The Need for Reform of the Software Licensing Policy of the Department of Defense

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THE NEED FOR REFORM OF THE SOFTWARE LICENSING POLICY OF THE DEPARTMENT OF DEFENSE*

Pamela Samuelson**

ABSTRACT†

The Department of Defense has a standard policy for acquiring rights in software from private firms that is ill-suited to the kind of technology software is, to the needs the Department has to use this software, and to the needs the software industry has to impose restrictions on the government’s disclosure of software. This article explains the conceptual problem with understanding software as a technology, the deficiencies with the current software acquisition policy, and what could be done to improve this policy. The article also explores the complex relationship between the DOD acquisition regulations and intellectual property law affecting the government’s rights in software, and recommends ways in

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*Pamela Samuelson, 1986.

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†The research that underlies this article was performed while the author was the principal investigator of the Software Licensing Project (SLP) of the Software Engineering Institute (SEI) at Carnegie-Mellon University (CMU). The SEI is a federally funded research and development center (FFRDC) established with funds from the U.S. Department of Defense (DOD). A more comprehensive report by the author on the DOD’s software licensing policy is available upon request from the SEI. This report is entitled TOWARD A REFORM OF THE DEFENSE DEPARTMENT SOFTWARE ACQUISITION POLICY (Technical Report CMU/SEI-86-TR-1). The views set forth in this article are those of the author, and are not to be attributed to the SEI, CMU, or to the DOD.

The author wishes to thank the SEI and the many DOD personnel who assisted her in her research and analysis of the complex problems associated with software acquisitions, and in the production of reports about it. Much of this research involved interviewing appropriate DOD personnel; the text of this paper reflects many of those interviews. Particular thanks are due to Carol Biesecker, Kevin Deasy, Susan DiMarco, and Anne Martin, whose dedication and intelligence during the research and writing of the SEI Report were greatly appreciated by the author. The author also wishes to thank Col. David Luke and Richard Martin for their support of her work. The author additionally wishes to thank David Lingenfelter, her current research assistant, for his valuable assistance in the preparation of this article.
which the regulations could be made more compatible with precepts of intellectual property law.

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INTRODUCTION

From a technological standpoint, software has been a tremendous boon to U.S. defense capabilities. Although many technological possibilities have yet to be realized, it is not so much in terms of its uses and capabilities that the Department of Defense (DOD) currently finds software troublesome, but rather with respect to more mundane issues such as the manner in which it is appropriate to acquire and maintain software developed by private firms.

When the Department of Defense first began acquiring software, there was no acquisition category into which software readily fit. DOD knew how to acquire hardware. It also knew how to acquire blueprints, manufacturing instructions, and the like that pertained to hardware systems, which are among the things that DOD categorizes as "technical data." Software, which resembles hardware in some ways and technical data in other ways, did not readily fit into

1There is a set of regulations (known as the "Federal Acquisition Regulations" or "FAR") that govern procurements by federal agencies. See 48 C.F.R. § 1.000 et seq. (1985). The FAR is divided into a set of parts that correspond to particular subject matters. Part 27 is the section of the FAR that sets forth the policy as to patents, data, and copyrights. See 48 C.F.R. § 27.101 et seq. (1985). Part 27.4 is where the copyright and technical data provisions are to be found. See 48 C.F.R. § 27.401 (1985). Because the FAR provisions do not provide very specific guidance about all possible acquisition situations, several federal agencies, including the Department of Defense, have supplemented the FAR provisions with their own procurement regulations. See, e.g., 48 C.F.R. § 201.101 et seq. (Department of Defense Supplement). The special agency supplements are numerically ordered in conformity with the FAR numbering system. For example, the FAR data rights policy provisions may be found at 48 C.F.R. § 27.401 (1985), and the DOD supplement to these regulations at 48 C.F.R. § 227.400 et seq. (1985). Implementing clauses are found in Part 52 of the FAR, and at § 252.101 et seq. of the Defense Department's Supplement. The policy provision of the FAR data rights regulation is very brief and general. Because DOD acquires considerable volumes of data, the DOD has found it necessary to extensively supplement the data rights provision. Compare 48 C.F.R. § 27.401 (1985) and 48 C.F.R. § 227.400 et seq. (1985).

Within the DOD regulations, "technical data" is defined as:

recorded information, regardless of form or characteristic, of a scientific or technical nature. It may, for example, document research, experimental, developmental, or engineering work; or be usable or used to define a design or process or to procure, produce, support, maintain, or operate material. The data may be graphic or pictorial delineations in media such as drawings or photographs; text in specifications or related performance or design type documents; or computer printouts. Examples of technical data include research of engineering data, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications and related information, and computer software documentation. Technical data does not include computer software or financial, administrative, cost and pricing, and management data, or other information incidental to contract administration.

48 C.F.R. § 227.401 (1985). (Hereinafter the Department of Defense Supplement to the FAR will be referred to as "DFARS," and its sections will be cited without reference to the C.F.R. cite. To find the particular provision in the C.F.R., merely look in volume 48, Chapter 2, and add a "2" prefix to the DFARS cite.) See also DFARS § 52.227-7013 (implementing clause). Concerning DOD's technical data rights policy, see generally R. Nash and L. Rawicz, PATENTS AND TECHNICAL DATA (1983) (cited hereinafter as "NASH AND RAWICZ"). See also Samuelson, Toward a Reform of the Defense Department Software Acquisition Policy, Technical Report CMU/SEI-86-TR-I (cited hereinafter as "SEI REPORT").

2See infra notes 19-21 and accompanying text for a discussion of how software resembles and differs from technical data.

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either of these categories. At that time software was perceived to be enough like technical data for the standard technical data rights policy to be applied to it. This policy gives DOD the rights to use, duplicate, and disclose privately funded technical data throughout the government. Such rights are called "limited rights" in the DOD lexicon because the government is barred from disclosing them to private firms for such purposes as competitive reprocurements. Because the software industry strenuously objected to giving the DOD government-wide rights to its products unless the government was willing to pay correspondingly high prices for the software, DOD eventually adopted a data rights acquisition policy that partially differentiated software (by which DOD meant only machine-readable code, and not any of the documentation for the software, all of which was still considered to be technical data). This policy allowed DOD to acquire site-restricted rights in privately developed software. Not surprisingly, this set of governmental rights is called "restricted rights."

Although this was a considerable improvement over the prior policy, one

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<sup>3</sup> See 32 C.F.R. § 1.201.36 (1973). That provision stated: "'Technical Data' means recorded information, regardless of form or characteristic, of a scientific or technical nature. . . . The data may be . . . retained in computer memory." This broad definition would seem to include all software, since a program is nothing more than data in a computer's memory being used to control the function of the computer itself. It was not until 1975 that the definition was modified to include "documentation related to computer software" but to exclude "computer software" itself. See 32 C.F.R. § 1-201.36 (1975).

<sup>4</sup> See DFARS §§ 27.401 (definitions), 27.403 (policy provisions), and 52.227-7013 (implementing clause).

<sup>5</sup> "Limited rights" is defined in the DFARS as:

- rights to use, duplicate, or disclose technical data in whole or in part, by or for the Government, with the express limitation that such technical data shall not, without the written permission of the party furnishing such technical data, be (a) released or disclosed in whole or in part outside the Government, (b) used in whole or in part by the Government for manufacture, or in the case of computer software documentation, for reproduction of the computer software, or (c) used by a party other than the Government, except for:
  1. Emergency repair or overhaul work only, by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work, provided that the release or disclosure thereof outside the Government shall be made subject to a prohibition against further use, release, or disclosure; or
  2. Release to a foreign government, as the interest of the United States may require, only for information or evaluation within such government or for emergency repair or overhaul work by or for such government under the conditions of (1) above.

<sup>6</sup> See DFARS §§ 27.401 (definition of "computer software"), 27.404 (policy provisions), and 52.227-7013 (implementing clause).

<sup>7</sup> "Restricted rights" are defined in the regulations to mean:

- rights that apply only to computer software, and include, as a minimum, the right to—
  - a. Use computer software with the computer for which or with which it was acquired, including use at any Government installation to which the computer may be transferred by the Government;
  - b. Use computer software with a backup computer if the computer for which or with which it was acquired is inoperative;
  - c. Copy computer programs for safekeeping (archives) or backup purposes; and
  - d. Modify computer software, or combine it with other software, subject to the provision that those portions of the derivative software incorporating restricted rights software are subject to the same restricted rights.
of the important questions being raised at present is whether software has yet been adequately differentiated from technical data and differentiated in the right ways. That is, has software as a technology been adequately understood by DOD and have the regulatory licensing rules and practices developed by DOD to acquire and maintain this technology been molded to conform to an appropriate understanding of the technology? DOD's rules and practices regarding software must make sense not only in terms of the technology, but in terms of the government's needs to use the technology and in terms of the economics of the software industry. The policy also needs to be clear and comprehensible to persons of average intelligence. For reasons set forth below, this author thinks that the current software acquisition practices of the Department of Defense fall short of these high goals.

To be fair, it should be said that it is a most difficult task to develop the kind of new conceptual apparatus that is necessary to treat software appropriately. The temptation is always to use the nearest analogue as long as one can, until the problems with reliance on the analogue become more pronounced than the problems associated with developing a new concept. The time has come, however, for the Department of Defense to renounce the quasi-technical data orientation of its acquisition practices toward software and to adopt a new policy that is clear and coherent, that is no more divergent from commercial practices than is necessary for the achievement of the Defense Department's mission, that is appropriate in terms of the Defense Department's need to use the technology, and that is appropriate in terms of intellectual property rights associated with software.

I. SOFTWARE'S HYBRID NATURE

Software in its machine-readable form has characteristics of both hardware and some characteristics of technical data. This hybrid character of software has led to some confusion within the Department of Defense about the manner in which software should be acquired and maintained after acquisition:

In addition, restricted rights include any other specific rights not inconsistent with the minimum rights in (a) through (d) above that are listed or described in a contract or described in a license or agreement made a part of a contract.

DFARS § 27.401. See infra notes 82-84 and accompanying text regarding the complexities of the DOD's restricted rights policy.

*See, e.g., Inside the Pentagon (Trade Newsletter), DAR Council to Put Software Policy on Separate Track from Tech Data p. 3-4 (5/30/86) (reporting that DOD is considering creating a separate software rights policy).

*See Samuelson, CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine-Readable Form, 1984 Duke Law J. 663 (1984), for a discussion of a similar characterization problem for software in the copyright system (having some characteristics of writings and some characteristics of machines).
should it be treated like hardware, or like technical data, or as a unique category?\textsuperscript{10}

\section*{A. Similarities and Differences between Hardware and Software}

Software is like hardware in that it causes machines to perform tasks. Software is merely a replacement for hardware components that could otherwise perform the same function. Software is often embedded in hardware and part of an overall hardware system. Like hardware, software can often serve as a tool for creating other items. Like hardware, software needs maintenance work from time to time to operate properly.

Software is unlike hardware, however, in a great many ways. Software is, for example, easy and cheap to replicate as compared with hardware. Once the first copy has been produced, software can be almost endlessly replicated at almost no cost, regardless of how complex the code is. One of the consequences of this characteristic is that the government tends to think that additional copies of software ought to be deliverable at a very low cost, whereas industry, which is concerned about recouping its research and development costs, and which tends to regard the sale of software as the sale of a production facility (as if one bought a General Motors factory when one bought a truck produced by GM), thinks that sales at higher price levels are necessary to make the software business viable. A second consequence of low-cost replicability is that the software industry, for the most part, tends to make its products available only on a highly restrictive licensing basis, rather than selling copies outright.

Another important difference between software and hardware is that software may be wholly subject to a very lengthy lawful monopoly (i.e., a copyright) as well as being held as a trade secret,\textsuperscript{11} whereas hardware may be subject to a much shorter monopoly (i.e., a patent) and most often cannot be held as a trade secret.\textsuperscript{12} Moreover, quite often hardware is either not patented at all or

\textsuperscript{10}The hybrid character of software also has a bearing on a variety of other questions, such as whether implied warranties may attach to software delivered to the government. If software is a "good" within the meaning of the Uniform Commercial Code, implied warranties may attach; if it is a "service," they will not.


\textsuperscript{12}Machines are patentable subject matter. See 35 U.S.C. § 101 (1984). Hardware can often be readily reverse-engineered. Since reverse-engineering is a lawful way to appropriate a trade secret, see, e.g., 1 MILGRIM ON TRADE SECRET §§ 2.03 and 2.05 (1984), it is very difficult for a firm to maintain trade secrets in hardware.
only subject to partial patent protection. A high standard of inventiveness is required for patent, while copyright requires only the most minimal originality. Hardware, unlike software, cannot be copyrighted at all. As a result, it tends to be much harder to get competition for software reprocurements and maintenance than for hardware, which means that it is even easier for the government to find itself in a sole source position as to software than as to hardware. Because the Defense Department is becoming ever more dependent on software, this has to be a serious concern.

Moreover, because software engineering is still in early stages of development, it is generally more difficult to specify how software, as opposed to hardware, should be developed for particular functions and to estimate the costs and development schedule for it.

Software, which consists of a stream of electrical impulses, is also virtually "invisible" as compared with hardware, which means that it is more difficult to detect if someone delivers very similar or nearly identical software on a second development contract. Also, "invisibility" means that it may be more difficult, as a general matter, to detect defects in software or to know how to fix them once the defect is known. Again, because software engineering is a developing art, software is likely to contain many undetected defects that will need to be corrected while in the user's possession.

Unlike hardware, software is readily changeable; that is, new capabilities can be added to software without additional plant or material costs. Often, all that is required is some intellectual labor. All of these factors tend to make software maintenance and enhancement a much bigger part of software life-cycle planning than is the case with hardware.

B. Similarities and Differences between Software and Technical Data

Software and technical data are similar in being recorded information. They are also alike in that both are often held as trade secrets, and licensed under restrictive conditions, rather than being sold in the marketplace. Loss of the secrets contained in both may undermine or destroy the firm's commercial advantage. Both are also capable of being claimed as unpublished copyrighted material. Both involve modest production costs in themselves once the tech-

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14See 1 NIMMER ON COPYRIGHT § 3.03 (1985).
15See 17 U.S.C. § 101 (definition of useful article, which disqualifies useful works such as machines from copyright protection). See also 17 U.S.C. § 113 (useful articles not "copies" of copyrighted design drawings).
16See infra notes 90–91, 141–142 and accompanying texts.
18See infra note 142 and accompanying text.
19Both may be "original works of authorship" within the meaning of 17 U.S.C. § 102(a) (1982).
nology they reflect has been developed. Both are also difficult to price with any precision. Because production and material costs for these items are low (i.e., what it costs to make a drawing on paper, or what it costs to make a second copy of software), the government tends to think the price ought to be low. Because it is the firm's valuable technology that they reflect, industry tends to price them high.\(^2\)

Software differs from technical data in being an "end item" in itself. Software is a product that will perform machine functions, whereas technical data is merely information about a product. As an end item, software will more likely be a product with a commercial market, whereas technical data will often not be sold or licensed to anyone by the government. Because of this commercial potential, software tends to be copyrighted, whereas technical data is usually maintained exclusively as a trade secret.\(^2\) Also, when altered, software will perform differently, in contrast with technical data which will simply reflect a new configuration. Software also requires an environment of equipment and other software to be effective. Technical data tends to be stored away in a warehouse, and only rarely used. Software tends to be actively used for important functional purposes on a day-to-day basis.

