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## Computer Programs as Goods Under the U.C.C.

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## Computer Programs as Goods Under the U.C.C.

Computer programs<sup>1</sup> frustrate the law's traditional categories: they exhibit characteristics of both concrete property and abstract knowledge.<sup>2</sup> The courts and the literature widely debate whether programs are taxable,<sup>3</sup> admissible as evidence,<sup>4</sup> or eligible for copyright<sup>5</sup> or patent protection.<sup>6</sup> However, few courts have discussed whether contracts for computer programs are

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1. A computer program is a series of instructions for a computer. *Telex Corp. v. IBM*, 367 F. Supp. 258, 274 (N.D. Okla. 1973), *modified*, 510 F.2d 894 (10th Cir.), *cert. dismissed*, 423 U.S. 802 (1975); *Computer Sciences Corp. v. Commissioner*, 63 T.C. 327 (1974).

2. The District of Columbia Circuit has stated that once a program is "in" a computer, it becomes "knowledge." *See* *District of Columbia v. Universal Computer Assocs.*, 465 F.2d 615, 618 (D.C. Cir. 1972).

3. *See* *Greyhound Computer Corp. v. State Dept. of Assessments & Taxation*, 271 Md. 674, 320 A.2d 52 (1974); *Commerce Union Bank v. Tidwell*, 538 S.W.2d 405 (Tenn. 1976). Perhaps these cases seek to rationalize state statutes that tax some types of software but not others. *See* Heinzman, *Computer Software: Should It Be Treated as Tangible Property for Ad Valorem Tax?*, 37 J. TAX. 184 (1972). For a definition of software, see note 17 *infra* and accompanying text. *See also* Bryant & Mather, *Property Taxation of Computer Software*, 18 N.Y.L.F. 59 (1972). Some state statutes and some cases distinguish applications programs from operations (or systems) programs. For a definition of these two types of programs see, *e.g.*, *Commerce Union Bank v. Tidwell*, 538 S.W.2d 405, 406 (Tenn. 1976); *Greyhound Computer Corp. v. State Dept. of Assessments & Taxation*, 271 Md. 674, 320 A.2d 52 (1974); CAL. REV. & TAX CODE § 995 (West Cum. Supp. 1975). That distinction probably stems from the difficulties of taxing applications programs. Applications programs are difficult to value because computer users generally design them themselves; and those that are purchased require frequent modification. In contrast, systems programs are acquired almost exclusively through the marketplace, because they are too long and complex for a computer user to make alone. A user would also obtain any significant modifications of a systems program through the marketplace. The asserted reason for not taxing applications programs — that they are not tangible personal property — applies with equal force to systems programs. This has not stopped some states from taxing systems programs, however.

4. *See* Roberts, *A Practitioner's Primer on Computer-Generated Evidence*, 41 U. CHI. L. REV. 254 (1974); Tapper, *Evidence from Computers*, 8 GA. L. REV. 562 (1974).

5. *See* Miller, *Computers and Copyrights*, in *THE LAW OF COMPUTERS* 107 (1971) [hereinafter cited as *THE LAW OF COMPUTERS*]; Bender, *Trade Secret Protection of Software*, 38 GEO. WASH. L. REV. 909 (1970); Lorr, *Copyright, Computers and Compulsory Licensing*, 5 RUTGERS J. COMPUTERS & LAW 149 (1975). *But see* 17 U.S.C. § 102(b) (1976). *See generally* R. BIGELOW & S. NYCUM, *YOUR COMPUTER AND THE LAW* 59-96 (1975).

6. *See* *Gottschalk v. Benson*, 409 U.S. 63 (1972); *In re Flook*, 559 F.2d 21 (C.C.P.A. 1977), *revd. sub nom. Parker v. Flook*, 437 U.S. 584 (1978). *See also* *Dann v. Johnson*, 425 U.S. 219 (1976), *revg.* 502 F.2d 765 (C.C.P.A. 1974) (denying patent because the patented program was "obvious"). Based on a dictum of *In re Prater*, 415 F.2d 1393 (C.C.P.A. 1969), the Court of Claims and Patent Appeals has permitted programs to be patented. *In re Knowlton*, 481 F.2d 1357 (C.C.P.A. 1973); *In re Comstock*, 481 F.2d 905 (C.C.P.A. 1973); *In re Bernhart*, 417 F.2d 1395 (C.C.P.A. 1969). The Patent Office opposes any patenting of programs. *See* Dobyns & Block, *Adequate Disclosure of Computers and Programs for Computers in Patent Specifications*, 56 J. PAT. OFF. SOC. 574 (1974).

“transactions in goods” governed by article 2 of the Uniform Commercial Code.<sup>7</sup> If the program is no more than a set of ideas, a contract to sell a program is a service contract and therefore is not covered by article 2.<sup>8</sup> But a computer cannot read ideas; for abstract instructions to become a computer program, a technician must give those instructions a physical form.<sup>9</sup> That technical metamorphosis from abstract instructions to concrete programs suggests a legal metamorphosis from services to goods.<sup>10</sup>

This Note addresses the requirements for governing computer program contracts by article 2 of the U.C.C.: that the several methods of selling programs be “transactions in goods” and that the goods not be merely incidental to accompanying services. This Note concludes that contracts for program copies<sup>11</sup> are, in most contexts, transactions within the scope of article 2.

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7. The closest cases concern programs sold with a computer. If the program is actually in the machine when sold, the courts consider it merely part of the machine. These cases often do not mention that the computer contained programs. *See, e.g.*, *Triangle Underwriters, Inc. v. Honeywell, Inc.*, 457 F. Supp. 765 (E.D.N.Y. 1978) (U.C.C.’s four-year limit on actions claiming breach of a sales contract for goods applied to sale of computer hardware and software package); *Investors Premium Corp. v. Burroughs Corp.*, 389 F. Supp. 39 (D.S.C. 1974); *Bakal v. Burroughs Corp.*, 74 Misc. 2d 202, 343 N.Y.S.2d 541 (Sup. Ct. 1972). Furthermore, where the programs are part of the contract for the computer but are to be delivered at a later time, the courts consider the obligation to deliver the programs incidental to the sale of the computers and hold that the entire transaction is under the U.C.C. *Burroughs Corp. v. Joseph Uram Jewelers, Inc.*, 305 So. 2d 215 (Fla. Dist. Ct. App. 1974); *Carl Beasley Ford, Inc. v. Burroughs Corp.*, 361 F. Supp. 325 (E.D. Pa. 1973), *affd.*, 493 F.2d 1400 (3d Cir. 1974) (U.C.C. applied to a bundled contract). A computer contract is “bundled” when the purchase price includes the seller’s programming services, whether or not the buyer wishes to use them. IBM lost several antitrust suits because of this practice, and it is seldom used today. *See* 361 F. Supp. at 334 n.5. *Cf. Public Utils. Commn. v. Burroughs Business Machs., Ltd.*, 34 D.L.R.3d 320 (Ont. 1973); *Burroughs Business Machs., Ltd. v. Feed-Rite Mills (1962), Ltd.*, 42 D.L.R.3d 303 (Man. 1973) (Canadian cases, under the Canadian Sale of Goods Act, reaching similar results). *See also F.&M. Schaefer Corp. v. Electronic Data Sys. Corp.*, 430 F. Supp. 988, 992 (S.D.N.Y. 1977); *UARCO, Inc. v. Peoples Bank & Trust Co.*, 414 F. Supp. 1219, 1221 (E.D. La. 1976).

