Through The Telescope II:
The Meaning Of UCITA

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By Lorin Brennan

What was the crime of Galileo? Not merely that he taught the Copernican heresy. Copernicus' speculations had been known for nearly 70 years, but were dismissed by the cognoscenti as idle speculations buried within mathematics of bewildering complexity. No, Galileo's crime was proclaiming that Copernicus' theory was true, and having the nerve to prove it with his telescope. (*See* Giorgio de Santillana, THE CRIME OF GALILEO (Time Books 1955).)

Our mental images effect how we think about the world. In Galileo's time, it seemed natural to see the Sun move across the sky and to imagine it circled the Earth. Great reputations and lucrative careers hinged on continued public adherence of this image. When Galileo challenged this world view, he threatened those entrenched interests to the core.

The Uniform Computer Information Act ("UCITA") also challenges established orthodoxy. It proposes new ways of thinking to deal with our transition from an industrial to an information economy. Naturally, there is "controversy," but on closer inspection one finds that the dispute is not so much with what UCITA says, which by and large is common sense, but with what it *means*, which is something else entirely.

The last installment of this article discussed the emerging e-commerce revolution, the move from competitive to cooperative bargaining, and the role of UCITA (then known as Article 2B) in the process. The revolution steam-rolls on. New developments make e-contracting more vibrant than ever. This article again invites you to do what Galileo did.

Look through the telescope.

THE MOONS OF JUPITER: NEW IMAGES OF CONTRACT

When Galileo looked through his telescope, he saw startling new images invisible to the naked eye: moons circling Jupiter. This fact directly contradicted his notion of a fixed and immovable Earth at the center of the Universe around which all planetary bodies revolved. What is our fixed image of a typical software transaction?

Software Imagineering

We usually think of a customer who acquires pre-packaged software with a "shrinkwrap" license. This has all the look and feel of a "sale of goods," and thus would seem to fit within Article 2 of the Uniform Commercial Code. In a more recent variant, the customer access a Web page, clicks an "I Agree" icon on dialog box containing a license, and downloads (copies) the software. While this looks a little different since we are dealing with electrons moving over a

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wire, after all there is some authority that electricity is a "good," so this should still fit within the outer edges of the mold. As one court, explained it, "[t]hat a computer program may be copyrightable as intellectual property does not alter the fact that once in the form of a floppy disc or other medium, the program is tangible, moveable, and available in the marketplace." (*Advent Systems, Ltd. v. Unisys Corp.* 925 F.2d 670, 675 (3rd Cir 1991).) In other words, software transactions look like they fall into the world view of Article 2, where everything revolves around the fixed notion of a sale of goods.

It is a comforting image - and spectacularly wrong. Before discussing the legal reasons why this is so, let us use our Web telescope to set firmly in our minds the correct image of a software transaction.

The most dramatic illustration of the real nature of a software transaction is LINUX. (*See* http://www.linux.org/.) LINUX is a Unix-type operating system originally created by Linus Torvalds with the help of other developers worldwide. Like many other programs, LINUX is distributed without charge under the "open source" GNU General Public License. This short article will not repeat all of the terms of this license, but it will be helpful to view it in your Web-scope as you read along since it critical to understanding software transactions. (*See* http://www.linux.org/info/gnu.html; *also* http://www.fsf.org/ the Free Software Foundation Home Page; *and* R. Gomulkiewicz, *How Copyleft Uses Licenses Rights to Succeed in the Open Source Software Revolution and the Implications for Article 2B*, 36 Houston L.R. 179 (1999) available on-line at http://www.2bguide.com/.) Basically, this license lets others copy, modify and redistribute copies of LINUX without charge provided that the supplier makes the source code available and disclaims all warranties. The warranty disclaimer is crucial because the creators of LINUX do not support the software (they let the users do that) and because they do not want to be responsible for modifications by others.