II. PROBLEMS ARISING FROM DOD PROCUREMENT REGULATIONS

The Defense Department has in recent years been sponsoring the development of a large number of very sophisticated software systems. Many companies are interested in exploring the possibility of participating in one or more DOD-sponsored software development projects. Small firms, in particular, may be drawn to DOD as a source of funding for large-scale projects, perhaps hoping that the software developed for the military will also (at least with some modifications) have a significant commercial market. The company may think it worthwhile to take DOD funding because that will pick up the initial development costs, and then profits can be made on subsequent commercial sales. In addition to letting software development contracts, the Defense Department also acquires very considerable quantities of already developed software from private firms.

\(^2\)With both software and technical data, crucial information necessary for maintenance or enhancement of the item to which they pertain is often not readily apparent from examination of the paper or disk; rather, the information may be stored away in the memory of some engineer who designed the item. Ongoing service contracts are sometimes necessary to be able to gain access to that expertise.

\(^2\)The disadvantage to a firm in protecting engineering drawings and the like through copyright is that the copyright does not extend to protection of the engineering design itself, but only the particular drawing of it. See, e.g., Muller v. Triborough Bridge Authority, 43 F. Supp. 298 (S.D.N.Y. 1942).
One of the perceived drawbacks to taking development money from or otherwise licensing rights in software to the Defense Department is the "data rights" policy the Department has adopted to allocate and administer what rights the government and its contractors will have as to software acquired by the government. The DOD data rights policy is often decried as "confiscatory" by industry people, although just how and to what extent it is "confiscatory" is not well understood.

The heart of the DOD's software acquisition policy is the "standard data rights clause" that DOD's procurement regulations require to be inserted in all software acquisition contracts unless permission has been obtained to deviate from the standard terms. This clause applies to acquisitions of rights in both software and technical data.

Although the standard data rights clause is more complex and ambiguous than it may initially seem, it may be helpful to set forth some of the basic principles of the clause before examination of its full range of complexities and ambiguities when applied to software acquisitions.

The standard data rights clause provides that the DOD will have "unlimited rights" (i.e., the rights to use, duplicate, and disclose by the government and by anyone to whom the government might decide to give it) in all software and software documentation that has been acquired from private firms, any part of the development cost of which was paid for with government funds. The clause generally gives DOD "limited rights" (government-wide rights to use, duplicate, and disclose) in software documentation that has been developed wholly at private expense, and "restricted rights" in privately funded software code. The four minimum rights that DOD must have in all software are: (1) the right to use it in the computer for which it was acquired; (2) the right to

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23DFARS § 52.227-7013.

24DFARS § 27.404-2(b)(2) (requiring insertion). See infra notes 148-58 and accompanying text regarding whether the standard data rights clause will be read into a contract in which it has not been inserted, and what effect contradicting clauses will have.

25See DFARS § 27.404-2(a) (describing procedure for obtaining deviation from DAR Council).

26See DFARS § 52.227-7013(b). But see DFARS § 27.405(a) (requiring use of the special works clause when DOD wants to take ownership and control in software and technical data). See also DFARS § 52.227-7020 (the special works clause).

27Unlimited rights is defined in the standard data rights clause as "rights to use, duplicate, or disclose technical data, in whole or in part, in any manner and for any purpose whatsoever and to have or permit others to do so." DFARS § 52.227-7013(a). (Note that software is not listed in the clause's definition of unlimited rights; in subsection (b)(1), it is clear that the government claims unlimited rights in software as well as technical data.) See infra notes 44-48 and accompanying text regarding circumstances in which the government may have less than unlimited rights in publicly funded software.

28See supra note 5 for the full definition of limited rights. See infra notes 79-81 and accompanying text for a discussion of the definition of "developed at private expense."

29See supra note 7 for the full definition of restricted rights.
use it in a backup computer if the first computer is not operable; (3) the right to make a back-up copy; and (4) the right to modify the code.\footnote{See infra notes 82-84 and accompanying text for an elucidation of the complexities.}

Although the regulations allow DOD and industry considerable flexibility to fashion appropriate licensing arrangements in software and to have these arrangements made part of the government contract,\footnote{See DFARS § 52.227-7013(b)(2) (permitting the government to acquire more than limited rights in privately developed technical data with a contractor’s permission) and (b)(3) (permitting the government and industry to negotiate special licensing agreements for acquisitions of privately developed software).} there are some significant inflexibilities in the regulations affecting software acquisitions: (1) the standard data rights clause must be in the software acquisition contract unless a deviation has been obtained;\footnote{See supra notes 24-25 and accompanying text.} (2) the government cannot negotiate away its four minimum rights in privately developed software without getting a deviation;\footnote{The regulations state that “the Government shall have restricted rights in computer software,” DFARS § 52.227.7013(b)(3)(i), and restricted rights is defined to include “as a minimum” the four rights set forth above, supra note 30 and accompanying text. DFARS § 52.227-7013(a) (definition of “restricted rights”).} (3) under the present policy the government cannot negotiate for less than unlimited rights in software that has been funded, in whole or in part, by the government.\footnote{The regulations state that “the Government shall have unlimited rights in ... computer software required to be originated or generated under a Government contract . . . ,” DFARS § 52.227-7013(b)(1)(ii).}

The software industry has been quite unhappy with the policy, especially with the rules that automatically give the government unlimited rights in software, even if it is only funded in part by the government. The industry also resents the rules that give the DOD government-wide rights in privately developed software documentation. In 1984, Congress passed a law that directed DOD to reconsider its data rights policy and define the legitimate proprietary interests of the government and industry based on whether the subject matter was developed at public expense, at private expense, or with both public and private funding (often referred to as “mixed funding”).\footnote{Section 2320(a)(1) of DOD Authorization Act of 1985, Pub. L. No. 98-525, 98 Stat. 2595 (now codified at 10 U.S.C. § 2320).} This directive gave rise to some hope in the software industry that DOD would modify its software acquisition policy at least in mixed funding situations. The Federal Acquisition Regulations (FAR) that were proposed in the summer of 1985 would not only create a mixed funding option,\footnote{50 Fed. Reg. 32870 (8/15/1985) (announcing the availability of the draft regulations). See 30 Pat., Trademark, & Cop. J. (BNA) 413-429 (8/22/85) (text of draft regulations). The mixed funding option is proposed § 27.408 at 30 Pat., Trademark, & Cop. J. (BNA) at 419.} they would also deviate less from standard commercial software licensing practices than the standard DOD policy does.\footnote{See proposed FAR § 52.227-14, id. at 421. The proposed FAR, for instance, would treat privately developed software documentation the same way the government treats privately developed software, and would preserve restricted rights status for software in which a firm made slight modifications at public expense.}
This proposal also raised hopes that DOD would follow the FAR's lead and propose a similar policy. In September 1985 the DOD issued a proposed revision to its data rights policy that in most respects was identical to its old policy, but contained one proposal for change that caused considerable dismay within the software industry. The change was in defining the term "developed at private expense" (a precondition to restricted and limited rights treatment for software and its documentation) in such a way that virtually no software could qualify. Thus, not only was DOD not proposing to create a new mixed funding option, but, from industry's standpoint, it was taking a serious step in the wrong direction by proposing to adopt a policy that would, in essence, give DOD unlimited rights in all software that it acquired. After a heated hearing on the proposed DOD regulations, DOD decided not to go ahead with these proposed rules. Instead, it adopted a set of interim regulations that retain the basic substance of the prior policy, while it reconsiders its data rights policy.

There is now a chance for DOD to rectify the problems with its software licensing policy and to adopt a new policy that will create greater incentives for the software industry to develop and deliver its best products to DOD. This section will discuss the deficiencies of the existing policy as it affects software. The section will conclude with several recommendations about how the DOD software acquisition policy should be revised.

A. Ambiguities in the Regulations

1. Ambiguities That Would Seem to Disadvantage the Government

There are several provisions in the current DOD regulations that are perceived to be ambiguous, and, therefore, potentially troublesome (or confusing) for the government as it attempts to achieve certain goals it may have as to software systems.

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40See infra notes 80–81 and accompanying text.


4250 Federal Register 43158 (10/24/85).

a. Unlimited Rights or Government Purposes 
Rights In Copyrighted Software?

It is said to be standard government policy to obtain unlimited rights in any software developed at public expense under a government contract or subcontract.44 "Unlimited rights" is defined to mean "the right to use, duplicate, or disclose . . . computer software in whole or in part, in any manner and for any purpose whatsoever, and to have to permit others to do so."45 However, another part of the regulations states that contractors may retain copyrights in all software developed under a government contract.46 When a contractor asserts his right to copyright this software, the regulations say that the government is supposed to get back a license to copy and use the copyrighted material for governmental purposes.47

Although the standard data rights clause is ambiguous about the relationship between the unlimited rights provision and this governmental purpose license, it is not unreasonable to construe the copyright retention provision as cutting back the government's rights from "unlimited rights" to "government purpose" rights.48

The current regulations should be revised to clarify the government's intention as to the copyright retention provision.

b. The Failure to Include a Right to 
Make Derivative Works Within the 
Definition of Unlimited Rights

The current DOD definition of unlimited rights is silent about whether the government has the right to prepare derivative works when it has "unlimited rights" in software. The current definition speaks only of rights to "use," "duplicate," and "disclose" such software.49 Derivative works rights are particularly important as to software because maintenance, enhancement, reuse,
translation, rehosting, and retargeting are all dependent on having a derivative works right.  

While it is conceivable that a court might construe the existing clause to encompass a derivative works right, notwithstanding the failure to mention this important right in the definition, the argument for implicit inclusion is weakened by the fact that the proposed FAR data rights provisions do define unlimited rights to include derivatives.  

It would be prudent for the DOD to make explicit that it has rights to prepare derivative software if this is what it wants.

c. The Apparent Conflict Between the Special Works Clause and Section 105 of the Copyright Law

The policy provisions of the DOD regulations advise procurement personnel to use the "special works" clause whenever the government wants to exercise ownership rights in software developed at public expense. The special works clause, in effect, claims a direct copyright interest in the government for the software as if it was a "work made for hire" under the copyright law. Unfortunately, software is not a category of work that is eligible for treatment as a "work made for hire," and Section 105 of the Copyright Act of 1976 expressly prohibits the federal government from owning copyrights directly.

These provisions of the copyright law may, therefore, have the effect of

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50See infra notes 103-40 and accompanying text for a discussion of derivative work rights. See also infra notes 197-217 for an illustration of how derivative works rights can complicate software acquisitions.

51One might argue that a right to make derivative software is included within the rights to "use" the software. Yet there clearly is a difference between using software for its operational function (which DOD obviously has the right to do) and preparing derivative software.

52Proposed FAR § 52.227-14 (definition of "unlimited rights"). See 30 PAT., TRADEMARK, & COP. J. (BNA) 421 (8/22/85).

53DFARS § 52.227-7020.

54DFARS §§ 27.402 and 27.405.

55The relevant portion of § 52.227-7020 is subsection (b) which provides: All works first produced in the performance of this contract shall be the sole property of the Government, which shall be considered the "person for whom the work was prepared" for the purpose of authorship in any copyrightable work under Section 201(b) of Title 17, United States Code, and the Government shall own all of the rights comprised in the copyright. The Contractor agrees not to assert or authorize others to assert any rights, or establish any claim to copyright, in such works. The Contractor, unless directed to the contrary by the Contracting Officer, shall place on any such works delivered under this contract the following notice:

c. (Year date of delivery) United States Government as represented by the Secretary of (department). All rights reserved.

In the case of a phonorecord, the c will be replaced by P.

56See 17 U.S.C. § 101 (definition of "work made for hire") (1982). Congress intended only the named categories of works to be eligible for work-made-for-hire status. See H.R. REP. No. 1476, 94th Cong., 2d Sess. 121 (1976) ("The definition provided by the bill . . . spells out those specific categories of commissioned works that can be considered 'works made for hire'.") ( cited hereinafter as "HOUSE REPORT").

57See 17 U.S.C. § 105 (1982). This provision does allow the government to take copyrights by assignment, bequest, and the like. Trying to take the copyright in software as if it is a "work made
nullifying the "special works" clause insofar as it purports to give the government a direct copyright interest in works prepared for it by private contractors. DOD’s special works clause has, unfortunately, been used in a substantial number of development contracts for software. Any software in which the government claims direct copyright interest through the special works clause may ultimately be held to be in the public domain.58

d. What Does it Mean to Have Unlimited Rights in Non-Deliverables?

The assumption under which the DOD data rights regulations operate is that the government has unlimited rights in all software developed under a government contract and at public expense.59 Often, a government contract will call for delivery of only certain specified items of technical data or software. Sometimes the government may learn of some valuable intellectual property developed under the contract (and in which the government, therefore, claims unlimited rights) whose delivery has not been required by the contract, but which the government would very much like to have. The contractor may even offer to "sell" this valuable thing to the government. Such an offer is likely to be rebuffed by government lawyers who may insist that "it’s already ours."

Although the regulations do seem to give the government unlimited rights in all data and software generated under a government contract, and Professor Nash speaks of the government having an “inchoate” right to such things,60 it is difficult to know what it would mean to have unlimited rights in something which one doesn’t have and which the person who has it is under no enforceable obligation to deliver.61

This ambiguity is another example of the government’s having higher ex-
expectations about its rights than "unlimited rights" seems able to deliver. The advantage to DOD in leaving this ambiguity in place is that it may sometimes be helpful in negotiating with software developers about non-deliverable software or algorithms. The disadvantage to DOD in leaving this ambiguity in place is that without a deferred ordering clause\(^2\) the ambiguity raises DOD expectations that the government may have no lawful right to have satisfied; thus the ambiguity may create opportunities for distrust and bitterness, which are in neither the government's nor industry's long-term best interests.

The government should, therefore, either make a deferred ordering clause mandatory, or drop its unlimited rights claims to non-deliverable software.

2. Ambiguities That May Disadvantage Industry

Just as there are several provisions of the current DOD regulations that seem to offer the government lesser rights than it might have expected to possess, there are several provisions that suggest that even when software and its associated documentation have been developed wholly at private expense, unwary contractors may find the government claiming unlimited rights in these materials (rather than the more restrictive rights the contractor might have expected the government to be satisfied with under the circumstances).

a. The Government's Rights in "Restricted Rights Software" When No Separate License is Negotiated

The standard data rights clause incorporated into DOD contracts distinguishes between two types of restricted rights—those applicable to commercial software and those applicable to other software.\(^{63}\) As to commercial software,\(^{64}\)

\(^2\)DOD does have an optional deferred ordering clause that would provide a basis for obtaining interdelivery of software. See DFARS § 52.227-7027.

\(^{63}\)DFARS § 52.227-7013(b)(3)(i) (other software) and (ii) (commercial software).