8. *See* J. WHITE & R. SUMMERS, *HANDBOOK OF THE LAW UNDER THE UNIFORM COMMERCIAL CODE* § 2-2 (1972).

9. *See* Furth, *Computers & the Practicing Lawyer*, in *THE LAW OF COMPUTERS*, *supra* note 5, at 77.

10. Significantly, large computer manufacturers have provided for the possibility that courts would find program contracts to be “transactions in goods” under article 2. *See* 2 *COMPUTER L. SERV. REP.* apps. §§ 3-2b, 3-2c.

11. Since the word “program” may mean an embodiment of those instructions, the term “program copy” in this Note will refer to the embodiment of a program in machine-readable form.

Much of the law’s frustration with computer programs results from confusing program copies with their abstract instructions. The latter are not tangible; unless embodied in cards, tapes, or on paper, the instructions exist only in the programmers’ minds. Rights

## I. PROGRAM CONTRACTS AS TRANSACTIONS IN GOODS

Article 2 of the Uniform Commercial Code applies to “transactions in goods”<sup>12</sup> and defines goods as “[a]ll things (including specially manufactured goods) which are movable at the time of identification to the contract.”<sup>13</sup> Although production of a good may demand substantial labor, this does not automatically render a contract one for services.<sup>14</sup> Indeed, the U.C.C. expressly covers specially manufactured goods.<sup>15</sup> Thus, despite a labor-intensive production process, a computer program copy may still be a good if it meets the statutory definition.

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to such instructions can be conveyed, although courts ponder whether those rights are patents, trade secrets, copyrights, or contractual property rights. *See* notes 5 & 6 *supra*. But buying rights to a set of instructions is a different transaction from buying a tangible copy of those instructions. The intangible instructions are not a thing and therefore not a good under the U.C.C.

In the recent decision of *Triangle Underwriters, Inc. v. Honeywell, Inc.*, 457 F. Supp. 765 (E.D.N.Y. 1978), *revd. and remanded on other grounds*, No. 78-7532 (2d Cir., filed July 17, 1979), the court did not acknowledge this distinction. In holding programs to be goods, the court stated:

Although the ideas or concepts involved in the custom designed software remained Honeywell's intellectual property, Triangle was purchasing the product of these concepts. That product required efforts to produce, but it was a product nevertheless and, though intangible, is more readily characterized as “goods” than “services.”

In the first sentence, the court appears to use this Note's distinction between buying the “intellectual property” of the program and a particular copy of it. In the second sentence, however, the court characterized the copy as intangible, indicating an entirely different distinction. The court distinguishes the underlying algorithms and problem-solving theory from the intangible instructions that realize that theory. But the court does not complete the analysis and distinguish the intangible instructions from their tangible embodiment.

This approach leads the court to the odd posture of labeling an intangible — which only exists in people's minds — as a “good.” This is analogous to saying that music in an album or words in a book can be a “good.” But music or words are not sold separately from albums or books; only their copyrights are severable.

It also leads the court into the apparent contradiction of saying that the manufacturer retained the “intellectual property” rights. Under the court's scheme, the manufacturer retained rights to the underlying algorithms or ideas behind the program. But the law does not protect algorithms and ideas, only their physical realizations. *See* notes 5 & 6 *supra*. In addition, if the court meant to suggest that one could sell an abstract set of instructions (which is the realization of underlying algorithms and ideas) yet retain property rights in them, this is inconsistent with the analogous copyright law for music or words: a sale of the music or the words is a sale of the copyright. It is conceptually better to view the transaction as a sale of a physical copy of the instructions (analogous to a record album or a book) with retention of “intellectual property” rights (analogous to — and perhaps synonymous with — a copyright).

12. U.C.C. § 2-102.

13. U.C.C. § 2-105(1).

14. *See* *Bonebrake v. Cox*, 499 F.2d 951 (8th Cir. 1974) (the U.C.C. covered a contract for a bowling alley although the installation required substantial labor).

15. U.C.C. § 2-105(1).

A "good" must be a "thing" that is "movable." A computer program copy is surely distinguishable from pure thought; therefore, it is logical for the law to consider that copy a tangible "thing" independent of the ideas and intangible instructions it communicates.<sup>16</sup> Also, program copies are "movable" in any of their three principal forms: software, memory devices, or data transmissions. This Note uses the term software for machine-readable media that carry program copies, such as magnetic cards, paper cards, or tape.<sup>17</sup> Such media are unquestionably movable. Memory devices<sup>18</sup> — generally magnetic tapes, discs, or drums on which program copies are stored at computer installa-

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16. Compare, for example, a program copy with an intangible property right such as a patent. A patent cannot do anything by itself; rather it permits its holder to do things. On the other hand, a program copy can do things by itself; it can run a computer. A patent needs no physical form independent of legal paper establishing its existence, while a program copy must be embodied to be read by a computer, independently of any legal paper asserting its existence.

