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Computers as Agents: A Proposed Approach to Revised U.C.C. Article 2

JOHN P. FISCHER*

INTRODUCTION

Developments in the ongoing computer revolution have called into question long-standing principles in many areas of law. As early as 1985, national and international bodies concerned with trade and the sale of goods were studying the potential impact that computer technology might have on the behavioral patterns of commercial actors. In the last decade, as the various bodies have formulated the legal responses, advancements in computer technology, and its potential as a powerful tool of trade, have exploded. Future growth in electronic technology, including electronic data interchange, is not expected to slow as more companies save money and increase efficiency through innovative use of computer technology.

This Note will explore this country's current legal response to the use of computer technology in the law of the sale of goods. The most recent response as of this writing is a draft version of Article 2 of the Uniform Commercial Code ("U.C.C.") dated July 12-19, 1996.¹ Many of the proposed revisions to Article 2 on the sale of goods treat the issue of electronic contract formation. Computer transmission of data in electrical impulses is calling into question the fundamental assumption of a paper writing as necessary for commerce; the

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1. AMERICAN LAW INSTITUTE, *Uniform Commercial Code Article 2—Sales (199_)* [draft] (visited Sept. 24, 1996) <<http://www.law.upenn.edu/library/ulc/ucc2/ucc2sale.htm>> [hereinafter *July 12-19 Art. 2 Draft*]. Actually, a later draft, dated August 1, 1996 has been released by the Uniform Law Commissioners. However, the provisions relating to electronic contracting are not contained in the August 1 draft. Rather, the reader is referred to the electronic contracting provisions in the emerging draft of Article 2B on licenses, the most recent draft having been released on September 4, 1996. AMERICAN LAW INSTITUTE, *Uniform Commercial Code Art. 2B Licenses Sept. 4, 1996 Draft* (visited Sept. 24, 1996) <<http://www.law.upenn.edu/library/ulc/ucc2/art2b996.htm>> [hereinafter *Sept. 4 Art. 2B Draft*]. The August 1 draft of Article 2 refers the reader in some places to some future unspecified draft of Article 2B, and in other places to the most recent extant draft of Article 2B, which was, at the time of the August 1 Article 2 draft, dated July 12-19, 1996. Because it is unclear which of the Article 2B draft provisions the August version of Article 2 intended to adopt, and because Article 2B itself is in a considerable state of flux, the Author has chosen to work with the Article 2 provisions as they appear in the July 12-19 draft of Article 2 on Sales. These provisions have remained substantively unchanged since the October 1, 1995 draft of Article 2, with the exception of the drafters' addition of the definition of "electronic agent." These provisions are also substantively similar to their analogues in the last two drafts of Article 2B. Thus, whatever set of electronic contracting provisions are ultimately selected, the principles discussed herein will likely be applicable barring a radical change in approach by the drafters.

capacity of computers to monitor inventory and send out purchase orders without human awareness is calling into question the assumption that parties must be aware that they are completing binding contracts with one another.

This Note contends that the law's response to the technology that has shaken these fundamental assumptions may still be best understood with reference to long-standing, familiar legal principles. The extension of these principles to cover new technological developments makes sense as an attempt to deal with technology which, while novel, nevertheless serves the identical functions that have been served in more traditional ways in the past. To that end, this Note will argue that the legal concepts of "writing" and "signature" need not be drastically modified to encompass electronic transmissions. Likewise, lawmakers need only slightly expand the concepts of agency and the capacity of agents to bind their principals to cover those situations in which computers have the ability to enter into binding contracts on behalf of their parties without any human knowledge of the agreement having been made. By extending long-standing legal principles to encompass new situations, lawmakers may foster continuity in the law, which may assist commercial actors, their attorneys, and judges in grasping the consequences of the new technology. By avoiding the promulgation of wholly new regulations covering electronic contracting, drafters may also avoid unforeseen consequences as a result of laws different from anything that has come before. This Note demonstrates that the provisions chosen by the drafters of the revised Article 2 reach the same result, whether intentionally or not, as application of the long-standing legal principles of writing, signature, and agency to electronic contracting would reach. Indeed, since the July 12-19 draft of Article 2, the drafters have begun to recognize that computers may serve as agents. This Note urges that the concept of electronic agency be made even more explicit in Article 2 to foster greater understanding of the consequences of the provisions.

Part I of this Note explains the continuing development of electronic data interchange as a means of creating commercial agreements, and summarizes the history of the legal community's various proposed responses to the issue of electronic contracting, culminating in the July 12-19, 1996 draft of Article 2. Part II discusses in greater detail two of the proposed provisions in Article 2. Part III examines several agency principles in the computer context. Part IV applies these agency principles to selected provisions of the July 12-19, 1996 draft of Article 2. Finally, Part V addresses some problems inherent in the agency paradigm.

I. ELECTRONIC DATA INTERCHANGE

A. Background

Electronic data interchange ("EDI") is "the computer-to-computer transmission of data in a standardized format."² The United Nations Commission on International Trade Law ("UNCITRAL"), however, suggests a broader definition of EDI, one that includes free-form (non-standardized) communications, such as electronic mail, as well as all "electronic commerce" generally.³

In the past decade, many national and international bodies have given considerable attention to formulating appropriate legal responses to EDI.⁴ They

2. *Report of the Working Group on Electronic Data Interchange (EDI) on the Work of Its Twenty-fifth Session*, [1993] 24 UNCITRAL Y.B. at 193, U.N. Doc. A/CN.9/373 [hereinafter 1993 Yearbook]. Most scholars have adopted definitions that are substantively the same; that is, they all include the elements of computer-to-computer transmission and all stress the use of a standardized format to the transmissions. See, e.g., Amelia H. Boss, *The Emerging Law of International Electronic Commerce*, 6 TEMP. INT'L & COMP. L.J. 293, 294 (1992); Electronic Messaging Services Task Force, *The Commercial Use of Electronic Data Interchange—A Report and Model Trading Partner Agreement*, 45 BUS. LAW. 1645, 1649-50 (1990) [hereinafter *Report and Model Agreement*].

3. 1993 Yearbook, *supra* note 2, at 193. The Report provides two reasons why such an expanded definition is desirable. The first is that commercial actors in practice use standardized electronic media in essentially the same way that they use, in ever greater numbers, free-form electronic media. Given this practice, it makes more sense and is more efficient to allow one set of rules to govern all electronic media, rather than have several different sets of rules for practices that, for a commercial actor, are functionally the same. The second reason that UNCITRAL urges a broader definition is its desire to create rules open enough to encompass unforeseen future technological developments when they arise. *Id.* This has likewise been a primary goal of the U.C.C. since its inception. U.C.C. § 1-102 cmt. 1 (1994) ("This Act is drawn to provide flexibility so that, since it is intended to be a semi-permanent piece of legislation, it will provide its own machinery for expansion of commercial practices."). The July 12-19, 1996 draft of Article 2 adopts this broad definition, stating: "[Electronic message includes] electronic data interchange and electronic mail." *July 12-19 Draft, supra* note 1, § 2-102(20). The September 4, 1996 draft of Article 2B has gone even further, adding to the list of technologies "facsimile, telex, and like communication." *Sept. 4 Art. 2B Draft, supra* note 1, § 2B-102(14). As the draft reporter notes, "[the expansion of the definition] attempts to deal with the breadth of alternatives that may ultimately [be]come available." *Id.* at Reporter's Note 12. The importance of the drafters' sensitivity to the changing needs of business will be a consideration of this Note as it analyzes the way in which the drafters of revised Article 2 have chosen to deal with EDI in the area of contract formation.

4. A partial list of these bodies includes UNCITRAL, the ABA Section of Business Law, the United Nations Economic Conference for Europe Working Party on Facilitation of International Trade Procedures, the United Kingdom EDI Association, the EDI Council of Canada, and the United Nations Economic Commission for Europe. Jeffrey B. Ritter, *Scope of the Uniform Commercial Code: Computer Contracting Cases and Electronic Commercial Practices*, 45 BUS. LAW. 2533, 2537 n.14 (1990); Richard B. Kelly, Comment, *The CMI Charts a New Course on the Sea of Electronic Data Interchange: Rules for Electronic Bills of*

have scrutinized every facet of electronic contracting, with primary focus on three aspects of EDI. The first significant aspect of EDI is its use as a quicker, more efficient substitute for more traditional media of communication, such as paper writings, telegraphs, or even faxes. In this capacity, commercial actors use EDI to perform precisely the same functions that older media formerly performed.⁵ The second aspect of EDI, one that goes beyond the functions of older media, is its capacity to form contractual relations between two parties without the awareness or input of human agents of the parties.⁶ In this capacity, a computer is responsible for all aspects of contract formation, including sending out electronic purchase orders, checking electronic confirmatory memoranda to ensure they conform with the terms of the agreement, and even transferring payment to the other party.⁷ No human agent of either party need be conscious of any particular order.⁸ The third aspect of EDI upon which rulemaking bodies have focused is the growth of third party service providers which serve as

Lading, 16 TUL. MAR. L.J. 349, 350 n.7 (1992).