\(^{64}\)Commercial software is defined as "computer software which is used regularly for other than Government purposes and is sold, licensed or leased in significant quantities to the general public at established market or catalog prices." DFARS § 52.227-7013 (definition of "commercial computer software").
there is a fixed set of restrictions on the government's use. As to other software, it is clearly possible for other restrictions to be negotiated by the parties, subject only to the requirement that the government always has the four minimum rights set forth in the clause. Indeed, the language of the standard clause contemplates that a separate license agreement containing other restrictions will be negotiated and made a part of the government contract.

A question that some have posed is what happens to the government's rights if a separate license agreement has not been negotiated, or if a license agreement has been negotiated but not explicitly made part of the government contract? Software firms will likely assume that the government will have no more than the standard four restricted rights. Some government lawyers, however, argue that unless there is a separate agreement and it is made a part of the government contract, the government has unlimited rights in the software.

It seems unlikely that a court would uphold such governmental interpretation of this clause. If a software firm provided the government with its software on the understanding and in the expectation that no more than the four minimum rights would have attached, it would seem likely that the court would protect the party's reasonable expectations. Modern contract law has moved away from hyper-technical approaches to contract formation and tends to enforce reasonable expectations of the parties. This is a case, however, wherein even if the government won it could lose in the long run, since pressing of the claim will likely impair already strained relations between industry and government.

b. Getting Unlimited Rights in "Instructional" Software Documentation

Software documentation is often included in manuals. It may also be characterized as instructional material necessary to maintenance of a system. The standard data rights clause claims unlimited rights for the government in all manuals and instructional materials necessary to installation or maintenance of a system, even though it may have been developed wholly at private expense. Because virtually all software documentation required to be delivered under a

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65Compare DFARS §§ 52.227-7013(b)(iii) and (ii). The former contemplates negotiation of additional terms; the latter provides that commercial software "shall be subject to" a stated set of terms. A different restrictive legend is to be attached to the software depending on which arrangement the contractor has elected to take. See also infra notes 82-84 and accompanying text for a discussion of the full complexities of the restricted rights provisions.

66See DFARS § 52.227-7013(b)(3)(i) (licensing arrangements permitted). Reportedly, many firms have provided their proprietary software to DOD, and have not negotiated separate licensing agreements, let alone made such agreements part of the government contracts.

67The following language of the clause could be used to support this interpretation: "The contractor may not place any legend on computer software indicating restrictions on the Government's rights in such software unless the restrictions are set forth in a license or agreement made a part of this contract prior to the delivery date of the software." Id. If no restrictive marking can be put on such software, then the government arguably cannot be bound by the restrictions; not being bound by the restrictions, the government's only other alternative under the standard data rights clause is unlimited rights.

68DFARS § 52.227-7013(b)(1)(vii).
government contract can be construed to be included in one of these two categories, some software firms worry that government may, through the standard data rights clause, claim unlimited rights to this material, which may include the most sensitive commercially valuable resource of the company.6

Like the previous example, this one requires a highly technical reading of a very long and complicated clause. Like the other example, the incongruity is not obviously flagged so that a diligent industry person who read the clause would understand what he was giving up. Like the other incongruity, it is more likely the result of imprecise drafting rather than being an intentional policy.7 And, even if the government chose to litigate the issue and won, it would stand to lose credibility because of the perceived unfairness of such a position.

B. The Need for More Precise Definitions

1. What Unlimited Rights Means Vis-à-vis Ownership

There does not seem to be a consensus among DOD personnel about what "unlimited rights" means vis-à-vis ownership. At least four interpretations have been proffered on this issue: (1) some think unlimited rights is the equivalent of ownership; (2) some think it means the government co-owns the software (the government owning it in the governmental sphere, the developer owning it in the commercial sphere); (3) some think it means the software is in the public domain;71 (4) some think it means that the contractor owns the software and that the government has a license back to use the software.72

It should be obvious why it is important to delineate carefully what unlimited rights mean. The government’s interpretation of the "unlimited rights" clause may vary depending on the nature of the software. For example, if the software is copyrighted, the government may have different rights than if the software is considered "commercial" software. The government may be able to use, duplicate, or disclose the software for any purpose, but it may be subject to restrictions when used for governmental purposes.

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6 It may be that if the documentation pertains to commercial software, it can be exempted from the broad reach of the unlimited rights provision because the commercial software restricted rights provision says that such documentation shall be so exempted. DFARS § 52.227-7013(b)(3)(ii). This clause indicates that not only the machine-readable code but any related software documentation that has been developed at private expense and is not in the public domain will be subject to restricted rights treatment. But the standard data rights clause is ambiguous even as to the inclusion of this documentation. If the documentation pertains to other than commercial software, there is no comparable basis for claiming an exemption under the other restricted rights provision. See DFARS § 52.227-7013(b)(3)(i).

7 It makes no sense to interpret the clause as subjecting the machine-readable code to the restricted rights provision and yet to treat the documentation (which would likely contain all the most sensitive, commercially valuable information) as if the government had unlimited rights in it and could show it to whomever it wished.

71 Certainly, as to the trade secrets the software might contain, the government seems to have the capability to put them in the public domain.

72 Some of these people think "unlimited rights" means that the government has an unlimited license in the software; some think the government will have a governmental purpose license in it. Subsection II A, supra, suggests that the latter interpretation may be the more appropriate one when the software is copyrighted. There is a big difference between "unlimited rights" as defined by DFARS § 27.401 ("to use, duplicate or disclose . . . in any manner and for any purpose whatsoever, and to . . . permit others to do so") and "license rights" as defined by that same section (which limits the right to use, duplicate or disclose to "governmental purposes"), so originally something different must have been meant by unlimited rights. See infra notes 197–218.
limited rights truly means vis-à-vis ownership. If DOD people think of "unlimited rights" as an ownership interest, they will tend to act on this belief, which means they can get into trouble if it isn't true.\(^{73}\)

The way intellectual property law tends to define "ownership" and "property rights" is not so much in terms of what someone can do with the intellectual property, but in terms of what right he or she has to exclude other people from doing certain things with that property.\(^{74}\) The government's "unlimited rights" definition seems to go to what the government can do with software and its documentation and what it can authorize others to do, and does not grant any rights to the government to exclude others from it. For this reason, intellectual property law would likely treat "unlimited rights" as a broad license, not as an ownership interest.\(^{75}\)

2. **Governmental Purpose**

If the government does not have "unlimited rights" but only "governmental purpose rights" in copyrighted software developed at public expense,\(^76\) it is important to understand what the "governmental purpose" means. Unfortunately, the DOD regulations do not define the term. Among the range of meanings "governmental purpose" may have are the following:

a. For use by all federal government agencies, or only by DOD, or only by the particular service that obtained the rights? If the former, does that mean NASA can get it for nothing just for the asking?

b. For use by state or local governments if the DOD thinks it a good idea to share the software.

c. For use by foreign governments to whom the U.S. government wants to give it.

d. For use in the defense community as a whole (including all private firms who contract with DOD) if DOD thinks it is a good idea to share the thing.

e. For use by defense contractors in foreign countries to whom the government might want to give the software.

f. For use to enable the government to get something at a low cost or for free.

g. For use in competitive reprocurements or maintenance contracts.

\(^{73}\)For example, in negotiating a software development contract, a procuring agency might not attempt to get the copyright, and the contractor might claim a copyright in the software. The agency might have thought it didn't need the copyright since it has unlimited rights. This view of unlimited rights might, however, prove very costly to the agency should it later discover that it needs the copyright in order to control enhancements to and new versions of the software. The agency would be forced to negotiate with the contractor in order to be able to do the things it might wish to do with the software.

\(^{74}\)The patent statute, for example, gives the patentee the exclusive right to make, use, and sell his invention. See 35 U.S.C. § 154 (1984).

\(^{75}\)See, e.g., Regents of the University of Colorado v. K.D.I. Precision Products, Inc., 488 F.2d 261 (10th Cir. 1973) (discussing the difference between "unlimited" and "exclusive" rights).

\(^{76}\)See supra notes 44-48 and accompanying text.
Because of Congress' recent intense concern about competitive reprocure-
ments, the last question may seem to be of the greatest topical interest, but all of
these questions are of considerable importance and there is no guidance in the
regulations about them. 77 Prior case law would seem to take a narrow view of
the meaning of the term "governmental purpose." 78

3. Software Developed at Private Expense

Because so much of the allocation of rights issue turns on whether software
was developed at private or public expense, it would be highly desirable to de-
fine the concept "developed at private expense" in the regulations, and to
make its definition part of one of the standard clauses required to be placed in
all development contracts. In the late summer of 1985, the DOD finally pro-
posed a definition of "developed at private expense" as part of a larger revis-
ion of the data rights regulations. 79 This proposal would have defined the term
as follows:

that completed development was accomplished without direct Governmental payment,
at a time when no Government contract required performance of the development ef-
fort, and was not developed as a part of performing a Government contract. The word
"developed," as used in the phrase "developed at private expense," means brought to
the point of practical application; i.e., to be considered "developed" . . . computer
software [must have been] used, and . . . tested so as to clearly demonstrate that it per-
forms the objective for which it was developed . . . Further, in applying the foregoing
criteria, when . . . computer software which has been developed at private expense is
modified or revised to meet Government requirements specified in a contract, modifica-
tion of the . . . computer software shall not be considered to have been developed at
private expense. 80

Because software tends to be in a continual development process, this definition
would seem to disqualify all privately funded software from restricted rights status.
Not surprisingly, this definition proved too controversial to be adopted. 81 Perhaps
now is a good time to try again to develop a definition that both industry and gov-
ernment can live with. The term is too important not to be defined.

4. One or Two Types of Restricted Rights?

The policy provisions of the DOD acquisition regulations contain only one
definition of restricted rights applicable to software. 82 The standard data rights
clause that implements this policy contains two sets of restricted rights—one

77See infra notes 197-218 and accompanying text.
78See Nash and Rawicz, supra note 1, at 425-26.
79See supra notes 39-42 and accompanying text.
8050 Fed. Reg. 36888 (9/10/85). See also In re Bell Helicopter Textron, ASCBA No. 21192
(1985) (adopting a similar definition), summarized at 31 PAT., TRADEMARK & COP. J. (BNA) 132
(12/12/85).
81See supra note 41 and accompanying text. See also NASH AND RAWICZ, supra note 1 at
443-45 (discussing a prior attempt to define the term in a similar manner which also proved too
controversial for adoption).
82DFARS § 27.401.
applicable to commercial software (but only at the vendor's election) and one applicable to other software. 83

There are a number of problems with having a policy with two different sets of restricted rights. For one thing, while the two sets of rights resemble each other in some respects, they are not the same, and to the extent they are different it is not apparent what principled basis exists for the differentiation. 84 Another problem is that there isn't any easy way to make reference to the two kinds of restricted rights. At a minimum, it would be helpful to be able to refer to "commercial software restricted rights" and "trade secret software restricted rights," or some other bifurcation.

It is also difficult to unravel the commercial software provisions. There are several twists to this policy. For one thing, commercial software does not have to be treated as commercial software. The regulations give commercial software vendors the right to opt to have their software treated either as commercial software or as other-than-commercial software. There is, however, no corresponding option to have other-than-commercial software treated as commercial software. That commercial software is defined too vaguely to give effective guidance about who can exercise this option compounds the problem. A very close and careful reading of regulations is required to discern what advantage there might be for vendors to opt for commercial software treatment or the other kind. The advantage of opting for the commercial software treatment is that the regulations permit commercial software documentation to be subject to restricted rights treatment, rather than the government-wide limited rights that apply to documentation for other software. The "downside" for industry in opting for commercial software treatment is that the site license seems to be broader (to the facility, rather than to one computer) and that one cannot negotiate additional terms and conditions through a commercial software licensing agreement as one can with other-than-commercial software. The policy in this respect is so complicated it is no wonder that neither DOD nor industry personnel seem to understand it.

What seems to be the general intent of the restricted rights segment of the regulations is to set a "floor" of minimum rights which the government must always have (as well as setting a standard "ceiling" of unlimited rights when government funding has been used) and then to indicate that intermediate arrangements between the "floor" and "ceiling" may be appropriate, depending on governmental needs. If that is the intent, there are many easier ways to say this than the current DOD regulations do.

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83 Compare DFARS § 52.227-7013(b)(3)(i) and (ii).
84 One, for example, focuses on the computer for which software was acquired, whereas the other focuses on the facility. Also, they also seem to treat restrictions on modifications somewhat differently. The differences may be the result of imprecise drafting. If these differences are intentional, they should be explained.
C. Rethinking and Simplifying DOD’s Software Data Rights Policy

Software industry representatives have a lot of complaints about the DOD procurement regulations, especially as they affect software data rights. While DOD may not want to embrace every proposal that might emanate from industry, for reasons set forth above, a revision of the procurement regulations which affect software data rights would probably be a good idea. Many of DOD’s own people, particularly those who are actually doing procurements, favor the idea.

Revising the policy might be a significant step toward improvement of relations with the software industry. If the government can clarify what its priorities are as to data rights, perhaps it can strike a balance with industry to get a little more of what it needs to achieve certain objectives (such as getting competition in reprocurements and maintenance contracts) by giving up a little of what it already has, but does not truly need (as, for example, trimming back somewhat on its unlimited rights policy). At the same time, perhaps, the government could simplify the regulations and make them more comprehensible, an accomplishment which would benefit both the government and industry.

1. Should There Be a Separate Clause for Software?

One of the questions that arises after one closely examines DOD’s standard data rights policy as it affects software is whether DOD ought to revise its policy to treat software more differently from technical data than the current technical-data-oriented policy does, perhaps by having a separate rights acquisition clause for software. Given that the government has different needs for software than it has for technical data, so that the scope of rights in software the government needs and the set of limitations on the government’s rights that may be reasonable for industrial firms to assert to protect their commercial interests are different, it would seem to make sense to have separate rights clauses for software acquisitions and technical data acquisitions.85

2. Simplification of the Regulations: One Set of Restricted Rights

One of the priorities DOD should have for its data rights regulations is that the regulations be as simple, straightforward, and clear as possible. Such regulations need to be readily understood and applied by people of ordinary intelligence who aren’t lawyers, who often have to work under extreme pressure and who have many things to worry about besides data rights.86 The current DOD data rights regulations fall short of this goal.

The provisions for two kinds of restricted rights for software, along with

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86When a contracting officer is being rushed to field a system, and when future promotions will ride on how quickly he is able to field that system, he is likely to avoid becoming enmeshed in complicated data rights issues which he will likely not understand all that well and which will surely
yet another set of restrictions ("limited rights") for technical data, furnish a good example of how the regulations unnecessarily complicate data rights matters. It is difficult to understand why all these different kinds of restrictions are necessary. It also is difficult to comprehend why the regulations sometimes subject software documentation (which is classified as "technical data") to different restrictions than machine-readable code (i.e., "software"), and sometimes do not (i.e., when software is commercial). Indeed, giving the government government-wide rights in software documentation doesn't seem to make sense, given that in the commercial market software documentation and machine-readable code are treated as subject to the same restrictions. It is not clear why DOD needs to have government-wide rights to use and disclose documentation about site-restricted software.

The author recommends that DOD adopt one set of restricted rights, applicable both to software and documentation. Since DOD is willing to live with restricted rights as to commercial software documentation, it seems that DOD should be able to live with restricted rights treatment as to other software documentation. This new policy would have the great virtue of simplicity, and would also make DOD's policy less divergent from commercial practice than is presently the case. When it is necessary for the government to have broader rights than restricted rights, the government can always negotiate for broader rights.