17. *But see* District of Columbia v. Universal Computers Assocs., 465 F.2d 615, 618 (D.C. Cir. 1972) (a computer program is "intangible knowledge" and must not be confused with the punch cards used to enter it in the computer). "Software," like many computer terms, has several meanings. *See* Honeywell, Inc., v. Lithonia Lighting, Inc., 317 F. Supp. 406, 408 (N.D. Ga. 1970); Heinzman, *supra* note 3, at 185; Miller, *supra* note 5, at 113. The term "software" sometimes is used narrowly to refer to specific media that are programmed. *See, e.g.,* Law Research Serv., Inc. v. General Automation, Inc., 494 F.2d 202, 204 n.3 (2d Cir. 1974) ("software" includes punch cards, memory tapes, and paper tapes programmed to instruct the computer). "Software" also commonly refers to all the program copies of a particular party. *See, e.g.,* Com-Share, Inc. v. Computer Complex, Inc., 338 F. Supp. 1229 (E.D. Mich. 1971), *affd. per curiam*, 458 F.2d 1347 (6th Cir. 1972) ("software" refers to the program and controls which are used in the computer). The term, however, is often given a more expansive meaning. *See, e.g.,* University Computing Co. v. Lykes-Youngstown Corp., 504 F.2d 518, 527 (5th Cir. 1974) ("software" including programs, programming instructions, and computer language listings); Accountant's Computer Servs., Inc. v. Kosydar, 35 Ohio St. 2d 120, 123-24, 298 N.E.2d 519, 522 (1973). Under these expansive definitions "software" is the obverse of "hardware," which generally refers to the machinery: the computer and its mechanical and electronic appurtenances. Some media used as software, such as magnetic tape, can also be used as memory devices. *See* note 18 *infra*. This Note distinguishes the two classes by the intended use of the medium. If used to transport programs, it is software; if used to store programs at a computer installation, it is a memory device.

18. For a description of memory devices, *see generally* Telex v. IBM, 367 F. Supp. 258 (N.D. Okla. 1973) (fact 31, at 275); Furth, *supra* note 9, at 79-80. Most such devices are magnetic and many are not contained within the computer equipment itself. *See* Strand v. Librascope, Inc., 197 F. Supp. 743, 746 (E.D. Mich. 1961) (describing a magnetic drum memory device). These devices may be used as either software or memory devices. *See* note 17 *supra*. Some devices are contained within the computer, such as a magnetic "core." *See* Sperry-Rand Corp. v. Petronix, Inc., 311 F. Supp. 910, 911 (E.D. Pa. 1970) (describing magnetic core memory). New devices now or soon to be used include magnetic bubbles and semiconductor memory. *See* Hodges, *Microelectronic Memories*, SCIENTIFIC AM., Sept. 1977, at 130, 131.

tions — are also movable.<sup>19</sup> The third medium for a program copy is a data transmission which travels as electrical impulses over telephone cables or as electromagnetic radiation.<sup>20</sup> Since courts have found electricity to be movable because it passes through wires,<sup>21</sup> any form of data transmission is probably a “movable thing” under the U.C.C.

Article 2, however, requires not only the existence of movable things, but also a transaction in goods identified to the contract.<sup>22</sup> Courts have interpreted “transaction” broadly,<sup>23</sup> frequently stating that dealings “analogous to a sale”<sup>24</sup> in economic effect, such as leases, should receive identical treatment under the U.C.C.<sup>25</sup> But even under a liberal interpretation of “transaction,” some

19. See *Strand v. Librascope, Inc.*, 197 F. Supp. 743 (E.D. Mich. 1961) (magnetic drums); *Storage Technology Corp.*, 3 COMPUTER L. SERV. REP. 407, 409 (Aug. 18, 1971) (decision of Comptroller General discusses discs and tape drives). Internal memory devices are also movable and are sometimes added onto existing computers. See, e.g., *Advanced Memory Sys., Inc. v. IBM*, 3 COMPUTER L. SERV. REP. 183 (N.D. Cal. 1972) (discusses the addition of a magnetic core to a computer). In any event, the computers themselves generally are movable, and thus any internal memory device would be as well.

20. Electromagnetic radiation includes both light and microwaves. According to present theories of the physical properties of such radiation, light and microwave transmissions consist of particles travelling at the speed of light. See 4 BERKELEY PHYSICS COURSE §§ 4.6, 4.7, 5.1 (1970). Like electricity, such transmissions can be bought and sold. See note 21 *infra*.

21. *Helvey v. Wabash County REMC*, 151 Ind. App. 176, 287 N.E.2d 608 (1972). See also *Wivagg v. Duquesne Light Co.*, 73 Pa. D. & C.2d 694 (1975) (applied the U.C.C. by analogy). Although *Buckeye Union Fire Ins. Co. v. Detroit Edison Co.*, 38 Mich. App. 325, 196 N.W.2d 316 (1972), appears to reach the opposite conclusion, the court in that case never actually reached the issue. The court merely noted that, under Michigan law, even if electricity were considered a good, the U.C.C. would not change the outcome of the case. The court in *Helvey* based its decision on the nature of electricity. 151 Ind. App. at 179, 278 N.E.2d at 610. The court noted that electricity could be bought, bartered, and sold, as well as taxed and stolen. The court held that electricity was movable, since it “passed through the meter.” In *Gardiner v. Philadelphia Gas Works*, 413 Pa. 415, 197 A.2d 612 (1964), the court compared electricity in wires to natural gas in pipes, which has been held to be a good.

22. U.C.C. § 2-102.

23. See 1 R. ANDERSON, UNIFORM COMMERCIAL CODE § 2-102:4 (2d ed. 1970); J. WHITE & R. SUMMERS, *supra* note 8, § 9-6. Anderson views “transactions” as including equipment leases, mixed sales-service contracts, and, unless the context otherwise requires, any dealings with respect to “goods.”

24. This test was first mentioned in *Sawyer v. Pioneer Leasing Co.*, 244 Ark. 943, 428 S.W.2d 46 (1968). Cf. Murray, *Under the Spreading Analogy of Article 2 of the Uniform Commercial Code*, 39 FORDHAM L. REV. 477 (1970) (notes that *Sawyer* interprets “transaction” narrowly and argues for a broader test).

25. *Hertz Commercial Leasing Corp. v. Transportation Credit Clearinghouse, Inc.*, 59 Misc. 2d 226, 229, 298 N.Y.S.2d 392, 395 (Civ. Ct. 1969), *revd. on other grounds*, 64 Misc. 2d 910, 316 N.Y.S.2d 585 (App. Term 1970). See also *Cintrone v. Hertz Truck Leasing & Rental Serv.*, 45 N.J. 434, 212 A.2d 769 (1965).

particular good must be "identified to the contract"<sup>26</sup> for there to be an article 2 transaction. Unlike the typical sale, in which one item is manufactured and delivered, a program contract often involves several distinct program copies.<sup>27</sup> There is no "transaction in goods" unless one of those copies is the identifiable subject of the program contract.