5. Among these functions is the evidentiary one for purposes of the (perhaps) soon-to-be-repealed statute of frauds in Article 2. U.C.C. § 2-201 (1994). For a discussion of how EDI might fulfill this function, see discussion *infra* part II.A.

6. This aspect of EDI has garnered the most attention from the drafters of proposed Articles 2 and 2B. As the Reporter's Notes for proposed Article 2B-205 discuss:

[A] contract exists even if no human being reviews or reacts to the electronic message of the other or the information product delivered. This represents a modern adaptation away from traditional norms of consent and agreement. In electronic transactions, preprogrammed information processing systems can send and react to messages without human intervention and, when the parties choose to do so, there is no reason not to allow contract formation. A contract principle that requires human assent would inject what might often be an inefficient and error prone element in a modern format.

Sept. 4 Art. 2B Draft, *supra* note 1, § 2B-205 Reporter's Note 3.

7. See Boss, *supra* note 2, at 294. Indeed, besides this capability, EDI technology allows commercial actors unprecedented access to information and an efficient means of performing varied mundane tasks done manually until now. For example, a supplier of goods to a retailer has the ability to communicate with the retailer's computer and discover exactly how many products supplied by the supplier were actually sold, and at which outlets. Bill Bregar, *Small Molders Will Need Big Capabilities*, PLASTICS NEWS, May 15, 1995, at 7. In addition, commercial actors can use EDI for financial reporting, planning, pricing, and scheduling. Getahn M. Ward, *Firms Tell Suppliers to Trash Paper, Take Orders by Computer*, COMMERCIAL APPEAL (Memphis), July 16, 1995, at C1, available in 1995 WL 9356250. Businesses have begun to exploit the true potential of EDI. A supplier to the Ford Motor Company has implemented, using EDI, a six-month planning schedule which Ford updates weekly based on changing needs. Bregar, *supra*, at 7.

8. A typical procedure is for a party to program its computer to monitor the party's inventory. When the inventory dips below a certain level, or otherwise falls within certain preprogrammed parameters, the computer sends an electronic purchase order to a supplier's computer. That supplier may program its computer to process the information, send back an acknowledgment, and send the buyer's computer the bill. Again, the supplier's computer may be following preprogrammed instructions without receiving manually entered data for each separate transaction. Amelia H. Boss et al., *Scope of the Uniform Commercial Code: Advances in Technology and Survey of Computer Contracting Cases*, 44 BUS. LAW. 1671, 1673 (1989).

archives and clearinghouses for electronic messages.⁹ The first two aspects of EDI are most relevant to issues of contract formation; these are the aspects primarily addressed by proposed Article 2 of the U.C.C..

The use of EDI by commercial actors is growing: by the end of 1993, 10,000 companies were using EDI in the United States and Canada.¹⁰ The growth of EDI is aided by manufacturers and large retailers, many of whom require trading partners to either implement EDI technology or risk losing their account with the manufacturer or retailer.¹¹

The growth of EDI is not expected to slow anytime soon. Primarily a technology used for communications between commercial trading partners today,¹² thirty-nine percent of Fortune 1000 companies will use EDI to communicate with *consumers* by 1997, according to one estimate.¹³ In addition,

9. One commentator compares third party providers to post offices. Ward, *supra* note 7. Many of these providers "add value" to transmissions; that is, the provider will translate the data from one type of system to another so that the trading partners may use the systems they find best suited to their intra-firm needs and need not be concerned with their system's incompatibility with other firms' systems. *Id.* Providers that perform such translations are often called value-added networks ("VANs"). Because the proposed Article 2 provision dealing with VANs (called "intermediaries" in proposed § 2-213) is concerned with issues of who bears the risk of an error by a VAN, and is not concerned with issues of contract formation, proposed § 2-213 is beyond the scope of this Note. *July 12-19 Art. 2B Draft, supra* note 1, § 2-213.

10. Boss, *supra* note 2, at n.4.

11. For example, among large retailers, K-Mart, Wal-Mart, and Target require their suppliers to communicate with them via EDI. *See* Bregar, *supra* note 7, at 7; Ward, *supra* note 7. In addition, the "Big Three" automakers have implemented the same policy. *See* Boss, *supra* note 2, at 295. Such policies have been referred to by smaller suppliers as "EDI or Die." Ward, *supra* note 7. In 1992, conservative estimates put the number of Fortune 500 companies doing business, or planning to start doing business, via EDI at 50%. Boss, *supra* note 2, at 294 n.4.

Despite such evidence of widespread EDI use, some of the smaller industries such as the gift retailing industry have an EDI implementation rate of less than 1%. Liane McAllister, *Computer Use by Retailers Up*, GIFTS AND DECORATIVE ACCESSORIES, Sept. 1, 1995, at 44, available in 1995 WL 8557600. Part of the problem for these smaller industries is the high cost of implementation. *See generally* Bregar, *supra* note 7, at 7 (explaining that while a basic EDI package costs less than \$5000, the cost rises when the firm integrates the system into its existing systems). Without pressure from the large retailers, many small companies have chosen not to avail themselves of this technology. Nevertheless, some analysts predict an EDI rate of as high as 70% of all American businesses by the year 2000. Sharon F. DiPaolo, Note, *The Application of the Uniform Commercial Code Section 2-201 Statute of Frauds to Electronic Commerce*, 13 J.L. & COM. 143, 144 (1993).

12. *See generally* Report and Model Agreement, *supra* note 2, at 1645-53. The Report frames all EDI issues exclusively in terms of business trading partners and indeed excludes consumers from the Model Agreement.

13. Forrester Research: *Businesses Are Not Just Surfing the Net, They're Diving In*, Forrester Research Survey Finds, BUS. WIRE, Nov. 10, 1995, available in WL, BUSWIRE database.

as evidence of savings in time,¹⁴ money,¹⁵ inventory,¹⁶ and labor¹⁷ accumulates, more companies will switch to EDI to take advantage of these savings.¹⁸

B. Legal Responses to EDI

The potential power of EDI technology to transform business practices was recognized early by certain international bodies. As early as 1984, UNCITRAL committed itself to studying EDI and its effect on international trade, including contract formation.¹⁹ In the United States the following year, the Uniform Commercial Code Committee formed an Ad Hoc Subcommittee on Scope of the U.C.C. ("Ad Hoc Subcommittee") to study similar issues.²⁰ These and other bodies considered the effects that the developing technologies might have on existing business practices and what the law might do to accommodate new practices that emerge to replace the old. The Ad Hoc Subcommittee recognized that in many ways the original drafters of the Code approached their job "reactively" in the sense that the business practices upon which the Code was based had been in place for years before its promulgation; the process of writing the Code was in large part observing how commerce occurred and tailoring the rules to these practices.²¹ The Ad Hoc Subcommittee also realized that, in studying an approaching technological revolution as it unfolded, they could accomplish Code revisions "proactively"; that is, the rules could "help[] to channel and direct activity in the best interests of [commercial actors]."²²

Bolstering the Ad Hoc Subcommittee's decision to not simply accommodate existing business practices through law but to help shape emerging business practices was the fact that commercial actors themselves expressed a desire for some legal certainty in an area that had many unforeseeable legal variables.²³

14. FedEx, for example, avoids manual entering of 400,000 airbills per day as a result of EDI. Ward, *supra* note 7.

15. Estimates of the amount of money saved range from \$5 to \$50 *per document* depending on the business and on the document. Boss, *supra* note 2, at 295 n.5.

16. EDI aids a just-in-time inventory system and reduces the amount of inventory needed on hand. DiPaolo, *supra* note 11, at 143.

17. Using EDI reduces the amount of keying and re-keying of data manually into the computer; this allows human workers to focus their energies on higher-value labor while simultaneously reducing the amount of error in data entry. Boss, *supra* note 2, at 294.

18. *But see* Paul Barker, *Fear, Resistance Holding Back Electronic Commerce*, COMPUTING CANADA, June 21, 1995, at 36; Paul Taylor, *Battle Is On to Control Avalanche of Paper in the Electronic Office*, FIN. TIMES (London), Nov. 1, 1995, at Information Technology 1 (arguing that society will not reap the predicted benefits of EDI, nor maximize its full potential, due to security problems and social inertia in breaking old habits such as working with paper copies of documents).

19. *Report of the United Nations Commission on International Trade Law*, U.N. GAOR, 39th Sess., Supp. No. 17, at 30, U.N. Doc. A/39/17 (1984).

20. Ritter, *supra* note 4, at 2534.

21. Boss et al., *supra* note 8, at 1672.

22. *Id.* at 1673.