3. Special Provisions for Competitive Reprocurements and Maintenance

It is understandable that in reaction to the problems arising from inadequate competition as to spare parts, which seem to have been partly due to the government having gotten inadequate rights to certain technical data, DOD would respond by adopting policies aimed at assuring that such problems would not occur in the future.

The seemingly obvious ways for DOD to get adequate rights are either (a) to acquire unlimited rights in all technical data and software (either initially, or through fixed expirations on restrictions) or (b) to get the option to acquire at a later time unlimited rights to technical data or software, at a price negotiated when the contract is entered into. Either alternative would seem to achieve the

slow the process down. If the system is fielded with inadequate data rights for, say, in-house maintenance/enhancement purposes, well, that will be someone else's problem anyway. Perhaps a more streamlined, understandable regulatory structure might help the contracting officers to overcome their reluctance to address data rights issues.

87 See supra notes 26–30, 82–84 and accompanying text.
88 The proposed FAR would treat both software and documentation to a unified set of restricted rights.
89 It is always possible to negotiate "up" from the standard restricted rights.
90 See OSD TECHNICAL DATA RIGHTS GROUP, WHO SHOULD OWN DATA RIGHTS: GOVERNMENT OR INDUSTRY? SEEKING A BALANCE, A REPORT PREPARED FOR THE UNDERSECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING (1984), (cited hereinafter as "OSD Study" (reporting that some noncompetitive reprocurements were due to improper restrictive markings).
DOD objective sought—being free of restrictions on use and disclosure—but at a very high cost. Industry has been outraged by certain efforts of this sort, and apparently has expressed its outrage by pricing its technology at stratospheric levels.

Perhaps DOD’s approaches to solving the problem were overreactions. Not having asked for enough for awhile, now perhaps the government was asking for more than it needed, and the problem deepened rather than being resolved.

What was true when the procurement scandals “broke”—and what probably remains true today—is that there are instances in which the government may not be getting as much data rights as it needs. Areas in which these insufficient rights problems seem to arise include (a) the use and disclosure of technical data to third parties for spare part reprocurement purposes and (b) the use and disclosure of software and documentation to third parties for maintenance or enhancement purposes. Perhaps specific regulatory provisions can be drafted to accomplish these objectives. If DOD is willing to subject its subsequent contractors to reasonable restrictions on their uses of data or software, industry may cease being outraged.

4. The Unlimited Rights Policy: Is DOD Getting More Rights Than It Needs?

Government procurement people frequently say (and there is even a DOD regulation to back it up) that it is the policy of the Defense Department to acquire only so much rights as the government needs. The truth is that DOD routinely acquires more rights than it needs. Its practice reveals that its priorities often lie elsewhere.

Perhaps the clearest illustration of overacquisition of rights is the government’s standard policy of claiming unlimited rights in software and data produced at government expense, even as to what is non-deliverable under the government contract. The government’s doesn’t always need to have unlimited rights in these items, although perhaps sometimes it does. Another illustration is its insistence on treating many things clearly not in the public domain and not developed at public expense (such as manuals) as subject to unlimited rights. Still another illustration is its policy of treating something as having been developed at government expense if so much as $1 (or for that matter, a dime) of government money has been spent in its development, which of course will mean that the government will get unlimited rights in it. Again, it isn’t the case that the government always needs all those additional rights, especially since if that $1 of government money had not been spent on “fine-tuning” the

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91 See infra notes 141–45 and accompanying text.
92 See DFARS § 27.404-1(c).
93 See supra notes 59–62 and accompanying text.
94 See supra notes 68–70 and accompanying text.
95 See supra notes 79–81 and accompanying text.
product, the government would have contented itself with restricted rights in the software. The vigilant search by government lawyers for some technical failure to comply with the regulations, in order to enable the government to get unlimited rights in something which both parties reasonably expected to be subject to restrictions (the price itself also reflecting the expectation of restrictions) would be viewed by industry as yet another instance of the government searching for more rights than perhaps it truly needs (and has paid for). *

From interviews with DOD personnel, it appears that getting unlimited rights in publicly funded software and technical data is, for many people, a fixed star in the firmament of the DOD procurement universe. Industry seems to have adjusted to it, although this is one of its least favorite governmental policies.

There is a certain elemental appeal to the policy. People generally tend to think that if they pay money to have something made for them, they "own" it and should be able to do with it as they please. Government people frequently express this kind of sentiment toward the spending of government money, and seem not to understand why private firms might object to the policy. They perceive the government policy to be fair, and any private firm that doesn't agree is, to put it bluntly, being greedy. The private firms, of course, tend to think that the government is trying to get something for nothing.

The truth is that when it comes to their rights as against those of their employees, private firms very well understand this principle of getting all the rights and benefits when one pays for something. Within a firm, ownership of intellectual property and the profits resulting from the value of the intellectual property do not go to the creative employee, but to the shareholders of the firm. (But then, that is the essence of the free enterprise system which the Department of Defense was created to defend.)

Yet government people do understand—even if they don’t much like it—that private firms seem to lack incentives to develop and deliver their best products to the government when the firms have no reasonable expectation of receiving a continuing stream of income from the product, so that, as a result, the government isn’t getting a lot of the best technology.

Some government people might think "But, hey, a private firm has incentive to deliver the best software to us (even though we have unlimited rights) because it’s OK with us if they take the thing to the commercial market." There are a couple of problems with this theory. One is that since the government claims an unlimited right to disclose the software developed at public expense to any one for any purpose, the government has the power at any time to pull the rug out from under the commercial market (for in today’s market, it is the valuable secrets embodied in the software that seem to determine its commercial value). This means the firm can never be sure there will be a commercial market there to tap. Secondly, the government tends to want to "give away" valu-

*See supra notes 63–67 and accompanying text.
able software in which it has unlimited rights to other private defense firms whom the software's developer may see as its primary commercial market. Both of these can undermine the potential incentives that government people tend to think the private firm has retained.

It is worth pointing out that Congress has enacted a law to encourage small firms to develop and deliver to the government the highest quality, most innovative products, namely the Small Business Innovation Development Act. This law gives participating small firms the right to retain ownership rights in patents developed at public expense, with a license back to the government to use the patent for governmental purposes. It is not surprising that the software industry hails the SBIDA as the "enlightened" and "modern" policy that the government should follow as to software.

In trying to decide whether to retain its broad unlimited rights policy, the government should think about whether it really needs "unlimited rights" in software. It should ask itself why it needs more than government purpose rights. It also should understand that one of the costs of the unlimited rights policy is that the government is likely to get delivery of less-than-high-quality software products.

Whether DOD should retain its current policy or narrow it to a governmental purpose policy depends on what its goals are. If the primary goal is to get the best available technology and improve incentives, it would be logical to adopt the SBIDA approach. If its primary goal is to get as broad data rights as it possibly can in hopes that it will save money down the line, it should retain the present policy.

If the government voluntarily gave up its broad unlimited rights policy and explicitly adopted a policy in line with the SBIDA policy as to patents or adopted a policy in which the government would take less-than-unlimited rights when mixed funding was used for software development, a step might be taken toward improving relations with industry without necessarily giving up what the government truly needs. The government may sometimes wish to acquire ownership rights in intellectual property under circumstances when achievement of certain well-defined goals would seem to require broader control than simply a license to use for governmental purposes. But it might be easier for industry to accept the government's need to sublicense for reprocur-

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98SBIDA may explain why the copyright retention clause was written as it was. See supra note 48 and accompanying text.

99See, e.g., SOFTWARE RIGHTS IN DATA TASK FORCE, PROPOSED REFORM OF GOVERNMENT RIGHTS IN DATA CLAUSES (prepared for the consideration and use of the Data Rights Study Group of the Secretary of Defense 1984).

100The FAR creates a mixed funding option. See supra notes 35-36 and accompanying text.
ment and maintenance purposes if the government were willing to trim back somewhat on its unlimited rights policy. ¹⁰¹

III. DERIVATIVE WORK PROBLEMS ASSOCIATED WITH SOFTWARE'S ADAPTABILITY

The adaptability of software is one of the important advantages software has over hardware. ¹⁰² Because of its adaptability, software is generally in a state of continual development, "new" or updated versions replacing "old" versions every year, or even every several months. While from an operational standpoint the adaptability of software may be a great benefit, from a legal standpoint the adaptability of software has created a host of complex licensing and intellectual property problems. DOD and the software industry have yet to come to a clear understanding about how to resolve these problems.

At the heart of the adaptability problems with software is the derivative works right that owners of intellectual property interests in software possess. Copyright law explicitly gives the software copyright owners an exclusive right to prepare derivative works. ¹⁰³ Derivative works are very broadly defined

¹⁰¹ One of the recommendations of the OSD Study, supra note 90, was to add a third option to the "arsenal" of potential ways to get rights to technical data, namely "license rights" instead of just "limited rights" or "unlimited rights." Although the OSD Study did not address software issues, in speaking with members of the study group it was clear they intended that the "license rights" option be applicable to software as well.

The aim of the OSD Study recommendation on license rights apparently was to enable a government requirement that its contractors must license competitors desiring to use proprietary data in competitive reprocurement (or in the case of software, maintenance/enhancement) situations. Because industry strongly objects to the government simply handing proprietary data and software over to any low bidder, and has been arguing forcefully for a "licensing" approach, adoption of a proposal of this sort would potentially be an important step toward improving relations with industry. The proposed DOD regulations discussed, supra note 39 and accompanying text, would have added to the regulations a "direct licensing" option that would have permitted the government to direct the contractor to license another firm to use the contractor's software or technology. See 50 Fed. Reg. 36907 (9/10/85).

Industry seems to have a decided preference that if another firm has to be licensed to use the first firm's trade secrets, the two firms be able to make arrangements directly; thus, in the event of an abuse, the first firm can proceed directly against the second firm rather than have to push the government to do something. Industry also doesn't like having the government dictate or supervise terms of licenses. It is worth noting that there are serious dangers of overreaching (exclusionary conduct in antitrust parlance) by the original contractor in any arrangement which would involve licensing of competitors as to valuable technologies. If the government does not want to end up paying essentially the same amount in licensing agreements as if there had been a sole source, some government supervision of the terms and conditions of the license would seem to be necessary in direct competitor situations.

¹⁰² See supra notes 10–18 and accompanying text.

¹⁰³ 17 U.S.C. § 106(2) (1982). This section of the article will focus chiefly on the copyright law and its rules relating to derivative works. Although not all software that is copyrightable is claimed as copyright-protected by its owner, it would be a mistake to think that there is no derivative work right in uncopyrighted software. As to uncopyrighted software, licensees would only have the rights in software for which they had contracted.

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under the copyright statute to include virtually every work "based upon" another work. As to software, derivative works would seem to include a broad range of things such as software maintenance, software enhancements, software reuse, translating a program from one computer language to another, revising code to make it run on another computer than the one for which the code was written, revising the code to make it compatible with other programs, and (potentially) works created through use of the program.

A reason that many DOD lawyers and procurement personnel seem to have found it difficult to understand and accept the intellectual property constraints that affect software adaptability is that they often come from a patent background. The patent law, which is the intellectual property form that most directly affects the hardware systems that DOD has so much experience acquiring, does not give the patentee a derivative works right. To the extent hardware can physically be adapted, it can be adapted without running into intellectual property problems.

The first two subsections of this section will explore a set of questions that relate to software derivative work rights. Following this general discussion, the section will mention five specific manifestations of the software derivative works problem, and will explain why both the government and industry need to be more sensitive to the other's concerns about these matters.

A. Derivative Works Problems Associated with Software Developed at Private Expense

1. The Government Has the Derivative Work Right of Modification for Software Developed at Private Expense

The standard data rights clause provides that one of the minimum rights the government always has in privately developed software is the right to modify the software. Modification is a subset of the derivative work rights affecting

105Software maintenance includes such things as correcting "bugs" (programming errors that prevent the software from performing as it was intended to perform) and updating information needed by the system to perform certain tasks.
106Software enhancements may be of many sorts, such as adding a new capability to the software, revising it to increase the speed of its operation and the like.
107See infra note 145 and accompanying text.
108See infra notes 202-17 and accompanying text.
109See infra notes 125-27 and accompanying text.
110Patent law gives the patentee exclusive rights only to make, use, and sell their inventions. 35 U.S.C. § 154 (1984). Some things that copyright law would regard as derivatives would probably be reachable under the patent law as "equivalents" that infringe the exclusive manufacturing right. See 4 CHISUM ON PATENTS § 18.04 (1986).
111DFARS § 52.227-7013(b)(3).
While the term "modify" is not defined in the regulations, it would seem to include maintenance and enhancement work that are aimed at making the software better able to perform the tasks for which it was acquired.

2. The Government Does Not Have the Right to Sublicense the Modification Right

Although the standard data rights clause gives the government the right to modify privately developed software, it does not give the government the right to sublicense its modification right to third parties. This restriction means that as to privately developed software, the government will not be able to get competition in the maintenance or enhancement of software unless it gets special permission from the software's owner to sublicense the modification right. There are a number of reasons why firms may be unwilling to consent to such a sublicensing arrangement.

3. DOD Has a Duty Not to Prepare Derivative Software from Privately Developed Software Documentation

The policy provisions of the DOD regulations impose on DOD a duty not to use privately developed software documentation to prepare similar software. This suggests that there may be some limits to the extent of modifications DOD can make to privately developed software.

4. As to Copyrighted Software That Was Developed at Private Expense, Can the Government "Take" a Derivative Work Right by Eminent Domain?

A question that is explored more fully in Section V infra is what right the government may have to "take" a license in privately developed software by operation of the statutory provision that gives the government the right to infringe copyrights and patents without being subject to an injunction. Section V concludes that when software is held as a trade secret, as well as being copyrighted, there will be only very limited situations in which the government can be shielded from injunctive relief if it seeks to appropriate the software. Thus, it would seem that if privately developed software is held as a trade secret (or held as a trade secret and copyrighted), the government could not rely on the copyright/patent anti-injunction provision to "take" a right to prepare deriv-
tive software. As to software protected solely by copyright, it is an interesting
question whether the regulatory duty not to prepare derivative software (dis-
cussed in the previous subsection) would estop the government from attempt-
ing to “‘take’” a right to make derivative software of this copyrighted software.

5. Does the Government Have the Right to Reverse-Engineer
Privately Developed Software?

If the government has not obtained sufficient documentation about pri-
vately developed software to enable it to readily modify the software,117 or if
there is not time to get the original contractor to modify it, or if the contractor
wants what the government considers an unreasonable sum to make a modifica-
tion, government personnel will sometimes “‘reverse engineer’” the software to
determine how to make a needed modification.118 The question is whether it is
lawful for DOD to conduct this reverse-engineering.