The transport copy — the computer program copy that the seller delivers to the buyer for rent or sale — is probably the good that the parties to a program contract identify with the transaction.<sup>28</sup> It is the only copy that sellers would warrant: no seller assumes responsibility for the recording skills of memory devices of the buyer. It is also precisely what buyers want warranted.<sup>29</sup>

26. U.C.C. § 2-105(1)(2). *See also* U.C.C. § 2-401, -501. The U.C.C. replaces reliance on the passing of title as the key to a transaction with this concept of identification of the goods to the contract. *See Redfern Meats, Inc. v. Hertz Corp.*, 134 Ga. App. 381, 251 S.E.2d 10 (1975).

27. Ordinarily, a program copy is developed at the seller's computer. To deliver a copy to the buyer, the seller duplicates the program copy on software, and transports the duplicates to the buyer's computer. The duplicate is read into the buyer's computer and copied on a memory device. Thus, there are at least three copies: the original, the duplicate, and the buyer's final copy on a memory device.

28. U.C.C. § 2-501 covers the manner of identifying goods to the contract. The parties are free to agree on the manner of identification. In the absence of an agreement, subsections (a) and (b) indicate the manner of identification.

(1) The buyer obtains a special property and insurable interest in goods by identification of existing goods as goods to which the contract refers even though the goods so identified are non-conforming and he has an option to return or reject them. Such identification can be made at any time and in any manner explicitly agreed to by the parties. In the absence of explicit agreement identification occurs

(a) when the contract is made if it is for the sale of goods already existing and identified; (b) if the contract is for the sale of future goods other than those described in paragraph (c), when goods are shipped, marked or otherwise designated by the seller as goods to which the contract refers. . . .

In the typical program contract, subsection (b) would indicate that the program copy in transport (*e.g.*, the good "shipped") is the subject of the contract.

It is, however, the memory copy that is tested and cured in actual use. Thus it can be argued that when a program copy is conditionally accepted, even when software is sold and copied, the buyer actually accepts the memory copy since that is the copy to be cured. This result should not follow. First, the software itself is cured when the memory copy is cured. Certainly such a cure would satisfy the parties because the curing of one copy cures all. Second, a conditional acceptance need not derive from U.C.C. § 2-608 (acceptance under assumption of cure), but from a clause in the contract or an understanding between the parties which gives the buyer the right to rescind if the copy on memory is not cured. *Cf.* note 59 *infra* (curing of memory copy as satisfying U.C.C. § 2-608). Thus, despite the curing of the memory copy, the buyer is not apt to view the memory copy as the one identified to the contract.

29. The buyer does not usually expect a specially manufactured program to be perfect when delivered. Instead, it is tested in use and then perfected. *See, e.g.*, *Carl Beasley Ford, Inc. v. Burroughs Corp.*, 361 F. Supp. 325, 330 (E.D. Pa. 1973), *affd.*, 493 F.2d 1400 (3d Cir. 1974) (in view of the complexity of programming, eight months is a reasonable time

they expect the purchased program to function properly but will bear the risk of their own mishandling after delivery.

The transport copy of a computer program is identifiable to the contract whether sold as software, relayed as an electronic data transmission, or loaned as software to be copied on the buyer's memory device. Acquiring a program copy by purchasing software presents the clearest case of an identified good. Such a software purchase is strikingly analogous to a purchase of record albums or cassette tapes. A record buyer wants music, but buys the record. A software buyer wants a computer program, but buys the software. The record buyer can copy the music onto a tape, as many audiophiles do, and the U.C.C. will still cover the record sale. In the same way, the software buyer will almost always copy the program onto a memory device in his computer system. The possibility of transforming the program should not remove the software sale from article 2 coverage.<sup>30</sup>

Program copies relayed to buyers as data transmissions also can easily be identified to the contract. Data transmissions are very similar to electrical transmissions,<sup>31</sup> and since the latter are covered by the U.C.C., the former should be as well.<sup>32</sup> The short

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of "adjustment" before rejection is required); *Burroughs Business Machs., Ltd. v. Feed-Rite Mills (1962), Ltd.*, 42 D.L.R.3d 303 (Man. 1973) (buyer allowed to reject computer and programs under the Canadian Sale of Goods Act after several months possession because of problems in perfecting the programs). *See also Pezzillo v. GTE Information Sys., Inc.*, 414 F. Supp. 1257, 1259 (M.D. Tenn. 1976) (describes the processes of programming and debugging — the curing of program defects).

30. Unfamiliarity with computer programs causes two lingering problems that are clarified by the record album analogy. First, some argue that a program transaction conveys not the software itself, but the "intellectual property" of the program. While this argument may have some validity, it applies with equal force to the sale of music on a record album, which is clearly under the U.C.C.

Secondly, it is argued that the program contract concerns not the transported copy (the software), but the final copy which was made from the software and is contained on the memory devices of the buyer's computer. However, when a record buyer tapes a purchased record the U.C.C. still covers the record sale. A buyer can consume or dispose of a purchased good in many ways without removing the original sale from the U.C.C.

The analogy between music on records and programs on software, however, is not exact. Sellers of records do not warrant the music itself, but a seller of software will warrant the programs. A record shop only stands behind the physical quality of its albums; the music itself is sold "as is." Consider another kind of recording, such as a record to teach a foreign language. In that sale, the seller probably would warrant the accuracy of the translation. There also may be policy reasons for not requiring the retailer of a record to warrant the music. *Cf. Cardozo v. True*, 342 So. 2d 1053 (Fla. Dist. Ct. App. 1977) (seller of cookbook not liable for breach of warranty when a recipe failed to mention an ingredient was poisonous if cooked improperly).

31. *See text at note 21 supra.*

32. *See note 21 supra.*

time that the copy spends in that form poses no problem, for even during its very brief life it can be identified. Short-lived goods are goods nonetheless.<sup>33</sup>

The third type of identifiable program copy is the borrowed copy that the buyer records in a memory device and then returns to the seller. Although this borrowing is brief,<sup>34</sup> the transaction is sufficiently "analogous to a sale"<sup>35</sup> to be subject to article 2. The economic result of a software loan is indistinguishable from a software sale. The price is apt to be the same in either case.<sup>36</sup> The customer ultimately uses a memory-device copy rather than the original software.<sup>37</sup> The only difference is the method of delivery: the program is copied rather than conventionally delivered.<sup>38</sup> Since the two transactions yield identical results, the courts should consider a software loan a "transaction in goods" like a

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33. See the cases applying the U.C.C. to contracts for electricity or natural gas in note 21 *supra*.

