However, this provision has the limitation of the application in that it is not a general provision of reverse engineering, but only provides a possibility to avoid technical protection management by reverse engineering.

(3) Provision of reverse analysis in UCITA

The Amendments Completed Year 2002 of UCITA has allowed reverse engineering aiming at compatibility.^(*12)

However, UCITA has been adopted by only a few states so far, and it is not yet clear what the basic public policy is. Hence, the problem is raised that only uncertainty still exists as to whether or not reverse engineering falling under fair use can be restricted by the contract.

2 Attitude of Cases

U.S. Courts admit reverse engineering by fair use doctrine.^(*13) As leading cases in the U.S. concerning reverse engineering, the *Sega Enterprises Ltd. v. Accolade, Inc.* case,^(*14) *Atari Games Corp. v. Nintendo of America Inc.* case^(*15) and *DSC v. DGI* case^(*16) are provided. Concerning the matter as to whether reverse engineering shall come under fair use, the Courts

have made decisions in these cases that reverse engineering of the object program shall come under fair use of a work if it is the only way to approach to the idea or functional elements inherent in programs, and if those who replicate it have justifiable grounds to the approach. At this point, four items in Article 107 of the Copyright Act have to be undoubtedly decided. The cases have made a final decision that reverse engineering fell within fair use as to whether it shall come under requirements for fair use in Article 107 of the Copyright Act.

Fair use doctrine based on the fact that reverse engineering is legitimate has been developed from equitable rule of reason; therefore, the requirements in Article 107 are not exclusive, and the ultimate justification to quote fair use doctrine, needless to say, comes out from the purpose of the Copyright Act to promote advances of science and technology as well as useful arts.^(*17)

3 Validity of the contract prohibiting reverse engineering

(1) Attitude of theories

Even within the U.S., there are lots of viewpoints regarding possibility to restrict reverse engineering by the contract, which are arranged as follows:^(*18)

Firstly, there is no compulsory performance possibility because of possibility of primary application of the copyright act;^(*19)

Secondly, there is no compulsory performance possibility owing to copyright misuse^(*20);

Thirdly, licensing should be differently considered according to negotiation possibility;^(*21)

(*11) Merritt A. Gardiner, *Bowers v. Baystate Technologies: Using the shrinkwrap license to circumvent the Copyright Act and escape federal preemption*, 11 U. Miami Bus. L. Rev. 105 (2003) at 129.

(*12) UCITA §118 (Terms Relating to Interoperability and Reverse Engineering).

(*13) 17 U.S.C.A §107. Limitation on exclusive rights: fair use

(*14) 977 F.2d 1510 (9th Cir. 1992).

(*15) 975 F.2d 832 (Fed. Cir. 1992).

(*16) *DSC Communications Corp. v. DGI Techs.*, 81 F.3d 597 (5th Cir. 1996).

(*17) Seungwoo Son, *Can block dot (Shrinkwrap) licenses override federal reverse engineering right?: The relationship between copyright, contract, and antitrust laws*, 6 Tul. J. Tech. & Intell. Prop. 63 (2004) at 79.

(*18) Pamela Samuelson/Suzanne Scotchmer, *The law & economics of reverse engineering*, Yale Law Journal (April 2002) at 48-50.

(*19) Charles R. McManis, *The Privatization (or "Shrinkwrapping") of American Copyright Law*, 87 Calif. L. Rev. (1990) at 187-190; David A. Rice, *Public goods, Private contract and Public Policy: Federal Preemption of Software License Prohibitions Against Reverse engineering*, 53 U. Pitt. L. Rev. (1992) at 543.

(*20) Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 Calif. L. rev. (1999) at 151-158; Marshall Leaffer, *Engineering Competitive Policy and copyright Misuse*, 19 U. Dayton L. Rev. (1994) at 1106.

(*21) David Nimmer & Elliot Brown & Gary N. Frischling, *the Metamorphosis of Contract Into Expand*, 87 Calf. L. Rev. (1999) at 68.