The Linux Organization allows downloading LINUX from its site but does not provide packaged copies to retail stores. Several third party vendors do that, such as Red Hat and Symantec. I have a CD from Walnut Creek Software. These vendors all use "shrinkwrap" or "click on" licenses, as required by their license for LINUX. Some copies, like mine, come with a full waiver of all warranties, but then my price was under $20. Other vendors provide their copies at a higher price, but they also offer limited support. What this means is that when a customer acquires a packaged copy of LINUX, two quite separate legal events occur. The customer *buys a copy of LINUX* from a vendor, such as Walnut Creek and independently obtains *a license* to use the embodied computer program. These are distinct legal events. The purveyor of the copy (*e.g.* Walnut Creek Software) is not the owner of the embodied computer program (the Linux Organization).

Notice how this fact directly contradicts the fixed idea that a computer program, when embodied in a floppy disc, loses its separate identity and becomes entirely a "good." In the case of LINUX, the transfer of the *copy* from Walnut Creek or Symantec transfers not one iota of interest in the *computer program*. The mere fact that Walnut Creek happens to make a copy does *not* make LINUX "tangible, moveable and available in the marketplace." LINUX, the computer program, still remains an *in*tangible, copyrighted work. LINUX, the computer program, has not moved from the Linux Web page even though it was copied; to the contrary, as a copyrighted work it continues to exist simultaneously and immovably everywhere its copyright can be enforced. Finally, if the copy made by Walnut Creek does not conform to the requirements of the GNU Public License, then that copy is unauthorized, its distribution infringing, and thus definitely not "available in the marketplace."

Enter the Copyright Act

That a computer program is not merely a disc or CD follows directly from Section 202 of the Copyright Act (17 U.S.C.A. § 202). It provides:

> "Ownership of a copyright, or any of the exclusive rights under a copyright, is distinct from ownership of any material object in which the work is embodied. Transfer of ownership of any material object, including the copy or phonorecord in which the work is first fixed, does not of itself convey any rights in the copyrighted work embodied in the object; nor, in the absence of an agreement, does transfer of ownership of a copyright , or any of the exclusive rights under a copyright, convey property rights in any material object."

Copyright has sometimes been described as the metaphysics of the law, and if that is true then this is its fundamental metaphysic: a *copy* is not a copy*right*. A book is a physical copy of a separate, intangible, copyrightable literary work; a compact disc is a copy of a separate, intangible, copyrightable computer program. It is almost Platonic. A physical *copy* is but a single instance of an abstract, intangible idea called a copyrightable *work*. The instance is not the essence. The copy is not the copyright.

Section 202 also says something important about copyright licenses. Before enactment of the current Copyright Act in 1978, there was a dual system of state common law and federal statutory copyright. Under common law copyright, transfer of a physical object, such as a manuscript or work of art, was presumed to transfer the common law copyright as well. (*See* NIMMER ON COPYRIGHT § 10.09[B] ["NIMMER"] (and cases cited).) Section 301 of the Copyright Act preempted state common law rules. This means that, as a matter of preemptive federal law, there can be no presumption that transfer of a *copy* transfers any right under the copy*right*. Paying for a copy does not in itself give the buyer any license to use the copyright. (*E.g. Saxon v. Blann*, 968 F.2d. 676, 680 (8th Cir. 1992) ("Under Section 202, … the conveyance of 'ownership rights' to a book will not convey the copyright of the book."); *Marobie-FL, Inc. v. National Association of Fire Equipment Distributors*, 983 F.Supp. 1167 (N.D. Ill. 1997) (purchase of diskette containing copyrighted clip art did not allow downloading clip art onto Web page).) This applies regardless of whether the transfer is an exclusive license (*Saxon v. Blann*, *supra*) or a non-exclusive license. (*Applied Information Management, Inc. v. Icart*, 976 F. Supp. 149, 153 (E.D.N.Y. 1977) ("As a result of Section 202, a court interpreting a [nonexclusive software] licensing agreement must determine ownership of the copy separately from ownership of the copyright."); P. Goldstein, COPYRIGHT § 4.5.1(c) [2nd ed. 1996].) The statement in *Advent Systems that* "that once in the form of a floppy disc or other medium, the program is tangible" is directly contrary to Section 202. The *copy* is tangible, not the copyrighted *computer program*.