34. Leases that have been considered transactions under the U.C.C. have been of longer duration than several minutes or hours. For instance, a five-year lease was involved in *Hertz Commercial Leasing Corp. v. Transportation Credit Clearinghouse, Inc.*, 59 Misc. 2d 226, 298 N.Y.S.2d 392 (Civ. Ct. 1969), *revd. per curiam*, 64 Misc. 2d 910, 316 N.Y.S.2d 585 (App. Term 1970). In *Glenn Dick Equip. Co. v. Galey Constr., Inc.*, 97 Idaho 216, 514 P.2d 1184 (1975), the court applied the U.C.C. to a two-month rental of dirt moving machines. Usually, however, courts apply it to shorter leases either in part only or by analogy. See *W.E. Johnson Equip. Co. v. United Airlines, Inc.*, 238 So. 2d 98 (Fla. 1970) (the U.C.C. applied to a month-to-month lease of equipment as a matter of public policy); *Washwell, Inc. v. Morejon*, 294 So. 2d 30 (Fla. Dist. Ct. App. 1974) (implied warranty of fitness covered the use of a coin-operated washing machine; no mention of the U.C.C.); *Baker v. City of Seattle*, 70 Wash. 198, 484 P.2d 405 (1971) (U.C.C. applied in part to the rental of a golf cart for several hours). See generally *All-States Leasing Co. v. Bass*, 96 Idaho 873, 877, 538 P.2d 1177, 1181 (1975) (discusses the extension of U.C.C. warranties by analogy); *Owens v. Patent Scaffolding Co. — Div. of Harsco*, 77 Misc. 2d 992, 354 N.Y.S.2d 778 (Sup. Ct. 1974) (the U.C.C. applied in full to a lease of scaffolding equipment for several weeks), *revd. mem.*, 50 App. Div. 2d 866, 376 N.Y.S.2d 948 (1974) (while the U.C.C.-implied warranty could apply, the U.C.C. statute of limitations should not).

35. See note 24 *supra* and accompanying text.

36. The price is likely to be the same because the cost of the material is negligible. In *United States Leasing Corp. v. Franklin Plaza Apts., Inc.*, 65 Misc. 2d 1082, 319 N.Y.S.2d 531 (Civ. Ct. 1971), the court held that where the contract price of a lease is as large as the sale price of the same item, the transactions are parallel and public policy requires that the U.C.C. cover the lease.

37. Even in the sale of software, the buyer only uses the software to create a new copy on a memory device, and the software is worth little thereafter. The cost of the material is negligible compared to the cost of developing the program; and the software has little resale value, either because the program is specially manufactured, or because the seller retains proprietary rights in the program to prevent the buyer from reselling it. The buyer, however, may store the software as security should the program copy on the memory device be erased inadvertently. Also, the buyer can reuse some types of software such as erasable magnetic tape.

38. This satisfies the "sufficiently analogous to a sale" test. See note 24 *supra*.

software sale, with the borrowed copy being the “identified” good.

Furthermore, an observer must question the policy of removing these transactions from article 2 simply because the buyer reproduces the seller’s transport copy rather than buying it. Such a discrepancy would permit substantive rights to hinge on normally irrelevant aspects of the program contract. Apparent trivialities would bind an unwary party. Courts should not permit the unfamiliar technology of computers to obscure the similarity of these computer program transactions.

## II. SERVICES IN PROGRAM CONTRACTS

Even if a contract is a transaction in goods, the U.C.C. may not apply if those goods are incidental to a much larger service agreement.<sup>39</sup> When a program contract includes substantial service provisions, courts must sever the goods transaction from the services to include the program-copy sale under article 2. The law on such severance is unclear. In the frequently cited case of *Perlmutter v. Beth David Hospital*,<sup>40</sup> the New York Court of Appeals held that supplying blood in the course of hospital treatment was not a sale of goods under the Uniform Sales Act, even though the patient paid for the blood separately. In similar blood cases under the U.C.C., courts have continued the rule forbidding severance.<sup>41</sup> A few courts extended the blood rule to typical commercial settings,<sup>42</sup> most notably in *Epstein v. Giannattasio*,<sup>43</sup> which held the sale of shampoo as part of a hairdressing treatment to be outside the U.C.C. Most commentators, however,

39. 1 R. ANDERSON, *supra* note 23, §§ 2-102:5, -105:10; Annot., 17 A.L.R.3d 1010, §§ 3-6 (1968).

40. 308 N.Y. 100, 123 N.E.2d 762 (1954).

41. *E.g.*, *St. Luke’s Hosp. v. Schmaltz*, 188 Colo. 353, 534 P.2d 781 (1975); *Lovett v. Emory Univ., Inc.*, 116 Ga. App. 277, 156 S.E.2d 923 (1967); *Foster v. Memorial Hosp. Assn.*, 219 S.E.2d 916 (W. Va. 1975).

42. *E.g.*, *Wm. H. Wise & Co. v. Rand McNally & Co.*, 195 F. Supp. 621 (S.D.N.Y. 1961) (printing of books); *Schenectady Steel Co. v. Bruno Trimpoli Gen. Constr. Co.*, 43 App. Div. 2d 234, 350 N.Y.S.2d 920 (1974), *affd.*, 34 N.Y.2d 939, 316 N.E.2d 875, 359 N.Y.S.2d 560 (1975) (construction of a bridge); *James Sausage Co. v. Novalco, Inc.*, 18 U.C.C. Rep. 142 (Okla. 1975) (assembly of a chilling machine); *Appeal of Minnesota Chippewa Tribe*, 82 Interior Dec. 238 (1975) (paving a road). *See also* *Vitromar Piece Dye Works v. Lawrence of London, Ltd.*, 119 Ill. App. 2d 301, 256 N.E.2d 135 (1969) (U.C.C. applied by analogy to waterproofing cloth). Cases involving medical services also continued the *Perlmutter* rule. *See, e.g.*, *Cutler v. General Elec. Co.*, 4 U.C.C. Rep. 300 (N.Y. Sup. Ct. 1967) (pacemaker); *Dorfman v. Austenal, Inc.*, 3 U.C.C. Rep. 856 (N.Y. Sup. Ct. 1966) (surgical pin).

43. 25 Conn. Supp. 109, 197 A.2d 342 (1963).

limit *Perlmutter* to the risk allocations peculiar to medical treatment and similar professional services.<sup>44</sup> *Epstein* also has been repudiated in a similar case, *Newmark v. Gimbel's, Inc.*,<sup>45</sup> because it relied too heavily on a technical distinction between sales and services without closer examination of the contract. Subsequent cases have followed *Newmark*,<sup>46</sup> suggesting a trend toward applying article 2 to the sales portion of mixed contracts.<sup>47</sup>

Thus, additional computer services in a program contract need not lead a court to place the entire agreement outside of article 2. To evaluate the appropriateness of such a holding, this Note considers the classes of services most often joined with program contracts: support services, programming, and data processing.