23. Ritter, *supra* note 4, at 2535. Among the undetermined legal issues are uncertainty about the enforceability of EDI contracts, *see* Boss, *supra* note 2, at 304, and the applicability of the mailbox rule to instantaneous transmissions, *infra* part II.B.

Risk-averse businesses are apt to hesitate at the implementation of EDI in the absence of law on the enforceability of EDI contracts.²⁴ Other commentators also called for clear EDI rules, expressing concern that concepts like "writing" and "signature," used in U.C.C. section 2-201, might become outdated. These commentators argued that EDI would stretch such concepts past their capacity and urged that newer, more inclusive concepts be adopted to replace them.²⁵

As a result of the above concerns, these and other committees have advanced a wealth of solutions and proposals. In 1990 the Electronic Messaging Services Task Force ("Task Force") presented *The Commercial Use of Electronic Data Interchange—A Report*²⁶ to the Subcommittee of Electronic Commercial Practices and to what was, as of July, 1989, no longer an ad hoc subcommittee, the Subcommittee on Scope of the Uniform Commercial Code. Surveying and selecting the most effective parts of existing EDI agreements between trading partners, the Task Force synthesized a model agreement for use by future trading partners interested in minimizing the legal risks of converting to electronic media.²⁷ The business community immediately embraced the *Model Agreement*,²⁸ but as a complete approach to the topic of EDI, the *Model Agreement* was of limited utility.²⁹

Statutory guidance was thus the next step in the process, led by the National Conference of Commissioners on Uniform State Laws Drafting Committee, which promulgated U.C.C. Article 2B on licenses, and UNCITRAL's Working Group on Electronic Data Interchange, which attempted uniform commercial rules on EDI. Both efforts addressed issues of contract formation, and both efforts influenced the most recent proposed revisions of Article 2 of the U.C.C.³⁰

24. However, the growing number of commercial actors that convert to EDI in the absence of legal guidance, either of their own volition or because of an "EDI or Die" command, makes it likely that risk-aversion in business is no longer that significant a factor in support of EDI rules. Indeed, one commentator has noted that EDI has such great benefits that many companies *are* willing to risk implementing it without a legal safety net to protect them. Boss, *supra* note 2, at 302.

25. See Patricia B. Fry, *X Marks the Spot: New Technologies Compel New Concepts for Commercial Law*, 26 LOY. L.A. L. REV. 607, 611 (1993). The policies behind this argument and the opposing argument, that concepts such as "writing" can encompass EDI transmissions, will be discussed *infra* in part II.A.

26. *Report and Model Agreement*, *supra* note 2.

27. The *Model Electronic Data Interchange Trading Partner Agreement and Commentary* appended to the *Report* appears at 45 BUS. LAW. 1717 (1990).

28. Ritter, *supra* note 4, at 2536.

29. Among other things, private agreements, whether based upon the *Model Agreement* or not, cannot bind parties not privy to the contract, cannot waive the requirements of § 2-201, and provide no assistance to parties who fail to set up an agreement prior to an EDI relationship. Boss, *supra* note 2, at 304.

30. The July 12-19, 1996 draft of revised Article 2 is the most recent draft available at the time of this writing and is the basis for the substantive discussion to follow. As noted *supra* note 1, even if the provisions in this draft version are substantially changed in the future, the concepts discussed by this Note would apply to any further attempts to draft EDI rules.

Briefly, the purposes of various proposed provisions of Article 2 are as follows.³¹ Proposed section 2-102 contains definitions of "electronic agent," "electronic message," "electronic transaction," "intermediary," "manifests assent," "opportunity to review," "record," and "signed."³² Proposed section 2-201(a) repeals the statute of frauds for the sale of goods.³³ Proposed section 2-208(a) alters the mailbox rule with regard to EDI; proposed section 2-208(b) makes explicit the notion that commercial parties can form binding contracts without any requirement of human awareness or assent. Proposed section 2-212 addresses the times when a party may fairly attribute a message received to the party purporting to send it. Finally, proposed section 2-213 deals with intermediaries between the parties in an electronic transaction.³⁴

II. A PRELIMINARY LOOK AT "NEW" ARTICLE TWO

Most of the provisions dealing with electronic contract formation found in proposed Article 2 may be explained in terms of agency law and the concept of computer as agent, as is discussed in Part IV. The other proposed provisions discussed here fall into two categories: those that deal with the U.C.C. definitions of "writing" and "signature," and the one that reverses the traditional mailbox rule as applied to EDI transactions.

A. *Transmissions as Writings*

Three provisions in the July 12-19, 1996 draft of Article 2 deal with issues of EDI transmissions as writings. These are proposed section 2-102(33) defining "record"; proposed section 2-102(36) defining "sign"; and proposed section 2-201(a) repealing the statute of frauds.³⁵ Two issues surrounding these provisions

31. Some of the following provisions are simple definitions, others form the basis upon which the subsequent discussion is built, and still others are beyond the scope of this Note. The current text of each relevant provision is set out at the point in the text where it is discussed.

32. "Manifests assent" and "opportunity to review" are carefully defined to exclude the need for a showing of intent or awareness in the process of manifesting assent. See *infra* part IV.C. "Record" and "signed" are pertinent to the inclusion of EDI transmissions in the concept of "writing." See *infra* part II.A. The policies behind the definition of "electronic agent" and the application of this concept to other Article 2 provisions are discussed *infra* parts III and IV.

33. An excellent survey of policies for and against the statute of frauds independent of the impact of EDI transmissions on the rule can be found in John C. Ward & Kim J. Dockstader, *Placing Article 2's Statute of Frauds in Its Proper Perspective*, 27 IDAHO L. REV. 507 (1990-91). For purposes of this Note's discussion of § 2-201, only the applicability of the statute to EDI transmissions is considered as an argument for or against its repeal.

34. This provision deals with the role that VANs or other providers play in the transaction and the division of risk of intermediary error between the parties. As stated *supra* note 9, such considerations are beyond the scope of this Note.

35. Proposed § 2-102(33) reads: "'Record,' when used as a noun, means information that is inscribed on a tangible medium or that is stored in an electronic or other medium and is retrievable in perceivable form." *July 12-19 Art. 2 Draft, supra* note 1, § 2-102(33).

Proposed § 2-102(36) reads:

"Sign," when used as a verb, means to identify a record by means of any symbol executed or adopted by a party with present intention to authenticate the record.

should be of interest to commercial actors. The first issue is the extent to which Article 2 should extend concepts such as "writing" and "signed" to cover new forms of media used by commercial actors in contract formation. The second issue is whether Article 2 should repeal the statute of frauds.

As to the first issue, commentators have recently called for the law to accept audiotape recordings as "signed writings" and to accept EDI transmissions as "signed writings" for purposes of fulfilling the statute of frauds.³⁶ At least one court has found the argument for audiotapes as writings persuasive.³⁷ Such arguments for expansion of the concepts of "signature" and "writing" follow decades of liberal construction of the statute of frauds³⁸ consistent with the "flexibility" theme of the Code.³⁹ Indeed, stored EDI transmissions serve the purpose of a writing, "to require some objective guaranty, other than word of mouth, that there really has been some deal,"⁴⁰ at least as well as paper records of a contract.⁴¹

Likewise, the signature requirement is broad enough to encompass EDI technology. One of the Official Comments to the current version of section 2-201 states that "'signed' [is] a word which includes any authentication which identifies the party to be charged"⁴² As noted above, courts have held this requirement met by any number of marks used to identify the sender. There are

"Signed" has an analogous meaning. An electronic record is a signed record if a method of authentication identifying the originator of the record and indicating the originator's approval of the information contained therein is used and that method has been agreed on between the parties or was as reliable as [was] appropriate for the purpose for which the record was generated or communicated in light of all the circumstances.

Id. § 2-102(36).

Proposed § 2-201(a) reads: "A contract or modification thereof is enforceable, whether or not there is a record signed by a party against whom enforcement is sought, even if the contract or modification is not capable of performance within one year after its making." *Id.* § 2-201(a).

36. See generally Raj Bhala, *A Pragmatic Strategy for the Scope of Sales Law, the Statute of Frauds, and the Global Currency Bazaar*, 72 DENV. U. L. REV. 1, 29-38 (arguing for acceptance of tape recordings); DiPaolo, *supra* note 11 (arguing for acceptance of EDI transmissions).

37. *Ellis Canning Co. v. Bernstein*, 348 F. Supp. 1212 (D. Colo. 1972).

38. Among the instrumentalities held to be writings by various courts are telexes and tape recordings. Courts have held markings as diverse as a company letterhead and a typewritten name to be "signatures." DiPaolo, *supra* note 11, at 149, 152.

