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THE USE OF ELECTRONIC AGENTS QUESTIONED UNDER CONTRACTUAL LAW: SUGGESTED SOLUTIONS ON A EUROPEAN AND AMERICAN LEVEL

by Jean-Francois Lerouget

TABLE OF CONTENTS
I. INTRODUCTION ...................................... 404
II. SOME TECHNICAL CONSIDERATIONS .............. 405
III. OVERVIEW OF THE PROBLEMS RAISED BY THE USE OF ELECTRONIC AGENTS ...................... 406
IV. SOLUTIONS PROVIDED BY CONTRACTUAL LAW ... 407
   A. COMPUTERS AS AGENTS ................................ 408
   B. ARTIFICIAL INTELLIGENCE AND LEGAL PERSONHOOD... 409
   D. WORKING ON THE NOTION OF ASSENT AND THE MEETING OF THE MINDS .............................. 414
      1. Assent and meeting of the minds in the civil law countries ........................................... 414
      2. The US objective theory of assent ................. 416
   E. CONCLUSION ........................................ 417
V. THE UNIFORM COMPUTER INFORMATION TRANSACTIONS ACT ................................ 418
   A. HISTORIC .......................................... 418
   B. SCOPE OF APPLICATION OF THE PROVISIONS ........ 420
   C. ARTICLE BY ARTICLE ANALYSIS AND CRITICAL OBSERVATION ........................................ 421
      1. Definition ........................................ 421

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Electronic commerce is growing rapidly. It should contribute to economic growth, improve industry competitiveness, and stimulate investment and innovation. However, its fast development raises some concerns about its legal framework.

As an example of electronic commerce's ("e-commerce") multiple challenges, evolving business practice shows an increasing use of "electronic agents," in other words, of automated means playing a role in mediating interaction between users and web-based companies. These electronic agents, by concluding contracts without any human interaction, allow the reduction of transactional costs and broad comparative shopping. However, lawyers have expressed doubts about the validity of contracts transacted by such electronic agents.

Both the European Union and the United States authorities have expressed their wish to regulate e-commerce by attempting to adopt a clear legal framework that could serve as a model for international movements to unify laws applicable to intercontinental transactions.
Their approaches regarding electronic agents differ considerably however. The European Union does not propose any rule directly dealing with the question of the use of electronic agents. It only addresses the question in the commentary of one article, specifying that Member States may not prevent the use of certain electronic systems as intelligent electronic agents. The United States has adopted a set of articles dealing with the issue.

Our primary task in writing this article is to find which legal solution best answers the concerns that both common and civil laws may have when approaching the use of electronic agents. This article will primarily focus on the question of the validity of contracts concluded by electronic agents, although we are conscious that the use of electronic agents may raise other questions.

First, we will briefly try to deal with some technical considerations. Second, we will analysis the most important legal questions that the use of electronic agents raises. Third, and most importantly, we will focus on the question of how the actual law could offer answers by minor adaptations. Next, we will discuss the solution provided by the United States Uniform Computer Information Transactions Act ("UCITA") and suggest different approaches. Finally, we will analyze some practical implications of our approach.

II. SOME TECHNICAL CONSIDERATIONS

Electronic agents are intelligent software that search the Internet for some alternatives across a range of prices and valued-added options proposing an adequate transaction, while taking our demand into account. The agent will even conduct the entire negotiation based on designated criteria.

As such:

Unlike traditional software, software agents are personalized, continuously running and semi-autonomous. These qualities are conducive for optimizing the whole buying experience and revolutionizing commerce,
as we know it today. For example, a company which needs to order additional paper supplies could have agents monitoring the quantity and usage patterns of paper within the company, launching buying agents when supplies are becoming low. Those buying agents automatically collect information on vendors and products that may fit the needs of the company, evaluate the different offerings, make a decision on which merchants and products to pursue, negotiate the terms of transactions with these merchants and products and finally place orders and make automated payments.7

As the cited example shows, these intelligent software packages are entirely free to decide when transactions may occur and to negotiate the terms of the contract according to the way they were programmed. Technology can offer even more though, and as Allen and Widdison pointed out:

[Despite slow and halting progress in artificial intelligence (AI) research, computer systems are now emerging that can operate not just automatically but autonomously. Autonomous machines can learn through experience, modify the instructions in their own programs and even device new instructions. They can make decisions based on these self-modified or self-created instructions. These processes include making choices, forming intentions, reaching decisions and giving or withholding consent.8]

With these kinds of electronic agents, contracts can be formed without the parties using them having any knowledge of their existence and terms. This scenario, as the following analysis will demonstrate, offends the traditional concepts that lawyers are familiar with.

III. OVERVIEW OF THE PROBLEMS RAISED BY THE USE OF ELECTRONIC AGENTS

Either or both parties to a contract may use an electronic agent. As we will discover, such use concerns lawyers on at least two points:

First, because contracts concluded by electronic agents would not be valid and therefore would be unenforceable. Indeed, the fundamental conditions of contract formation would not be fulfilled. A computer does not have the capacity to express consent.9 Therefore the civil law “ex-

8. See Allen & Widdison, supra note 2, at 26-27.
change of consent" and common law "mutual assent" conditions would not be fulfilled.

Secondly, and this objection is directly linked to the first one, accepting the fact that a machine could autonomously be a party in a contract would generate liability problems in case of non-performance or error. For purposes of this article, our analysis will mainly focus on the validity issue, with some emphasis on the liability problem.

As Professor Poullet pointed out, the problem of the validity of contracts concluded through or with the assistance of electronic agents is not absolutely new. It has been dealt with in the context of Electronic Data Interchange (EDI) transactions. He reminds us, however, that the discrepancies between the contractual situations created in the context of EDI transactions and those currently envisaged under the concept of contracts concluded through electronic agent are quite important. As a matter of fact, EDI transactions were often taking place within closed user groups between well-identified parties. In such a context, it is quite easy for the parties to conclude a framework contract with a provision asserting that all the transactions effected on the basis of the contract will be concluded validly by the sole use of electronic means and might not be disavowed by the parties for this reason. With the Internet, however, such a solution is difficult.

Indeed, "in case of contracts concluded in an open environment with people not necessarily previously identified or identifiable, such a solution is more difficult. . . . [s]o the question as to know whether the validity of a contract concluded through electronic agent might exist independently of any global contract is still to be debated."11

As many different analyses have been conducted on this topic, the next section will explore the majority of them by providing some critical analysis.

IV. SOLUTIONS PROVIDED BY CONTRACTUAL LAW

The first reflex lawyers have when encountering new areas of law is to begin their analysis by looking into general principles, using and adapting them to fit and offer a proper answer to legal concerns. This section will attempt to deal with general contract principles; both used in civil and common law and analyze how they could offer a solution to legalize the use of electronic agents. A first point will be devoted to the

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11. Id. at 6.
theory of agency. The second will deal with the question of how far the
theory of artificial intelligence and legal personhood may provide some
help to reinforce the agency theory. The third point will focus on the civil
law theory of appearance. Finally, in the last section, we will work on
the notion of consent.

