

GUNBOAT DIPLOMACY ON THE PEARL RIVER: THE TORTUOUS HISTORY OF THE SOFTWARE REVERSE ENGINEERING PROVISIONS OF HONG KONG'S NEW COPYRIGHT BILL

In the months before the turnover of Hong Kong to China, the Hong Kong Legislative Council (LegCo) busily worked at revising its copyright laws with the understanding that the new laws would continue in effect after the departure of the British on July 1, 1997. One of the provisions the LegCo considered would have specifically permitted the software reverse engineering technique known as decompilation for purposes of achieving interoperability. Rather than let the LegCo determine for itself what was in the best interests of Hong Kong, U.S. software companies represented by the Business Software Alliance (BSA)¹ encouraged the U.S. Trade Representative to pressure the LegCo into dropping the provision. The LegCo ultimately abandoned the decompilation provision, but in its place adopted, with the BSA's blessing, another provision based on the U.S. fair use doctrine. This fair use language probably permits more reverse engineering than the decompilation provision would have. This article discusses these events.

THE NOVEMBER 1996 COPYRIGHT BILL CONSULTATION PAPER

In November 1996, the Department of Intellectual Property of Hong Kong's Trade and Industry Branch produced a consultation paper on a new copyright law, which included a proposed text for the bill. Section 57 of the Consultation Paper draft specifically permitted decompilation of object code for purposes of achieving interoperability. Section 57(1)(a) defined decompilation as the conversion of a "computer program expressed in a low level language . . . into a version expressed in a

¹ The BSA's members include Microsoft, Novell, Autodesk and Lotus (IBM).

higher level language.”² The only permitted objective of the decompilation was obtaining “the information necessary to create an independent program which can be operated with the program decompiled or with another program....” Section 57(3) prohibited decompilation when the “information necessary to achieve the permitted objective” was “readily available” to the user by other means; the decompiling was not confined “to such acts as are necessary to achieve the permitted objective;” the information obtained by decompilation was supplied to a person not essential to achievement of the permitted objective; or the information obtained by decompilation was used “to create a program which is substantially similar in its expression to the program decompiled” Finally, Section 57(4) expressly voided contractual restrictions on decompilation otherwise permitted by Section 57.

Section 57 of the Consultation Paper closely followed the decompilation provision of the UK copyright statute, Section 50B, which in turn closely followed the Article 6 of the EU Software Directive. In other words, from a substantive perspective, there was nothing controversial about Section 57.

Nonetheless, Section 57 provoked a sharp reaction from the U.S. government. In a December 1996 cable, the U.S. government recommended deletion of Section 57. The U.S. specifically objected to the voiding of contractual restrictions on decompilation, noting that this stood “in marked contrast to the EC Software Directive.” The cable explained that “a similar restriction on the freedom of contract was proposed and rejected during consideration of the Directive.” In fact, the opposite was true. Article 9 (1) of the Directive explicitly provides that “[a]ny contractual provisions contrary to Article 6 [the decompilation provision] . . . shall be null and void.” Thus, an official

² It is this act of conversion or translation that implicates the copyright owner’s right to create a derivative work.

communication between the U.S. government and the Hong Kong Department of Intellectual Property contained an obvious legal error.

The cable suggested that Section 57 had a broader permitted objective than Article 6 of the Software Directive in that Section 57 permitted decompilation for the purpose of creating new programs, while the Software Directive only permits decompilation for the purpose of achieving the interoperability of existing programs. This argument was premised on a misreading of both Article 6 and Section 57; both provisions aimed at facilitating the development of new, interoperable products. The U.S. interpretation of Article 6 of the Directive as permitting decompilation only to achieve interoperability between two existing products, and not the development of a new, interoperable product, has no basis in the text of the Directive or its legislative history.

The cable indicated that a decompilation provision would be inappropriate given the current problems with copyright enforcement in Hong Kong. The cable failed to explain, however, how permitting decompilation would weaken enforcement. Good enforcement flows from an effective judicial system; decompilation, of course, would have no impact on Hong Kong's judiciary. A decompilation provision also would not complicate judicial proceedings; Section 57 would not provide a colorable defense to a software pirate engaged in wholesale copying.