39. U.C.C. § 1-102 cmt. 1 (1994).

40. DiPaolo, *supra* note 11, at 146 (quoting Karl N. Llewellyn, *Memorandum Replying to the Report and Memorandum of Task Group 1 of the Special Committee of the Commerce and Industry Association of New York, Inc., on the Uniform Commercial Code*, in 1 NEW YORK STATE LAW REVISION COMMISSION REPORT 106, 199 (1954)) (emphasis omitted).

41. Some common security measures for protecting the integrity of electronic messages include the ability to create an audit trail of all alterations to a message and to "lock" a file and prevent it from being altered. DiPaolo, *supra* note 11, at 148 (also noting that "paper . . . is not itself exceedingly reliable").

As to the durability of electronically stored data, it lasts "at least as long as the life of a piece of paper." Fry, *supra* note 25, at 608.

42. U.C.C. § 2-201 cmt. 1 (1994).

several ways to authenticate an electronic message as well. Among these are encryption, electronic measurement of the user's hand thickness, and retinal scans.⁴³ Currently, some of these methods, such as the retinal scan, are prohibitively expensive for most commercial actors; however, even some of the more affordable methods of authentication, such as encryption or code keys, identify the sender of a message with greater reliability than, for example, a company's letterhead stationery, which could easily be used to create a forgery. Any definition of "signed" broad enough to encompass methods of authentication that lack security, such as company letterhead, is surely broad enough to include methods such as encryption that are at least as secure as traditional signatures.

Some scholars, however, are concerned that the definitions of "writing" and "signature" have become too attenuated and that the law calls upon the words to support more weight than they were designed to bear.⁴⁴ There is merit in this contention, as the legal definition of what satisfies the "writing" and "signature" requirements bears little resemblance to the common understanding of these terms. Patricia Brumfield Fry, in an outstanding analysis,⁴⁵ suggested (and the proposed draft of Article 2 adopts) the term "record" as a substitute for and enlargement upon the definition of writing. The reader will note that the definition of "record" encompasses such things as audiotapes and EDI transmissions much less clumsily than the current Code definition of "writing."⁴⁶ The proposed definition of "signature," while retaining the same terminology as the definition in the old Code, nevertheless gives the word a more expansive definition.⁴⁷ Perhaps changing the word "signature" to "authentication" would even more thoroughly advance the principles behind changing the word "writing" to "record." Whatever terminology the Code uses, however, it should be clear that if the Code is responsive at all to the needs of commercial actors—and is to remain true to its foundational principles as it surely must—it will adapt to encompass these new technologies.

The second proposed development touching upon the issue of whether EDI transmissions satisfy the statute of frauds is the proposed repeal of the statute itself. There are legitimate reasons besides the expansion of technology and the outdatedness of old conceptions of "writing" to do away with the statute.⁴⁸ As seen above, the liberal construction which courts traditionally apply to the statute of frauds, and the proposed redefinition of "record" and "signature," practically ensure that even if the drafters keep the statute of frauds, EDI transmissions will

43. DiPaolo, *supra* note 11, at 152-53.

44. *Report and Model Agreement*, *supra* note 2, at 1664 n.70 (comparing such attenuation of legal provisions to a Procrustean bed, referring to the legendary giant, Procrustes, who, when his guests did not fit the bed they were given, cut their limbs off or stretched them out so that they would fit).

45. See generally Fry, *supra* note 25.

46. "'Written' or 'writing' includes printing, typewriting or any other intentional reduction to tangible form." U.C.C. § 1-201(46) (1994).

47. Proposed § 2-102(36) appears in full *supra* note 35.

48. These other arguments for the abolition of the statute of frauds are considered, but ultimately rejected, by Ward & Dockstader, *supra* note 33.

satisfy it. Since EDI need not compel the repeal of the statute of frauds, and since there are legitimate reasons independent of EDI to justify its repeal, one may safely conclude that whether the statute of frauds stays or goes, the enforceability of EDI contracts will not be influenced either way. The ultimate conclusion one may draw from the provisions pertaining to EDI transmissions as evidencing a contract is that the drafters have succeeded in isolating the instances in which EDI serves the same purposes as paper writings and have subjected both EDI and paper writings to virtually the same legal tests.

B. Proposed Section 2-208(a) and the Mailbox Rule

This proposed provision falls outside the analytical framework of this Note; that is, it is not susceptible to interpretation by reference to either common law principles of "writing" or "agency," but rather the principle of the "mailbox rule." Nevertheless, some of the provisions discussed below, such as proposed section 2-208(b), rely in part upon the application of this provision; thus the discussion of it here.

To understand the choices made by proposed section 2-208(a)⁴⁹ it is first necessary to understand the purpose of "functional acknowledgments" in EDI communication. The functional acknowledgment is a transmission that a party who receives a message ("the receiver") sends to the party who initiated the message ("the sender"). The functional acknowledgment has no substantive legal effect, but instead is a way for the receiver to indicate receipt of a message. The functional acknowledgment also contains information regarding the format and syntax of the message as received and thus allows the sender, upon receipt of the functional acknowledgment, to discover immediately whether the message the receiver received indeed arrived exactly as transmitted.⁵⁰ If the functional acknowledgment checks out, the sender knows immediately that the receiver has received the message; if the acknowledgment is in any way inconsistent with the message or if no acknowledgment arrives, the sender knows immediately that the transmission was defective and can thus do something to correct it. The potential of a functional acknowledgment to allow the sender to know immediately the status of an electronic message has caused the drafters of proposed Article 2 to reexamine the mailbox rule in the EDI context.

Proposed section 2-208(a) states that electronic acceptance of an offer does not occur until the offeror receives the acceptance from the offeree.⁵¹ This rule reverses the common law "mailbox rule" that states that an acceptance occurs when the offeree sends it to the offeror, regardless of whether the offeror ever

49. Proposed § 2-208(a) reads as follows: "In an electronic transaction, if an electronic message initiated by one party evokes an electronic message or other electronic response by the other or its electronic agent, a contract is created when the initiating party receives a message manifesting acceptance." *July 12-19 Art. 2 Draft, supra* note 1, § 2-208(a).

50. *Report and Model Agreement, supra* note 2, at 1669-70.

51. *July 12-19 Art. 2 Draft, supra* note 1, § 2-208(a).

receives it.⁵² The mailbox rule, however, applies only in those situations where there is a "lag time" between communications. When communication is instantaneous, as in face-to-face negotiations or a telephone conversation, the concepts of "transmission" and "receipt" are virtually the same; if the message is not technically received, as when a phone connection is bad, both parties know of the failure immediately.

Thus, in deciding whether the mailbox rule should apply to EDI transactions, the drafters of proposed section 2-208(a) had to decide whether EDI more closely resembled instantaneous communication, such as a telephone conversation, or "lag time" communication, such as a mailed writing. The drafters, following the example of other bodies who had previously considered the question,⁵³ chose to treat EDI the same as an instantaneous communication, and thus to make acceptance conditional upon receipt by the offeror.⁵⁴

This division of risks is proper given the reliability and the speed of EDI communication. Because the offeree knows immediately whether her message has arrived or has failed to arrive depending on the other computer's return of the proper functional acknowledgment, there is no risk of failure of receipt to allocate, and so the drafters implemented the logical rule, that a document is not effective until receipt.⁵⁵

III. THE AGENCY PARADIGM

The drafters of the July 12-19, 1996 version of Article 2 have carefully considered and arrived at appropriate solutions to nearly all the problems that EDI poses for the current Article 2 provisions on contract formation. With the exception of the reversal of the mailbox rule in proposed section 2-208(a), the Article 2 drafters have kept faith with longstanding concepts such as "writing" while extending them to encompass technological developments. Similarly, the drafters have begun to conceive of the capacity of computers to enter into transactions without human awareness of the transaction having been formed in terms of "electronic agency." Proposed section 2-102(19) defines "electronic agent" as follows: "'Electronic agent' means a computer program designed,

52. RESTATEMENT (SECOND) OF CONTRACTS § 63 (1981). This rule rested on a policy balance of which party should bear the risk of an acceptance failing to reach the offeror; the common law decided that, because an offeror controls the terms of the offer she could make acceptance conditional upon receipt; if the offeror fails to do that which is in her power, she should bear the risk. ARTHUR LINTON CORBIN, CORBIN ON CONTRACTS: ONE VOLUME EDITION § 78 (1952).

53. See, e.g., *Report and Model Agreement*, *supra* note 2, at 1664-73.

54. *July 12-19 Art. 2 Draft*, *supra* note 1, § 2-208(a).