There is a qualification. Under the Copyright Act, the owner of a copy has certain limited privileges to use the copy without infringing the copyright in the embodied work, such as "fair use" (17 U.S.C. § 106) and the "first sale" doctrine (17 U.S.C. § 109). Section 202 does not effect these privileges. What Section 202 says is that buying a copy of, for example, a computer program, gives no right to exercise an interest under the copyright in the program beyond the limited privileges under the Copyright Act that go with ownership of a copy.

Given this difference, what exactly does it mean to say that Article 2 applies to software transactions? Think again about the customer who acquires a pre-packaged copy of LINUX. One response is to say that this transaction "in its entirety" is really a "sale of goods." But this assumes that the sale of the *copy* also made an effective copy*right* license. This is precisely what

Section 202 of the Copyright Act says we cannot do. (For a detailed discussion of these points, including section by section comparison of Article 2 and the Copyright Act, *see* Lorin Brennan *Why Article 2 Cannot Apply to Software Transactions*, 38 DUQUESNE L.R. ___ (2000).)

When all is said and done, the real reason for trying to apply Article 2 to software transactions is to invalidate shrink-wrap and click-on licenses. But if these licenses are unenforceable, then making and distributing the retail copy of LINUX by Walnut Creek or Symantec was unauthorized, the customer's use of LINUX is also unauthorized, and both the customer and the supplier are copyright infringers. There is no "bona fide purchaser" defense to copyright infringement. (*Little Brown & Co. v. American Paper recycling Corp.*, 824 F.Supp. 11 (D. Mass. 1993); 4 NIMMER § 13.08.) My copy of LINUX also includes APACHE a widely used Web hosting program also provided under an open source license. If all shrink-wrap licenses are unenforceable, then a significant number of Web users are copyright infringers as well. This is an absurd result.

Obviously, some law must apply to the entire transaction. If Article 2 cannot do so, the only choice left is the common law of contract. But state common law is not uniform; it is far too general for the specific needs for computer information transactions; and it does not have the facility to enable the emerging requirements for e-commerce.. This is why we need UCITA. It is a new vision specifically drafted for compatibility with the Copyright Act and the emerging requirements for e-commerce.

Benefits of UCITA

Like any complex program, UCITA has a rich feature set. Included are four tables that compare UCITA with current sales law. Table 1 identifies general improvements. Tables 2 and 3 list the benefits for software developers and customers, respectively. Table 4 indicates current rules continued in UCITA. Those interested in further details can read the Reporter's Notes (http://www.law.upenn.edu/library/ulc/ulc.htm) or look at Carol Kunze's UCITA web site. (http://www.2Bguide.com). In broad overview, we can identify four benefits of UCITA: standardization; uniformity; innovation and modernization.

Standardization: The legal standards for information contracting are in disarray. For example, are digital signatures allowed? If, when and how? Does clicking an "I Agree" icon make an enforceable contract? What about contracts made by electronic agents? What are the rules for digital authentication? What happens in the case of consumer error? Many e-commerce sites merely ask the customer to fill in basic payment information. But this leaves many critical terms up in the air. For example, absent specification, what is the duration of a software license? How many users are permitted? Can the software reside on more than one machine as long as it is not used simultaneously? If copies are ordered, who pays the shipment and insurance costs? What warranties, if any, apply? What are the remedies for breach? Should the law presume that without agreement on these points there is no deal? Or should it provide default rules that apply where the parties have remained silent? UCITA answers these questions.

Uniformity: Commercial contact law is made by the states, not the federal government. To ensure national consistency, states pass "uniform laws" so someone in Alabama has the same rules as someone in Wyoming. Unfortunately, some types of software transactions are still subject to the varying common law of the 50 states. These include development contacts, support and maintenance deals, and on-line access agreements. A dozen states have now enacted different digital signature rules. E-commerce is national and even global. To realize its potential, both suppliers and customers need a single set of uniform rules like UCITA.