The cable finally argued that Hong Kong should delete Section 57 because several other countries in the Asia Pacific region, including Australia, New Zealand, Japan, and Korea, had considered and rejected a decompilation provision based on the Software Directive. This, too, was a misstatement. The Australian Copyright Law Review Committee in 1995 recommended the legislative enactment of a decompilation

provision,³ and an interdepartmental committee of Australian ministries is currently considering whether to adopt the CLRC's recommendation. In Japan, a private sector advisory committee began to consider a reverse engineering exception at the request of the Cultural Affairs Agency (CAA). The CAA's simple act of making the request, however, prompted a sharp rebuke from the U.S. government, and the advisory committee concluded that it was premature to consider the issue.⁴ Similarly, the Korean Ministry of Information and Communications suspended its consideration of a reverse engineering exception in the face of protests by the U.S. government. In short, neither Japan nor Korea rejected a decompilation provision after considering its merits; rather, they abandoned their efforts in response to U.S. pressure, but left the door open to revisit the issue in the future.⁵

While the U.S. government urged the Department of Intellectual Property to discard Section 57, the American Committee for Interoperable Systems (ACIS)⁶ pressed for amendments to make Section 57 even more conducive to interoperability. Specifically, ACIS noted in November 27, 1996 comments that Section 57 contained an ambiguity present in Article 6 of the Software Directive. Both provisions permitted decompilation to achieve interoperability between two software products, but were silent about decompilation to permit interoperability between software and hardware. ACIS observed that the French National Assembly rectified this problem when it implemented

³ See J. Band, *Interoperability Down Under: The Australian Copyright Law Review Committee's Final Report*, *The Computer Lawyer* (July 1995)

⁴ See J. Band & M. Katoh, *Interfaces on Trial: Intellectual Property and Interoperability in the Global Software Industry* at 297-316 (1995).

⁵ Additionally, most scholars agree that software reverse engineering is currently permitted under Japanese law. See, e.g., Ozaki, *Copyright Protection of Software: The Japanese View*, 1990 *Computer L. Rep.* 950.

⁶ ACIS members include Sun Microsystems, Storage Technology Corporation, 3Com, and NCR.

the Directive by explicitly permitting decompilation to achieve software/hardware interoperability. Likewise, the Australian CRLC's decompilation provision applies to software/hardware interoperability. ACIS also urged that Section 57 be extended to permit decompilation for purposes of error correction, again citing the Australian CLRC as a precedent.

THE FIRST READING IN THE LEGISLATIVE COUNCIL

In late February 1997, the Trade and Industry Board submitted its Copyright Bill to the Legislative Council, where it had its first reading. The Bill retained the decompilation provision, which now appeared as Section 60. The new Section 60 differed from the original Section 57 in one significant respect; while old Section 57(4) voided contractual restrictions on decompilation, new Section 60 expressly stated that the decompilation privilege was "subject to any agreement to the contrary." In other words, the Bill on first reading took the completely opposite position on this issue from the Consultation Paper.

On April 11, ACIS submitted comments to the LegCo's Bills Committee applauding the retention of a decompilation exception. ACIS noted the consistency of Section 60 with the EU Software Directive, which had been implemented by all the members of the EU as well as most of the members of the European Free Trade Agreement and many Central and Eastern European countries; with the case law in the United States treating decompilation as a fair use; and with the Australian CLRC's recommendations.

ACIS proceeded to observe that Section 60 differed from its antecedents on the issue of the enforceability of contractual restrictions on reverse engineering. After quoting Article 9(1) of the Directive, which voided contractual restrictions on

decompilation, ACIS explained that “[t]he European Community included Article 9(1) in the Directive because it correctly understood that without such a provision, software companies with market power would undo the delicate balance reached in the Directive by routinely including in their licenses clauses overriding Article 6.” ACIS concluded that “Section 60(4) as a practical matter renders the rest of Section 60 a nullity.”

THE BILLS COMMITTEE HEARINGS

Had BSA simply endorsed Section 60 as introduced by the Board of Trade and Industry, it probably would have won the day. While Section 60 theoretically permitted decompilation for purposes of achieving interoperability, Section 60(4) allowed BSA members to prohibit decompilation by shrinkwrap license.

