January 1996

Has Hal Signed a Contract: The Statute of Frauds in Cyberspace

Richard Horning

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HAS HAL SIGNED A CONTRACT: THE STATUTE OF FRAUDS IN CYBERSPACE*

Richard Allan Horning†

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This is a revised version of a paper presented by the author at the conference Strategic Alliances in the Information Age, Center for International Legal Studies, held in Waiblingen, Austria, Jan. 22-27, 1995, the conference proceedings are published under the title STRATEGIC ALLIANCES IN THE INFORMATION AGE (John Wiley & Sons, Ltd. 1996).

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I. Introduction

Articles about the rise of the Internet,1 "surfing the Net," electronic coffee houses, computer bulletin boards and the World Wide Web occupy many-column inches of ink on paper. To businesses, the prospect of contracting in cyberspace2 seems an alluring one, and very

1. The Internet has its origins in the work of the Advanced Research Projects Agency of the United States Department of Defense. ARPA, later DARPA, commissioned MIT's Lincoln Laboratory to study computer networking. Lincoln Lab's work resulted in the 1965 report "A Cooperative Network of Time-Sharing Computers," establishing the basic concepts of computer linking. Later, in December 1968, Bolt Beranek and Newman was awarded an ARPA contract to undertake the actual design of a network later named ARPANet. In September 1969 the first links were established between computers located at UCLA, Stanford Research Institute (later SRI International), University of California at Santa Barbara, and the University of Utah. The first public demonstration of ARPANet was at the International Conference of Computers and Communications held in Washington, DC in October 1972. In 1985-86 the National Science Foundation became interested in proliferating the use of computer communications among colleges and universities, and NSFNet was formed as a backbone for computer communications. The Department of Defense abandoned ARPANet in 1990, and in its place NSFNet and other public agency networks have become the principal backbone of the Internet. See generally, Jeffrey A. Hart et al., The Building of the Internet: Implications for the Future of Broadband Networks, TELECOMM. POL'Y, Nov. 1992, at 666; DANIEL C. LYNCH & MARSHALL T. ROSE, INTERNET SYSTEM HANDBOOK, chs. 1-3 (1993).

2. The term "cyberspace" is usually attributed to science fiction writer William Gibson, who used the term in his science fiction trilogy to describing a virtual world. WILLIAM GIBSON, NEUROMANCER (1984); WILLIAM GIBSON, COUNT ZERO (1986); WILLIAM GIBSON, MONA LISA OVERDRIVE (1988).

"The matrix has its roots in primitive arcade games," said the voice-over, "in early graphics programs and military experimentation with cranial jacks." On the Sony, a two-dimensional space war faded behind a forest of mathematically generated ferns, demonstrating the special possibilities of logarithmic spirals; cold blue military footage burned through, lab animals wired into test systems, helmets feeding into fire control circuits of tanks and war planes. Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts... A graphic representation of data abstracted from the banks of every computer in the human system.

Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding.


Other definitions of cyberspace have been given:

I'm using the term "cyberspace" a lot more broadly, as a lot of people have lately. I'm using it to encompass the full array of computer-mediated audio and/or video interactions that are already widely dispersed in contemporary societies — from things as ubiquitous and universal as the ordinary telephone, to things that are still basically coming on-line, like computer bulletin boards and networks like Prodigy, or like the WELL (Whole Earth 'Lectronic Link).


My topic is how to "map" the text and structure of our Constitution onto what might be called the texture and topology of "cyberspace." I'm sure you know that that term [was] coined by cyberpunk novelist William Gibson. A lot of people use it to describe a "place" without physical walls or even physical dimensions, the place where ordinary telephone conversations "happen," where voice-mail and
au courant. “Just turn on, dial in, and see for yourself. Boot up a program called Mosaic in your desktop with the mere click of a few graphical buttons you can see the future of the Internet – on a virtual stroll through what’s easily its hippest, most exciting ‘neighborhood.’” More than seventy-five countries have full service links to the Internet and computer owners in at least seventy-seven more countries are able to send electronic messages (“e-mail”) through the Net.