Innovation: The law should encourage developers to bring experimental and innovative new products to the public by allowing them to control their risks by proper disclaimers. Two examples are JAVA and, of course, LINUX. Java is a software program developed by Sun Microsystems to run on any platform. (http://java.sun.com.) Java is used extensively on Web pages to enable animation and graphics. The Software Development Kit can be downloaded for free subject to Sun's shrink-wrap license (http://java.sun.com/products/jdk/1.2/license) which includes a waiver of implied warranties and consequential damages. Both Java and Linux offer a critical trade-off: valuable free software but on an "as is" basis. If their shrink-wrap and click-on licenses are unenforceable, meaning that the developers must provide non-disclaimable warranties, it is doubtful whether they would be available for free, if at all. Moreover, if the license is unenforceable, then anyone who downloads (copies) Java or Linux does so without permission, making them copyright infringers. Innovation requires trade-offs between time, cost and quality. UCITA opts in favor of innovation, letting developers and their customers decide for themselves what those trade-offs should be.

Modernization: Technology has added new ways to make contracts on-line. We need a modern law to support this activity. UCITA does that. For example, here are some places where it clarifies and expands customer rights in information transactions.

- *Click-on Contracts*: Most e-commerce sites use "click-on" contracts. Current sales law does not have a uniform answer on their enforceability. UCITA allows them if specific procedures to ensure informed assent are met.
- *Mass Market Concept*: Current law distinguishes between consumer and business use. Instead, UCITA adopts a new "mass market" concept that applies to consumers and business alike.
- *Expanded Return Rights*: For pre-packaged mass market software, if you read the shrink-wrap license and do not like it, you can return the software for a full refund -- plus your shipping costs. This is more than you get under sales law.
- *Electronic Agents*: Soon consumers will create their own electronic agents to search the Web and makes deals for them. They will have their own "click-on" contracts to propose to vendors. Current sales law will not allow this practice. UCITA does.
- *On-line Warranty Rights*: Warranty laws, such as the Manguson-Moss act, only apply to sales of tangible products. Where is the "tangible" product when licensed software is downloaded over the Web? UCITA extends warranty protection to electronic deliveries.
- *New Warranty Rights*: The software business includes system integration contracts, development (service) contracts, and data processing contracts. UCITA provides new warranties for these types of transactions.
- *New Contract Models*: Current sales law does not address support and maintenance contracts, on-line access contracts, and publisher-retailer-customer dealings, to name a few. UCITA does.
- *Privacy protection*: What if a vendor uses your private information against your wishes, such as putting your name and address on a mailing list? Will Article 2 allow consumers to make a contract that forces the vendor to take it down? UCITA will.
- *Electronic "Time-Bombs"*: Can a vendor use a "time-bomb" that shuts off your software for a minor dispute? UCITA prohibit this practice where there is a risk of personal injury. For businesses, it creates exacting disclosure, notice and cooling-off periods before it can be used.

Despite these benefits, UCITA is *not* a consumer protection statute. It is a commercial code; it thus addresses a larger class of both business and consumer transactions. But UCITA does leave intact all consumer protection laws. (UCITA 1-105(c).) The following charts list the various benefits of UCITA over current sales law.

General Benefits of UCITA	Article 2	UCITA
Creates uniform information licensing law	No	Yes
Establishes rules for electronic contracting	No	Yes
Establishes rules for electronic signatures	No	Yes
Allows layered contracting over time	No	Yes
Allows contracts with electronic agents	No	Yes
Allows contracts where rights vest before delivery	No	Yes
Establishes new category of mass market	No	Yes
Provides warranties for data processing contracts	No	Yes
Sets standards for providing customer support	No	Yes
Provides rules for outsourcing contracts	No	Yes
Sets standards for on-line access contracts	No	Yes
Extends warranties to electronic deliveries	No	Yes

Table 1: General Benefits

Software Licensor Benefits In UCITA	Article 2	UCITA
Uniform rules for Internet contracting	No	Yes
Clear procedures for licensing in mass market	No	Yes
Workable choice of law & forum rules	?	Yes
Guidance for attribution of electronic signatures	No	Yes
Guidance for modifying on-going support contracts	?	Yes
Standard interpretations for license terms	No	Yes
Confirms exceeding use restrictions is a breach	?	Yes
Warranty rules for published informational content	?	Yes
Clarifies meaning of "personal satisfaction" clauses	?	Yes
Reconciles inspection with confidential information	No	Yes
Clarifies effect of code modifications on warranties	No	Yes
Right to cure deliverables defects if possible	?	Yes
Rules for administering on-line access contracts	No	Yes
Clear procedures for using self-help "time-bombs"	No	Yes