The BSA, however, continued to lobby for the complete elimination of the decompilation privilege. By pitting itself against the Board of Trade and Industry, it set in motion a process that resulted in a legal framework far more liberal than Section 60 on first reading, and indeed, arguably more liberal than Section 57 of the Consultation Paper.

During April and May, the Bills Committee held a series of public hearings on the Copyright Bill. Both the BSA and the Software Publishers Association testified against Section 60, while ACIS testified in its favor, provided that Section 60(4) was deleted or reversed. (Emery Simon, a former USTR official, testified for BSA, while Peter M.C. Choy, Deputy General Counsel of Sun Microsystems, testified on behalf of ACIS.) Although transcripts of the hearings are not available, the BSA on April 18 filed a detailed written submission, to which ACIS replied point-by-point on April 25. The BSA made the following arguments:

1. Decompilation reveals the source code of a computer program.

2. Decompilation is cheaper than obtaining a license and easier than developing a new program from the beginning.
3. Decompilation facilitates “hidden” piracy by allowing the reverse engineer to copy a program’s functionality.
4. Decompilation is not necessary for interoperability because copyright owners make available the information necessary for interoperability.
5. Decompilation is not necessary because there are non-infringing means of obtaining interoperability information.
6. In the five years since the European Union adopted the Software Directive, no other country has followed its lead on decompilation.
7. A decompilation provision will suggest to the international community that Hong Kong is not serious about copyright infringement.⁷

ACIS responded that:

1. Decompilation at most reveals a shadow of the original source code, because it cannot recover the programmer’s comments nor restore the original sequence of the code. Additionally, decompilation does not yield instructions in a high level programming language, but only in assembly language.
2. While the actual act of decompilation is cheap and easy, the engineer using decompilation must still invest significant resources to understand the jumbled, decompiled code.

⁷ Presentation of the Business Software Alliance to the Bills Committee (April 18, 1997).

3. Decompilation does not facilitate hidden piracy because copying a program's functionality, but not its code, does not constitute copyright infringement.
4. While some software developers may be willing to license interface information if doing so is consistent with their business plan, there often are circumstances when a firm may not be willing to license the information on reasonable terms. Moreover, even when a firm does license the information on reasonable terms, the information may be incomplete or untimely.
5. Sometimes other reverse engineering techniques -- so called black box reverse engineering -- will reveal the interface information necessary for interoperability, but sometimes decompilation is the only effective method.
6. In addition to the fifteen members of the EU, eight European countries have adopted a decompilation exception based on Article 6 of the Software Directive -- Norway, Switzerland, Bulgaria, Estonia, Poland, Romania, Russia, and Slovenia. Further, courts in four different federal circuits in the U.S. have ruled that decompilation constitutes a fair use.⁸
7. Given the lawfulness of decompilation in twenty-four nations, ranging from highly industrialized countries such as the U.S., the U.K., Germany and France, to much less developed countries such as Bulgaria and Romania, the world community would not view Hong Kong's adoption of a decompilation provision as a signal that it did not take copyright seriously. In this context, ACIS noted that BSA's European counsel had described

⁸ *Sega Enters. Ltd. v. Accolade Inc.*, 977 F.2d 1521 (9th Cir. 1992); *Atari Games Corp. v. Nintendo of Am., Inc.*, 975 F.2d 832 (Fed. Cir. 1992); *Bateman v. Mnemonics Inc.*, 79 F.3d 1532 (11th Cir. 1996); *DSC Communications v. DGI Techs.*, 898 F. Supp. 1183 (N.D. Tex. 1995), *aff'd*, 81 F.3d 597 (5th Cir. 1996).

Article 6 of the Directive as a “reasonable exception,” and that BSA had not objected to its adoption throughout Central and Eastern Europe, where piracy also is a serious concern.⁹

THE IMPOSITION OF A FAIR USE APPROACH

When the BSA representative Emery Simon testified before the LegCo on April 18, he suggested that decompilation be handled on a case by case basis under Hong Kong’s fair dealing exception. The LegCo directed the Trade and Industry Board to delete Section 60 and prepare instead amendments to the fair dealing provisions which would accommodate decompilation in appropriate circumstances. The staff of the Board’s Department of Intellectual Property proposed adding the following language to Section 37 concerning fair dealing: “The incidental copying by a lawful user of a computer program in the course of research or private study is fair dealing if it is done for the purpose of studying the operation of the program under study, or of creating another independent program which is compatible with, but not substantially similar to or adapted from the program under study.” In essence, the proposal imported the language of Section 60 into the fair dealing provision.