Fourthly, it should be judged differently taking into consideration of whether a licensor has a monopoly position at the market or not;^(*22)

Fifthly, provisions on restriction of reverse engineering by general market-type use allowance do not have compulsory performance possibility if public interest is unjust violated;^(*23) and

Finally, restriction of reverse engineering by contract is unlimitedly possible through admitting compulsory performance possibility.^(*24) The key point of this view is based on the fact that the provision on reverse engineering is not required because antitrust law or competition-related law would play its role in the long run.

(2) Attitudes and Evaluation of the Court on the Bowers Case

(i) Attitudes of the Court

Recently there has been an important case as to the legal position of reverse engineering, the case of *Bowers v. Baystate Technologies, Inc.*^(*25) The Court maintained in the case that the Copyright Act would have neither priority over the restriction contents of reverse engineering by contract, nor narrow the range.

(ii) Evaluation on the decision

To evaluate on the meaning of the decision we will separately think about the following two problems: Firstly, the problem as to whether or not the *Bowers* case means a change of the general principle in the England-American Law “The federal law is prior to the contract law of the state”; and secondly, the problem as to whether fair use can be also limited by contract.

Concerning the first problem, the *Baystate Co.* asserted that the Copyright Act was prior to the contractual provisions of allowing package-type use of *Bowers* to prohibit reverse engineering, but the Court denied it maintaining that the federal norm can be, if necessary, prior to private contract contents.

With respect to the case, I think that the Court does not seem to show that all federal laws are prior to the contractual provisions, but seems to explain the general principle that the court should make a decision in advance on whether it is applied according to the purposes of federal law.

If this principle is applied to this case, the Copyright Act does not include any provision to allow general reverse engineering, and only admits roundabout of technology protection management for ensuring compatibility. Therefore, there is no room for the federal law to be excluded by the contractual provisions, or for the purpose of the Copyright Act to become useless. It would be accordingly reasonable that the decision of the court is regarded as “the contractual provisions do not violate any special provision of the Copyright Act which is a federal law, hence, the federal law should not be prior to the contractual provisions”.

As to the second problem the court explained that “when deciding this case the court has reserved the conclusion as to whether reverse engineering can be considered as an exception to violate the copyright or not, and also be regarded as fair use such as *Atari Games v. Nintendo* case”, and maintained that “reverse engineering of the object program for the purpose of finding out the unprotected idea which is included in computer program falls within fair use”. Accordingly, it is not reasonable that this case unconditionally regards fair use as eliminatory.

In addition, there is no ground that fair use doctrine based upon equitable rule of reason became useless when considering the following aspects, namely, *Baystate co.* is a competitive company with respect of whether reverse engineering of this case corresponds to fair use, and therefore it has developed competitive products ‘Templet’ and software; the influence of this behavior on the market is not a little; and there is no ground that the negotiation for contract condition by business transaction was unilaterally disadvantageous.

Accordingly, the case should be evaluated from the viewpoint of whether the contract infringes equitable rule of reason such as the case *Bowers v. Baystate Technologies, Inc.* In this respect, the Court made a decision that equitability was not broken, which is understood to uphold the validity of the contract.

(*22) Maureen O'Rourke, *Drawing the Boundary between Copyright and Contract: Copyright Preemption of License Terms*, 45 *Duke L. J.* (1995) at 551.

(*23) J. H. Reichman & Jonathan A. Franklin, *Privately Legislated Intellectual Property Rights: Reconciling Freedom of Contract With Public Good Uses of Information*, 147 *U. Pa. L. Rev.* (1999) at 939.

(*24) Raymond T. Nimmer, *Breaking Barriers: The Relation between Contract and Intellectual Property Law*, 13 *Berkeley Tech. L. J.* (1998) at 861-888.

(*25) 320 F.3d 1317 (Fed.Cir.(Mass.) 2003); 320 F.3d 1316, 65 U.S.P.Q.2d 1746 (Fed.Cir. 2003).

4 Evaluation on the U.S.' attitudes to reverse engineering

The U.S.'s Copyright Act stipulates a general principle concerning restriction of copyright, which is not a new provision, but stipulates nothing but fair use doctrine accumulated by the cases. Hence, the interpretation of Article 107 of the Copyright Act should not be limited to interpretation of the statute, but should be interpreted by considering equitable rule of reason founding fair use doctrine. This principle is derived from confidence for the judgment of judge as well as from that the U.S. are traditionally case law states.