Reverse engineering will very likely involve making a copy of the program
for reverse engineering purposes. An interesting question is whether the mak-
ing of such a copy is authorized under the restricted rights provisions of the
standard data rights clause. Those provisions seem to limit the right to copy
software to archival or back-up purposes.119 Of course, the government might
argue that since it may be necessary to make a copy of the software in order to
be able to discern how to modify it, copying for reverse-engineering purposes
is impliedly within its modification rights. Software firms, of course, might
read the provision more literally, and argue that modifying the code is all the
government has bought rights to under the data rights clause.120

6. Who Owns Rights in Modifications
Made by the Government?

The government would seem to be prohibited from claiming ownership
rights in whatever modifications it might make to privately developed software

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117 See infra note 141 and accompanying text.
118 “Reverse engineering” is a process of testing or examining machine-readable code or at-
ttempting to transform it into a human-readable form so that one can discern the substance of
the machine instructions that were originally written in source code (or other such notation). See gen-
erally Grogan, Decompilation & Disassembly: Undoing Software Protection, 1 COMPUTER LAW-
119 See DFARS § 52.227-7013(a) (definition of “restricted rights”) and (b)(3).
120 The DOD regulations are not the only body of law that DOD might be able to rely on to
obtain rights to reverse engineer software. The copyright law may provide another basis for asserting
such a right. The current case law on reverse engineering is, however, not very encouraging for
the government’s argument. One recent software copyright infringement case held that making a
copy (including making a core dump of the code into printed 1’s and 0’s of a program for reverse
engineering purposes) was an infringement of the copyright, notwithstanding that the parties
charged with infringement had lawfully obtained a copy of the software. Hubco Data Products
are some (such as the author) who would argue that most reverse engineering of software ought to
be permissible under copyright law, this precedent suggests that a court may be less than hospita-
ble. Any prudent user of software ought to be aware of the legal risks he is taking by making a copy
of the software for reverse engineering purposes.

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by virtue of section 105 of the copyright law. The firm that had originally developed the software would also be disqualified from claiming ownership rights in the modifications for the simple reason that it did not "author" these modifications. Although neither DOD nor the developer would seem able to "own" these modifications, both would seem to have some rights to use them.

A more thorny question is what effect such modifications have on the restricted rights status of the software. The regulations are not particularly clear on the issue.

7. Can a Contractor Claim Rights in Works Generated Through Use of Their Privately Developed Software?

There are some computer programs that consist of a set of software modules, each of which performs a particular function; the modules can be used to generate a variety of application software consisting of different combinations of these modules. If the generator program is copyrighted and has been developed at private expense, and if DOD acquires a copy of it, what rights do DOD or the developer of the generator program have as to whatever application software might have been generated through use of the program? The new application software would seem to be a derivative work because portions of identical code to the copyrighted code would have been included in the new work.

A closer, and potentially more troublesome, question is whether the owners of copyrights in other software generator programs—ones that generate output that is not identical to the program—have any claim to rights in the out-

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121 See supra notes 53–58 and accompanying text.
122 Only the "author" (or those who take through him) can claim ownership rights in a work under copyright law. See 1 Nimmer on Copyright § 5.01[A] (1985).
123 If neither DOD nor the contractor "owns" any intellectual property interest in them, it would seem that neither could "exclude" the other as to the modifications. The developer's right to use government-made modifications might, practically speaking, be limited by DOD's refusal to deliver them to the developer. This is similar to the problem of unlimited rights in nondeliverables, discussed supra notes 59–62 and accompanying text. It would seem prudent for a developer who wants the Department's modifications to contract to obtain them.
124 The standard data rights clause, DFARS § 52.227-7013, seems to answer the question in different ways, depending on what kind of restricted rights software one is talking about. It provides as to commercial software (or rather to software that a firm has elected to have treated as commercial software) that "unmodified portions of the restricted rights commercial software shall remain subject to these restrictions." Id. at (b)(3)(ii). Software that a contractor chooses to have treated as other than commercial software under subsection (b)(3)(i) brings the reader back to the definition of restricted rights in subsection (a), which in its subsection (4) provides that "those portions of the derivative software incorporating restricted rights software are subject to the same restricted rights."

It may be that the intent of the drafters of this clause was for these two provisions to mean the same thing. If that is so, it is a shame that precisely the same wording wasn't used in both places, for that would remove the potential for ambiguity. If they were intended to mean different things, it is not clear why this would be so. Several lawyers to whom we spoke thought that these provisions were not substantively the same and believed the commercial software provision to be less generous to industry than the other provision.
put produced through use of their privately developed programs. The definition of "derivative work" under the copyright law is sufficiently vague that it is conceivable some company might have a colorable claim that software or other works generated through use of other software is a derivative work. 126 This issue has not yet been tested in litigation.

The author believes that no computer-generated work should be found to infringe a copyright unless a recognizable block of identical or substantially similar expression from the first program can be found in the second. 127

B. Derivative Works Problems Associated with Software Developed at Public Expense

Government and industry people often seem to believe that whenever the government funds any part of the development costs for a piece of software, the government would have unlimited rights in it, and that unlimited rights would include the right to make derivative software. As explained above, the text of the DOD regulations make both of these assumptions somewhat suspect.

1. As to Uncopyrighted Software, the Government May Not Have a Derivative Works Right

As explained in a previous section, while the government gets unlimited rights in some software developed at private expense (i.e., that which is not copyrighted), unlimited rights is not defined tautologically in the regulations, but rather as the rights to "use," "duplicate," and "disclose" the software. 128

While there is some chance that a court might find that unlimited rights implicitly includes a right to make derivatives, 129 the matter is far from clear. If DOD persists in its definition of unlimited rights, and if the FAR adopts a broader definition of unlimited rights—one that includes a derivative right 130—the argument for implicit inclusion is weakened.

2. The Government Probably Has the Right to Modify Uncopyrighted Software

If the government does not have the full panoply of derivative work rights when it has unlimited rights in software, it may still be possible for the government to get the right to modify such software. As was explained above, the government always has the right to modify software developed at private expense.

126 See supra note 104 and accompanying text.
128 See supra notes 45-52 and accompanying text. As to technical data, these three rights probably give the government all it needs to have. It may simply be ignorance about software as a technology—and the need to pay attention to software derivatives—on the part of the drafters of the regulations that have caused them to neglect including any references to derivatives in the definition of unlimited rights.
129 See supra note 51 and accompanying text.
130 See supra note 52 and accompanying text.
pense. This provision is a clear indication that the modification right is a minimum right that the government has decided it needs to have in all software. Because of this, it seems likely that the government will have at least the right to modify unlimited rights software.

3. **As to Copyrighted Software, the Government Has the Right to Make Derivative Works for Government Purposes**

As explained above, when a contractor exercises his right to claim a copyright in software developed at public expense, the standard data rights clause provides that the government will take a governmental purpose license in the software. The clause makes specific reference to a derivative work right. Thus, it appears that as to copyrighted software developed at public expense, the government will have both the right to make derivative software for governmental purposes and the right to authorize third parties to make derivative software for governmental purposes.

As section VI below will indicate, the governmental purpose limitation has an important effect on the government’s right to authorize unbridled commercial marketing of derivatives.

4. **The Government Has No Rights in Contractor-Prepared Derivatives**

Contractors will sometimes take government money to develop a software product for the government, while also having an eye toward modifying the software for eventual sales or licensing in the commercial market. The government may on occasion want to obtain a copy of the commercialized version, and even to claim unlimited or governmental purpose rights in the contractor’s derivative product. Since the commercial version was not produced or generated with government funds, the standard data rights clause probably does not give the government any rights in the commercial version, but even if the clause did give the government some rights those rights would be, at most, "inchoate." If the government owned a copyright in the original software, *that* would give it certain rights over derivatives, but barring an ownership right, the government’s rights are negligible.

5. **Authorizing Reuse of Designs of Copyrighted Software without the Governmental Purpose Limitation**

The government may sometimes want to reuse the design of a piece of copyrighted software in another software project. Reuse of software designs is
an idea that the engineering community regards as highly desirable. An interesting question is whether the government needs to worry about the copyright owner's interests if it reuses software designs. If the software was privately developed and held as a trade secret as well as being copyrighted, reuse of the software design might be a misappropriation of a trade secret.

If, however, the software was developed at public expense and copyrighted, it is an interesting question whether the standard governmental purpose limitation on the government's rights as to derivatives would extend to reuse of software designs. This in turn would seem to depend on whether the software design is protected within the copyright. There is some precedent to support a view that reuse of software designs may infringe the copyright. There are some, however, such as the author, who would argue that reuse of software designs involves reuse of ideas, methods, and processes of the software which are not protected by the copyright. If this is so, the government may be able to authorize reuse of designs without worrying about the government purpose limitation.

C. Special Issues That Affect Derivative Software

There are a number of special problems associated with derivative software that are of particular concern to the Department of Defense and to that part of the software industry that does business with the Department. Among the most frequently mentioned are: (1) problems associated with acquiring adequate documentation to enable software to be maintained or enhanced by the government; (2) problems associated with the government's attempts to get competition for software maintenance; (3) problems associated with the government's attempts to get rights in software development tools; (4) problems associated with government attempts to get rights in computer-aided design and computer-aided manufacturing (CAD/CAM) programs; and (5) problems associated with reusing software.

1. Acquiring Adequate Documentation

In interviews with DOD personnel, getting delivery of adequate software documentation was often said to be the major software maintenance/enhance-

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138 See supra note 114 and accompanying text regarding the duty of the government not to use privately developed software documentation to prepare similar software.


140 Ideas, procedures, processes, systems, methods of operation, concepts, principles, and discoveries are not protectible by copyright. See 17 U.S.C. § 102(b). If a copyrighted work has been published, all the ideas et al., in it are considered to be in the public domain. See, e.g., Baker v. Selden, 101 U.S. 99 (1879). See also CONGRESS OF THE UNITED STATES, OFFICE OF TECHNOLOGY ASSESSMENT, INTELLECTUAL PROPERTY RIGHTS IN AN AGE OF ELECTRONICS & INFORMATION (April 1986) at 79-85 (discussing software cases that seem to be at odds with Baker v. Selden).
ment problem the Defense Department currently has. Among the types of problems that DOD’s procurement personnel reported as tending to occur were:

a. Not being farsighted enough to ask for delivery of all the documentation needed to enhance or maintain a system;

b. Not being sufficiently diligent in supervising the delivery of documentation to ensure that everything that should have been delivered was, in fact, delivered;

c. Not supervising the attachment of restrictive notices to software to ensure they were only attached to software wholly developed at private expense;

d. Not being able to comprehend the documentation delivered because of its complexity or turgidity; or

e. Companies being unwilling to give their source code to the government at any price or under any conditions.

There was general agreement among DOD persons that steps needed to be taken to remedy this situation. Some were hopeful that solutions could be devised that would create greater incentives for industry to voluntarily cooperate with DOD in its efforts to get better documentation for maintenance purposes. Some worry that punitive approaches would enhance already strong disincentives to cooperate with the government in this respect.141

2. Getting Competition in Software Maintenance

Whether the DOD can get competition in software maintenance and enhancement contracts seems to turn largely on whether the government has ownership of or unlimited rights in software and its associated documentation, or whether the government has only restricted rights as to the software and limited rights as to the documentation. If the government has ownership or unlimited rights, getting competition in software maintenance/enhancement contracts is said to be easy. If instead the government has only restricted and limited rights, it seems that getting competition is very difficult. Defense Department personnel generally report little success in getting restricted rights software competitively maintained.

As the DOD regulations are presently written, while DOD virtually always has rights to modify the software, it does not automatically have rights to sublicense the modification right to others. That means that getting competition as to maintenance and enhancement of restricted rights software will be feasible only if the software’s owner will agree, which he need not. If he will not agree, DOD either has to do the modifications itself or hire the original firm to do the maintenance on a sole-source basis. Because many software companies may wish to have sole-source maintenance contracts with DOD, their incentives to agree to competitive maintenance are minimal. It seems that the only time there may be any opportunity for the government to get agreements on

141See SEI Report, supra note 1, at 52-53 for a discussion of the author’s proposals for improvement of software documentation acquisitions.
competitive maintenance is during the original competition when the development contract is let.\textsuperscript{142}

3. Software Tools Procurement

Much of the expensive software the government buys is software which is expected to be modified over time. In order to modify application software in an optimal way (in some cases, in order to modify it at all), it may be desirable (or necessary) to have access to the tools that were used to create the program in the first place.\textsuperscript{143} Even if the government's contract officers have the foresight to try to bargain to obtain rights in software tools, the company may be extremely reluctant to grant anyone—let alone the government (which is widely perceived by industry to be unable to protect commercial secrets)—to have a copy of the software tools, or even to have access to the tools. A software producer's tools may be perceived to be the major factor in the company's competitive edge in the industry. Parting with them may be a highly charged subject. Indeed, for the government to be able to make any deal to get proprietary software tools is thought to be a remarkable event.

4. Access to CAD/CAM Programs

Increasingly, industries are using computer-aided design/computer-aided manufacturing (CAD/CAM) programs to design major weapons systems and to manufacture them. Because these systems tend to be rather expensive and to require more than a modest amount of maintenance and enhancement, there is growing concern within the Defense Department and in industry about what kinds of arrangements should be made concerning government access to and rights in the CAD/CAM programs used by the original contractor to design the systems. Access to these programs may be essential for maintenance and enhancement work later in the life cycle of the system. A firm that has developed such a system may be reluctant to deliver its whole CAD/CAM program to the government, and may only be willing to provide DOD with controlled telephone access to the program at the firm's plant. This raises the question whether the procurement regulations permit acquiring access rights, which seem to be less than the standard minimum rights that the standard data rights clause says the government must acquire.\textsuperscript{144}

\textsuperscript{142}See SEI REPORT, supra note 1, at 53–54 for a discussion of the author's proposals concerning competitive maintenance of software.

\textsuperscript{143}Software development tools are a set of programs that may be used to produce other programs. Software tools commonly include editors, compilers, and debuggers, among other things. The application software produced by the tools could be anything from the guidance system for a missile to an inventory control program. Those software tools which companies may be willing to make available to the government under an unlimited rights license are likely to be older, less valuable technologies. If DOD's priority is to get the best technology, using old tools doesn't seem to be desirable. If DOD's priority is to be able to do all maintenance and enhancement organically, then having rights to old tools is better than having rights in none.

\textsuperscript{144}See supra notes 24–30 and accompanying text.
5. Software Reuse

There has been considerable interest within the Department of Defense in recent years about promoting "reusability" of software. Although different people sometimes mean different things when they speak of "reuse" of software, the core idea of the concept is to make use of an already developed technology rather than "reinventing the wheel" each time a particular kind of software is written. Some people think software reuse will be "the new wave" in software development in coming years. Others worry that the considerable legal problems that may attend reuse will turn this promising avenue into an unusable swamp.

There seemed to be considerable consensus among DOD personnel to whom we spoke that unless the government "owned" or had unlimited rights in software to be reused, reuse would be difficult or impossible to achieve. Although company A sometimes might be willing to license company B to use A's proprietary software in B's next generation software system, the government could not count on A's cooperation, because company A may prefer to have the "follow-on" contract. Even if company A were willing to license reuse, it could be expected to charge B a rather hefty sum for the privilege of reuse, which might mean that the ultimate cost savings to the government from reuse would be minimal to nonexistent. Even if company A got the follow-on contract and reused its own software, that might only reduce the time required for development, not necessarily the cost (at least not by much since company A might be a lower bidder only by comparison with the bids of others who would have to develop the software from scratch). As with competitive maintenance, reusability of software is made more difficult when proprietary software is involved.