55. However, this rule does not work unless the offeror is *required* to send a functional acknowledgment; if this were not so, then lack of receipt of a functional acknowledgment would signify nothing to the offeree. That is why most industry standards require parties to send functional acknowledgments promptly. *Report and Model Agreement*, *supra* note 2, at 1667. Given this condition upon the instantaneous nature of EDI communication, the drafters could strengthen proposed § 2-208(a) by requiring the receiver of a message to send a functional acknowledgment immediately upon receipt. The receiver could program such a task for performance by computer so that constant human monitoring would be unnecessary.

selected, or programmed by a party to initiate or respond to electronic messages or performances without review by an individual. An electronic agent acts within the scope of its agency if its performance is consistent with the functions intended by the party who utilizes the electronic agent."⁵⁶ However, the drafters have taken too tentative and limited an approach to the use of the concept of electronic agents: "Courts may ultimately conclude that an electronic agent is equivalent in all respects to a human agent, but this Draft does not go so far, making specific provisions relating to electronic agents when needed."⁵⁷ As demonstrated below, the choices made by the Article 2 drafters regarding electronic contracting are most comprehensible when the whole is considered in terms of electronic agents; the so-far limited approach to electronic agency by the drafters does not go far enough in helping commercial actors, their attorneys, and judges fully appreciate the legal consequences of electronic contracting. The drafters should extend the concept of electronic agency to all electronic contracting provisions if the law is to allow EDI technology to reach its full potential in efficiency.⁵⁸

Applying rudimentary agency principles to the provisions of proposed Article 2 dealing with contract formation in the absence of human involvement, and conceptualizing the computer as the agent of a party, is the best way to grasp the choices made by the drafters of the new Article 2. Indeed, the provisions discussed below dealing with EDI's capability to form a contract without human awareness or consent reach precisely the same results as agency law would reach if applied to the computers which enter into the contracts.

In other words, when a commercial actor uses computers in the capacity that it uses other tools, the law should treat the computers in the same manner as it treats those other tools. Thus, when a human actor uses a computer merely as a medium to send a message to another human actor, the computer functions in the same way that a fax machine or a posted letter does. However, when a principal uses a computer in the same manner that it uses a human agent, then the law should treat the computer in the same manner that it treats the human agent.⁵⁹

Whether the tracking of the rules of agency in the proposed provisions dealing with "no human input" contracts ("NHI contracts") was intentional or not,⁶⁰ conceptualizing the proposed provisions in this way should be a fruitful way for commercial actors, their attorneys, and judges to understand the provisions. First of all, just as certain qualities of EDI transmissions allow them to serve the same

56. July 12-19 Art. 2 Draft, *supra* note 1, § 2-102(19).

57. Sept. 4 Art. 2B Draft, *supra* note 1, § 2B-102 cmt. 12.

58. As an example of how current law impedes EDI technology from reaching its maximum potential benefit for business, one may note the number of companies which produce paper backups of EDI contracts to ensure that they have met the "writing" requirement of § 2-201. Such a practice is needlessly duplicative and removes the "paperless" advantages EDI is supposed to provide. *Report and Model Agreement, supra* note 2, at 1680. However, the *Report* also notes that such practices are slowly being phased out. *Id.* at 1658 n.39.

59. The agency principles that are implicit in the proposed Article 2 provisions are more specifically identified *infra* part III.

60. The emergence in the last few months of an explicit recognition of such an entity as an electronic agent by the drafters of Article 2 suggests that such tracking was intentional.

enforceability and authenticity concerns as paper-based contracts and thus should be treated the same under the law as those paper-based contracts, computers serve the same function in NHI contracts that human agents do in traditional contracts and thus should be treated the same under the law as those human agents. Second, provisions that, because of their unique wording, seem to be entirely new solutions to new problems might be at greater risk of misinterpretation by commercial actors and courts than they would be if the commercial actors and courts see that old principles of law such as agency are de facto being applied to deal with problems raised by new technology.

A. Limitations of the Agency Paradigm

As to the contention above that computers serve the identical function in NHI contracts as human agents serve in traditional contracts and thus should be governed by the same rules of agency, the limitations of such a theory must be noted at the outset. Only a small portion of the whole of agency law is applicable to computers. Likewise, only computers which serve the contracting function in the Article 2 context should be subject to agency law; computers that serve merely as media of communication should not. The parts of agency law that this Note argues should apply to computers participating in NHI contracts are the parts that deal with agents *qua agents*; the parts of agency law that deal with agents as humans (the part, for instance, relating to breach of duty of the agent to the principal) are insensible as applied to computers. A human agent has many non-agent features to his or her existence. Human agents may misunderstand the directions given them by their principals. Human agents may be improperly influenced by persons other than their principals, and may choose of their own free will to disregard the instructions of their principals. These non-agent features of human agents are the reasons why law dealing with duties of agents to their principals is necessary.

Computer agents, however, have no independent existence outside of their capacity as agents.⁶¹ They perform precisely as instructed by the principal, and do nothing when not following programmed instructions. Short of a systems error, a computer does not deviate, either intentionally or unintentionally, from the instructions given it by the principal.⁶² Indeed, the accuracy of computers, and their ability to follow directions precisely, makes them arguably better suited to the role of agent, in the limited circumstances posited here, than humans. Because computers programmed to enter into NHI contracts perform this limited agency function at least as well as humans (and the data on error reduction after implementation of EDI suggests that computers perform the agency function

61. This assertion is not entirely complete. Computers, when not serving as agents in the formation of NHI contracts, might be used by the principal as a tool, the same way the principal would use fax machines or staplers as tools. However, this independent existence still depends on the manipulation of the computer by a human actor; the independent existence of a human agent is driven by the autonomy of the agent. Thus, a computer's independent existence is not analogous to the independent existence of a human agent of a party.

62. Of course, it makes no sense to speak of computers as having "intent" at all as an original matter.

better than humans)⁶³ it makes sense to construe the rules dealing with NHI contracts as treating computers as the legal equivalent of human agents.

There are limitations as well on the contention that commercial actors and courts are less likely to misinterpret the new provisions if they are understood in terms of agency than if they are read as entirely new solutions to problems raised by a new technology. Foremost among the limitations is that the new provisions are clear enough that the risk of misinterpretation is minimal. Nevertheless, the agency paradigm in this instance might serve as an additional aid to greater understanding of the new provisions. Even if the risk of misinterpretation is minimal, there is always the chance that a sudden change in the law will produce unwanted and unforeseen side effects. The law can avoid such side effects if it explicitly recognizes that the "new laws" are nothing more than extensions of existing, familiar law analogized to apply to new situations.⁶⁴

B. Specifics of the Agency Paradigm

Having made the above general observations, we may now turn to a survey of the specific agency principles that the drafters have both explicitly and implicitly incorporated into the proposed Article 2 provisions on contract formation.

The Restatement (Second) of Agency ("The Restatement") defines "agency" as follows: "Agency is the fiduciary relation which results from the manifestation of consent by one person to another that the other shall act on his behalf and subject to his control, and consent by the other so to act."⁶⁵ If one leaves aside problems of the intent of the agent to enter into the relationship ("consent by the other") for the moment,⁶⁶ the essence of the definition, "the other shall act on his behalf and subject to his control," describes the situation where a principal programs a computer to perform in a certain way in the future as well as it describes the situation where a principal instructs a human agent to perform in a certain way in the future. The computer, in sending out a purchase order, is clearly acting on the principal's behalf; in following preprogrammed instructions on when and how much to order, the computer is acting subject to the principal's control.

63. See Boss, *supra* note 2, at 294.

64. The very nature of unforeseeable side effects of laws makes it impossible to cite an example here of unforeseeable side effects of the electronic contract formation provisions in proposed Article 2. However, one commentator has noted a previously unforeseen side effect of another proposed computer contracting law. See Fry, *supra* note 25, at 616. Professor Fry notes that under Articles 3 and 7, paper writings and electronic transmissions do not serve precisely identical functions. They both indeed serve authentication, communication, and ritual functions, but paper writings serve an additional function that electronic transmissions cannot serve. Under Articles 3 and 7, the paper writing itself often serves as the *res* of a transaction. Professor Fry notes that completely replacing the definition of "writing" with one that allows for electronic transmissions for all purposes would cause turmoil and uncertainty in the way in which business is done currently under Articles 3 and 7. *Id.*

65. RESTATEMENT (SECOND) OF AGENCY § 1 (1958). The Restatement also offers the following supplemental definitions: (1) principal: "The one for whom action is to be taken," and (2) agent: "The one who is to act." *Id.*

66. See discussion *infra* part V.A.

To be precise, one would more accurately consider the computer a subagent of the principal. The Restatement defines "subagent" as follows: "[A] person appointed by an agent empowered to do so, to perform functions undertaken by the agent for the principal, but for whose conduct the agent agrees with the principal to be primarily responsible."⁶⁷ Indeed, the human agent who programs the computer to send out a purchase order upon the happening of a certain event (such as depletion of inventory below a certain level) will be more than just "primarily" responsible for an error in instruction.