Table 2: Software Licensor Benefits

Software Customer Benefits In UCITA	Article 2	UCITA
Cost free refund right in mass market	No	Yes
Consumer defense for electronic error	No	Yes
Procedural safeguards to ensure informed assent	No	Yes
Right of quiet enjoyment (so no infringement)	?	Yes
Presumes some licenses perpetual	No	Yes
Presumes early transfer of rights (no infringement)	?	Yes
Implied warranty for system integration	No	Yes
Implied warranty for data accuracy	No	Yes
Codifies advertising can create express warranty	?	Yes
Says publisher's contract does not release retailer	No	Yes
Right to information about incorporated code	No	Yes
Allows specific enforcement of privacy rights	?	Yes
Obligation to cure deliverables defect if possible	No	Yes
Makes licensor agreement not to cancel enforceable	?	Yes
Safeguards on licensor self-help ("time bombs")	No	Yes

Table 3: Software Customer Benefits

Continuation of Current Rules	Current Law	UCITA
Consumer protection law	Yes	Yes
Unconscionability doctrine	Yes	Yes
Obligation of good faith and fair dealing	Yes	Yes
Defers to federal intellectual property law	Yes	Yes
Express warranty law	Yes	Yes
Implied warranty of merchantability for programs	Yes	Yes
Implied warranty of fitness adapted for programs	Yes	Yes
Requires disclaimers in writing (a record)	Yes	Yes
Enforceability of no oral modification clauses	Yes	Yes
Interpretation of deals by industry standards	Yes	Yes
Right to adequate assurances of performance	Yes	Yes
Risk of loss in delivery of copies	Yes	Yes
Interpretation of delivery terms	Yes	Yes

Table 4: Rules Continued in UCITA

These are the benefits of UCITA over current law. But that is not the end of the story. New and even better possibilities are already appearing on the horizon.

"But It Moves" - E-Contracting Cometh

When the Inquisitors demanded that Galileo renounce his claim that moons were in fact revolving around Jupiter, he uttered his immortal retort: *eppur si mouve* - "but it moves." His point was when the facts contradict our fixed ideas, it is our ideas that must change. We have already discussed how the fixed idea of a software transaction as no more than a "sale of goods" is inadequate. But the possibilities for e-contracting events now emerging on the Web require even more dramatic rethinking of old ideas.

Bots Revisited

The last installment of this article introduced bots. To repeat, a *bot* is a software program that traverses the Web's hypertext structure by retrieving a document and, recursively, all documents referenced in it. (Martijn Koster, *The Web Robots FAQ*, http://info.webcrawler.com/mak/projects/robots/faq.html.) Normal Web browsers are not bots because they are operated by a human being and do not. The term *bot* has become a common synonym for *electronic agent,* despite certain technical differences. (*See* Richard Murch & Tony Johnson, INTELLIGENT SOFTWARE AGENTS, p. 29 (Prentice Hall, 1999) [MURCH & JOHNSON] for further details.) Some examples of bots are:

- *Chatterbots* - used for chatting on the Web.
- *Searchbots* - general agents used for searching.
- *Spiderbots* - agents that crawl from site to site searching for new Web content; they are used by the major search engines, such as Lycos and Infoseek.
- *Newsbots* - look for news.
- *Knowbots* - short for knowledgebots, seek out specific knowledge.
- *Shoppingbots* - help find deals on-line.
- *Sexbots* - well, you guessed it.

The number of Web sites devoted to bot information has grown spectacularly since the last installment of this article. The BotSpot®, "The Spot for all Bots on the Net" (http://www.botspot.com/) still remains the classic starting point. Several other sites are listed in the sidebar.

Next Generation Bots:

Bots are evolving. The latest developments include "autonomous agents" which travel between Web sites using their own selection criteria, and "intelligent agents," which are programs that help users to perform specific acts, such as selection, form filling, or site location. (MURCH & JOHNSON, *supra* pgs. 46-47.)