The way to restrict copyright in the U.S. is expressively different from restriction by free use in Japan or Korea. The restriction by the fair use doctrine in the U.S. is principally applied on a case-by-case basis, which has, however, disadvantages that legal safety is not guaranteed for general users. On the other hand, it has advantages that the court can reach reasonable conclusions considering a special feature of each case. Additionally, it can be also pointed out as an important advantage that competition power of rapidly changing software industry as well as industry policy of the states can be reflected.

IV Attitude on reverse engineering in EU

1 Provision of the EU Directive

In the European Union, Article 6 of the European Communities Council Directive on the Legal Protection of Computer Program prescribes decompilation.

On this occasion, Article 9 of the Directive should be closely inspected. According to the second sentence of Article 9 (1),^(*26) any contractual provisions contrary to Article 6 shall be null and void. The EU Directive is characterized by expressively providing a compulsory provision as well as hard and fast conditions for decompilation.

2 Evaluation on the EU Directive

Various countries with different legal cultures and software competition power take part in the EU as member states. Therefore, it is necessary to make confusion minimize through clear provisions in order to embody integration of various legal culture and legal policies in the EU, and harmonization of legal system. In addition, the EU should protect and foster software industry which is relatively inferior to the U.S. I think that this requirement ultimately became the reason why the EU has set up an obvious provision relating to reverse engineering.

Therefore, the obvious provision of the EU is expected to integrate the legal system of the member states with various legal cultures and to play a role in protecting the software industry within the community against the U.S. Besides, it also has an advantage to provide users with legal safety and confidence.

At the same time, the EU provision gives clear standards on a permissible range of reverse engineering, so that it will provide other countries considering the legislation relating to reverse engineering with a meaningful precedent case. In particular, Article 9 of the EU Directive can not only make clear the relationship between contract and reverse engineering, but also can make it predict how the EU thinks of reverse engineering and of a right of using of user.

V Attitude on reverse engineering in Japan

1 Statute and Theories

Japanese Courts maintain negative attitudes on applying fair use doctrine of the U.S. to reverse engineering;^(*27) Japan does not have any obvious provision yet such as the EU Directive; such is, however, just the common theory that reverse engineering is legitimate.^(*28)

However, most theories seek the ground from the purpose of Article 1 of the Copyright Law.^(*29) Besides, there are other theories, for

(*26) Any contractual provisions contrary to Article 6 or to the exceptions provided for in Article 5 (2) and (3) shall be null and void.

(*27) 東京地判平成7年12月18日判時1567号126頁
Tokyo District Court, 1995.12.18, No. 1567, at 126.

(*28) 梶山敬士著『ソフトウェアの著作権・特許権』(日本評論社, 1999年) 50頁、中山信弘『ソフトウェアの法的保護(新版)』(有斐閣, 1988年) 127頁、根岸哲編『コンピュータ知的財産権』(東京布井出版, 1993年) 131頁
Sugiyama, supra note, at 50; Nakayama, supra note, at 127; Negishi, supra note, at 131.

(*29) 根岸哲編『コンピュータ知的財産権』(東京布井出版, 1993年) 131頁
Negishi, supra note, at 131.

example, a theory that Article 10 (3) is suggested as the ground, another theory that provisions below Article 30 concerning fair use of a work should be correspondingly applied^(*30) and so on. These explanations consider substantial intent of each article, but there is also a view on setting up a provision in order to remove the uncertainty.^(*31)

2 Effect of the contract restricting reverse engineering

(1) View on compulsory provision such as Article 69 of the Patent Law

This view is to analogically apply the provisions of the Patent Law. Article 69 of the Japanese Patent Law stipulates restriction from public viewpoint included in the patent system, and should be regarded as a kind of public order or morality. Thereupon, this provision shall be compulsory as a former problem of anti-monopoly law, and any contractual provisions to prohibit reverse engineering against it shall be null and void. This view carefully takes an affirmative on the problem as to whether or not the structure of this theory itself should be applied to copyright.^(*32)