To be still more precise, one would more accurately consider the computer a general agent of the principal as well. General agents' duties involve a continuity of service in the sense that they are expected to perform a series of similar transactions for the principal without the necessity of receiving particular instructions every time the principal desires a transaction.⁶⁸ This concept is consistent with the commercial actor's practice of programming computers to send out a purchase order whenever the inventory of a certain kind of good falls below a certain level; indeed, if the law required the commercial actor to program the computer to send out a purchase order each particular time that a good was needed, then the computer would cease to be performing the functions of an agent and instead would merely serve as a tool or a medium of communication manipulated by a human agent.

The kind of authority a computer agent has to act on behalf of its principal most closely resembles actual authority. Computers do not (yet) have the capability to do anything without a human first instructing them; thus, the idea that authority is actual only when the principal instructs the agent⁶⁹ perfectly describes the way the principal/computer agent relationship works.

The capacity of the agent to bind the principal is also applicable to the issue of computer agency, but in a limited manner. To the extent that the capacity of the agent determines the liability of the agent under traditional law,⁷⁰ the concept of capacity does not apply to computer agents. If one applies the principle

67. RESTATEMENT (SECOND) OF AGENCY § 5(1) (1958).

68. RESTATEMENT (SECOND) OF AGENCY § 3(1) (1958). The precise definition reads: "A general agent is an agent authorized to conduct a series of transactions involving a continuity of service." *Id.*

69. RESTATEMENT (SECOND) OF AGENCY § 7 (1958) reads: "Authority is the power of the agent to affect the legal relations of the principal by acts done in accordance with the principal's manifestations of consent to him." The concept of authority flowing from explicit instructions given by the principal to the agent is expressed thus: "[A]uthority to do an act can be created by written or spoken words or other conduct of the principal which, reasonably interpreted, causes the agent to believe that the principal desires him so to act on the principal's account." *Id.* § 26. A principal's instructions to a computer agent obviously are not the product of "written or spoken words" but rather "other conduct." The standard for when authority is created under § 26, when the authority "reasonably . . . causes the agent to believe that the principal desires him . . . to act," would not directly apply to computer agents, but the instructions given a computer agent are so precise and explicit that they would pass any kind of "reasonable person" test if the same were given to a human agent.

70. *Id.* § 21 (1958).

discussed above,⁷¹ the concept of personal liability of an agent is a part of agency law directed to the human aspect of agents, and is not addressed to the functional aspect of agents as agents. Assuming that the only parts of agency law relevant to the question of computer agents are the parts relating solely to the functions an agent serves for its principal, one must conclude that the part of the capacity concept relating to the liability of the agent is irrelevant.

The part of the capacity concept that distinctly fits the agency model of NHI contracts is the part dealing with capacity to receive and convey. “[A]ny human being who has the capacity to receive and, in a contract situation, the capacity to convey ideas, can bind another by acting as his . . . agent.”⁷² If one sets aside the technical inapplicability of the above statement to those that are not “human beings,” the essential requirements of capacity are met by a computer as well as a human. Computers do have the capacity to receive ideas—even those functioning merely as tools and not as agents possess this capacity. Computers likewise have the technical capacity to convey ideas (data) as instructed “in a contract situation.” Indeed, as seen in the discussion below of the proposed provisions of Article 2, the drafters wish to explicitly give computers in NHI contracts the legal capacity to bind commercial actors through the reception and conveyance of ideas (data).⁷³

The above survey of agency law demonstrates that the core principles of agency law apply to computers in the context of NHI contracts as well as they do to human agents in other contracting contexts. The following section will apply these core agency principles to explain why the drafters of revised Article 2 made certain choices when dealing with electronic contracting issues.⁷⁴ Finally, some problems with the agency model will be discussed.

IV. THE AGENCY PARADIGM APPLIED TO “NEW” ARTICLE TWO

The remainder of the electronic contracting provisions (aside from those dealing with VANs) falls into the category of provisions which one may conceptualize as those involving the concept of “electronic agents.” These include proposed sections 2-102(28) and 2-102(30), defining “manifests assent” and “opportunity to review,” respectively; proposed section 2-102(36) defining “signed”; proposed section 2-208 entitled “Electronic Transactions: Formation”; and proposed section 2-212 entitled “Electronic Messages: Attribution.” The

71. *See supra* text accompanying note 62. This principle states that only the parts of agency law dealing with agents as agents (as opposed to agents as humans) should apply to electronic agents.

72. HAROLD G. REUSCHLEIN & WILLIAM A. GREGORY, *HANDBOOK ON THE LAW OF AGENCY AND PARTNERSHIP* 22 (1979).

73. *July 12-19 Art. 2 Draft, supra* note 1, § 2-208(b).

74. An additional agency principle, a British common law concept called “innocent agency,” will be necessary to explain the choices made in proposed section 2-102(36). The application of this principle to NHI contracting will be explained in the discussion of that provision.

discussion of the agency paradigm will begin with proposed section 2-208(b),⁷⁵ the provision that explicitly allows legal recognition of NHI contracts.

*A. Proposed Section 2-208(b) as the Establishment of the
Broad Agency Paradigm*

Proposed section 2-208(b) deals with the manner in which parties may form binding contracts in the absence of any human awareness on either party's part.⁷⁶ This provision is the basis upon which the drafters build all the other computer contracting provisions. The first sentence makes explicit the idea that no "individual" awareness on the part of either party is necessary for the law to find that the parties made a binding contract. There is a faulty parallelism in the second sentence, as becomes evident when it is read: "when received in a *form* [capable of processing the record] and at a location capable of processing the record"⁷⁷ The intended meaning of the "form" clause is probably "a form capable of being processed." This reading of the provision would indicate that an electronic message sent by one party cannot have any effect on the other in an NHI setting unless the message is sent in such a manner that it arrives at a computer capable of processing the information, and unless it complies with the standards which will allow the receiving computer to analyze the data contained therein.⁷⁸ Faulty parallelism aside, the effect of the provision is to make the contract enforceable *as if* human agents had exchanged the information constituting the agreement. The first sentence gives legal recognition to NHI contracts, and the drafters need not alter it. Because computers instead of humans are the actors which analyze the data and come to a binding agreement, I suggest the second sentence would be clearer if it were understood to mean the following: Electronic records exchanged in an electronic transaction are effective when received by an electronic agent of the receiving party.

This provision would apply only to contracts formed by computers in the NHI context; as discussed above,⁷⁹ this is the only context in which computers

75. The discussion of the agency paradigm actually begins with the definition of "electronic agent" in proposed section 2-102(19). However, the drafters have hewed to their decision to limit the potentially broad effects of this concept by explicitly referring to electronic agents in only one other provision, proposed section 2-208(a). *See supra* note 50. The discussion that follows deals with what can be termed the "broad agency paradigm," which is this Note's proposal to clarify the electronic contracting provisions by explicitly incorporating the concept of electronic agency into each of them.

76. Proposed section 2-208(b) reads as follows:

A contract is created under subsection (a) even if no individual representing either party was aware of or reviewed the initial message or response or the action manifesting acceptance of the contract. Electronic records exchanged in an electronic transaction are effective when received in a form and at a location capable of processing the record even if no individual is aware of their receipt.

July 12-19 Art. 2 Draft, supra note 1, § 2-208(b).

77. *Id.* (emphasis added).

78. The notion that the message is not effective until *received* comports with the choice made to abandon the mailbox rule in 2-208(a). *See supra* part II.B.

79. *See supra* note 61.

function as agents rather than as mere tools of a party. This rewriting emphasizes that computers are not mere "locations capable of processing," but are the actual processors, just as human agents are the processors in more traditional contract formation situations. Casting computers in this light allows the commercial actor to see that the electronic contracting provisions do not radically alter the legal structure within which it is accustomed to working. A record will be effective when received by an electronic agent just as an offer will be effective when made to a human agent in a face-to-face communication. Legally, these two scenarios will have the same effect under proposed section 2-208(b); the above rewriting of the proposed provision would enable commercial actors to see this equivalence more clearly. The utility of such a rewriting of proposed section 2-208(b) can be demonstrated by observing the effect upon other provisions in proposed Article 2.