An influential AI textbooks says: "[a]n agent is anything that can be viewed as perceiving its environment through sensors and acting on its environment through effectors. A human agent has eyes, ears and other organs for sensors, and hands, legs, mouth and other body parts for effectors. … A software agent has encoded bit strings as its precepts and actions." (Stuart Russell & Peter Norvig, ARTIFICIAL INTELLIGENCE: A MODERN APPROACH, pg. 31 (Prentice Hall, 1995).) In the view of these writers, an intelligent agent or *ideal rational agent* is one that does "whatever action is expected to maximize its performance measure, on the basis of the evidence provided by the precept sequence and whatever built-in knowledge the agent has." (*Id. Id.* at pg. 33.) IBM offers the following definition: "Intelligent agents are software agents that carry out some set of operations on behalf of a user or another program with some degree of independence or autonomy, and, in so doing, employ some knowledge or representation of the user's goals or desires." (At http//:activist.gpl.ibm.com:81/WhitePaper/ptc2.htm, quoted in MURCH & JOHNSON, pg. 10. The text contains a variety of other agent definitions.)

The goal of course is not just to define such electronic agents but to build them. The reasons are pressing. Agents that merely traverse the Internet and send back information recursively, downloading every link encountered, generate an increasing amount of network traffic. What is needed instead are self-directed agents that can move from site to site and process an interaction locally. The mantra is: move the computations to the data rather than the data to the computations. (*Id.* at pg. 101.) This new breed of electronic agents will need the following attributes:

Agent Sites to Explore

(Visited 9/29/99)

The BotSpot®
http://www.botspot.com/

AgentBuilder®
http://www.AgentBuilder.com/

MarketMaker MIT)
http://ecommerce.media.mit.edu/

Frictionless Commerce, Inc.
http://www.frictionless.com/

Foundation for Intelligent Physical Agents
http://www.fipa.org/

Agent Mediated E-Commerce Initiative (MIT)
http://ecommerce.media.mit.edu/

Multi-Agent Systems Laboratory (U. of Mass)
http://mas.cs.umass.edu/index.shtml

IBM Institute for Advanced Commerce
http://www.ibm.com/iac/

JATLite (Stanford)
http://java.stanford.edu/

AgentLink (Europe)
http://www.agentlink.org/

INT'L. ASSN. FOR ARTIFICIAL INTELLIGENCE &

- **autonomy** - the agent senses and reacts to the environment on its own agenda not tied to the central server;
- **intelligence** - in the sense that it employs knowledge and automated reasoning methods to respond to a set of goals; and
- **mobility** - meaning that it can move freely through the environment based on internally generated decisions about where to find data and information.

The entities researching and developing mobile, autonomous, intelligent electronic agents are increasing at a stunning rate. AgentBuilder®, a company that provides tools for building electronic agents, has an extensive list of commercial products and academic research papers listed on its site. (*See* http://www.agentbuilder.com/AgentTools/index.html.) The Agent Society, a new professional organization for those interested in e-agents, list the following categories of "Agents and Application Taxomonies" under development (http://www.agent.org/):

Mobile agents
Stationary agents
Intelligent agents
Autonomous agents
Profile agents
Community of interest agents
Cooperating agents
Finding, gathering and filtering agents
Electronic commerce agents
Process/workflow control agents
Operational support agents
Personal assistant agents
Service integration agents
Multi-agents
Simulator agents
Planning and resource allocation agents
Agent toolkits

What does this mean for consumers? In the very near future, software programs - intelligent, mobile agents - will be available to traverse the Web on their behalf. They will not only be able to identify desirable sites, they will be able to conduct an interaction at the site, extracting information that meets the consumer's individually selected criteria. Think about the current sites on the Web for buying a car or airline tickets. Now consumers have to visit those sites directly to find what they want. Soon consumers will have their own electronic agents - bots - that can visit those sites for them and identify the best offerings.

Better than that, the agents can even negotiate the deal. To see what this really means, the site to visit is **Market Maker** at the MIT Media Lab site. (http://maker.media.mit.edu/.) The last version of this article discussed the developments at the Media Lab and the plans for **Marker Maker (**called **Kasbah** in an earlier version). It is now up and running. Market Maker allows buyers or sellers to encapsulate their desires in an electronic agent, give it a dealing strategy, and send it into an electronic marketplace of other agents to make deals. Turn you Web-scope there and try it.