A. COMPUTERS AS AGENTS

When approaching the notion of electronic agents, lawyers are im-
mediately tempted to make a parallelism with the theory of agency. Af-
ter all, computers only replace what human agents are normally doing.

According to Fischer, the comparison seems obvious:
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 with-
out 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.12

The evidence and the apparent simplicity of his theory almost lead
us to forget the complexity of the question. Still, his reasoning fails to
convince at different levels.

Fisher reasonably recognizes that according to the Restatement of
Agency,13 “to create a principal-agent relationship under agency law, the
consent of both parties is necessary. . . . In a principal-computer-agent
relationship, the concept of the computer consenting is absurd.”14 The
same objection would be raised under European Union law.15 Fisher
therefore must resort obliged to a presumption or a legal fiction of con-
sent to supply the deficiency of agency law. Using a presumption of con-
sent, one can wonder if the theory of agency still presents any interest.
In addition, such a theory is particularly troublesome since it raises an-
other problem when used. Indeed, under agency law, the agent may be
liable for his acts. Since computers are not considered as capable under

12. John P. Fisher, Computers as Agents: A Proposed Approach to Revised U.C.C. Ar-
icle 2, 72 Ind. L. J. 545, 570 (1997).
14. Fisher, supra note 12, at 569. But see Jeff C. Dodd & James A. Hernandez, Con-
tracting in Cyberspace, 1998 Computer L. R. & Tech. J. 1, 5. Those authors seem to hesi-
tate: “It is not clear that agency law, in the absence of an agreement or statute would
recognize the power of computers to bind, though they may be programmed to take ac-
tions.” Id.
Mandat, COLLECTION REPERTOIRE NOTARIAL § 2 (1999) (stating that the liberty of the prin-
cipal does not allow him to designate a person without any capacity of discernment).
the law, they may not be considered liable for their acts. Fisher, aware of this argument, simply states that "assuming that the only parts of agency are relevant to the question of computer agents, are the parts relating 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." This second threat to the agency theory leaves one skeptical.

Finally, it seems that the theory of agency does not fully resolve the question of the legitimacy of contracts entered into by electronic agents. Fisher does not provide any solution to the problem of liability. Moreover, the validity of such contracts would only be recognized under the fiction that computers would have the capacity to consent to a transaction. In such a case does the parallelism with agency still make any sense? On the contrary, it seems that there should be simpler ways to reach the same result.

Fisher's theory would be of interest only if one recognizes the same rights in a computer as those that are conferred to a human person or a legal entity. Is it however realistic? The next section will try to provide some attempt of an answer.

B. ARTIFICIAL INTELLIGENCE AND LEGAL PERSONHOOD

Could contract law accommodate the idea of conferring legal personality to a computer? Such an issue is complex. We will hereafter confine our analysis to the pros and cons of the recognition of such personality for computer.17

The advocates of conferring legal personality to the computer estimate that when a computer has a social capacity for autonomous actions, there is no reason to treat it differently than a human being. So, according to Solum, "a system which achieves self-consciousness is morally entitled to be treated as a legal person and the fact that self-consciousness does not emerge from biological processes should not disqualify it from legal personality."18

Wein argues that "unattended intelligent artifacts should be subject to liability, independent of human masters, on consideration of universal concepts of accountability underlying legal systems throughout history."19 According to him, one should be allowed to directly sue a machine because "sometimes the (human) decision to program or design

17. See Allen & Widdison supra note 2, at 35.
a certain way may be non-negligent, while the (computer) decision to behave a certain way in an individual situation would be considered negligent if the computer could be sued." As the quoted sentence shows, Wein clearly pleads for the recognition of machines to be the bearers of duties and possessors of rights, even if they could insulate the human principal from liability.

Supposing that this solution is philosophically admissible and that a clear notion of computers' negligence comes to light, it could resolve the problem that the use of electronic agents generate regarding their capacity to express consent. Indeed, if one applies the theory of agency, it would no longer be necessary to entertain the fiction that computers have the capacity to consent. Moreover, the problem of liability would be solved since the computer could be held "personally" liable for any mistake or negligence. This approach, however, raises several objections.

First, let us remember our original proposition to look for a solution that could satisfy both common law and civil law systems and serve as a model for an international movement to unify law in this area. It should therefore be pointed out that, for numerous countries, the existence of a "patrimony," in other words, capital or a certain amount of assets is essential to grant the legal personality. Does it make sense to attribute a patrimony to a computer?

As far as we know, this important question has never been given a proper answer. This is particularly regrettable since it affects the liability system in itself. What is the point in declaring a computer liable if

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20. Id. at 114.
22. See in the same meaning, Vincent Gautrais, L'encadrement juridique du contrat électronique international, Thèse, Université de Montréal, at 228 (1998). The author clearly states:

... il ne sert à rien de donner cette capacité juridique à une machine dans la mesure où un lien de responsabilité, pour le moins, doit être tracé entre la machine et la personne qui est derrière. Ainsi, en cas d'erreur et effectué par une machine juridiquement capable et d'un dommage consécutif, il faut de toutes les manières "attribuer" le lien de causalité à la personne physique ou morale responsable de l'opération."
it lacks personal assets? It does not seem to be a major problem for Solum, at least in the context of civil liability. As a solution to this problem the author suggests that the artificial intelligence (AI) might purchase insurance. “If the AI could insure, at a reasonable cost, against the risk that it would be found liable for breaching the duty to exercise reasonable care, against the risk that it would be found liable for breaching the duty to exercise reasonable care, then functionally the AI would be able to assume both the duty and the corresponding liability.”

Are, however, insurance companies ready to insure such kind of risks? What would be the costs of such insurance? In addition to such financial issues, what would be the fate of the risks the companies refuse to cover? What will occur if the “intelligent computer” negligently forgets to pay the monthly fees to the company? The numerous questions raised by this assertion clearly demonstrates that Solum’s suggestion is not realistic. Finally, one can further object that, for computers to be treated as legal persons, a system of registration will have to be developed. As Allen and Widdison pointed out, “ultimately, it is possible that the costs of a system of registration would mean that the conferral of personality would prove too expensive to justify itself.”

The idea to grant computers with legal personality may have great appeal for some persons, but as this analysis demonstrates, the above non-exclusive objections outweigh any advantages this model may provide.

C. THE THEORY OF THE APPEARANCE OR THE LEGITIMATE RELIANCE: A SOLUTION FOR THE CIVIL LAW?

In his attempt to find a solution to allow conclusion of contracts by computers, Professor Poulet has expressed the opinion that “the Code civil theory of the appearance, considered as a source of obligations, might solve the problem taking into account the needed balances between the interests of the user of these technologies and the contracting

Id.