(2) View on application of Antimonopoly Law

This view is to apply the Antimonopoly Law as to whether contract prohibiting reverse engineering^(*33) is effective or not. The provision on prohibiting experiment and research among these views shall restrict freedom of an activity for important research and development, shall enormously influence on the future market, and shall bring about a strong obstruction to fair competition. Therefore, it belongs to the so-called 'dark clause' and should be regarded as null.^(*34)

(3) View on boundary domain to restrict reverse engineering

According to this view, the effect of the contract to prohibit reverse engineering is once admitted, but it should not be applied to Article 20 (2) "modification which is necessary for enabling to use a program work or to make more effective the use of a program work on a particular computer."^(*35)

3 Evaluation and Prospects

The Japanese legal system relating to reverse engineering in the software-related market and in the cases has been firstly developed by the pressure of the U.S., and then by legal policy based upon strengthening industry competition power in Japan without the establishment of the provisions relating to reverse engineering,.

Accordingly, various theories without an obvious provision on reverse engineering in Japan have appeared. Practically speaking, there have not been cases on reverse engineering, but the contracts prohibiting reverse engineering are widely used in industry. On the other hand, theories mostly admit the necessity for reverse engineering, and explain that the restriction by the contract should be minimized.

The most important problem herein is that even though theories explain that the contract prohibiting reverse engineering should be regarded as null, it is widely used in practice, which brings out concerns about that the contract prohibiting reverse engineering may be dealt with validly.^(*36)

As time flows, the restriction of reverse engineering by the contract has a possibility that its position would rise in a commercial practice.

(*30) 根岸哲編『コンピュータ知的財産権』（東京布井出版，1993年）132-135頁
Negishi, supra note, at 132-135.

(*31) 根岸哲編『コンピュータ知的財産権』（東京布井出版，1993年）134-135頁
Negishi, supra note, at 134-135.

(*32) 大澤恒夫『IT事業と競争法 -独禁法・知的財産法・消費者契約法の今日的課題』（日本評論社，2001年）76-77頁
Osawa, "IT business and competition law - The current problems on Antimonopoly act, intellectual property law and consumer protection law", Nippon Hyoronsha, 2001 at 76-77.

(*33) 大澤恒夫『IT事業と競争法 -独禁法・知的財産法・消費者契約法の今日的課題』（日本評論社，2001年）73頁
Osawa, supra note, at 73.

(*34) 大澤恒夫『IT事業と競争法 - 独禁法・知的財産法・消費者契約法の今日的課題』（日本評論社，2001年）77頁
Osawa, supra note, at 77.

(*35) 大澤恒夫『IT事業と競争法 -独禁法・知的財産法・消費者契約法の今日的課題』（日本評論社，2001年）85頁
Osawa, supra note, at 85.

(*36) 大澤恒夫『IT事業と競争法 -独禁法・知的財産法・消費者契約法の今日的課題』（日本評論社，2001年）79頁
Osawa, supra note, at 79.

In the end, it results in unallowable reverse engineering to admit the restriction of reverse engineering by the contract. Hence, it seems to be urgent to establish legal policy through full discussion on this respect.

In this respect, Japan should set up legal policy and a system regarding reverse engineering by choosing a model of either the U.S. or EU legal system. The merits and disadvantages therein are as follows:

At first, it seems to be impossible that Japan will allow reverse engineering according to fair use doctrine like in the U.S., because Japanese Courts have not continuously accepted fair use doctrine. It is also impossible to admit reverse engineering according to fair use doctrine, in particular, on grounds that Japan is not a case law country, and that Japan has different a legal culture from the U.S.

Then it seems to be so natural in the legal culture that Japan has an obvious provision such as in the EU. In this respect, the problem can be raised as to which kind of legal policy Japan having competitive power in some software industries should set up. In other words, it is necessary to discuss whether or not reverse engineering based on the legal policy including the software industry should be widely accepted.