Bargaining Protocols:

Of course, for automated contracting to operate effectively we must also design the rules under which agents can come to agreement. Professors Jeffrey Rosenschein of Hebrew University and Gilad Zlotkin of MIT have recently published a study that uses a combination of distributed AI and game theory to do just that. (Jeffrey S. Rosenschein & Gilad Zlotkin, RULES OF ENCOUNTER: DESIGNING CONVENTIONS FOR AUTOMATED NEGOTIATIONS AMONG COMPUTERS (MIT Press 1994) [ROSENSCHEIN & ZLOTKIN].)

Their approach distinguishes between a *protocol* and a *strategy*. A *protocol* refers to "the public rules by which agents … come to agreements." In legal terms, a protocol would mean the rules for contract formation in UCITA. A *strategy* is the private way an agent elects to behave in a particular interaction using the protocol. For example, a strategy might involve expressly stating that there is no agreement until all terms are agreed upon, rather than allowing agreement only on essential terms. Ideally, the protocol should have, among others, the following attributes: (1) *efficiency*, meaning the system does not encourage agreements that squander resources; (2) *fairness*, meaning the system does not arbitrarily discriminate against any particular type of agent; and (3) *transparency*, meaning the system encourages strategies that do not rely on deception or duplicity.

Let me give two examples of how this will work. The first, drawn from the work of Profs. Rosenschein and Zlotkin, deals with what we can call "long distance bargaining." (*Id.* at pgs 9-12; the following discussion is taken from these pages in the text.)

Instead of signing up a telephone company as a fixed long distance carrier, imagine instead a system for automated negotiation. Each caller has an electronic agent attached to the telephone line. When the caller places a call, the carrier responds with a price quote for that call at that moment. There is no fixed rate. On time pricing could be determined by a number of factors. ATT's server is overloaded; MCI has excess capacity; Sprint is offering a special rate. Maybe the call is for data transmission, and the user wants better line quality albeit for a higher price. Regardless of the circumstances, negotiation occurs for the price for *this* call *right now*.

What is the *protocol* under which the bidding should occur? One would be lowest bid wins. However, this leads to suboptimal results. While no company has an incentive to bid a price lower than its true cost, there *is* an incentive to bid high. Is there a bidding protocol that encourages phone companies to bid their true cost? "The answer is a qualified yes." (*Id.* at pg. 12.) It is called Vickrey's Mechanism. Basically, it says that the lowest bid wins, but the price paid by the user is the second lowest rate. This situation encourages phone companies to bid accurately. A bid too low might mean the company wins but could have to provide the service at below its cost. A bid too high might mean the company does not get the contract. Although it may cost slightly more, the consumer will still benefit from accurate bids. "By separating the issues of who wins the bid, and how much the winner gets, we've fundamentally altered the way in which computers should play the game." (*Id.* at pg 12.)

<u>Settlement Games</u>:

Now lets move into high gear with an example that may be more immediately meaningful to lawyers. Turn you Web-scope to cyber$ettle. (http://www.cybersettle.com/.) This is a Web site that allow parties to engage in aotomated settlement negotiations on line. According to the site, here is how it works (http://www.cybersettle.com/introduction.html):

- Sponsor or claimant submits three settlement offers or demands for each claim via the Internet into cyber$ettle's secure website.
- cyber$ettle then advises that the case is online and available for settlement.
- Each party has three opportunities (rounds) to settle. One demand or offer is entered for each round.
- cyber$ettle instantly compares each demand to the settlement offer and notifies the parties of a settlement on screen. A written confirmation follows.
- Currently participants are utilizing the following formula:

- if an offer or demand is within 30%, or $5000, of the demand, the claim is settled for the median amount.
- if the offer or demand differ by more than 30%, or $5000, in all three rounds, the claim will not settle.
- if the settlement offer is the same or greater than the claimant's demand, the claim is settled for the demand amount.

cyber$ettle gives the following illustration of how this might work:

cyber$ettle Illustration 1: Offer is within 30% of Demand:

	Settlement Offer		
1			
2			
			Settled for $35000

cyber$ettle does not reveal any offer or demand; only the settlement amount is revealed.