23. Lawrence B. Solum, Legal personhood for Artificial Intelligences, supra note 18, at 1245.
24. T. Allen & R. Widdison, supra note 2, at 42.
25. Contra, Eric A. Caprioli, supra note 21, at 1091. The author seems to advocate the utility to think about the recognition of a new kind of legal personhood: “En définitive, les systèmes d’information sont des instruments de médiation entre les hommes; le consentement, quand bien même serait-il censé être exprimé par une machine sera toujours attribué à une personne. Afin d’établir une ouverture sur des futures perspectives d’évolutions juridiques, il resterait à envisager un nouveau sujet de droit, siégeant à côté des personnes morales: à savoir des êtres virtuels, sans doutes dotés d’une intelligence artificielle et à qui la loi reconnaîtrait une certaine personnalité juridique.” The author, however, does not give us any track of reflection regarding how such a new subject of rights could be legally organized.
The theory of the appearance or the legitimate reliance advocates as an autonomous source of binding obligations the creation vis-à-vis third parties of a legitimate faith in an apparent situation. This theory may be justified by a consideration of equity and legal security taking into account the position of the victim of the semblance.

Four conditions must be fulfilled for the appearance being a source of obligation:

1. The apparent situation must not correspond with the real situation.
2. The reliance by the third party that the appearance corresponds to the reality must be legitimate. The condition will only be considered as fulfilled if the third party acts in good faith, which means that he must not be aware of the real situation. Once he knows the real situation, he is no longer authorized to invoke the theory of appearance. The legitimate exigency means that the third party must reasonably not know the real situation. The third party has a reasonable duty to inform himself. The extent of such a duty will be determined according to the factual conditions.
3. The creation of the false appearance must be attributable to the party against whom the theory is invoked. This supposes that the party could control the functioning of the electronic agent and avoid any mistake.
4. There must be damage to the third party if no effect is given to the apparent situation.

This theory offers civil law countries which recognize this theory:

proper ground to enforce a contract concluded through the use of an electronic agent, although such contract would not be considered legally valid.

Let us consider an example to demonstrate the point. A company using an electronic agent has concluded a contract with a consumer. The former created the appearance that the agent properly represented it or created the appearance that, by concluding a contract through the computer; the latter directly concluded the contract with the company using the agent. At this stage of the technology's development, the consumer could reasonably claim that he ignored the fact that he was concluding a contract with an electronic agent, and that he could not regard such contract as invalid. In such a case, one could argue that the company is fully liable for creating such appearance and that any contract should therefore be enforceable against it.

The most attractive aspect of this theory is that it avoids any systematic solution, "letting a certain margin of maneuver to the judge who will have to take into consideration exceptional situations where the faith of the contracting party is not legitimate or the creation of the false appearance is not the fact of the user of the electronic agent." It is doubtful, however, that the theory of appearance could, in the future, serve as a general ground to enforce contracts concluded by means of electronic agents.

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The practical results are similar to the theory of reliance: a party may be bound beyond his will, if it is due to him that another, for good reason, believes he has given his consent. In this case there is a valid contract, in contrast to the German solution which admits the annulment of the contract followed by an action of the relying party for its 'negatives Vertragsinteresse.' . It follows from the principle of consensualism that, as a rule, the consent of the parties—or in a given case, the reliance as to the existence of consent by the other party—suffices to establish a valid contract.

Id. Note that the provisions on good faith may stop a party from asserting those above mentioned rights against the other party. For a limited application of the theory in the German agency law, see B.S. Markesinis, The German Law of Obligations, Clarendon Press Oxford, p. 75 (1997).

30. On this point, see Perritt “in simplest terms, the law of agency binds a principal to the acts of an agent within the agent's actual or apparent authority. If a principal mistakenly gives an agent actual authority, the principal nevertheless is bound by the agent's acts. So also, if a principal makes a mistake in programming an electronic contracting computer system, the principal actually has authorized the computerized agent and is bound by its commitments. This conclusion is reinforced by apparent authority analysis... If a principal connects his computer to an electronic contracting system (or in an open architecture adheres to electronic contracting protocols), he is in effect saying to the other participants in that system, "here is my authorized agent". Then, if the agent enters into a Transactionss that is not subjectively authorized by the principal, the principal is nevertheless bound because he created a situation in which it was reasonable for the others to believe the agent had authority." Henry H. Perritt, JR., Law and the information super-highway, Wiley Law Publications, at 384 and 385 (1996).

First, the scope of the theory is actually limited in some countries. In Belgium, for example, there is no general theory for the protection of the legitimate trust and the theory of appearance would actually be limited to the legitimate trust of third parties. In the case of agency, Belgian law accepts that a principal may be liable for the acts of a pseudo-agent when a third party could reasonably believe that there was a valid agency contract. The theory would not be extended to the relation of contractual parties, however, and it seems that the tendency of the case law is to reject such an extension. In the case of contracts formed by electronic agents, there are only two parties involved and a Belgian court may refuse to apply the theory of agency.

Assuming that they would, this theory would not supply a feasible solution once the use of electronic agents is generalized. Indeed, the theory requires that the party wishing to apply the theory to have acted in good faith. This means that he should reasonably ignore the real situation. Once the use of electronic agents becomes generalized, would a party still be able to argue he ignored the fact that he was contracting with an electronic agent? Finally, one can wonder what will occur when transactions occur between two electronic agents. In such a case, the theory may hardly be applied since both parties have created an appearance.

We are forced to conclude that the theory of appearance, assuming that a court would extend it to the source of obligations between contractual parties, would only offer a proper solution for a limited period of time and only when one party uses the electronic agent and has the capacity to exercise control of such an agent. This theory may be better considered as a restrictive application of an objective view of contract formation studied in the next section.

D. Working on the Notion of Assent and the Meeting of the Minds

1. Assent and Meeting of the Minds in the Civil Law Countries

In civil law countries, there is only a contract when the parties intend to create legal relations by their mutual assent. To determine whether there was a valid contract, judges will verify whether the parties subjectively intended to be bound by the contract.

33. Id. at 694. Compare with the United States where the apparent theory in Agency Law is based upon the fundamental theory of contracts, that is; where one manifests to another that he is willing to contract upon specific terms which the other accepts, there is a contract binding upon both parties (see Comment, Restatement of the Law, Second, Agency §8 (1958). The US theory of contract will be discussed in our next section.
Another solution to solve the problem of the validity of electronic agents in civil law countries may therefore consist in reconsidering the voluntary perception ("la perception volontariste") of the meeting of minds. This has been suggested by Gautrais in order to solve the question of the automation of the contracts in the commerce made by EDI transactions.\footnote{V. Gautrais, supra note 22, at 242.}

According to Gautrais, the EDI contract is one situation that forces reevaluation of the concept of the meeting of minds and its legal effects in order to avoid the gap between theory and practice, guiding principles and reality.\footnote{Id. at 230.} He recommends an utilitarian conception of the meeting of minds, detached of its psychological and subjective definitions. Quoting Mazeaud and Tancelin, he estimated that the reclassification of the will on a simple, technical and utilitarian norm and not as a foundation of the contract demonstrates that will is not absolute. Such reclassification would generate an "objectivation" of the assent.\footnote{Id. at 232.}

The author gives further examples in order to demonstrate that the relational characteristic of the EDI's agreements show us that we can abstain from the true will of the parties and focus more on the parties' respective situations.