VI Attitude on reverse engineering in Korea

1 Provision of the Statute

The Computer Program Protection Law in Korea was revised in 2001 so that an article on program reverse analysis may be established in Article 12-2. The contents are similar to those of Article 6 of the EU Directive. However, there is no article to acknowledge a compulsory provision of reverse analysis such as Article 9 of the EU Directive.

2 Acknowledgement of reverse analysis not falling under Article 12-2

Continental law cannot adopt over the transom either case law of the U.S. or U.K., or legal principles of enacted law, so that its range for the application should be interpreted as limited. Therefore, reverse analysis not falling under Article 12-2 shall not be acknowledged.

3 Effect of the contract restricting reverse engineering

As to the legal status of the provision on reverse analysis, namely, as to whether reverse analysis can be limited by contract, following opinions are suggested:

Firstly, it should be denied because the provision on reverse analysis is regarded as compulsory;^(*37)

Secondly, it should be denied because it admits the principle “freedom of contract”, but is regarded as being against Antimonopoly law;^(*38)

Thirdly, it is a compromise suggestion that it should be judged by the contents of a special contract to prohibit reverse analysis;^(*39) and

Fourthly, it is affirmative because freedom of contract is prior to the provision on reverse analysis.

4 Evaluation and interpretation on the attitude in Korea

It should be, to my knowledge, regarded as a compulsory provision as a kind of type of free use on the legal system when considering the industrial features of programs, equitability with the provisions of the patent law, non-protection principle of idea, and the fact that Article 12-2 on reverse analysis in programs protection law is stipulated together with Article 12 on free use.

(*37) 김동진, “컴퓨터 프로그램 코드의 역분석”, CLIS Monthly(2003-11 호), KISDI, 2003, 13 쪽.

Kim Dongjin, “Reverse analysis of computer program code”, CLIS Monthly (2003, vol. 11), KISDI, 2003, at 13.

(*38) 이혜광, “개정 컴퓨터프로그램보호법과 프로그램코드 역분석(decompilation)”, 21세기 한국민사법학의 과제와 전망(심당 송상현선생 화갑기념논문집), 2002, 114쪽 이하; 정상조, “Reverse engineering의 법적 문제점”, 인권과 정의(제254호), available at <http://jus.snu.ac.kr/~sjjong/classroom/thesis/jungsj042.htm>. Lee Hyekwang, “Revised computer program protection law and program code decompilation”, Problem and prospect of the Korean civil law in the 21st century” in: Essays in celebration of the 60th anniversary of Simdang Prof. Song Sanghyeon, 2002, at 114; Jung, Sangjo, “Legal problems on reverse engineering”, “Human rights and Justice”, vol. 254, available at <http://jus.snu.ac.kr/~sjjong/classroom/thesis/jungsj042.htm>.

(*39) 김동진, “컴퓨터 프로그램 코드의 역분석”, CLIS Monthly(2003-11호), KISDI, 2003, 13-14쪽. Kim, Dongjin, “Decompilation of computer program code”, CLIS Monthly (2003, vol. 11), KISDI, 2003, at 13-14.

VII Proposals on permissible range of reverse engineering and legislation policy

1 Outline

According to the opposition against program reverse engineering, reverse engineering unconditionally should not be accepted because of creating competitive products by reverse engineering of others' products.

However, reverse engineering shall be also allowed from the viewpoint of the purpose of intellectual property, features of computer program, and decrease of creative motivation.

2 Allowance of reverse engineering from the purpose of intellectual property

The purpose of granting copyright is not only to give a copyright owner a privileged monopoly right, but also to contribute to the development of culture. Reverse engineering should be, therefore, accepted from the viewpoint of the worldwide tendency, establishment of an efficient legal system for developing computer engineering and software technology, or from the standpoint of that with full protection of copyright it is sincerely required to prevent an adverse effect in advance that copyright could be too great an obstacle for those who compete with copyright owners to enter the market.

3 Reverse engineering from the feature of computer program

In the development of a computer program, it cannot be disregarded that the existing program analysis is almost essential and commercialized. Accordingly, the law aiming at technology protection and development acknowledges reverse engineering, but the essence of computer program is technology, and so reverse engineering is absolutely necessary for its development.^(*40)

However, it is naturally granted that it should be carried out under the strict condition such as in the EU or Korea.