This certainly is an innovative approach, one which allows parties a unique and effective means to settle disputes. But let's ask a different question: can we automate it?

The cyber$ettle approach could be modeled as a finite, two person, non-cooperative game of imperfect information. (A full discussion of game theory is beyond this article. Interested parties should see Douglas G. Baird, Robert H. Gertner & Randal C. Picker GAME THEORY AND THE LAW (Harvard U. Press 1994), available for purfhase on-line at http://www.amazon.com/.) In fact, the underlying model would be the well-known game "chicken." Notice that in cyber$ettle parties only have three chances to make settlement offers. Obviously, if there is a desire to settle, a participant may adjust a later settlement offer if the first one was not accepted. But there is no requirement to do so. In fact, one strategy may be never to change a settlement offer at all, on the theory - or hope - that the other party will cave in. Of course, if both parties adopt this strategy, there will never be a settlement. This is why the game of chicken has no optimal solution is what are called "pure" strategies, *i.e.*, when the game can only be played a fixed number of times. Another illustration is labor negotiations, which follow a similar game form and in which parties are prohibited from making inflexible offers. (*Id.*)

Now what would happen if we were to encapsulate the settlement offers into electronic agents? These electronic agents make an iterated series of far more than three offers in a very short time. Allowing the game to be played many times changes the game dynamics to one of "mixed" strategies. In that case, as John Nash showed, there will be an "equilibrium point." (ROSENSCHEIN & ZLOTKIN at pg. 48.) In other words, we can devise a bargaining strategy for both electronic agents that will yield an "optimal" result, meaning that, if we assume both parties act rationally, then *neither* party can do better by pursuing any other strategy. Profs. Rosenschein and Zlotkin discuss such a strategy, called the Extended Zeuthen Strategy, at length, although not in the context of cyber$ettle. The details are beyond the scope of this paper. The point, however, is that using electronic agents, parties can engage in more effective bargaining in ways not previously possible. And they can do it in a way that yields the optimal result for both of them. The implications for legal theories of contracting and bargaining are profound.

New E-contacting:

This move to electronic, automated bargaining demonstrates three fundamental changes from prior contracting models.

Parties: The parties will not be set in rigid roles of "seller" and "buyer," or "licensor" and "licensee." Consumers will be as much creators and suppliers of information as companies. Roles will be flexible, with parties capable of dynamically adopting multiple roles as provider or recipient in any transaction.

Methods: Negotiation need not occur in the expensive, inefficient, face-to-face bargaining of the past. Instead, they can happen electronically through the medium of electronic agents *and standard forms*. UCITA-102(a)(66) defines a "standard form" as "…a record or a group of related records containing terms prepared for repeated use in transactions and so used in a transaction in which there was no negotiation by individuals except to set the price, quantity, method of payment, selection among standard options, or time or method of delivery." Most of the complaints have been about the use of Shrinkwraps and other "standard forms." But notice that electronic agents will have to negotiate using standardized protocols that will operate as UCITA standard forms. This standardization allows the development with provable efficiency, transparency and fairness.

Structure: The structure of the negotiating protocols and the available bargaining strategies will be not be based on *ad hoc* rules, but instead on a solid mathematical foundation using game theory and distributed AI that will allow for the maximum utility for all parties.

CONCLUSION

Here then, is the meaning of UCITA: a new worldview.

The old contracting world view sees everything revolving around the Holmesian notion of "merchant bargaining," of two parties sitting around a table face-to-face haggling out a contract term by term. Their lawyers sit at their elbows, quill pens and parchment aquiver, duly documenting their "mutual assent." There is nothing wrong with this approach in its proper place, and it certainly places lawyers in a flattering role. But it is not the only possibility.

The world of automated, on-line contracting offers another vision, one that includes the old model but expands far beyond it. It is not about protectionism but empowerment, not about regulation and restraint but about authorization and party autonomy. It a word, it is about freedom of contract. This is the worldview of UCITA.

What in the end was the crime of Galileo?

That he dared look through the telescope, and herald a Renaissance.