A first example is the presumption that the parties create a binding relation when certain indications, such as a continuous and permanent business relationship, are shown. A second illustration is when a party is bound by the sales terms of another party when he had the possibility to read them, but failed to do so. In such a case the party is bound for what he does rather than for what he intends. Finally, Gautrais reminds the reader that according to contract law, silence may be considered as an acceptance under certain circumstances and customs.\footnote{Id. at 236.}

Gautrais' theory is attractive. The examples quoted are not only valid for EDI transactions, but correspond to general tendency in contract law. The above principles of explained protection of the legitimate trust of third parties by the theory of appearance may serve as another manifestation of the fact that assent is sometimes considered as more the consequence of a state of mind than of will.

In the United States, the objective theory of assent became ascendant by the end of the nineteenth century and the courts universally accept it today.\footnote{FARNSWORTH ON CONTRACTS § 3.6 (2d ed. 1998).} The United States has, however, adopted a set of rules dealing with the problem of the use of electronic agents. We will attempt to ascertain if that means that the objective theory of assent does not
properly address the question of validity of the use of electronic agents. On the other hand, if it would be possible to further argue and recommend that civil law countries should adopt the objective theory of assent in order to solve the question of contracts concluded automatically.

2. The U.S. Objective Theory of Assent

According to the objectivists, a contract is an obligation attached by the mere force of law to certain acts of the parties, usually words, which ordinarily accompany and represent a known intent. A party's subjective assent is not necessary to make a contract. The manifestation of intention to agree, judged according to a standard of reasonableness, is sufficient. The real but unexpressed state of the first party's mind is irrelevant. It is enough that the other party had reason to believe that the first party intended to agree.

So, "it is true that as a general principle, the inquiry will focus not on the question of whether the subjective minds of the parties have met, but on whether their outward expression of assent is sufficient to form a contract." According to this theory, does the objection that contracts concluded by electronic agents would not be valid still make sense?

For Allen and Widdison, it is clear that "neither American nor English law, as they currently stand, would confer legal status on all computer-generated agreements." For both authors, allowing computer-generated agreements would make an extension to contract doctrine. Indeed, when using electronic agents:

The parties not only have no knowledge of the precise terms of the agreement, but they often have no knowledge that an agreement is being made. To add yet another exception to the rule that the existence of agreement is to be determined by analyzing offer and acceptance analysis must raise the issue of whether the rule itself can and should continue to stand. Equally, the prospect that the impact of this further exception to the traditional analysis of agreement will steadily grow in importance until it completely overshadows the rule itself must cause us to reflect that me may be departing too far from the traditional 'classical' concept of contract as being, in essence, the meeting of human minds albeit from an objective point of view.

40. Farnsworth on contracts, supra note 38, § 3.5.
43. T. Allen & R. Widdison, supra, note 2, at 52.
44. Id. at 45.
The authors are convinced that the traditional contractual theory requires that the enforceability of the contract would depend upon whether the computer was autonomous. If they are correct, one should conclude that current contractual theory does not allow the use of all kinds of electronic agents.

However, the proponents of this position may well be trapped in a subjectivist approach of the meeting of minds. Indeed, they finally only accept that an electronic agent conclude a contract when the performances of the computer are limited, when it acts only in accordance with the person who has programmed it and when the terms of the contracts are known in advance by the programmer. It seems therefore that for programmers, electronic agents may be used only to prolong the will of the person who is using the program. The subjectivists would allow exactly the same limited use through the theory of the preprogrammed will. 45

The objective theory, however, permits us to go further, since, notably, a party's mental assent is not necessary to complete the transaction and create legal obligations. Indeed, the above analysis shows that many questions remained unanswered. For example, it would conform with the objective theory to consider that the mere offering to a company of the possibility to contract through the use of its electronic agent is a sufficient outward expression of assent to form a contract? Is the fact that the company does not know the content and the moment of the contract formation relevant according to the objective theory? One answer would be to consider that the assent may be expressed in any way including via an electronic agent and the fact that the contractual theory does not require that a party must be aware of the exact time of the formation and content of the contract.

E. Conclusion

As we have seen, many authors have attempted to legally justify the use of electronic agents. It seems that the only way to allow their use consists in relying on the objective theory of contracts. This requires an evolution for the civil law countries since they still implement the subjective theory. For the United States and the United Kingdom, this approach requires a liberal interpretation of the objective doctrine, and it remains uncertain how courts will react when confronted with the problem of enforcing a contract concluded by electronic agents.

For these reasons, the adoption of a law dealing with the question might be highly recommendable to avoid uncertainty, particularly when

one of the hottest issues with the Internet is security. We therefore reject the European Union approach. Such approach, as already explained, does not indeed foresee any specific provisions for the use of electronic agent and only deals with the question of electronic agents in the commentary of one article. Therefore, it does not provide the member states with any common guidelines to follow when the law does not offer a firm solution.

What could be a clear regulatory solution to offer security to the users of the Internet? Our next section will explore and critique the U.S. attempt to deal with the question.

V. THE UNIFORM COMPUTER INFORMATION TRANSACTIONS ACT

On July 24, 1999, the National Conference of Commissioners on the Uniform State Laws (NCCUSL), an organization whose purpose is to prepare statutes for enactment uniformly among the United States, passed the Uniform Computer Information Transactions Act (UCITA). UCITA is intended to, among other things, regulate e-commerce. UCITA deals with the use of electronic agents on different sections.

After a brief overview of some historical considerations regarding the adoption of UCITA and an analysis of its scope of application, we will analyze its most relevant sections.

A. HISTORICAL BACKGROUND

UCITA is the result of an effort starting in 1988 the purpose of which was to revise article 2 of the Uniform Commercial Code in light of technology-driven changes in commercial practices. In 1996, the NCCUSL established a committee (the Drafting Committee on Electronic Communications in Contractual Transactions, later renamed the Drafting Committee on the Uniform Electronic Transactions Act) charged to draft, in a new Article 2B in the Uniform Commercial Code (UCC), necessary or desirable provisions to support transactions utilizing existing and future
ELECTRONIC AGENTS QUESTIONED

Electronic or computerized technologies. The project to draft legal rules in this area was originally considered necessary because courts looking for guidance to resolve disputes in computer software transactions often applied by analogy the rules of Article 2 of the UCC even though those rules might appear not relevant to the intangible rights to information. As Professor O'Rourke pointed out:

The sheer volume of commentary criticizing and defending Article 2B illustrates its importance. It is the first effort to codify the law on transactions in information. As such, it is likely to provide a model not only for other countries individually, but also for international movements to unify laws applicable to cross-border transactions.