This thicket of concerns about reusability of proprietary software has led many to insist that the government must own the software or have unlimited rights in software to make software reuse feasible at all. Yet some DOD people worry that private firms may lack incentives to develop outstanding reusability programs for the government, that is, programs in which the government would have unlimited rights and for which the government would have to pay no further royalty, no matter how much reuse was made of its modules. A firm that developed a "perfect" program of this sort would, in essence, put itself out of business after its first sale to the government, for if the government had unlimited rights the government could give the reusable code away to anyone and everyone it chooses. If, however, the firm could control the commercial market without fear of government "giveaways" or if the firm could collect a royalty

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143 Among the types of "reuse" projects that have been undertaken under DOD sponsorship are: large software programs consisting mainly of modules of standard code for specific functions that can be assembled in different combinations to create new applications software; programs that are built upon and incorporate all or part of a preexisting program; programs that were designed to be inserted in new systems as government-furnished-information ("GFI") or government-furnished-equipment ("GFE"), and programs that reuse the designs of prior software products.
upon reuse of its components, then theoretically it would have a strong incentive to create an excellent set of modules so that its modules would be used instead of those of another firm.

6. The Economics of Software Procurements

All these problems are sometimes characterized as "software licensing problems"; what lies at the heart of all of them, however, is not so much a legal or contractual problem, but an economic one. Software firms tend to jealously guard their software documentation and to maintain tight control over their software development tools, their CAD/CAM programs and reuse of their software. Often the most precious assets that a software firm may have will reside in these items. The Department of Defense, which understandably tends to focus on its own mission needs, often wants to obtain these valuable assets, or at least to obtain as broad rights in them as it can get. Although these resources sometimes can be obtained by DOD, industry is often reluctant to provide them to DOD under the standard DOD licensing arrangement. The software industry should recognize that the government does have stronger needs for many of these items than the ordinary commercial customer might. At the same time, the government needs to recognize that realistically it will only be able to acquire these items if it respects reasonable restrictions that the industry imposes to guard industry's commercial interests.

IV. SUBCONTRACTOR FLOWDOWN PROBLEMS

Much of the software prepared by private contractors for the DOD is developed at the subcontractor level. Since the terms on which the government will acquire this software will depend in large part on arrangements made between the prime and its subcontractors, it is not surprising that problems have sometimes arisen when the arrangement negotiated between the government and the prime differs from the arrangement negotiated between the prime and its subcontractor. Of particular concern to the government is the situation in which the prime contractor makes an agreement with a subcontractor to obtain for the government lesser rights in software to be developed by the subcontractor than the government believes it needs and had bargained for from the

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146 One of the senior DOD procurement personnel whom we interviewed estimated that two-thirds of the mission critical computer resources software prepared for DOD was developed by subcontractors.
prime. This, then, is the "subcontractor flowdown" problem that this section will discuss.

The chief issue raised by the subcontractor flowdown problem is whether the government will be able to enforce its contractual rights in the software as against the subcontractor, or will only be able to sue (or gain concessions from) the prime for its failure to acquire what the government bargained for from the prime. This author concludes that the government will sometimes be able to get the level of rights it expected from the subcontractor, even when a contrary clause has been inserted in the contract, but sometimes not. The matter seems largely to turn on whether inclusion of a clause is mandatory or discretionary.

A. Mandatory Clauses

1. Subcontract Silence

The strongest argument for awarding the government the same rights in subcontractor-produced software as it had arranged for from the prime occurs when the subcontract is silent on the issue and the issue pertains to something addressed in a clause that is mandatory in government software acquisition contracts (for example, the standard data rights clause). The same policy considerations that prompted the court in G.L. Christian & Associates v. United States, to read a mandatory "termination at the convenience of the government" clause into a government contract would seem to apply as to subcontract arrangements.

Subcontractors will surely know that the software they are developing is being developed for the government. They would probably be held to have constructive notice that DOD regulations require inclusion of the standard data rights clause in software development contracts unless a deviation is granted,

147 Although some of DOD's lawyers strongly believe that the government will always be able to get the rights it bargained for and insist that there are no subcontractor flowdown problems, others expressed a belief that the subcontractor may not be held to an arrangement made by the government to which the subcontractor has not consented. In the real world, the government may tell prime contractors that their failure to get the rights they are bound to deliver to the government is their (the primes') problem which they have to solve (hopefully, by getting the rights the government wants), but primes may realize that their failure to get the level of rights the government wants is, in reality, the government's problem. In the course of the SEI investigation into DOD software licensing problems, we were given to understand that subcontractor flowdown problems were fairly widespread.

148 The DOD regulations require prime contractors to "flow down" the same rights clauses to its subcontractors as are in the prime's contract with the government. See DFARS § 52.227-7013(g)(1). Only the prime, of course, is clearly bound by this agreement. If the prime breaches the contract by not flowing the rights clauses down to subcontractors, the government's remedies are more clearly against the prime than against the subcontractor.


150 DFARS § 27.404-2(b)(2).
and that the standard clause requires primes to flow government requirements down. Regulations such as these have the force and effect of law.

From a policy standpoint, the effectiveness of the regulations in creating a system in which the government will know what rights it has in everything it buys would be seriously undermined if subcontractors were allowed to avoid mandatory clause flowdowns without making a special showing of need for a deviation. The regulations set forth what minimum rights the government has decided it must have in software. Consequently, unless a deviation is obtained, the government would seem to have the right to expect that at least this set of minimum requirements would be met.

2. Clauses that Contradict Mandatory Clauses

If a prime is unable to persuade a subcontractor to agree to allow the government to modify the software to be developed by the subcontractor, and if the prime agrees to inclusion of a clause in the subcontract that precludes modification, will the government nevertheless have the right to modify the software because the standard data rights clause says it must have such a right? Will it make any difference whether the standard data rights clause is included in the subcontract or excluded? These questions are important because commercial licensing arrangements typically do not allow the licensee to make modifications or enhancements of software. Subcontractors who develop software may be quite insistent that the software not be modified, especially if the software is to be warranted.

The same policy considerations that support the Christian doctrine and its application in the subcontractor context should apply when the government is confronted with a clause in contradiction to the government’s standard set of rights. A deviation is always available if a special case can be made for limiting the government’s rights in particular instances. Absent a deviation, mandatory rights in the government should be enforced without regard to whether the standard data rights clause was or was not included in the contract.

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151 DFARS § 52.227-7013(g)(1).
152 See, e.g., Carter v. Cleveland, 643 F.2d 1 (D.C. Cir. 1980) ("A substantive or legislative rule, which must conform to the Administrative Procedure Act’s rulemaking procedures is one that has force of law and narrowly limits administrative discretion; an interpretive rule, on the other hand, is one that merely clarifies or explains an existing rule or statute." 643 F.2d at 8.).
153 See supra notes 24–30 and accompanying text.
154 As was explained, supra notes 31–34 and accompanying text, the government can negotiate "up" from these minimum rights, but not "down." In the event that the government and prime have negotiated "up" from the standard minimum rights in software developed by a subcontractor, the subcontractor would seem to be bound only to the mandatory minimum rights. See also supra notes 63–66 and accompanying text.
155 Some DOD contract officers with whom the author spoke seemed to believe that the government would not have the right to modify software if the prime had negotiated the right away. Some government lawyers to whom we spoke believed that the government would still have the right to modify the software notwithstanding the contrary agreement. One lawyer cited Technical Development Corp. v. United States, 171 U.S.P.Q. 353 (1971) in support of this theory.
3. Partial Contradiction

Suppose instead that a software producer contracted to deliver three pieces of software to a prime contractor for the government and was willing to let only two of the three pieces of software be modified. Suppose further that the subcontractor realized the standard data rights clause was incorporated by reference in the subcontract, and that the subcontractor expected and intended the standard clause to apply as to the two pieces of software, but that the subcontractor negotiated with the prime for a special clause precluding modification of the third. A court applying general contract law would probably try to interpret the seemingly conflicting clauses in a way that would reconcile the conflict.

One way to reconcile the conflict would be to say that the standard clause applies to the first two and the "no modification" clause to the third. General contract law might also tend to favor subsequent and more specific expressions of the parties' intent when construing conflicting clauses. This too might support giving effect to the "no modification" clause.

On the other hand, when one is talking about a mandatory clause, that is, a clause that is required by regulation and that is itself a regulation, a strong argument can be made that it should apply notwithstanding the arguments that favor the subcontractor. Government contract law, after all, is somewhat different from general contract law.

4. A Subcontract Clause Resolving an Ambiguity in the Mandatory Clause

Suppose that a subcontractor agreed to develop a piece of software at public expense. Assume that he realized there was an ambiguity in the standard data rights clause as to the extent of the government's rights in such software—for example, whether the government will have unlimited rights or a license for governmental purposes in copyrighted software—and decided to resolve the ambiguity by putting a clause in the subcontract giving himself the copyright, giving to the prime a license to use the software for governmental purposes and permission to sublicense the government for the same, and defining "governmental purposes" to exclude "giveaways" to industry.

The subcontractor's argument for enforcement of his special clause is much stronger here than in the previous hypotheticals. Although an agency is ordinarily entitled to interpret its own regulations, courts will not always accept later developed interpretations of regulations that would defeat the reasonable...
expectations of those who have produced and delivered a product in reliance on a particular reasonable interpretation of the regulations. A potential subcontractor will need to be able to assess the extent of his commercial market for the software to decide whether and on what terms to bid. If resolving the ambiguity will aid in his planning and will encourage him to bid, why not allow the subcontractor his supplement? After all, the government had ample opportunity to define its rights and its terms in advance of the subcontract, and failed to do so.

B. Discretionary or Special Clauses

There are many clauses in government contracts that are not mandatory. Some are standard discretionary clauses, such as the special works clause. Some are specially drafted for particular contracts, for example, clauses defining the scope of warranty right in software. If a prime contractor has promised the government to obtain certain rights under a discretionary clause (e.g., to obtain a copyright for the government or to obtain strong warranties), and the prime is either unable or neglects to get a commitment for such right from a subcontractor, it seems unlikely that the government could enforce against the subcontractor the rights it had expected the prime to get for it. None of the policy considerations that support mandatory clause flowdowns are present when merely discretionary clauses are involved. The government’s remedy in this category of situations should be limited to action against the prime.

V. LIMITATIONS ON GOVERNMENTAL ACTION: INJUNCTIONS AND RELATED PROBLEMS

Most software intended for commercial distribution is held as a trade secret by the producer. Some software is both copyrighted and held as a trade secret. Although the government has immunity from injunctions when it infringes patents or copyrights, it does not have statutory authorization to appropriate trade secrets against the owner’s wishes and to be shielded from injunctive relief for such appropriations. Indeed, there is a criminal statute that would penalize any federal employee who intentionally discloses a company’s

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160 DFARS § 52.227-7020.
161 The author was given to understand that these situations tended to be resolved through negotiation, the prime typically conceding its neglect and offering some penance, but without the subcontractor giving in further. This was perceived by DOD lawyers to be a serious problem, particularly as to software licensing. One contributing cause of this problem is the difficulty a contract officer has in finding time to closely supervise data rights provisions in subcontracts. Closer supervision of the terms of subcontracts would seem to be the best way to resolve subcontractor flowdown problems.
162 28 U.S.C. § 1498. This right is subject to the government being liable in damages for infringement in the Court of Claims.
The question is whether trade secret software (or copyrighted trade secret software) can be distributed or copied by the government without fear of an injunction issuing against the government in litigation with a software producer. A series of federal court decisions have intimated that injunctive relief may be available under the Administrative Procedures Act to prevent the government from releasing material in which it claims unlimited rights but which is claimed as a trade secret by its producer, especially when the producer is a subcontractor.

A. The Anti-Injunction Provisions Affecting Copyrights and Patents

If the government uses or manufactures a patented invention or copies or distributes a copyrighted work without the owner's permission, the law provides that the exclusive remedy of the patentee or copyright owner will be an action for damages in the Court of Claims. This statute effectively prevents injunctive relief from being entered against the government for patent or copyright infringements. It does not give the government the same protection if a trade secret is involved.

1. Forcing an Election of Copyright

Software is copyrightable subject matter. Because software is copyrightable, and because copyright protection attaches to original works of authorship from the time of their creation, some government lawyers have thought that the government would be able to use the copyright anti-injunction provision as a shield against an injunction in any software dispute even if the vendor has not affirmatively claimed a copyright interest in the software. The theory is intriguing, but there are some problems with it. It would seem to boil down to a theory that an infringer can force the owner of an unpublished work to opt into the copyright system and forego trade secret protec-

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164 See infra notes 188–96 and accompanying text.
166 See, e.g., Pitcairn v. United States, 547 F.2d 1106 (Ct. Cl. 1976).
so that the infringer can avoid being subject to an injunction. The Supreme Court decision in *Kewanee Oil Co. v. Bicron Corp.* supports the view that a company has the right to choose whether to rely on trade secret protection instead of seeking a patent. Presumably, the Court would hold similarly as to copyrights.

The theory would also seem to prove too much. If accepted, it would mean the government could release essentially any or all technical data it possessed, regardless of restrictive legends, because virtually all of the things that qualify as "technical data" would also qualify as "original works of authorship." That is, the theory would not just apply to software. There would be, then, virtually no company trade secret which the government could not give away. It seems unlikely that courts would be willing to permit this construction of the copyright anti-injunction provision.

2. Simultaneous Copyright and Trade Secret Protection in Software

Much of the software delivered to the government is both copyrighted and held as a trade secret by its owner. Some government lawyers have argued that whenever software is delivered with any indication of a claim of copyright protection, the copyright anti-injunction provision can be invoked to avoid an injunction. This theory is more plausible than the previously discussed theory, but it too seems to rely on an election of protection theory that may not hold water. The theory boils down to the idea that if someone claims a copyright in something, he cannot claim it as a trade secret at the same time. However, simultaneous copyright and trade secret protection has been finding acceptance in the courts. And the DOD standard data rights clause does not, either explicitly or implicitly, seem to require any election.

3. The "Essence of the Claim" Test

There is a refinement of the theory discussed in the previous subsection that might produce a shield against injunctions in some instances: If the "essence" of the claim against the government is not on a trade secret, but relates to an infringement of the copyright, the copyright anti-injunction provision may shield the government from injunctive relief, even though the software is

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172 See, e.g., Warrington Assoc. v. Real Time Engineering Systems, Inc., 522 F. Supp. 367 (N.D. Ill. 1981), in which the court held that even if computer software is mass marketed, as long as there is an agreement not to disclose by the purchaser, trade secrecy as well as copyright protection can be maintained.
173 See DFARS § 52.227-7013(c)(1). A government lawyer might point to a regulatory provision that says that "[p]atented or copyrighted computer software will not be subject to any agreement prohibiting the government from infringing a patent or copyright." DFARS § 27.404-1(d). The likely response to this by a software producer who claims simultaneous copyright and trade secret protection in software would be: "If you can infringe my copyright without violating any of my trade secret rights, that's OK; I'll take my claim for damages to the Court of Claims; but if you threaten my trade secret in any way, I will sue you for injunctive relief."
claimed to have simultaneous copyright/trade secret protection. For example, if an Air Force officer makes a second copy of some software to give to one of his co-workers, the “essence” of the software owner’s claim would seem to be damages for copying based on an infringement of the copyright; claims of this sort may allow the government to invoke the anti-injunction provision. If, instead, the government had decided to give out a software company’s trade secret source code to the defense contractor community, the essence of the software owner’s claim would be on the trade secret, and thus injunctive relief might be awarded.