B. Proposed Section 2-212 and "Computer" Attribution

Proposed section 2-212 deals with the times when a party may fairly attribute to another party an electronic message purporting to be from that other party.⁸⁰ Subsection (1) is straightforward, binding the "initiating" party to the terms of the message if the party or a human agent of the party in fact sent the message to the recipient. The purpose of subsection (2) with regard to messages sent by *human* agents is unclear. What *is* clear is that the focus of subsection (1) is on the initiating party; the focus of subsection (2) is on the recipient's perception of having received a message from the initiating party. Assuming for the moment that subsection (2) applies only to human agents, the subsection's practical effect is to include only a few more scenarios than subsection (1) does. Subsection (2) includes those instances when the recipient concludes that the message was sent by the human agent of the initiating party and it was actually sent by the human agent of the initiating party (in which case the scenario is already covered under subsection (1)); subsection (2) also includes those instances when the recipient concludes that the message was sent by the human agent of the initiating party but it was not sent by the human agent of the initiating party. If the message was not sent by the human agent of the initiating party but the circumstances in subsection (2) were fulfilled, subsection (2) would seemingly bind the initiating party to fraudulent messages. The drafters cannot have intended to bind a party to any message sent by a hacker who has cracked the authentication code of a

80. The pertinent provisions of proposed section 2-212 read as follows:

If an electronic message is sent to another party, as between the party indicated in the message as the initiating party and the party receiving the message, the party described as the initiating party is bound by the terms of the message if:

(1) the message was sent by that party or a person who had authority to act on behalf of that party in reference to such messages; [or]

(2) by properly applying a procedure previously agreed to by the parties for purposes of authentication, the recipient concluded that the message was originated by, or otherwise attributable to, the initiating party[.]

July 12-19 Art. 2 Draft, supra note 1, § 2-212 (Subsection 3 is irrelevant to the present discussion.).

party and then sent out messages claiming to be from the party. It is doubtful that any court would so construe the statute to bind a party to a message sent through the fraud of another. Moreover, a similar rule does not exist for nonelectronic messages; it is difficult to discern a reason why such a rule should only apply to electronic messages.

There is an alternative reading of proposed section 2-212(2), though, that is consistent with proposed section 2-208(b)'s mandate that NHI contracts are binding on the parties. If one reads the provision as binding a party to a message when no human agent of the party has sent it, yet it is properly authenticated as having come from the party, then the meaning of the provision is simply that a computer may send a properly authenticated message and bind a party just as surely as if a human agent had sent it. If one rules out the possibility that a forged electronic message can bind the "initiating" party, then the meaning of proposed section 2-212(2) can only be that messages sent by a party's computer can be fairly attributed to that party by the recipient.

The above analysis demonstrates that the meaning of proposed section 2-212(2) is not immediately clear. It suggests that the drafters could make the provision more comprehensible to commercial actors, their attorneys, and judges, and the provision would still arrive at the same results as the current proposal, if the drafters applied the broad agency paradigm. Indeed, the whole of proposed section 2-212(2) could be eliminated, and its purpose served, by rewriting proposed section 2-212(1) thus: "The party described as the initiating party is bound by the terms of the message if the message was sent by that party or by a party's human or electronic agent which had authority or was instructed to act on behalf of that party in reference to such messages." The meaning of the provision is immediately clear: regardless of whether a message purporting to come from a party was sent by a human agent of the party or by that party's computer, the recipient may treat the message as one that is properly authenticated and valid. The reconceptualization of section 2-208(b) in the previous section has helped to make another proposed provision more comprehensible.

*C. Proposed Sections 2-102(28) and (30) and
"Intentless" Assent*

The definitions of "manifests assent" and "opportunity to review"⁸¹ have no corollaries in the current version of the Code.⁸² Both definitions carefully avoid requiring any kind of present intention to assent, or any kind of actual opportunity for a human agent of the party to review the terms of the agreement. The very term "manifests assent" suggests that actual assent is not what the law seeks, but rather the *appearance* of a party's assent to an outside observer. The only requirements are that the party "engage[] in conduct that . . . constitutes assent," and that the party "ha[ve] an opportunity to decline to engage in the conduct." If the provision required actual assent, then computers programmed to perform contract formation tasks could not meet the assent requirement. Computers can, however, engage in conduct that appears to be assent, which is all this provision requires. By deleting any intent requirement, then, the drafters of the provision expand the concept of assent to encompass computer contracting.

Likewise, proposed section 2-102(30) defines "opportunity to review" in such a way that even if no human agent of the party had the opportunity to review a record, a court could find that a computer had such an opportunity. The record need only be "made available [to the party] in a manner designed to call the terms to the attention of the party . . ."⁸³ The record is not actually required to call the terms to the attention of the party; it merely need be "made available . . . *in a manner designed* to call the terms to the attention of the party."⁸⁴ The second of the provision's disjunctive requirements indicates that a party might also have had an "opportunity to review" a record if the record is "provided in such a manner that the terms will be conspicuous . . ." Again, there is no requirement that anyone from the receiving party be aware of the conspicuous terms; the sending party must only provide the record so that it is "conspicuous in the

81. The definition of "manifests assent" appears in proposed section 2-102(28), and reads as follows:

A party "manifests assent" to a record if, after having an opportunity to review the terms of the record, the party engages in conduct that under the circumstances constitutes acceptances [sic] of the terms of the record and the party had an opportunity to decline to engage in the conduct.

July 12-19 Art. 2 Draft, supra note 1, § 2-102(28).

The definition of "opportunity to review" appears in proposed section 2-102(30), and reads as follows:

A party has the "opportunity to review" a record if the record is made available in a manner designed to call the terms to the attention [of] the party before assent to the record or is provided in such a manner that the terms will be conspicuous in the normal course of initial use or preparation to use the goods.

Id. § 2-102(30).

82. U.C.C. (1994).

83. *July 12-19 Art. 2 Draft, supra* note 1, § 2-102(30).

84. *Id.* (emphasis added).

normal course of initial use”⁸⁵ Of course, as discussed in Part I.A., the “normal course of initial use” involves NHI contracts in greater numbers every year.⁸⁶

Again, these provisions arrive at the same result as if the law considered computers to be agents of a party. Supposing that the definitions allowed assent “by any human or electronic agent designated to give such assent to a record,” and an opportunity to review “by any human or electronic agent designated to undertake such a review,” the results reached would be the same as those reached under the current proposed provisions: the law will consider a party to have assented and to have reviewed a record even if a computer performed the only assent or review undertaken by the party, with no human involvement. Thus, the provisions need not go to such lengths to write out any element of “intent”; by explicitly saying that computer agents may create binding contracts in proposed section 2-208(b), the requirement of intent of the agent is already implicitly removed.⁸⁷

The provisions discussed to this point have admitted to interpretation using the agency paradigm based only upon the rudimentary agency principles set out in Part II.B. When reinterpreted or rewritten with these principles in mind, the provisions reach the same results as they do currently written. One can also explain the next discussed provision in terms of agency rules, but this discussion requires the introduction of an additional principle of agency. The next provision has already been discussed in the context of EDI authentication as a signature, proposed section 2-102(36).

D. Proposed Section 2-102(36) and “Innocent Agency”

The current definition of “signed” in section 1-201(39) is virtually identical to the first sentence of the definition of “signed” found in proposed section 2-102(36) with the exception that the word “means” is substituted for the word “includes.”⁸⁸ The main difference between the provisions is the second sentence of proposed section 2-102(36) dealing with “signed” electronic records.⁸⁹ The purpose of a traditional signature and an electronic signature is identical: to authenticate the record in which the signature appears.⁹⁰ However, a study of the provision reveals that what it says with regard to traditional signatures it says

85. *Id.*

86. *See supra* notes 10-19 and accompanying text.

87. The limited nature of the current proposal’s approach to electronic agency is manifested again in the Reporter’s Notes to the definition of “opportunity to review” contained in proposed section 2B-113: “Importantly, these concepts do not substitute for ‘agreement’ as that term is defined in the U.C.C. or in contract law generally. Assent and review are typically associated here with what terms become part of the contract.” *Sept. 4 Art. 2B Draft, supra* note 1, § 2B-113. However, as demonstrated, these provisions can and should be extended to include an electronic agent’s capacity to enter into a binding agreement.

88. U.C.C. § 1-201(39) (1994); *July 12-19 Art. 2 Draft, supra* note 1, § 2-102(36).

89. The text of this provision is reprinted above. *See supra* note 35.

90. For a discussion of this provision in the context of EDI transmissions as “signed writings,” *see supra* part II.A. The current discussion focuses on the identity of the signer.

with economy of words, straightforwardly listing the requirements of a signature; the provision on electronic authentication has no such simplicity. A traditional signature must be (1) a symbol; (2) executed or adopted; (3) by a party; (4) with present intention; (5) to authenticate; (6) a writing.⁹¹ Like the definitions in proposed sections 2-102(28) and (30) discussed above, the definition of electronic authentication pointedly contains no reference to present intention, and thus requires a lot of language to convey the elements of such authentication without "intent." Again, one can interpret this circumlocution as the effort by the drafters to accommodate authentications executed by a computer with no human input. However, the drafters once again could have reached the same result in a much simpler and more comprehensible manner had they drafted the provision with agency principles in mind. When one measures computer-executed authentication element for element against the elements of a traditional signature, it becomes evident that the "present intention" element is the only one that is problematic and must be the only reason for introducing the convoluted second sentence of the provision. The first element, a "symbol," is met by computer authentication, or could be with small modification. Often the mode of computer authentication *is* a symbol such as a code key; even when it is not, as when the mode of authentication chosen is encryption, a small alteration in the element is all that is needed to encompass computer authentication. The drafters could accomplish this modification by changing the phrase "any symbol executed or adopted" to "any mode of authentication executed or adopted." The purpose is the same, but the proposed change is broad enough to encompass computer authentication.