The draft of Article 2B was thus eagerly awaited. But at the end of a long drafting process it became apparent that "transactions in intangible information are quite different in fact from those for tangible goods, and they cannot be appropriately integrated into the UCC Articles 2 and 2A transactional framework which emphasizes transactions in goods". Therefore the American Law Institute (ALI) and NCCUSL announced on April 7, 1999 that Article 2B would no longer be pursued as a new UCC Article to cover computer information transactions. Instead, NCCUSL, without the co-sponsorship of the ALI, has renamed the proposed statute UCITA.

The idea of passing such a model law to regulate electronic commerce does, however, not arouse unanimity and has a long history of controversy and objections. The main critics to former Article 2B argued that the project was premature in light of rapidly changing technology and business practices.

Despite those critics, members of NCCUSL voted on UCITA at their annual meeting in Denver on July 24, 1999. The proposal is now in the

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50. The drafts of all projects and comments of the National Commissioners on the Uniform State Laws may be found at the Conference's official following web site: <http://www.law.upenn.edu/bll/ule/ule.htm> (last visited, November 20, 1999).
53. Fred H. Miller and Carlyle C. Ring, supra note 51.
56. In a state-by-state vote, 43 states approved UCITA, six opposed to it, two abstained, and two were not present at the voting. See Jack McCarthy, Nancy Weil and Jessica Davis, Users lose under new law; UCITA software legislation sent to states, InfoWorld, August 2, 1999.
stage of going to the various state legislatures for approval.57

B. SCOPE OF APPLICATION OF THE PROVISIONS

Section 103 of UCITA provides the scope of application of the Act and its exclusions. The Act applies to computer information transactions. It also deals with the question of “mixed” transactions (transactions involving computer information and other subject matter). “Computer information transactions” are agreements that deal with the creation, modification, access to, or distribution of computer information, that is information that is in a form directly capable of being processed by, or obtained from, a computer and any copy, associated documentation, or packaging.58 The Act covers thus, for example, agreements involving access to or information from a computer system.59 It also applies to contracts to develop or create software and other computer information, such as a computer database. However, "the mere fact that communications about a transactions are sent or recorded in digital form does not place it within the scope of this Act".60

To illustrate the exact scope of the Act, the comments provide the example of a contract for airplane transportation. Such a contract is not considered a computer information transaction, even though the ticket is in digital form, since the subject matter is not the computer information, but the service/air transportation from one location to another.61 In the same way, sales of goods or services contracts concluded through the Internet will not be within the scope of the Act. The electronic agents' provisions of the Act will therefore not regulate the vast majority of contracts concluded by electronic agents. Such distinctions between the kinds of operations concluded by the way of an electronic agent are open to criticism. This further raises the question of the legal validity of transactions not falling within the scope of the Act. One can wonder if


58. Section 102 (a) (10) and section 102 (a) (11).


60. Id. at 12.

61. Id. at 12.
the courts will reason by analogy and apply those rules. The following study of the provisions will try to deal with the question in order to determine if such reasoning is recommendable.

C. Article by Article Analysis and Critical Observation

1. Definition

Section 102 (28) of UCITA defines "electronic agent" as "a computer program or electronic or other automated means used independently to initiate an action or respond to electronic messages or performances without review or action by an individual at the time of the action, response or performance."\(^{62}\)

The comments of this provision state that: [The agent must act independently in a manner relevant to creation or performance of a contract. . . . [T]he automated system must have been selected, programmed or otherwise used for that purpose by the person that is bound by its operations. The legal relationship between the person and the automated agent is not fully equivalent to common law agency, but takes into account that the "agent" is not human. Parties who adopt use of electronic agents are ordinarily bound by the results of their operation.\(^{63}\)

The comments speak for themselves and outline the legal regime of the Act. The authors of UCITA, conscious that the law of agency cannot be applied, try to construct something similar by creating an obligatory link between the machine and the person for whom the machine acts.\(^{64}\)

The wish to confer a link between the machine and a party is comprehensible. After all, as Nimmer (one of the UCITA’s Reporters) has pointed out, referring to Section 107 of UCITA, “if a party creates a situation in which an electronic agent is to act on its behalf, then a party is bound by the actions of the ‘agents.’”\(^{65}\)

Yet, the reference to the law of agency is clumsy. As the first part of our analysis shows, a machine cannot be an agent since the machine does not have the capacity to contract and it does not make sense to confer it such capacity.\(^{66}\)

This is why Gautrais, commenting on the UCC provisions of Article 2B\(^{67}\) on electronic agents, reminds us that the obligatory link (“lien d’attribution”) cannot work because it brings a machine, which legally does not have any capacity to

\(^{62}\). U.C.I.T.A. § 102(28).

\(^{63}\). U.C.I.T.A. § 102(28), Reporter’s Note.


\(^{66}\). See part IV, section A and B.

\(^{67}\). Actually incorporated in the U.C.I.T.A. §§ 102 (28) and 107.
contract, into the matter. Thoumyre, however, objects to the view that if a party agrees with the remarks concerning agency theory, then it must moderate the assertion with regard to the liability derived from ownership. Indeed, he said that in tort law a party may be liable for damages generated by an object. Therefore, the law already allows the possibility of an obligatory link between a machine and a person. In our opinion, however, it is dangerous to introduce tort principles into contractual issues. The issue we are dealing with is the validity of a contract and it seems inappropriate to solve it by calling upon tort principles.

2. Legal Recognition of Electronic Record and Authentication; Use of Electronic Agents

Section 107(d) of UCITA states that “a person that uses its own electronic agent for authentication, performance, or agreement, including manifestation of assent, is bound by the operations of the electronic agent, even if no individual was aware of or reviewed the agent’s operations or the results of the operations.”

The preceding sub-section already insisted on the problem created by the obligatory link. Section 107 does therefore not give rise to other comments. Before turning to the analysis of another article, let us mention that this section clearly state that contracts can be concluded and be perfectly valid even when the individual is unaware of the involvement of the electronic agent. This resolves any legal uncertainties regarding future use of autonomous electronic agents.

3. Manifesting Assent; Opportunity to Review

a. Rules

Section 112 (b) of UCITA provides that:

[An electronic agent manifests assent to a record or term if, after having an opportunity to review, the electronic agent: (1) authenticates the record; or (2) engages in operations that the circumstances indicate constitute acceptance. Conduct or operations manifesting assent may be shown in any manner, including a showing that a person or an electronic agent obtained or used the information or informational rights and that a procedure existed by which a person or an electronic agent must have engaged in the conduct or operations in order to do so. An electronic agent has an opportunity to review a record or term only if the record or term is made available in manner that would enable a reasonably configured agent to react to the record or term.”