“With the Internet, the whole globe is one marketplace.” Simply invest in a modem, obtain an Internet connection through a local access provider, and you are in business negotiating contracts electronically, world-wide.

Even law firms are getting into the act. Boston-based Hale & Dorr is using the Net to speed up and cut the costs of some routine work. If a client company needs a contract for a foreign distributor, say, it can fill out an electronic questionnaire and send it over the Internet to a Hale & Dorr computer. Expert-system software then constructs a draft document from boilerplate text. A lawyer reviews the document, makes necessary changes, and ships it back over the Net to the client – complete with a list of recommended lawyers in the other country.

The size of the market is enormous. One study shows the rise of new Internet business registrations from 93 in 1990 to 18,425 for 1994 by August 15, 1994. Another report, published by Internet supplier Merit Network, shows NSF Net traffic rising from ten billion character packets per month in 1992 to approximately seventy billion by the...
beginning of 1995. *Business Week* estimates that there are twenty million individuals currently linked to the Net, with thousands more joining monthly.8 “Companies are signing up in a frenzy. The Internet has become a central corporate resource and companies don’t want to be left behind.”9

The Internet connection allows marketing, sales, customer support and procurement personnel to connect to the wider world through the Net, while on the road, at remote offices or even in the air, thus allowing business to be done from nontraditional locations. “[T]he most common use of the Internet among companies is . . . basic: zapping information that just can’t wait for Federal Express.”10 Time concepts disappear – the Net is on twenty-four hours a day. By linking buyers and sellers electronically and eliminating paperwork, internal transaction costs should drop dramatically.11 “Telephone tag” becomes a relic of a bygone era, because the computer captures your messages whenever you are away from your desk, on the phone, hooked to another user, or otherwise not taking messages. Facsimile (fax) traffic can be sent and received through the Net, thus linking you with last year’s “faster” means of communication. You can even use your personal computer to send telex messages to, and receive telex messages from, third world countries where the telephone lines, and information infrastructure, are not advanced as e-mail techniques of the modern industrial state. Delivery of consumer and business software via the Internet may soon become a reality for mainstream publishers,12 and the ultimate in spending money – “electronic cash” – is on the immediate horizon.13 HAL is on your desk, digital cash in

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8. Some have questioned the methodology used in creating these numbers, and suggest that the actual numbers, while still dramatic, are far lower.

The Internet is distributed by nature. This is its strongest feature, since no single entity is in control, and its pieces run themselves, cooperating to form the network of networks that is the Internet. However, because no single entity is in control, nobody knows everything about the Internet. Measuring it is especially hard because some parts choose to limit access to themselves to various degrees. So, instead of measurement, we have various forms of surveying and estimation.


10. Id.

11. Verity & Hof, supra note 3. The article cites a Trane Co. study showing a 25% drop in costs as a result of using Internet connections to administer sales orders and manufacturing schedules.


hand, ready to open the "pod doors"\textsuperscript{14} for business with 48,000 different networks around the world all linked through the Internet.\textsuperscript{15}

This paper will propose a realistic scenario of a cyberspace business transaction. It will first give a brief overview of how the Internet works. It will then provide a realistic hypothetical to illustrate the formation of a contract by an interchange of electronic messages. After a discussion of how the law of contracts adjusted to earlier technologies, the paper will conclude that both the statute of frauds and the evidentiary purposes it serves are not violated by enforcing contracts created in cyberspace.