### A. Support Services

Support services comprise three different means of assisting the program buyer: installation support, systems support, and program support. Installation support includes copying the program onto the buyer's memory device as well as instructing the buyer in the use of the program copy.<sup>48</sup> Installation often accom-

44. See, e.g., 3 FLA. ST. U. L. REV. 483, 486 (1975); 38 FORDHAM L. REV. 830, 832 (1970); 46 N.D. L. REV. 367, 369 (1969). See also *Balkowitch v. Minneapolis War Memorial Hosp.*, 270 Minn. 151, 132 N.W.2d 805 (1965); *Newmark v. Gimbel's, Inc.*, 102 N.J. Super. 279, 246 A.2d 11 (App. Div. 1968), *affd.*, 54 N.J. 585, 258 A.2d 697 (1969); *Jackson v. Muhlenberg Hosp.*, 96 N.J. Super. 314, 232 A.2d 879 (Law Div. 1967), *revd. per curiam*, 53 N.J. 138, 249 A.2d 65 (1969).

45. 102 N.J. Super. 279, 246 A.2d 11 (App. Div. 1968), *affd.*, 54 N.J. 585, 258 A.2d 967 (1969).

46. E.g., *Ellibee v. Dye*, 64 Pa. D. & C.2d 158 (1973). See also *Jackson v. Muhlenberg Hosp.* 96 N.J. Super. 314, 232 A.2d 879 (Law Div. 1967), *revd. per curiam*, 53 N.J. 138, 249 A.2d 65 (1969) (a blood case, similar to *Perlmutter*, in which the court reversed a decision based strictly on a distinction between sales and services; case remanded for further examination of the blood transaction).

47. 1 R. ANDERSON, *supra* note 23, § 2-102:5. See also Annot., *supra* note 39, § 3.

48. For example, the Burroughs Corporation's April 1976 Software and Support Agreement, a form contract on file with the *Michigan Law Review*, provides: "Installation Support shall include hardware orientation services and applications Program Product services . . . and shall include consultant and guidance support requested by customer and agreed to be supplied by Burroughs. . . ." Installation support could include the service of a programmer modifying existing programs to make them compatible with the new program copy, since such additional services are part of the proper installation of the program copy. For instance, the Burroughs definition of "applications Program Product services" within the above installation support clause includes these additional programming services. This Note, however, classifies such additional services as program support. See text at note 58 *infra*.

panies a sale of goods,<sup>49</sup> and courts have permitted even extensive installation services without removing contracts from article 2.<sup>50</sup> When extensive installation is the parties' principal concern, as in construction contracts, courts render the entire agreement a service contract.<sup>51</sup> This result is inappropriate, however, for computer program installation support: installing a program copy may require no more than putting cards into a reader and pushing a button. This is indeed a small part of what the buyer bargains for.

The second type of support, systems support, involves the periodic issuance of "releases" — new, improved program copies to replace old programs.<sup>52</sup> This service of updating the program does not necessarily overwhelm the goods provisions of a program contract. Programs that perform adequately, especially systems programs,<sup>53</sup> still may be quite improvable. Under a systems sup-

49. See R. NORDSTROM, *HANDBOOK OF THE LAW OF SALES* 47 (1970): "Services always play an important role in the use of goods, whether it is the service of transforming the raw materials into some usable product or the service of distributing the usable product to a point where it can be easily obtained by the consumer."

50. See, e.g., *Bonebrake v. Cox*, 499 F.2d 951 (8th Cir. 1974) (installation provision does not remove a bowling alley contract from U.C.C. coverage).

51. See, e.g., *Mingledorff's Inc. v. Hicks*, 133 Ga. App. 27, 209 S.E.2d 661 (1974) (contract for the installation of heating and air conditioning not under the U.C.C.); *J & R Elec. Div. of J.O. Mory Stores, Inc. v. Skoog Constr. Co.*, 38 Ill. App. 3d 747, 348 N.E.2d 474 (1976) (same result on a subcontract for the installation of electrical wiring). *But cf.* *Snyder v. Herbert Greenbaum & Assocs., Inc.*, 38 Md. App. 144, 380 A.2d 61 (1977) (U.C.C. applies to the sale and installation of carpet); *Meyers v. Henderson Constr. Co.*, 147 N.J. Super. 77, 370 A.2d 547 (Law Div. 1977) (U.C.C. applies to the sale and installation of overhead doors). These cases suggest that courts are more willing to sever mixed installation and sales provisions if the contract is outside the construction setting.

52. For instance, consider how this service is described in the Burroughs Corporation's Software and Support Agreement, *supra* note 48.

*Classification of Programming Services*

Category A (Systems Software and Supported Licensed Program). Burroughs will maintain and support the current version of System Software, firmware and Category A Programs. . . . and will supply to Customer all revisions thereof released by Burroughs during the term of this license. . . .

Systems support could include more than the issuance of new releases. The seller may provide the services of a programmer, called a systems analyst, both to develop new releases and to modify the buyer's existing program copies to make them compatible with the new releases. This Note, however, considers such additional services to be program support. See text at note 57 *infra*.

53. Systems programs connect applications programs, which do the actual data processing, and the computer system. One type of systems program, the operations program, performs administrative details, such as integrating the various parts of the computer hardware (memory, input and output, and processing), and communicating with the users. Another type of systems program, the compiler, translates applications program copies — usually written in human-oriented computer languages — into computer lan-

port clause, the buyer receives not a service, but a series of distinct goods in the form of new program copies.<sup>54</sup> Such clauses give the buyer the equivalent of pocket parts for a law digest or year-books for an encyclopedia and should not render the entire program contract a service contract.<sup>55</sup>

The third type of support service is program support, the simplest type of which may be termed "debugging."<sup>56</sup> Recognizing that program copies may contain latent defects,<sup>57</sup> the buyer and seller often agree that the seller will cure any defects that become apparent after the program copy is put to use.<sup>58</sup> In such a program clause, the seller warrants that the program copy, which is the main subject of the contract, will perform

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guage. See generally Furth, *supra* note 9, at 81-83. Furth also describes another class of programs, referred to in this Note as editors, that help programmers modify program copies.

Systems programs reflect the latest theories of computer science and therefore continually require improvement. They must be able to handle the many variations of instructions that exist in applications programs correctly. They are designed to interpret these applications programs optimally, and, even when they operate adequately, they can often be made more efficient.

54. Each separate release is a program copy. A new release may be similar to the old program copy or identical to an older release, but this should not change the result. Different copies of the same record album, for instance, still constitute different goods.