4. NASA’s Approach to Simultaneous Protection

If a firm sells or licenses software to NASA and the software is delivered with a copyright notice but without any legend saying it is unpublished, NASA considers the software to be published copyrighted material. If the software is a published copyrighted work, NASA apparently considers the ideas it contains to be in the public domain and ineligible for treatment as trade secrets. NASA also considers mass-marketed software to be published software. This treatment of software by NASA is an important way to claim the benefits of the copyright anti-injunction provision by eliminating possible trade secret claims and forcing copyright infringement claims where injunctions are not permitted. However, this procedure does not eliminate the threat of injunctions if the company delivers the software with a notice that it is unpublished.

5. National Security Grounds for Avoiding Injunctive Relief

Several of the government lawyers to whom we spoke about this issue believed that the government would never be enjoined from any use, duplication, or disclosure of software because, even if the copyright anti-injunction provision was held inapplicable, national security considerations could persuade a court to withhold an injunction. It is, of course, hard to imagine a court ordering the F-16 fleet grounded because some software producer has a dispute with the government over his rights in software aboard these planes. National security considerations, however, may not always win the day, especially where the software is being used by the government in very much the same way as a commercial customer might use it.

6. Taking Trade Secret Software by Eminent Domain

Trade secrets have been held to be property which is protected by the Fifth Amendment of the Constitution prohibition against governmental takings of private property without due process of law for a public use and without just

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175 See, e.g., 17 U.S.C. § 102(b). Since Baker v. Selden, 101 U.S. 99 (1879), the copyright system has not protected the ideas embodied in a work.
compensation. It is not clear that the Defense Department can exercise the power of eminent domain to take trade secrets without some explicit authorization from Congress.

The anti-injunction provision discussed above impliedly authorizes the DOD to "take" patents and copyrights for public use. It would not, however, seem applicable to a governmental taking of software that is protected as a trade secret. There does not appear to be any other law that, either expressly or impliedly, would grant the DOD broad power to take trade secrets whenever the agency might feel it necessary or desirable to do so. Although federal regulations have the force and effect of law, it seems doubtful that DOD could by rulemaking grant itself the power to "take" trade secrets. Thus, for DOD to "take" trade secrets, some type of legislative authority from Congress would seem to be required.

7. Liability of Government Employees for Unauthorized Disclosures of Trade Secrets

If a government employee discloses trade secret information without authorization from the trade secret owner, that employee could be prosecuted by the government under the Trade Secrets Act. The Trade Secrets Act does not create a private right of action against the government (or the employee) to enjoin any prospective disclosure in violation of the statute, but the statute has been construed to provide a standard by which to judge the legality of proposed agency disclosures. Although there do not seem to have been any prosecutions of government employees under the Trade Secrets Act, the prospect of

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176 Ruckelshaus v. Monsanto, 104 S. Ct. 2862 (1984). Monsanto attacked the EPA's decision to release valuable trade secret information about Monsanto's pesticides to Monsanto's competitors. Monsanto argued that this was a taking of property without just compensation in violation of the Fifth Amendment to the Constitution. As to two of the three time periods involved, the Supreme Court found that Monsanto had known that Congress had authorized EPA to release data of this sort, and that Monsanto could not, therefore, have had an investment-backed expectation of nonrelease by Monsanto. As to this data, there had been no "taking." The court also ruled that as to one time period—during which the law did not authorize releases of trade secrets—there was an investment-backed expectation of government nonrelease, and therefore there was a "taking" as to this data. In addition, the Supreme Court held that injunctive relief was not available to stop a taking of private property for a public use, although a Tucker Act claim of monetary damages was available.

177 See, e.g., United States v. North American Co., 253 U.S. 330 (1920), indicating the need for Congressional authorization to effect a valid taking under the government's eminent domain powers.

178 Lessona Corp. v. United States, 599 F.2d 958 (Ct. Cl. 1979). One court has declared that when the government infringes a patent, it has, in effect, "taken" a patent license by eminent domain theory based on the implied power of 28 U.S.C. § 1498.

179 See, e.g., Carter v. Cleveland, supra note 152.

180 See supra note 176 and see infra note 195.


prosecution may still deter government employees from disclosing trade secrets for competitive reprocurement or maintenance purposes.\(^{184}\)

B. Limitations of the Contract Disputes and Tucker Acts in Disputes over Trade Secret Software

Once upon a time, the government could argue that any dispute over the extent of its data rights in software was a dispute under the government contract that could be shunted into the Contract Disputes Act\(^ {185}\) or Tucker Act\(^ {186}\) frameworks which would preclude the issuance of injunctive relief.\(^ {187}\) Since a 1979 Supreme Court decision, a new avenue has opened up for litigating data rights claims against the government, one which seems to permit injunctions to issue. Contractors concerned about the government’s impending release of proprietary data may look to this promising new avenue to prevent the release.

1. The Relevant Cases

\textit{Chrysler v. Brown}\(^ {88}\) was the Supreme Court decision that opened up this new door to injunctive relief against the government in cases involving proprietary data. Chrysler sued under the Administrative Procedure Act\(^ {189}\) (APA) for an injunction to prevent the Defense Logistics Agency (DLA) from releasing data about Chrysler’s affirmative action plan to persons making a request for it under the Freedom of Information Act.\(^ {190}\) The Supreme Court held that DLA’s decision to release the data was “agency action” reviewable under the APA by a person who had suffered a legal wrong or had been adversely affected thereby.\(^ {191}\) The APA does not preclude injunctive relief against the government.

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\(^{184}\) Another question is whether a government employee could be enjoined from certain uses of certain software as part of his employment, even if the government itself could not be enjoined. Suppose a government lab director was asked to sign a restrictive license agreement with a software company. Suppose this license agreement was not made part of the contract that was signed by the contracting officer and did not contain the minimum rights required in software contracts. If the lab director violated the agreement, the company would not be able to sue the government because the lab director had no authority to bind the government to such an agreement. \textit{See, e.g.}, \textit{Utah Power & Light Co. v. United States}, 243 U.S. 389 (1917) (ruling that the United States is not bound by any agreements entered into by its officers which are not permitted by law). It is possible, however, that an injunction might issue against the particular lab director’s continued use of the software in a way that violated the agreement. That, of course, would not preclude moving the employee to a different location and having the software used by a new lab director who would not be bound by the agreement.

\(^{185}\) 41 U.S.C. § 601 et. seq.


\(^{188}\) 441 U.S. 281 (1979).


\(^{191}\) \textit{See} 5 U.S.C. § 702.
Three years later, in a case entitled *Megapulse v. Lewis*, a contractor who opposed the government's release of its technical data for competitive reprocurement purposes sued for injunctive relief, arguing that *Chrysler* had effectively overruled an earlier case that had denied injunctive relief in a data rights dispute. Although stating that not all contract officer decisions would be reviewable as agency action, the D.C. Court of Appeals agreed with Megapulse's argument that under *Chrysler v. Brown*, injunctive relief could issue in trade secret disputes between contractors and the government. The *Megapulse* decision has been reaffirmed in subsequent decisions, including one that involved a dispute with a subcontractor. It would seem, then, that injunctive relief against the government's release of trade secret software (as for competi-

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192672 F.2d 959 (D.C. Cir. 1982).

193Megapulse argued that the government had only limited rights in its technical data; the government claimed unlimited rights in it.

194The district court in *Megapulse* had relied on the *International Engineering* decision, supra note 187, to deny injunctive relief to Megapulse. The government's theory, both in *International Engineering* and in *Megapulse* was that releasing limited rights data to competitors is a breach of contract for which the exclusive remedy is a "contract" claim under the Tucker Act. The Department of Defense does not officially recognize the existence of trade secrets, and regards its contractors as having merely contractual rights to guard against unauthorized disclosures. See Nash and Rawicz, supra note 1, at 430-31. The Court of Appeals in *Megapulse* rejected the government's argument that a suit about proprietary data rights was essentially a contract claim. It was the government, said the court, not the contractor, that was relying on the contract. The contractor was relying on his trade secret rights, and this provided him with a basis for a claim to injunctive relief. 672 F.2d at 969.

195The *Megapulse* decision has been cited approvingly in two other cases, *B.K. Instrument, Inc. v. United States*, 715 F.2d 713 (2d Cir. 1983) and *Williams International Corp. v. Lehman*, 7 Cl. Ct. 726 (West) (1984). *Williams* is a particularly important case because it follows the Supreme Court's decision in *Monsanto* and involves a subcontractor dispute.

The *Williams* case ruled on a challenge by a subcontractor to the Navy's decision to remove restrictive legends on drawings submitted by him to the prime contractor who in turn submitted them to the Navy. In *Williams*, the government relied on the court's statements in *Monsanto* about the unavailability of injunctive relief when the government took a trade secret, see supra note 176, to argue that *Megapulse* had been overruled by the Supreme Court. The court in *Williams International* disagreed. Although deciding in favor of the government on the merits of the controversy, the court found that *Megapulse* had not been overruled by *Monsanto*.

There were two significant differences that the court in *Williams* found supported its decision not to override *Megapulse*. For one thing, in *Monsanto* there had been specific authorization of release of data such as Monsanto's trade secret data. See supra note 176. Congress had, therefore, intended to exercise its eminent domain powers if necessary to achieve the goals of the statute whereas there was no similar authorization as to the subcontractor in *Williams* or as to the contractor in *Megapulse*.

A second significant difference between *Monsanto* and the situation in *Williams International* that convinced the court an injunction might lie against the government was that there was no way *Williams International*, as a subcontractor, could directly bring suit against the government under the Tucker Act or make use of the Contract Disputes Act. This was because there was no privity of contract between Williams International and the Navy. DOD regulations specifically prohibit subcontractors from using the internal appeals process for contract disputes with primes. DFARS § 23-203(a).

One of the reasons the *Williams International* decision is important in software disputes is that much of the software developed for DOD is developed at the subcontractor level. Unless the *Megapulse* and *Williams International* decisions are overruled, there is a significant likelihood that injunctions may issue in software disputes between the government and industry.
tive maintenance or other such purposes) may be entertained by the courts un-
less Congress takes action to provide a new and stronger basis for government
avoidance of injunctions.¹⁹⁶

VI. A HYPOTHETICAL ILLUSTRATION OF DOD'S
SOFTWARE LICENSING PROBLEMS UNDER
EXISTING REGULATIONS

In prior sections, various software licensing problems have been discussed
in an abstract way. This section presents a hypothetical situation which will
illustrate how these abstract problems might evidence themselves in a concrete
instance. To solve the problems presented by this hypothetical is to solve the set
of problems that might beset real projects being funded by the Department of
Defense.

A. The Hypothetical Situation

Assume that the DOD has made a major funding commitment to Contra-
tor A to develop an extremely sophisticated software development system (the
Z System). Assume further that DOD has the following five objectives in fund-
ing development of the Z System:

1. Development of a standard set of software development tools that the
government could use for the purpose of generating code for military pur-
poses

2. Dissemination of this standard tool set to the defense contractor com-
munity for use in military projects

3. Excellence in the tool set so that industry will want to use the tool set,
rather than having to be required to use it

4. Creation of many derivative programs, chiefly "rehosts" (rewriting
the Z System so that it will operate on different host machines) and "re-
targets" (altering the Z System so that it will produce code that will run on
different machines), all of which would be widely available to the govern-
ment and to industry; and

5. In order to create incentives for firms to develop a high quality product
for DOD, encouragement to industry to create commercial spinoffs of Z
System and its rehosts and retargets

Assume that the first version of Z System was to serve as the model for

¹⁹⁶There has been thus far no formal procedure under the Contracts Dispute Act for handling
controversies about data rights as between a subcontractor and the government. Some have thought
that the Contract Disputes Act would have to be amended to change this. One provision of the 1985
DOD Authorization Act may partially address this problem. See 10 U.S.C. § 2321(e). But the
reach of this provision is far from clear.
future developments of rehosts and retargets, but that the original Z System would not itself be expected to be widely used to generate code because the first Z System was to be written for a mainframe whereas most of the ultimate uses would be for microcomputers. Assume also that about $20 million had been paid to Contractor A for the Z System, and that a version of it has been delivered to the government.

The government will need to know what the extent of its rights will be in the Z System.

B. Government Takes Unlimited Rights, Or Does It?

Assume that DOD used the standard data rights clause in its contract with Contractor A as to the Z System. The government’s usual expectation is that since public funds have been used for the development costs, the government would have unlimited rights in Z System.

If the Z System software and documentation is delivered to DOD with Contractor A’s copyright notice affixed to it, will that affect the extent of the government’s rights? For reasons discussed in Section II, it would seem that it would, even though many government procurement personnel are ignorant or confused in this issue. The reader should recall that the copyright retention provision of the standard clause seems to grant the government a license to copy and use copyrighted works for governmental purposes when the contractor copyrights the subject matter. As indicated above, this would seem to cut back the extent of the DOD’s rights from an unlimited rights to a governmental purpose license.

If DOD was unhappy with this situation and attempted to purchase the copyright from Contractor A, the latter would likely realize that the government was in a very poor bargaining position and could be expected to take advantage of the situation by offering to sell the copyright for what the DOD would consider to be an outrageous sum.

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197DFARS § 52.227-7013. See supra notes 24–30 and accompanying text for a discussion of this clause.
198See supra note 27 and accompanying text.
199Just because no DOD personnel connected with the project had noticed (or paid attention to) the part of the standard data rights clause that permits contractors to retain copyright interests in all works delivered to the government (except those delivered as “special works”) doesn’t mean that the DOD should be able to escape the consequences of its own policy and have its expectations fulfilled.
200See supra notes 44–48 and accompanying text.
201DOD could have used the “special works” option, see supra notes 53–55 and accompanying text, to prevent the contractor from copyrighting the software. See also infra notes 215–18 and accompanying text.
C. Rehosts, Retargets, and Enhancements of the Z System

For purposes of this hypothetical, assume that the government always intended to authorize rehosts and retargets to be made of the Z System and that Contractor A would not be the "sole source" for all these derivative programs. Contractor A, in this hypothetical, may not contest the government's right to distribute the copyrighted Z System for the purpose of having rehosts and retargets prepared for it.202

But what Contractor A may wish to contest is the right of the government to make certain kinds of deals to get rehosts and retargets made for DOD. Further, Contractor A may very well claim some rights in derivatives of the Z System prepared by other firms. If firms developing the derivatives attempt either to distribute the Z System or derivative works of the Z System for commercial purposes, Contractor A might challenge their rights to do so. In addition, the government itself might be concerned about what (if any) rights it might have in rehosts or retargets done by Contractor A for entities other than the DOD. It is to these questions we now turn.