68. Gautrais, supra note 21, at 240 and 241.
69. Thoumyre, supra note 64, at 13.
70. Id.
71. U.C.I.T.A. § 107(d)
b. Critical Observations

The first remark that comes to mind when reading this section concerns the ability of a machine to manifest assent separately from the person who programmed it. Aware of such objection, the authors of UCITA indicate in their comments that the important question is whether, in the overall circumstances, the electronic operations indicate assent.\textsuperscript{72} The proof of the acceptance may be shown in any manner. This is nothing more than an application of the objective theory. On their third point, the official comments of Section 112 insist that the traditional contract principle of objective assent is “especially important in electronic commerce where many transactions do not involve contact between individuals. Parties on both sides must rely on objective acts indicating acceptance . . . Doctrine of mistake as well as the law relating to fraud and duress apply in appropriate cases.”\textsuperscript{73} One therefore expresses doubt about the utility of creating a distinction between assent by conduct and assent by electronic agents. Speaking of assent by electronic agents is a heresy. Part IV demonstrated that a machine has no capacity and the comments themselves recognize that “when dealing with electronic agents, assent cannot be based on knowledge or reason to know since program are capable of neither . . . .”\textsuperscript{74} The machine does not create the overall circumstances that generate an assent, but rather the person who uses the machine.

Assent by conduct is described as an assent that:

\begin{quote}
(O)curs if a person acts (or fails to act) having reason to know its behavior will be viewed by the other party as indicating assent . . . assent . . . focuses on objective factors, including whether there was an act or a failure to act voluntary engaged in with reason to know that inference of assent will be drawn. Actions objectively indicating assent are effective even though the actor may subjectively intend otherwise.\textsuperscript{75}
\end{quote}

It seems logical and certainly simpler to consider that a person can express his assent by conduct when using an electronic agent.

The distinction between assent by conduct and assent by an electronic agent becomes even more absurd when we are confronted with the

\begin{itemize}
\item\textsuperscript{72} It is clear from the comments of this article. . . . “when dealing with electronic agent assent, that assent can not be based on knowledge or reason to know of the principal since programs are capable of neither and since the remote, automated in nature of the interaction may preclude either individual party from any awareness.” [Comments to the Uniform Computer Information Transactionssss Act, \textit{supra} note 56, at 28.] For a general comment of this provision, see Holly K. Towle, \textit{On-line selected issues in contracts}, 557 PLI/Pat, 715, at 725 (1999).
\item\textsuperscript{73} \textit{Id.,} at 28.
\item\textsuperscript{74} \textit{Id.} at 28.
\item\textsuperscript{75} Comments to the Uniform Computer Information Transactions Act, \textit{supra} note 59, at 28.
\end{itemize}
question of when the electronic agent has had an opportunity to review the records. Indeed, for both electronic agents and individuals the Act says that manifesting assent requires an opportunity to review.

Section 112 (e) (2) of UCITA states that "an electronic agent has an opportunity to review a record or term only if the record or term is made available in manner that would enable a reasonably configured electronic agent to react to the record or term." Therefore, an assent only exists if the electronic agent was able to react to the record. But no one knows what a "reasonably configured electronic agent" is. Even for a software practitioner like Davis, it is unclear "what is meant by a manner in which the agent could not react. . . . The abilities of a typical software agent to understand and react will be limited more by the effort expended by its creator than the state of the art."

All of this demonstrates that a much more satisfactory solution to allow the use of electronic agents in the process of making contracts would be to consider that a person's assent to a contract is presumed when using an electronic agent, even though he may subjectively intend otherwise or does not have a particular knowledge of the moment and the exact content of the contract. If necessary, some provision could be added to ensure the right application of consumer law and the law that applies in case of mistake.

4. Formation in General

Section 202 (a) of UCITA states that "a contract may be formed in any manner sufficient to show agreement, including offer and acceptance or conduct of both parties or operations of electronic agents which recognize the existence of a contract." This section does not raise comments other than those already provided in the other subsections of our analysis. It illustrates the objective approach of the contract and the fact that the authors of the Act attempt to associate electronic agents as human agents.

5. Offer and Acceptance; Electronic Agents

This section deals with contracts formed by the interaction between electronic agents, or between an individual (acting on the individual's
ELECTRONIC AGENTS QUESTIONED

own behalf or for another person such as a company) and an electronic agent.

It follows the philosophy of the other articles. Most of the provisions, especially those concerning electronic mistake and fraud, appear useless if one adopts the view that electronic agents are only used by a person as a way to express his assent. In such a case, existing contract principles may apply without any need of further legislation.

D. CONCLUSION

The brief overview of UCITA raises some doubts about how the question of electronic agents has been addressed.

First, the limited scope of application of UCITA is a problem. Most of the transactions involving an electronic agent will fall outside its scope of application. Regarding the complexity of the regime and its various critics, it remains uncertain and ill-advised that courts follow the UCITA approach. This could lead to a dual legal regime, which is always subject to criticism.

Second, we are troubled by UCITA's provisions, particularly their uselessness, ambiguity and complexity. The comparison with agency law is clumsy and there is no need to distinguish between assent by conduct and assent by electronic agents. The objective theory of assent could reach the same result. Assuming that the scope of UCITA will not be enlarged, courts could find the objective theory a better source for reasoning by analogy. The only section that appears relevant is Section 107. This section, as we have seen, dispels any uncertainties that may remain regarding the conclusion of contracts by autonomous agents.

VI. SOME LEGISLATIVE SUGGESTIONS

Criticism is an easy way out and should not be made without suggesting any other proposals.

At the end of its Section IV, this article expressed the opinion that there was probably a need for legislation to clarify the legal use of electronic agents. It later expressly rejected the American approach. The reader is now faced with the ticklish question of what would be a good alternative rule. The present study has shown that for both civil law and common law countries, an objective approach to the contract's formation might help. A solution should be found by working on this concept.

In assuming responsibility for proposing recommendations as to the content of an act that could be adopted in different law systems, the following example comes to mind:

81. Contra, Jeff C. Dodd and James A. Hernandez, supra note 14, at 8: "We certainly do not criticize article 2B's approach to electronic agents".
"In a contract, one or both party can manifest his assent by using a computer program or other automated means. In such a case, the contract is valid even if such party was not aware or has not reviewed the automated operation or the result of such operation."

Such definition should avoid systematic solution and let judges a certain margin of maneuver.

VII. PRACTICAL IMPLICATIONS

A. INTRODUCTION

At the end of the preceding section of this analysis, we recommended an approach to validate a contract concluded by means of an electronic agent. Our solution relies upon the objective approach of the contract formation.

This new way to conclude contracts should, however, not obscure basic problems that may arise when electronic agents are widely used especially by consumers.