When the buyer receives a new program copy, technicians erase the old release from the memory device and record the new release in its place. The new release could be perfected directly from the old release on the buyer's memory, but for practical reasons this is seldom done: it is easier and cheaper to make one master release and give copies to all customers. Even if a new release is manufactured on the buyer's memory device, it is a new good. Because the raw materials are reusable, the difference between repairing a program copy and replacing it is a matter of degree. A new release, however, presumably is quite different from the old release, since new systems programs generally are released only when the accumulated changes are significant.

55. A similar situation exists when a buyer agrees to accept a prototype of a good with the understanding that the seller will replace the good with later models. The initial payments on such contracts tend to be low, since much of the cost of such goods lies in their development, not the actual materials. This is common where the prototype can best be perfected by testing in the field. See, e.g., *U.S. Fibres, Inc. v. Proctor & Schwarz, Inc.*, 358 F. Supp. 449 (E.D. Mich. 1972), *affd.*, 509 F.2d 1043 (6th Cir. 1975) (machinery using an "unproven process"); *Axion Corp. v. G.D.C. Leasing Corp.*, 359 Mass. 474, 269 N.E.2d 664 (1971) (experimental valve testing machines). Systems program copies can best be tested in the field, and their cost stems largely from research and development rather than materials used.

56. Debugging is the painful process of removing defects ("bugs") from a program.

57. See note 29 *supra*.

58. Consider, for example, the language in the Burroughs Corporation's Software and Support Agreement, *supra* note 48: "Upon request, Burroughs will make a prompt and reasonable attempt to provide Customer with a program patch to correct or program around any error or malfunction." Such provisions become more important if the program is complex or specially designed.

as promised.<sup>59</sup> This service is clearly incidental to the sale of the program copy; indeed, it is very similar to the service obligation imposed by U.C.C. warranties.<sup>60</sup> Not all program support services, however, are so simple.

Program support sometimes obligates the seller to make the buyer's existing programs compatible with the new program.<sup>61</sup> Where such services are minor, courts should deem them incidental to the sale of the program copy, much like installation. For two reasons, the result should be the same even when the seller supplies a staff of programmers for an extended time. First, such extensive program support probably would accompany either a contract for the installation of an entire computer system or a long-term systems support contract for new releases of program copies. In those situations, the program support, though extensive, would be but a minor part of a much larger sales contract. Second, a court could view the modification of existing programs not as a service, but as the production and sale of new, distinct program copies. Under this view, the buyer would not contract for a single program copy with extensive modification services, but rather, for a single prototype program copy and a series of similar programs.<sup>62</sup>

### B. *Programming Services*

A seller may also provide programming services with the sale of program copies. These services, unlike program support, are not linked to the sale of any particular program copy. Rather, sellers who provide programming services write new programs and modify existing and future program copies as the need arises.

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59. Note that in the case of a program contract in which a copy in transport is identified to the contract, this form of program support is not strictly part of the curing process of the purchased good. The seller cures any defect by modifying the program copy in memory, not the transport program copy which is identified to the contract. This service arguably differs from that contemplated by U.C.C. § 2-608 provisions dealing with conditional acceptance. *See* note 29 *supra*. But this view is not compelled by the U.C.C. itself. If the seller did not promise program support to the buyer and the program copy on memory had hidden defects, U.C.C. § 2-608(1)(b) could be invoked to force the seller to cure the transported program copy, for any defects in the memory would simply reflect defects in the transported copy. In such cases, the cure of the memory copy satisfies the parties and fulfills the aims of U.C.C. § 2-608.

60. *See* U.C.C. §§ 2-313 to -315.

61. Consider the Burroughs Corporation's Software Agreement, note 48 *supra*: "Burroughs will maintain Category B Program Product(s) to be compatible with the then current unaltered released System Software used on Designated Burroughs Equipment."

62. *See* note 54 *supra* and accompanying text.

Some buyers simply hire their own programmer, whose employment is clearly a service contract.<sup>63</sup> Others contract for general programming services as part of a substantial computer lease or sale.<sup>64</sup> Such combinations are difficult to classify as either sales or service contracts.

When a supplier of services also supplies incidental materials or consumes materials while performing the services, courts traditionally hold that the entire agreement is a service contract.<sup>65</sup> This result, however, seems inappropriate for a program contract including programming services; the parties to a computer contract could sign separate sales and service contracts, thus putting the sales portion within the U.C.C. The possibility of independent contracts presents a particularly strong argument for severing the sales and service provisions, and applying article 2 to the sales portion. Classifying a contract with programming services exclusively as a service agreement ignores the relationship between the parties and the intent of the U.C.C.'s drafters. They intended the U.C.C. to be liberally construed to modernize the commercial law<sup>66</sup> and to cover more than simple sales. Their use of the phrase "transactions in goods" rather than "sales of goods"<sup>67</sup> evidences this broad intent. Uniformity in the law demands that identical commercial transactions be accorded consistent treatment, whether they involve one contract or two.<sup>68</sup> Recognizing the parties' ability to use two contracts for programming services, courts should sever the sales portion of the combination contract and grant it article 2 coverage.

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63. The argument in the text preceding note 62 *supra*, that the program support is not a service but an additional component of the whole sales contract, would seem applicable here. In this light, programming services could be considered the manufacturing of goods, and a programming services contract would therefore be a sales contract. There is a crucial difference, however, between program support and programming services. The former are well-defined and concern one program copy. The latter are open-ended and much more analogous to traditional professional services.

64. For example, in a major installation of a computer system, the buyer usually hires a systems analyst from the seller.

65. See notes 39-47 *supra* and accompanying text.

66. U.C.C. § 1-102.

67. U.C.C. § 2-102. See note 47 *supra*.

68. Cf. *Pittsburgh-Des Moines Steel Co. v. Brookhaven Manor Water Co.*, 532 F.2d 572 (7th Cir. 1976) (construction and delivery of a water tank held under U.C.C. even though large in size); *United States v. Wegematic Corp.*, 360 F.2d 674 (2d Cir. 1966) (in the interest of uniformity with states, transactions with the United States should be under U.C.C.); *Helvey v. Wabash County REMC*, 151 Ind. App. 176, 278 N.E.2d 608 (1972) (sale of electricity held under U.C.C. to conform with other states where U.C.C. covers sale of natural gas).