1. Negotiating for a Retarget: A Retarget for Free as a Government Purpose

Suppose that DOD announced the availability of the Z System for retarget purposes for firms meeting certain minimal conditions (e.g., having a certain kind of computer). If the Z System had considerable commercial potential, the DOD might hope that this prospect would serve as an incentive for firms to do retargets for the government at minimal cost. The DOD would realize that incentives would be enhanced if the firms were able to retain exclusive commercial rights to their version of the Z System.

Suppose that Contractor B offered to create a version of the Z System for Contractor B's machines at no charge to the government on condition that Contractor B would retain all commercial rights to their version of Z.203 Contractor B might think that commercial sales of its computers would be enhanced by being able to offer its version of the Z System along with the machine; of course, sales of Contractor B's machines to DOD might also be enhanced.

202The copyright retention provision of the standard data rights clause gives the government a right to make derivative software for governmental purposes. See DFARS § 52.227-7013(c)(1).

For the sake of simplifying the hypothetical, the author will not have a separate subsection discussing whether, if the contractor did not copyright the software, and the government did get unlimited rights in it, the government would have a right to prepare or authorize preparation of derivative software. As was explained supra notes 49–52 and accompanying text, the definition of unlimited rights does not include a derivative works right, and it is conceivable that a court would hold DOD to rights to "use," "duplicate," and "disclose" the software, and not find a derivative work right to be included.

Again, for the sake of keeping the hypothetical simple, the author has not added another subsection developing a scenario about a subcontractor for a derivative of Z System who specially contracted with a prime contractor to deliver a derivative with less rights than the prime had agreed to deliver to the government. As Section IV, supra, has indicated, the government would only be able to enforce its mandatory minimum rights against a subcontractor under the standard data rights clause, not under any discretionary arrangements.

203Contractor B might think that commercial sales of its computers would be enhanced by being able to offer its version of the Z System along with the machine; of course, sales of Contractor B's machines to DOD might also be enhanced.
B might ask the DOD for assurances that Contractor B could do this without any liability to Contractor A.

As will be discussed below, it is not clear that DOD can lawfully give Contractor B this reassurance. If DOD has only governmental purpose rights to the Z System, there is a real question whether DOD’s "governmental purpose" rights would include getting a retarget made for free over the objection of Contractor A. 204

2. Can B Copyright the Derivative?

A second question is whether Contractor B will be able to copyright its derivative. Common sense might suggest that if Contractor B created a retarget for the government, Contractor B could take a copyright in the retarget. 205 Under the copyright statute, however, it is not clear that Contractor B is entitled to a copyright, or that its copyright would entitle Contractor B to make commercial distribution of the derivative work.

Contractor A only gave permission to the government to authorize derivative works to be made for governmental purposes. Contractor A might claim that the terms of the government’s deal and Contractor B’s commercial intent exceed the scope of this license. It is a general rule of copyright law that if one exceeds the scope of license permission, an infringement of the copyright has occurred. 206

Also, copyright protection in a derivative work will not attach to the extent that it unlawfully incorporates another author’s copyrighted material. 207 If the government (instead of Contractor A) owned the Z System copyright, it could authorize Contractor B to copyright Contractor B’s derivative work. Not owning the copyright, the government can’t grant to Contractor B a larger set of rights than the government’s arrangement with Contractor A permits. Because of this, it would not be clear that Contractor B could copyright the retarget and distribute it commercially. As a matter of copyright law, Contractor A would seem to have a legal right to control commercial distributions of the Contractor B version of the Z System. 208

3. Authorizing Commercial Distribution of Z System Code by Others

Now suppose that DOD lets a second contract for some enhancements to

204 Contractor A may object to the government’s assertion of such a right, arguing that its copyright in the Z System gives Contractor A the right to control all commercial distributions of the derivative works of its copyrighted Z System, and that in reassuring B that B won’t be liable to A for commercial distributions, DOD is acting beyond its rights. See supra notes 128-40 and accompanying text for a discussion of derivative works problems.

205 The hypothetical has assumed that the government used the standard data rights clause in its contractual arrangement with Contractor B as well as with Contractor A, but has not used the special works clause.


207 See 17 U.S.C. § 103(a). See also 1 Nimmer on Copyright § 3.06 (1985).

208 See infra notes 212-214 and accompanying text as to why Contractor A may not itself have any rights to use or sell Contractor B’s version of the Z System.
the Z System (Z-2). As a result of the problems DOD people might think they had with Contractor A over rights in the original Z System, they could be expected to try very hard to structure their contractual arrangements with a new contractor so as to avoid those problems. One way to attempt this might be to try to get ownership of Z-2 in the government.\textsuperscript{209}

Before discussing whether this can be done effectively, consider whether DOD can authorize the winner of the Z-2 contract to distribute the machine-readable version of Contractor A's Z System to all of its commercial customers.\textsuperscript{210} Assume that DOD also gives the winning bidder the right to sell or license the Z-2 to its commercial customers free from any obligations toward Contractor A.

The interesting question is, of course, whether the government has the legal right to authorize commercial distributions of the Z System code or to authorize commercial distributions of a derivative work of the Z System program without Contractor A's (i.e., the original copyright owner's) permission. This, of course, leads back to the question of what the scope of the government's rights are under the standard data rights clause.

4. \textit{Balancing the Government's and Contractor A’s Interests}

The government might argue that it does have the legal right to do these things because it is an appropriate governmental purpose to have rehosts, retargets, and/or enhancements of the Z System made at the least cost to the government and for those rehosts, etc., to be widely available. The government probably also would argue that Contractor A always knew widespread dissemination of derivative works was intended.

Contractor A's response might well be that under the copyright law it has rights over distributions of its product to commercial customers and over distributions of derivative products to commercial customers, which rights the government cannot abrogate simply because it wants to. Contractor A might well argue that it is not a legitimate governmental purpose to authorize commercial distributions of A's work, in part because such distributions are not directly in fulfillment of any governmental mission and in part because such authorization undercuts Contractor A's market for the Z System (a market which, according to our hypothetical, the government agreed to leave to Contractor A). Contractor A might admit that widespread dissemination of the Z System derivatives was expected, but might argue that although it would be glad to license commercial marketing of those derivatives it never intended to leave itself with no commercial market. Contractor A might point out that the government knows

\textsuperscript{209}See infra notes 215-18 and accompanying text.

\textsuperscript{210}DOD might forbid the winner from selling Contractor A’s version of the Z System code but might purport to allow it to distribute the Z System code to commercial customers free from the obligation to get Contractor A’s permission and free from any obligation to pay royalties to Contractor A.
there is a very limited commercial market for the original Z System, which runs on a particular mainframe and prepares code for another computer. Contractor A might also argue that the government is under a duty of good faith not to destroy or undermine the commercial market for its Z System.

How a court of law would decide these matters is somewhat hard to predict. Contractor A's argument, however, seems the stronger. Moreover, if the DOD is to create meaningful incentives for industry to develop good products for DOD use, more restraint in authorizing commercial distributions of Z System and its derivatives would seem desirable.

5. Giving the Z System to the Defense Industry as a Potential Governmental Purpose

Up until now, we have supposed that DOD has only been releasing the Z System to software defense industry firms for rehost/retarget purposes. To the extent that the government distributes the Z System in order to have rehosts or retargets made for the government and to enable it to fulfill its governmental missions, this would quite clearly be within the scope of "governmental purpose" license.

But if instead, the DOD decided to give Z System to the software defense industry to enable the firms to produce code for the government, would that be a valid governmental purpose, or would this be an encroachment on the commercial market rights of Contractor A under its copyright? It is a close question.

If the sole use that could be made of the Z System by industry was in performance of a government contract, that would more clearly be within the scope of the government's license. Simply to distribute the Z System code (or any improved version of it) to defense industry because the government thought it best for the industry to have a good set of standard tools would seem to be stretching "governmental purpose" rather farther than the government's right would clearly extend. And it would also undermine the incentives to create a good product for the DOD.

6. What Rights Does the Government Have to Contractor A's Derivative Products?

Now suppose that Contractor A makes a deal with Contractor C to prepare a version of the Z System for operation on another machine than the one for which DOD contracted. DOD would obviously be interested in knowing the rights it might have in derivative works prepared by Contractor A for C (or others). If the government had a copyright in the Z System, then the government would have some rights as to A's other versions of the Z System. But without a copyright, the government's claim is on tenuous grounds. Because the derivative was not prepared under a government contract, the government seemingly would be unable to claim unlimited or government purpose rights in it.
Some government lawyers, however, claim that the government has unlimited rights in anything that incorporates anything in which the government has unlimited rights. Even if such reasoning could be applied to the version for C, it would seem to present the same kinds of problems for the government as when the government claims unlimited rights in a non-deliverable. At best, the government might have an argument that it has "inchoate rights" in the new version, even though it has no right to possession. The better view would be that unless the government made contractual arrangements with Contractor A to obtain rights in all derivative products prepared by Contractor A, it would have no rights to these derivative products.

7. Rights to Exclude and Rights to Use

To say that if the government had the copyright for the Z System, it would have some "rights" as against Contractor A when Contractor A prepared enhanced versions of the Z System for entities other than DOD is not to say that the government would own a copyright in the enhanced Z System or would even have a right to use, copy, or disclose the new version of Z System.

As noted above, intellectual property law tends to define ownership rights in terms of having power to exclude others from using the thing which is claimed as the intellectual property. A copyright would give the government the right to prevent Contractor A from preparing, copying, or distributing unauthorized derivative works (such as a rehosted Z System). The copyright might also give the government the right to challenge any copyright Contractor A might claim in a rehosted Z System. But negative power is not the same as positive power. That is, the power to prevent Contractor A from making or selling an unauthorized rehost does not entail a corresponding power on the part of the government to employ the rehost for itself.

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211See supra notes 59–62 and accompanying text for a discussion of the problem of having unlimited rights in non-deliverables.

212See supra notes 71–75 and accompanying text.

213Copyright protection is not afforded to unauthorized derivative works. See 1 Nimmer on Copyright § 3.04 (1985).

214See 1 Nimmer on Copyright § 3.04, n.4 (1985).

A similar set of questions arises if A contracts with another government agency for the Z System or a derivative. In this hypothetical, DOD obtained if not unlimited rights, at least a license to copy and use the Z System for governmental purposes. This license is not restricted to the DOD, but would seem to cover all federal agencies. It is an interesting question whether Contractor A has the right to sell the Z System to another governmental agency. DOD's license would seem to mean that all governmental agencies are already entitled to use it without charge.

Suppose, for example, Contractor A sells rights to the Z System to a NASA facility, at some specified charge, and even agrees to do some enhancements for NASA. The DOD might wonder whether Contractor A has a right to do this and whether DOD will be able to get unlimited (or at least license) rights to any enhancements that NASA might fund.

As to the former question, it would be somewhat dependent on the terms of the original contract, but assuming that there is no clause explicitly precluding sales to other governmental agencies, it is hard to see on what basis DOD could argue that Contractor A has no rights to sell to NASA as part of its commercial market if NASA wants to buy. As to the latter question, DOD would seem
D. Taking a Copyright in a Derivative of the Z System as a Way to Avoid Problems

Returning to the hypothesized Z-2 DOD contract, assume that DOD seeks to avoid the problems it had with Contractor A by putting a "special works" clause in the Z-2 contract. With this, DOD hopes to take the copyright directly. As explained above, the DOD's present special works clause seems ineffective to obtain ownership rights for the government because of the copyright law's preclusion of direct government ownership of copyrights.215

The idea of taking the copyright is a good one because, if executed properly, a copyright would give the government rights to control the making and distribution of derivative works. Had the government owned the copyright in the Z System, Contractor A's version of the Z System for Contractor C would be a derivative work in which the government would have rights; then it would be Contractor A's copyright in the derivative work that would be in jeopardy if Contractor A had not obtained authorization from the government to prepare derivatives.216

Some DOD people might think that having a copyright in Z-2 would allow the government to free itself from obligations to Contractor A. That is, some DOD people might think that if the DOD takes a copyright in the rehost, Contractor A will be out of the picture. Such an assumption would be questionable. The contractor would still be the owner of a copyright in the Z System of which this particular rehost is derivative. The government's power to make derivatives of A's copyrighted Z System probably only extends to having them done for government purposes. Because the government's power will be limited by the terms of its license with Contractor A, it does not become free of that constraint simply by getting more rights to a later version.217

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215See supra notes 53–58 and accompanying text. A deviation would be required for DOD to attempt to take ownership in any other way.

216Owning a copyright is a good idea, but it has its costs, not the least of which is enforcing the copyright. Unless the government grants to rehost or retarget companies exclusive licenses to the government's copyrighted works, the government will have to be made a party to any lawsuit between the rehost/retarget firm and one of its customers over actions by the customer in contravention of the rehost/retarget firm's rights under the copyright license. 3 NIMMER ON COPYRIGHT § 12.02 (1984). Also, being the owner might make the government a warrantor of the software unless adequate disclaimers have been made.

217An analogy may help. If one gets permission of someone who has translated a book from French to German to use his German translation to do a translation into English, that doesn't mean that one doesn't need the French author's permission as well. Copyright permissions must have a clean trail back to the source. If one doesn't get it, it's like a little tooth decay under a filling. The tooth goes on rotting instead of being cured.
In other words, the DOD may never be free from obligations to Contractor A so long as its copyrighted Z System is the basis for the derivative programs.\(^\text{21}^8\)

E. Summary

This hypothetical has illustrated the complexities of intellectual property law and of the government’s acquisition regulations as they affect DOD’s acquisitions of software. Greater awareness of these complexities and of their origins in ambiguities within the current DOD regulations would seem desirable. A lot is at stake, both for industry and government.

CONCLUSION

There is no quick and easy way to solve all of DOD’s software licensing problems. There are too many different types of problems stemming from too many different causes, and probably there also is too much money at stake, for any “quick fix” solution to work. The situation is made more difficult by the strained relationship which currently exists between industry and government with regard to software/data rights issues.

That does not mean, however, that none of DOD’s software licensing problems can be resolved quickly or easily; nor does it mean that most of its problems are unsolvable. The single most substantial step toward alleviating the most serious of DOD’s software licensing problems would be to revise the DOD procurement regulations so that DOD’s software rights policy: (1) is more comprehensible; (2) is more appropriate to the kind of technology that software represents, as well as to the kind of industry that produces software; (3) is more attentive to creating incentives for delivery of high quality products; (4) is more attuned to the precepts of intellectual property law affecting software; and (5) is only as divergent from standard software licensing practices as is necessary to fulfill the DOD’s mission. A second important step would be to improve the level of training on software, data rights, and intellectual property law for those within the defense community who are involved with software procurements.

The reality of today is that many firms on the “cutting edge” of software technology can survive without doing business with the government. The DOD needs the latest technology in order to maintain a strong defense and military capability. Because of this fact, it is clear that in many cases DOD needs industry more than industry needs DOD. Given this situation, it seems incumbent upon DOD to make some effort to be more responsive to the concerns of the software industry; in particular, DOD should adopt a software rights policy that will protect the government’s interests while at the same time preserving the appropriate proprietary restrictions necessary to protect the software industry.

\(^{21}^8\)See also SEI REPORT, supra note 1, at 92 for a consideration of patent, trademark, and warranty problems.