On the one hand, buyers will often want to set aside contracts simply because they made a bad deal. They will attempt to invoke doctrines like mistake and unconscionability to serve their personal ends. Alternatively, some unscrupulous sellers may take advantage of the widespread use of electronic agents and the limits of the technology to fashion contracts offering no warranties or being disadvantageous to the unknowledgeable consumer. Finally, electronic agents may not work properly at all.

Legally, this may generate confusion. Does the actual law regime offer prompt solutions to these two basic problems of mistake and unconscionability? How could it be improved? This is the focus of the following discussion.

B. MISTAKE

The use of electronic agents may enhance the creation of mistake in the contracts. Let us show by means of an example what the problems may be and how to solve them.

1. Presentation of the Case

A retail bookstore wants to purchase 100 copies of a new book. The owner of the store dispatches an electronic agent with instructions to buy the books from the wholesaler who offers the best price. The electronic agent concludes a contract with the Jones Wholesale Book Company to buy 100 copies of the book for $1,000. Later, the bookstore owner discovers that the electronic agent made a mistake: the books were available from the Smith Wholesale Book Company for only $500. The owner
seeks to avoid the contract with Jones. Should he be allowed to do so?82

For the purpose of our analysis of the case we will successively consider that the mistake may be due to two different reasons:

The mistake was due to a flaw in the original programming of the electronic agent. For example, the program would not look at sellers whose names begin with "S".

The mistake was due to a system failure that was the fault of neither the bookstore owner nor any wholesaler. For example, just as the agent was looking at the prices at the Smith company, a power surge hampered the agent's functioning.

2. Proposed Solutions According to the Common and Civil Laws

a. Mistake Due to the Original Programming

The law is currently not without answers regarding mistakes generated by the negligence of a third party. An analogy may be drawn with a misunderstanding as to the terms of an agreement caused by errors in the transmission of a telegram when the terms of the offer have changed because the offer has not properly handled by the telegraph clerk.83 In such a case, the validity of the contract will depend upon the importance of the mistake. If the offeree knows or has any reason to know that a change in the offer has occurred, he has no power to bind the offeror by an acceptance of the offer as delivered.84 So the price at which goods are offered for sale may be so greatly reduced that a reasonable man would suspect an error. The offeree is not permitted to "snap up" such an offer.85

Similarly, if the electronic agent of a buyer agrees to purchase a book for $4,000 instead of $40, the mistake should be evident to a reasonable person. In such a case, a common law court should allow the buyer to avoid the contract. Otherwise, the consequences of the mistake would

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82. Price errors are maybe not the best examples of problems that may arise, since a company, in order to keep the client, may be willing to settle the problems (see for example the current attitude of sellers- such as Amazon- on the Web; Bob Tedeschi, On the Web Pricing errors can be costly in more ways than one, N.Y. Times, December 13, 1999, at C1. The example quoted is to facilitate the understanding of the thesis. There are many types of errors that can be imagined. . . . To provide another example, imagine that you configured the electronic agent as to only deal with web site owners that respect your privacy. . . . What happens if your electronic agent communicates your data to a web site that does not and excludes such respect of the privacy in its terms and conditions?


84. CORBIN ON CONTRACTS § 105 at 470 (1963).

be too serious and inequitable.\textsuperscript{86}

In the case at hand, however, there is no way to conclude that the price was unreasonable. The electronic agent just fails to find the cheapest one. There is no way to argue that a contract has not been made.

Coming back to the telegraphic mistake, when the offeree has no reason to know that a change has been made to the initial offer by mistake:

\begin{quote}
[I]t is said that one of the parties has “assumed the risk” of telegraphic mistake, this one being either the one who sent the telegraph in question, or the one who first used the telegraph, or the one who suggested that it be used. Perhaps, a reason for choosing the sender of the telegram instead of the receiver to take the first impact of the loss can be found in actual business practices and mores or in business convenience.\textsuperscript{87}
\end{quote}

Regarding this, it is likely that a court will follow the same reasoning that Corbin uses:

\begin{quote}
[A]s between the sender and the receiver, the party who selects the telegraph as the means of communication shall bear the loss caused by the errors of the telegraph. The first proposer can select one of many modes of communication, both for the proposal and the answer. The receiver has no such choice, except as to this answer.\textsuperscript{88}
\end{quote}

A court should therefore conclude that the retail bookstore has no way to contest the contract made and will have to support the risks inherent to the use of an electronic agent.\textsuperscript{89} Eventually, it will have as its only remedy an action against the programmer of the software to be indemnified for the loss depending on the content of the contract (the programmer may have taken care to preclude liability in such a situation).

Civil law countries do not fundamentally differ in their solutions to this problem. The solution in case of price mistake may disfavor the user of the electronic agent even more since some countries, such as Belgium, do not allow the nullity of contracts in case of mistake regarding the price.\textsuperscript{90} Furthermore, the doctrine is quite clear: The user of a computer system shall assume its risks.\textsuperscript{91}

\textsuperscript{86} Corbin on contracts § 610 at 695 (1960).
\textsuperscript{87} Id. at 471-472.
\textsuperscript{88} Id. at 472.
\textsuperscript{89} In certain cases both parties may have used electronic agents. In the presence of any mistake, the reasoning may be more complex since the primary task will be to identify which electronic agent generated the mistake.
\textsuperscript{90} See for example Catherine Goux, \textit{L'erreur, le dol et la lesion qualifiée: analyse et comparaisons}, Théorie générale des obligations; Formation permanente CUP, Vol. XXVII, at 25 (December 1998).
b. **Mistake Due to a System Failure Caused by an Act of God**

The same reasoning will prevail for mistake generated by a system failure due to an act of God. The electronic agent's user will have to assume all consequences of the mistake except when the mistake is perceptible to a reasonable person. In this case, however, the retail user bookstore, user of the electronic agent, will not have any recourse against the software's programmer except as provided by the contract he had entered into to.

3. **Proposed Solution According to the UCITA**

UCITA does not create any particular rules regarding contracts formed by electronic mistake. However, Section 206 (a) provides that:

A contract may be formed by the interaction of electronic agents. If the interaction results in the electronic agents engaging in operations that the circumstances indicate constitute acceptance, a contract is formed but a court may grant appropriate relief if the operations resulted from fraud, electronic mistake, or the like.\(^9\)

According to the comments of the Act, this subsection:

makes clear that applying restrictions analogous to common law concepts of fraud and mistake is appropriate in this automated context to prevent abuse or clearly unexpected results. Courts applying these concepts may refer to cases involving mistake or fraud doctrine *even though an electronic agent cannot actually be said to have been misled or mistaken.*\(^9\)

However, the above passages do not solve the problem of electronic mistake. On the contrary, the italicized sentence once again demonstrates the inappropriate humanization of the computer denounced in the first part of the analysis. This part of the sentence does not help, but rather generates more confusion. This confusion is enhanced by the fact that subsection (b), which deals with contracts formed by the interaction of an electronic agent and an individual, does not make any reference to the common law concept of mistake.