### C. *Data Processing Services*

The third group of services that a seller may combine with program sales is data processing. The considerable expense of maintaining a large computer system has fostered the data processing industry, which serves customers who either cannot afford or choose not to maintain their own computer installation.<sup>69</sup> In a typical data processing arrangement, a business periodically delivers its records to the computer service center, and the service center records transactions, sends out bills, and returns updated records to the business.<sup>70</sup> The service center may create original programs for each customer, or it may use the same program package to serve them all. Ordinary customers, who may not even know those programs exist, care little about such things so long as the service center gets the processing done. The Fourth Circuit Court of Appeals has held that such arrangements are service contracts not covered by article 2 of the U.C.C.<sup>71</sup> This is an appropriate conclusion: neither party to such a data processing contract views the programs as severable from the larger service commitment.

Certain data processing services, however, may involve transactions in goods that should be within the scope of article 2. For example, the customer may be entitled to copies of the programs upon termination of the contract. Such an agreement requires the sale and future delivery of program copies as well as data processing services, and strongly suggests a transaction in goods, particularly at the moment of delivery. Since the program copy sale would be an article 2 transportation if performed through a separate contract, the severed sales portion of a single contract also should be subject to article 2.<sup>72</sup>

The U.C.C. should also control a data processing contract calling for the development of special programs to be stored in

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69. See generally *GTE Serv. Corp. v. FCC*, 474 F.2d 724 (2d Cir. 1973); Furth, *supra* note 9, at 84. See also *Telex Corp. v. IBM*, 367 F. Supp. 258, 273 (N.D. Okla. 1973); *Com-Share, Inc. v. Computer Complex, Inc.*, 338 F. Supp. 1229, 1231 (E.D. Mich. 1971), *affd.*, 458 F.2d 1341 (6th Cir. 1972).

70. See, e.g., *Autotax, Inc. v. Data Input Corp.*, 136 Ga. App. 141, 220 S.E.2d 456 (1975). See also *Programmed Tax Sys., Inc. v. Raytheon Co.*, 419 F. Supp. 1251 (S.D.N.Y. 1977) (tax service); *California Computer Prods., Inc. v. Simplicity Pattern Co.*, 419 F. Supp. 1251 (C.D. Cal. 1977) (same).

71. *Computer Servicers, Inc. v. Beacon Mfg. Co.*, 328 F. Supp. 653 (D.S.C. 1970), *affd.*, 443 F.2d 906 (4th Cir. 1971).

72. See text at notes 65-68 *supra*.

space on the seller's memory that is leased to the buyer. The parties see those programs and the lease of memory space as specific elements of the larger data processing agreement. If a separate contract for the program copies and the lease of the seller's memory space would be a transaction in goods, courts should sever those provisions from the data processing contract and evaluate them under article 2.<sup>73</sup>

### III. CONCLUSION

The novelty and complexity of computer programs frustrate the courts' evaluation of program contracts and the U.C.C. Technical and mathematical terms that confuse the untrained observer pervade professional discussions of computer programs.<sup>74</sup> Unfamiliar terminology creates the danger of misunderstanding computer contracts and misapplying precedent.<sup>75</sup> The language of contracts for programs also may cause confusion, using ambiguous phrases such as "data processing services" or "program services" where the more precise "program products" or "program copies" would be appropriate. But, even if unambiguous language were used and understood, certain aspects of programs

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73. See text at notes 65-68 *supra*.

74. See, e.g., Heinzman, *supra* note 3, at 184; Miller, *supra* note 5, at 113 (admitting that "software" has no exclusive definition).

75. For example, in *Computer Servicenters, Inc. v. Beacon Mfg. Co.*, 328 F. Supp. 653 (D.S.C. 1970), *affd.*, 443 F.2d 906 (4th Cir. 1971), the court held that a contract for data processing services was not covered by article 2. The court, however, ambiguously defined the contract and this ambiguity could cause the case to be misinterpreted. The contract provided "data processing operations for Beacon in replacement of such operations then being presently internally performed on Beacon's own computer." 328 F. Supp. at 654. This explanation of the contract, standing alone, might suggest that the contract promised new program copies (new "internally performed operations"), rather than data processing services. The court noted, however, that in order to perform the contract, Computer Servicenters would purchase new computers. Since the firm probably would not need new computers simply to write new programs, one can infer that it needed the computers to perform data processing services. Under this interpretation of the facts, the decision refers only to contracts for data processing services and not to contracts for program copies.

In *North Am. Leisure Corp. v. A & B Duplicators, Ltd.*, 468 F.2d 695 (2d Cir. 1972), A & B duplicated a master tape given them by North American Leisure onto \$50,000 worth of cassette, 8-track, and reel-to-reel tapes, and delivered these copies to distributors. Even though A & B supplied all the raw materials, the Second Circuit held that the contract was not a sales contract but a service contract.

A commentator argues that *North American Leisure* classifies program contracts as service contracts, the service being the manufacturing and supplying of a program copy to the buyer. McGonial, *Application of the UCC to Software Contracts*, 2 *COMPUTER L. SERV. REP.* § 3-3, art. 4. This argument extends the holding too far: In *North American Leisure*, the duplicator, A & B, did not make the master tape, but only copied it.

would still make this issue particularly difficult to resolve.

A contract for programs is labor-intensive: the actual cost of materials for a program copy is negligible. Thus, programming services appear to dominate the contract, especially since the labor involved, often the reduction of mathematical algorithms into machine-readable form, seems technical and esoteric. The ease of copying a computer program also complicates the issue. While that ease allows novel methods of program delivery, it leaves the production of a program copy looking rather unlike traditional "transactions in goods." But novel manufacturing techniques should not confound the determination of what is a good. The U.C.C. covers other easily reproduced intellectual creations such as books and record albums without leaving courts perplexed and dissatisfied.

Moreover, contractual formalities should not circumscribe the scope of the U.C.C.;<sup>76</sup> a buyer should be able to acquire a program copy in the most economical way without pondering the preservation of rights under article 2. This Note discusses a variety of computer transactions, most with similar economic and practical results: the buyer uses a program copy, owned or leased, on some computer memory device. Applying article 2 to all these transactions assures uniform treatment<sup>77</sup> and allows business innovation in an atmosphere of relative legal certainty.<sup>78</sup>

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76. See the Official Comments to U.C.C. §§ 2-201,-209.

77. The U.C.C. applies to some program transactions such as sales of software or of programmed memory devices. It would be anomalous not to apply it to other program transactions identical except in the method of delivery of the program copy.

78. See U.C.C. § 2-102. To apply the U.C.C. in program cases only when an actual physical exchange of software has taken place and not when it has been borrowed and copied (or when data transmission has been used) would force parties to forgo convenient business practices, hindering the development of the industry.