Exactly what happened next is unclear, but it is rumored that the following took place. When the BSA learned on May 14 of the fair dealing amendment proposed by the Department of Intellectual Property, it requested that the USTR intervene. A senior official in the Office of the USTR called the Secretary of Trade and Industry and insisted that the Board replace its fair dealing amendment with language from the fair use provision of the U.S. Copyright Act, 17 U.S.C. Section 107. The Department of Intellectual Property staff then prepared the following language as a new Section 37(3):

⁹ ACIS Response to the BSA’s April 18 Presentation to the Bills Committee (April 25, 1997).

In determining whether any dealing with a work of any description is fair dealing, the factors to be considered include --

- (a) the purpose and nature of the dealing;
- (b) the nature of the work; and
- (c) the amount and substantiality of the portion dealt with in relation to the work as a whole.

Additionally, the Department of Intellectual Property staff proposed a new Section 36 (2A): “In determining whether or not an act is permitted, the primary consideration is whether the act conflicts with a normal exploitation of the work and unreasonably prejudices the legitimate interests of the copyright owner.”

Both BSA and ACIS agreed to this language. When the Secretary of Trade and Industry submitted the Bill, including this language, for its second reading on June 24, she provided a statement which explained that the language was intended to effectuate Hong Kong’s policy with respect to decompilation. After describing the decompilation provision in the Bill gazetted in March, she alluded to the concerns raised by both ACIS and BSA: “we accept that the decompilation provision as drafted would be so limited as to be of little practical help to software companies wanting to decompile. On the other hand, as an exception to copyright restriction, the provision has aroused serious concerns amongst leading software companies.”¹⁰

The Secretary stated that the Board had reviewed its policy intention on decompilation, and had concluded that it:

would like to encourage competition in the information technology industry by facilitating timely access to information and ideas underlying computer programs. Doing so is necessary for the independent creation of new products that attach to or compete with the programs under study. We accept that the incidental copying of

¹⁰ Speech by STI on Resumption of Second Reading Debate at 10 (June 24, 1997). Under Hong Kong law, such floor statements constitute legislative history upon which courts should rely on when interpreting a statute.

a computer program by a lawful user during the course of decompilation or other reverse engineering performed to understand the operation of the program under study, or to develop a product inter-operable with the program under study, need *not* be absolutely restricted by copyright. Nor should it be completely deregulated. In determining whether the act should be allowed, we believe the overriding test is whether such act conflicts with the normal exploitation of the work by the copyright owner and unreasonably prejudices the legitimate interests of the copyright owner.

Id.

The Secretary then explained how the modifications to the fair dealing provisions flowed from these conclusions:

The object is to allow decompilation to be deemed a fair use provided it does not conflict with the normal exploitation of the rights and legitimate interests of the copyright owner. Drawing from the relevant provisions in the United States, we propose that other factors, including the purpose and nature of the dealing, the nature of the copyrighted work, and the amount and substantiality of the portion dealt with in relation to the copyright work as a whole, will also be taken into account in determining what constitutes “fair use.”

Id. at 11.

The LegCo gave the Bill its second reading on June 24 and its third reading on June 27. It took immediate effect on its third reading, and under the turnover agreement with China, it will remain in effect for 50 years.

FAIR USE VS. FAIR DEALING VS. THE SOFTWARE DIRECTIVE

Although Section 60 explicitly permitted decompilation, it did so only for purposes of achieving interoperability, only if there was no other way of obtaining the necessary information, and most significantly, only if it was not prohibited by a license term. By contrast, Section 37(3) as enacted by the LegCo is far broader. The Secretary’s speech makes clear that decompilation could be lawful when conducted “to understand the operation of the program under study” as well as “to develop a product inter-operable

with the program under study.” Thus, Section 37(3) recognizes legitimate objectives beyond achieving interoperability.