The second and third elements of a traditional signature, that it be "[2] executed or adopted [3] by a party," are met just as well by computer authentication as they are by traditional signatures. The fourth element, "[4] present intention," is, as noted above, the problematic element and will thus be discussed in depth below. The last two elements, "[5] to authenticate [6] a record" are again met just as well by computer authentication as they are by traditional signatures.

We return to "present intention" to discuss it in terms of the agency paradigm, and to evaluate the way in which a court might find a party's present intention to authenticate in a computer record authenticated without any human awareness. The starting point of the discussion is a Latin maxim cited in an agency text: "*Qui facit per alium facit per se*. (He who acts through another, himself acts.)."⁹² The essence of this maxim is that one who designates an agent to represent him or her or to perform an action can be said *himself* to be presently acting when the agent performs the designated action. If this were not the intent of the maxim, the conclusion, "himself *acts*," would not have been expressed in the present tense. In like manner, if a principal has instructed an agent to perform a certain task and the agent subsequently performs the task, one can fairly say that the agent has exercised the principal's present intention to perform the task. Thus, if a party programs its computer to authenticate a record in a manner selected by the party

91. See U.C.C. § 1-201(39) (1994).

92. REUSCHLEIN & GREGORY, *supra* note 72, at 1.

for that purpose, and has not given the computer any contrary authentication instructions in the interim, the party's intention to use that method of authentication "to authenticate a record" stretches into the present and a court may consider it the party's "present intention." If this is the case, the first sentence of proposed section 2-102(36) would apply to all methods of authentication, including computer authentication in NHI contracts, and the whole of the second sentence could be jettisoned as surplus. Even when a computer "authenticates" a record without human knowledge, one could say that the party who owns the computer "presently intended" to authenticate the record when the computer authenticates the record according to the party's instructions.

One can find support for this method of thinking about "present intention" in a British common law concept called innocent agency. Innocent agency is a concept found in the criminal law of England, but the principles can apply to computer agents' contract formation as well. Briefly, innocent agency is a doctrine developed to deal with the situation where a principal employs an agent whom the principal instructs to engage in criminal conduct. The agent in innocent agency is an actor who cannot himself be prosecuted for the crime committed in the capacity of an agent.⁹³ For example, the agent could be a minor or an animal.⁹⁴ In prosecuting the principal for crimes committed by his agents, prosecutors must prove the element of mens rea, or, restated, present intention.⁹⁵ Such a requirement might cause potential problems if, at the time the agent committed the crime, the principal were sleeping or were thinking of something other than the crime;⁹⁶ the law circumvents this problem by "bringing together the mental state of one person [the principal] with the acts of another [the agent]."⁹⁷ The law in essence attributes the principal's intention to the principal at the time the agent takes the action.⁹⁸ The extension of a principal's intent to the time when the agent takes action meets the present intention requirement for a

93. See Peter Alldridge, *The Doctrine of Innocent Agency*, 2 CRIM. L.F. 45, 45-46 (1990).

94. The example cited by one scholar is that of the young thieves in Charles Dickens's novel *Oliver Twist*: "When Fagin sends Twist [aged under 10] to steal handkerchiefs, Fagin 'appropriates' a handkerchief, within the meaning of the Theft Act, at the moment when Twist takes it." GLANVILLE WILLIAMS, TEXTBOOK OF CRIMINAL LAW 316 (1978).

95. "[I]n a prosecution against the accessory [principal], it is the latter's culpability that is relevant; the perpetrator's [agent's] culpability is incidental." GEORGE P. FLETCHER, RETHINKING CRIMINAL LAW 642 (1978). Translating the concept into computer agency terms, the principal's intent is the relevant one. The agent's intent has no legal significance.

96. Alldridge, *supra* note 93, at 57.

97. *Id.*

98. Alldridge favors, rather than innocent agency, a slightly different yet related doctrine, termed "broad accessorial liability." Rather than relying on what he calls the "dogma" of innocent agency, Alldridge supports a theory in which "guilt can be established without resort to the fiction that the act of the agent is the act of the [principal]. . . . [T]he act of the agent [is] a (generally intended . . .) consequence of the act of the [principal]." *Id.* at 54.

Allrdridge's theory of accessorial liability attributes to the principal those acts of the agent which the principal "contemplated." *Id.* at 59. Analogizing to the situation where a computer is an agent, one finds that all acts which a principal instructs a computer to do are contemplated by the principal, including authentication of documents. Thus, by authenticating a message as contemplated by its principal, a computer exercises the intent of the principal.

valid “signature” under proposed section 2-102(36) when a computer authenticates a record according to the principal’s previous instructions, even without any human awareness of the action at the time the computer executes the action.

The end result of applying the agency paradigm to this provision could be: “‘Signed’ means any mode of authentication executed or adopted by a party with present intention to authenticate a record. An electronic agent that so authenticates a record is presumed to exercise its principal’s present intention.”

V. PROBLEMS WITH THE AGENCY PARADIGM

A. “Consent” as an Element of the Creation of a Principal-Agent Relationship

As well as the agency paradigm works to explain the choices made by the drafters of the electronic contracting provisions in Article 2, one must note that the paradigm breaks down at the moment of the creation of the principal-agent relationship. To create a principal-agent relationship under agency law, the consent of both parties is necessary.⁹⁹ In a principal-computer agent relationship, the concept of the computer consenting is absurd. Though the agency paradigm works well—after the moment of the creation of the relationship, that is—this blip in the theory is problematic. There is no way to circumnavigate it without the use of a presumption or a legal fiction of consent, at least until the technology of artificial intelligence has advanced significantly enough to warrant saying that a computer has consented (and then Article 2 issues will be the least of the law’s concerns).

B. Computers as Persons Under the Law

A more significant philosophical problem is the problem presented when there is a call to treat computers as persons under the law, even if the treatment is as limited as that proposed in this Note. The fundamental questions concerning artificial intelligence and its potential to rival human awareness and autonomy are significant, and no one is near ready to extend law applicable to persons so that it covers computers as well. Such an extension would inevitably lead to the devaluation of what it means to be human.

Two responses are available for those disturbed by the suggestion that agency law should be extended to include computers. The first is a literalist response. This Note has not argued that the law should treat computers as people; it has argued that the law should treat computers *as if* they were people. This response, relying as it does on a technicality, is not a satisfying response to so profound an objection. The following incomplete, yet expanded, response should address the concerns of those who object to even limited treatment of computers as persons under the law.

99. RESTATEMENT (SECOND) OF AGENCY § 1(1) (1958).

The proposals set forth in this Note are not based upon rules that treat people as people, but rather are based upon rules that treat people as objects or agents of another person. The principles of agency extended to computers in the agency paradigm are only those that deal with agents *as agents*, that is, as entities doing the will of a human principal. The aspects of agency law that deal with agents *as persons*, that is, rules setting out the duties of agent to principal or of principal to agent which involve consideration of other aspects of an agent than its capacity to do the bidding of another, have been intentionally omitted from the agency paradigm set forth in this Note. In a sense, then, this Note has not argued that laws treating human agents as humans should be extended to computers, and thus cannot be said to have applied to computers laws dealing with people. In the context of laws dealing solely with the functional aspects of agents, the only human who is significant is the principal who directs the agent's action. Because it has not been argued that computers can be principals, there should not be an insoluble philosophical difficulty in extending rudimentary agency principles to computers as argued above.

CONCLUSION

This Note has presented a case for reconceptualizing the proposed electronic contracting provisions to Article 2 of the U.C.C., using the proposed definition of "electronic agent" as the basis for this reconceptualization. When computers are given the capacity to communicate with each other based upon preprogrammed instructions, and when they possess the physical capability to execute agreements on shipments of goods without any human awareness or input into the agreements beyond the original programming of the computer's instructions, these computers serve the same function as similarly instructed human agents of a party and thus should be treated under the law identically to those human agents. This Note has applied this principle to the proposed electronic contracting provisions, and it has demonstrated that many provisions would be simplified, and would arrive at the same substantive results, as they do in their present formulation.

This Note has proposed actual revisions to some of the provisions in the July 12-19, 1996 draft of Article 2. Failing that, the principles set forth here may be helpful for commercial actors, their attorneys, and judges to conceptualize these electronic contracting provisions. The agency analogies might thus serve a purpose as commentary regarding the provisions. Finally, if the drafters eventually reject the current approach as set forth in the July 12-19, 1996 draft of Article 2 in favor of some other approach, the agency paradigm discussed here might serve as a guide to some of the considerations that the drafters must make.