4 Acknowledgement of reverse engineering from creative motivation

Whether or not reverse engineering is required can be judged by proof of legal or economic effects that the public purpose to develop culture and related industries can be attained by admitting reverse engineering, and that the efficiency of attained public purpose is much larger than the private purpose.

[Table 1] Comparison of social cost on allowing reverse engineering^(*41)

Section	Allowance	Disallowance
Motivation on platform development	Low	High
Motivation on applied software development	Very high	High
System price	Low	High
Cost on overlapping investment	Low	High

According to the above results, it is identified that system cost fell off, and cost on overlapping investment was decreased by allowing reverse engineering and promoting motivation in society. On the contrary, motivation in platform development is shown to be lowered by reducing the motivation of the creator.

However, program reverse engineering is time-consuming, and performed by a resources-intensive process, so the motivation in investment on platform development shall be largely decreased. In addition, reverse engineering of platform is mostly performed for the purpose of creating the applied software to move on a platform base; hence, it is characterized by the fact that it is not used for creating a new competitive platform. This is carried out on a larger scale than applied software development, and platform-related market is a market where a new enterpriser hardly survives. When considering the scale, great efforts are required for obtaining effects by reverse engineering.

In this respect, allowance of reverse

(*40) Pamela Samuelson & Suzanne Scotchmer, The law & economics of reverse engineering, Yale Law Journal, April 2002, at 30.

(*41) Pamela Samuelson & Suzanne Scotchmer, The law & economics of reverse engineering, Yale Law Journal, April 2002, at 43.

engineering is characterized by improving creative motivation and decreasing social cost, and hence, it should be acknowledged based on the purpose of the Copyright Law.

VIII Conclusion

When thinking collectively about the results, reverse engineering of computer program is characterized by the fact that on the one hand, it provides assistance for industry development; on the other hand, it stimulates competition while not largely decreasing the creative motivation of the copyright owner. Besides, the ground why reverse engineering has been introduced has logicity as it is. In this respect, major countries and scholars seem to accept it.

If so, we will be able to consider which way to use. With reference to this matter, there are two ways to allow reverse engineering: one way is to adopt fair use doctrine such as in the U.S., and the other is to stipulate an obvious provision such as in the EU or Korea. The problem as to which way to adopt will have to be decided by the legal culture and the cases as well as confidence in judges in each country.

Though any way is adopted, the validity of the contract prohibiting reverse engineering shall be denied, because distribution of the software is currently mostly followed by shrink wrap license, contractual provisions within software package are in fact under compulsion, and it cannot be additionally expected that a user individually negotiates for use conditions with a creator who is a large enterprise. In other words, reverse engineering in most package-type use permission is prohibited, and most software development companies try to prohibit it through licensing agreements. Therefore, if a compulsory provision is not admitted, reverse engineering would be against the contract, and permission for reverse engineering by law would be useless in the end.

Accordingly, in the U.S. where copyright is restricted by the fair use doctrine, the validity of the contract to prohibit reverse engineering should be denied unless a special situation comes into existence under the equitable rule of reason, and the confusion therefore should be minimized by regulating in the Federal Act in the future. In addition, in Korea where reverse engineering is allowed under certain conditions, it shall be developed to the compulsory provision such as the EU Directive in order to obstruct confusion of the interpretation.

It is also, to my knowledge, necessary in Japan that a provision on reverse engineering is regarded as a compulsory provision on the ground that Japanese law is a statute and belongs to Continental law, that the cases continuously have denied application of the fair use doctrine so far, that it is difficult to find out the way of solving the problem through accumulation of the cases, that legal compatibility with other countries should be guaranteed, and that Japan should protect its software industry from the U.S.

Taking into consideration of the fact that the software industry in Japan is not mostly platform-oriented, but applied software such as video games, and embedded software, the above assertion seems to be more reasonable.

In conclusion, reverse engineering of programs should be admitted as compulsory provision under certain conditions according to special situation in each country as well as the purpose of the Copyright Law.