4. **Consequence and Suggestions**

The application of the common law regime to the electronic mistake generated by the use of electronic agents is appropriate. There is no need to create new rules when the existing one offers a proper answer. In addition, it is reasonable to assume that a person who decides to use software to make his transactions will bear the consequences of such use. This approach, followed by both legal systems, gives the user an incen-
tive to make sure he carefully chooses his electronic agent. However, this could sometimes lead to unfair situations, especially when a consumer has used an electronic agent following a repetitive and convincing advertising on the Web, without understanding the consequences of his decision. Holding someone responsible for the risks taken is fair, as long as he can appreciate such risks. But general understanding of computer principles and risks varies greatly among Internet users. Therefore a consumer may quickly be the victim of an electronic agent because he is not able to appreciate the extent of the technical capacities. In the end, consumers will mistrust the electronic agents and will no longer use them. How can we avoid these situations? One can suggest different tracks of reflection.

One rigid approach consists in imposing by the law certain technical standards with which electronic agents must conform before any commercialization. Programmers could not propose any electronic agent services without first ensuring that they are in conformance with the law. In addition, the law could limit programmers' abilities to exempt themselves from liability. Establishing technical criteria by law is not easy, however, since such criteria should not prevent technological evolution.

A more flexible approach would implement voluntary labeling of electronic agents. Site labeling is the combination of technology and audit procedures. It is achieved through an audit procedure estimating the compliance of the site with provisions applying to the field of consumer protection, security, and protection of privacy. Labeling presents a commercial argument: it attests that the Web site is willing to respect certain criteria and takes into consideration clients' interests. Labeling could therefore give consumers the insurance that some experts have audited the ability of the electronic agent to function properly. Labeling recommendations can be combined with an obligation for the programmer to indicate, on the first page of the Web site, proposing the service of the electronic agent, and stating in bold type, when an electronic agent has not been the subject of an audit.

C. UNCONSCIONABILITY

The recognition of the validity of contracts concluded by electronic agents may create another problem. As pointed out by Harrison when discussing a former project of the UCITA:

The “objective assent” model assumes that the consumer has a duty to read and understand the contract. The objective assent approach views assent as an act that demonstrates, generally, one's assent to the contract. Such manifestation of assent is deemed to be assent to all of the contract terms, whether or not they are read and understood. Article 2B's heavy reliance on the objective approach suffers infirmities when applied to the newly developed click-wrap agreement and Internet medium.95

Such a remark may also be made with regard to the use of electronic agents. How can the user of an electronic agent be held by terms and conditions he has no possibility of reading and understanding? What happens if a very unsophisticated agent makes a contract with a company that excludes all warranties and sells an inferior product? Under European law, the risks for the consumer are not too important since national legislations provide many rules excluding certain types of provisions or imposing others, taking into consideration the weak position of the consumer.96 However, the problem is a real one. It has caused Froomkin to consider that one can reasonably expect that electronic agent-based transactions “cannot be consummated without first actually securing some manifestation of approval by the electronic agent’s human principal.”97

UCITA inadequately deals with the question in Section 112 (e) (2), providing that “an electronic agent has an opportunity to review a record or term only if the record or term is made available in manner that would enable a reasonably configured electronic agent to react to the rec-

97. A. Michael Froomkin, Article 2B as legal softaware for electronic contracting – Operating system or Trojan Horse?, 13 Berkeley Tech. L. J. 1023, at 1054-1055 (1998). For the author, . . . codification of a rule generally making people responsible for the acts of their electronic agents changes little in substance, while usefully removing any doubts that might exist about the validity of agent-based commerce. It does not necessarily follow, however, that agent-based commerce is appropriate for all-type of Transactions. In particular, given how little is know about how agent-based commerce might work at the consumer level, if a state consumer law rule requires conspicuousness, one might reasonably expect that a uniform rule would say that those Transactions can not be consummated without first actually securing some manifestation of approval by the electronic agent’s human principal.
ord or term."\(^{98}\) We have already discussed the limit of such an assertion and recommended that a contract concluded by an electronic agent should be valid even if the party using the electronic agent has not reviewed the automated operation or the result of such operation.\(^{99}\) In fact, the capacity of the software agent will be more limited by the effort expanded by its creator or user. It is therefore \textit{a priori} that the protection must be afforded. We agree with Froomkin on the importance of securing some manifestations of the electronic agent user's approval of the terms and conditions. But those may be done when the agent is being programmed. By giving clear and complete instructions to the agent, the user reduces the risks of unfair surprises regarding the content of the terms and conditions. This obviously supposes that the electronic agent (i) meets a certain degree of sophistication (ii) does not accept contracts with other terms or conditions than those specified by the user, and (iii) keeps a record of the instructions it received for evidence purposes.

The first condition may be fulfilled by resorting to one of the solutions described in the previous section (i.e. minimum technical requirements or labeling) and by giving the user many alternatives amongst the terms and conditions his electronic agent may be faced with. The second condition is linked to the first one. In addition, when the agent does not find any offeror responding to the requirements of the user, we can imagine that the electronic agent, instead of concluding the contract, only provides the user with a list of offerors' proposing contracts that slightly differ from his requirements (i.e. by providing a list of Web sites that offer the product the user is looking for, but that satisfy only four of the six conditions required). Finally, the record is also important. In a suit against the programmer of the electronic agent the user may serve, in case of error, evidence of the instructions given by the user.

These minimal warranties should protect consumers against unfair surprises and keep the judge's margin of appreciation intact by allowing him to maintain his power of cancellation of a contract when, for example, a seller has taken measures to induce an electronic agent to commit a mistake.

\textbf{VIII. OVERALL CONCLUSION}

One of the aims of this article has been to analyze the validity of contracts concluded by means of electronic agents by researching a solution that could adequately address concerns that common law and civil law countries may have. This article has demonstrated that the current legal regime unsatisfactorily deals with this issue. The European view is

\(^{98}\) U.C.I.T.A. § 112(e)(2).

\(^{99}\) See Part one, section V point C § 3.
certainly inadequate. In attempting to suggest a new law, we have rejected the American approach embodied in UCITA. This analysis ultimately concludes that the notion of assent appears to be desirable and seems to be the price we most pay to maintain the coherence of contract law.

Rather than the validity of the contract, the major challenge posed by electronic agents is placed on minimum technical requirements and warranties. Electronic agents should be required to have these precur-sors before being offered to the consumers in order to reduce the risks of mistakes and unconscionability.

The development of the use of electronic agents may finally appear as a chance for the consumer. By creating an instrument that allows the consumer to indicate the minimum of protection he wishes in the terms and conditions of a contract, sellers will be encouraged to create clear, and protective terms and conditions. Well used, electronic agents may actually help consumers not familiar with disclaimers and therefore reduce the imbalance between buyers and sellers.