This expansive reading of Section 37(3) is even more compelling when its origins are considered. A Hong Kong court applying this language to a case involving decompilation will understand that it derived from the U.S. fair use doctrine, and presumably import the interpretation of the doctrine given by the U.S. courts. The Ninth Circuit in *Sega v. Accolade* ruled that the fair use doctrine permitted decompilation not only for purposes of learning the information necessary for interoperability, but for any legitimate reason: “where disassembly is the only way to gain access to the ideas and functional elements embodied in a copyrighted computer program and *where there is a legitimate reason for seeking such access*, disassembly is a fair use of the copyrighted work, as a matter of law.”¹¹

The breadth of Section 37(3) is underscored by the fact that by its terms it is more expansive than 17 U.S.C. Section 107. Section 37(3) omits the phrase “including whether such use is of a commercial nature or is for nonprofit educational purposes” found in 17 USC Section 107(1), thereby eliminating the possibility of a presumption that commercial uses (such as decompilation by a profit-maximizing software firm) are unfair.¹²

Section 37(3) also omits Section 107(4), “the effect of the use upon the potential market for or value of the copyrighted work” and inserts in its place language from Article 9(2) of the Berne Convention: “whether the act conflicts with the normal exploitation of the work and unreasonably prejudices the legitimate interests of the

¹¹ Although the terms disassembly and decompilation have somewhat different technical meanings, in legal parlance they have the same meaning.

¹² See *Campbell v. Acuff Rose*, 510 U.S. 569 (1994).

copyright owner.” Both the statute and the Secretary emphasize that this is the primary, overriding test. The inclusion of this language should not be interpreted to signal an intent that Section 37(3) have narrower application than Article 6 of the Software Directive, for Article 6(3) itself contains this same language. According to Professor Cornish of Cambridge University, this language is implicated only if decompilation is used to develop a program substantially similar *in expression* to the decompiled program.¹³

Section 37(3) is broader than both earlier decompilation provisions (57 and 60) in another significant respect. The earlier provisions referred to decompilation, but were silent about the lawfulness of the copying that occurs during the course of black-box reverse engineering, *e.g.*, interim copies of the program in random access memory when the program is run for the purpose of observing its operation. Section 37(3), by contrast, is broad enough to excuse such incidental copying. Once again, the Secretary’s statement confirms this by referring to the incidental copying “during the course of decompilation or *other reverse engineering*”

Finally, Section 60 specifically permitted contractual limitations on the decompilation privilege. Section 37, by contrast, is silent on this issue, leaving open the possibility that a Hong Kong court could determine that enforcing such a limitation would undermine the “policy intention” of “encourag[ing] competition in the information technology industry by facilitating timely access to information and ideas underlying computer programs.”

¹³ William R. Cornish, *Computer Program Copyright and the Berne Convention in A Handbook of European Software Law* 130-31 (1993).

CONCLUSION

Given that the BSA has acknowledged that Article 6 of the Software Directive is a reasonable compromise in the European context, and that courts in five circuits have found decompilation to be a fair use,¹⁴ it is unclear why the BSA so strongly preferred fair use to Article 6 in Hong Kong. By all appearances, the BSA gains nothing when it pressures countries to follow the fair use, rather than the Software Directive, model. That both approaches ultimately have the same effect is most clearly demonstrated by the Philippines' new copyright law, adopted at roughly the same time as Hong Kong's with less fanfare. It appears that the Philippines first considered the Software Directive approach, but the BSA and the USTR argued in favor of the fair use approach. The Philippines decided to marry the two; it adopted 17 U.S.C. § 107 almost verbatim, into which it injected the following sentence: "Decompilation, which is the reproduction of code and translation of the forms of the computer program indispensable to obtain the information necessary to achieve the inter-operability of an independently operated program with other programs may also constitute fair use." Section 185.1.

In sum, it makes little practical difference whether a country permits software reverse engineering pursuant to the fair use or Software Directive approach. Accordingly, the BSA and USTR should let countries decide for themselves whether a common law (fair use) or civil law (Software Directive) approach is more appropriate for their legal system.

¹⁴ In addition to the cases cited by ACIS in its April 25 comments, *see* note 8, *supra*, a district court in the Fourth Circuit recently followed *Sega: DSC Communications v. Pulse Communications*, 1997 U.S. Dist. LEXIS 10093 (E.D. Va. June 11, 1997). The Supreme Court relied on *Sega* in *Campbell v. Acuff Rose*, 510 U.S. 569, 584-85 (1994)