II. How the Internet Works

The Internet is not a single computer network, but rather an anarchic collection\textsuperscript{16} of computers, and public and private computer networks, all daisy chained together through the use of common protocols and a variety of communications devices.\textsuperscript{17} The main ele-

\begin{footnotesize}
\begin{enumerate}
\item[14.] HAL was the mainframe computer programmed to control the activities of the space ship Discovery One in Stanley Kubrick's classic 1968 science fiction film 2001: A SPACE ODYSSEY (Metro-Goldwyn-Mayer 1968). HAL was able to see and hear, and at several points in the movie the astronauts orally command HAL to "open the pod doors" of the EVA units.
\item[15.] Verity & Hof, supra note 3, at 80.
\item[16.] The RAND proposal (the brainchild of RAND staffer Paul Baran) was made public in 1964. In the first place, the network would have no central authority. Furthermore, it would be designed from the beginning to operate while in tatters.
\end{enumerate}
\end{footnotesize}
ments of the Internet are linked through high-speed communications backbones, and the wider public participates on the Internet through local telephone companies and a variety of privately and publicly funded Internet service providers. The common denominator for e-mail communications is the use of a standard programming protocol, TCP/IP – Transmission Control Protocol/Internet Protocol – upon which inter-computer communications are based.

The TCP protocol divides messages into packets which are marked with a sequence number and the address of the recipient. TCP also inserts error control information. The packets are then sent over the network to the addressee. The routing of the individual packets varies, with IP controlling the transport of the packets to the remote host computer. At the remote host, TCP receives the packets and checks for errors. When an error occurs, TCP asks for the particular packet to be re-sent. Once all the packets have been received, TCP will then use the sequence number to reconstruct the original message. It is the job of IP to get the packets from one place to another; it is the job of TCP to manage the flow and insure that the data are correct.

There are three methods in common use to connect to what is known as the Internet. The direct Internet connection requires a T1, dedicated 56K, or switched 56K data line. If one has a T1 or 56K connection, one is said to be directly “on” the Internet, in the sense that messages can be sent directly from computer to computer. Many organizations cannot afford to have a direct permanent Internet connection, however. In this case they arrange to have a nearby Internet site act as a mail gateway, and provide other Internet access services, via a SLIP/PPP connection. The subscriber will have a mailing address that looks much like a standard Internet address, but the subscriber itself is not really “on” the Internet. To gain Internet access the remotely located computer, using a modem and the TCP/IP plus SLIP/PPP software, dials into the host computer and from there logs on to the Internet or sends mail to, and receives mail from, Internet addressees. The third way of getting on the Internet is through an online service such as America On-Line, Prodigy, Compuserve, or Delphi. Each of these services offers subscribers the ability to exchange e-mail messages with companies and individuals on the service, and well as with companies and individuals having Internet addresses.

18. A message sent across town can easily end up being routed around the country, as the connection in any given instance is a function of what computer is connected to what other computer, and the state of the updating of the link tables in each of the computers along the route. See generally, LYNCH & ROSE, supra note 1, ch. 5.

19. If it important to find out, the “HOST” command can be utilized to determine whether a company is actually “on” the Internet or is using a gateway service.
The features of each of these services expand daily, and now each offers SLIP/PPP type access to the Internet. Once again access for e-mail and Internet services is via local telephone line and modem to the service provider, and through the service provider, to the Internet itself.\textsuperscript{20}

Internet addresses are IP protocol numbers. As is usual with computers, the reality of addressing messages is masked from the user, and fortunately e-mail can be addressed by domain name instead of IP protocol number.\textsuperscript{21} For example, the IP address, user@128.54.16.1 or the DNS address user@ucsd.edu, could be used to communicate with the person or entity named USER at the University of California at San Diego.\textsuperscript{22}

With the Internet address in hand, the data bits representing the text of the message are composed in ASCII characters on the sender's computer. The sender's e-mail program then adds the other particulars, such as time, date, and sender, and transfers the message by routing it over the Internet from one computer to another, until the data bits end up in the recipient's computer or mailbox. The recipient then uses his or her local mail reading application program to call the message text into "view" on his or her workstation display. The message is typically stored on hard disk or other semi-permanent storage device as it is created by the sender, queued for transmission, and received by the remote location, and copied into the recipient's mailbox. Both the sender and the recipient have the option of printing the message onto paper.

However they are transported, and whatever service or provider is used, neither the creation nor the receipt of an e-mail message nec-

\textsuperscript{20} Rick Ayre, \textit{Making the Internet Connection}, PC Mag., Oct. 11, 1994, at 118, 120.

\textsuperscript{21} Internet addresses are assigned to Internet hosts by the Internic Registration Service, provided by Network Solutions, Inc. of Herndon, Virginia. The Domain Name System keeps track of the addresses and translates the DNS address into the proper IP address. The Internic central Internet registry handles day-to-day administration of the Domain Name System. The assignment of names tends to be on a first-come, first-served basis and the American Bankers Association thus acquired the domain name "aba.com" leaving the American Bar Association to adopt a different domain name. The Internet DNS Names Review Board attempts to mediate disputes about the assignment of names, such as the dispute between Jim McDonald and McDonald's Restaurant over the name "mcdonalds.com." \textit{See generally Mess.COM}, Economist, Oct. 15, 1994, at 82.

\textsuperscript{22} The host computer domain name consists of a host name (UCSD) followed by a standardized domain extension (EDU). Country codes are usually added to the extension for addresses outside the United States. The extension on the domain name — the part of the address after the - symbol — generally identifies the type of organization, and location. Organizational domains have extensions like COM, NET, ORG or EDU; geographic extensions such as CH (Switzerland), FR (France), IT (Italy), SG (Singapore) identify a country. For reasons of history, domain names are actually entered in lower case. Again for reasons of history, the absence of a country extension on the domain name typically means a domain in the United States.
necessarily results in the creation of a "writing" in the ordinary sense.\textsuperscript{23}
In the absence of semi-permanent storage mechanisms, or printing, and given the propensity of some organizations to "clean wipe" the hard drives or tapes at periodic intervals, the evanescent e-mail message is easily lost.\textsuperscript{24}

III. GARAGE SYSTEMS COME TO MARKET

A new company, Garage Computer Systems, has been formed in Silicon Valley, California. Its business plan is based on the manufacture of custom 486/586 workstations, utilizing cell manufacturing methods, where the necessary raw materials – disk drives, DRAM memory and CPU chips, chassis, motherboards, modems, NICs, display adapter cards, CD-ROMs, sound cards, power supplies, wire harnesses and cabling – are delivered direct to the cell manufacturing team for final "screw driver" assembly and test.\textsuperscript{25} The business objective is to capture the low end of the custom workstation market, where the specific requirements for customized business workstations are not being met, except at great cost, by the usual commercial sources. Garage Computers is very much a "build to suit" organization.

Garage's business plan is predicated on dramatically lowering its overhead. To achieve that end, Garage has adopted paperless "just in time" purchasing practices. Regular sources of raw materials are all linked to Garage through the Internet, and carefully worked out plans for EDI contracting have been put into place with Garage's major suppliers.\textsuperscript{26} Garage is not, however, able to obtain all of its DRAM and

\textsuperscript{23} The Simple Mail Transfer Protocol (SMTP) defines the content of mail messages passing between computers. The protocol describes a series of control messages passing between the computers, verifying that the two computers are connected correctly, identifying the sender, negotiating a set of recipients, and delivering the text of the message. The message text is limited to ASCII characters, although with the introduction of the mail format Multipurpose Internet Mail Extensions (MIME) images, audio and video data may be transmitted as well as text. Use of an application program to read and compose e-mail is universal, and mail is usually sent to and collected from a mailbox. Users on computers that are not directly connected with one another can send and receive mail as a result of the Domain Name System, the use of mail relay hosts, and the development of mail gateways. The Domain Name System allows the establishment of globally unique, location independent names, and the mail relay host scheme allows non-specific source routing. Mail gateways allow computer systems having different configurations and using different mail protocols to send messages to and from each other (e.g., from Compuserve to America On Line). See Lynch & Rose, supra note 1, at 186, § 6.3.

\textsuperscript{24} See generally Armstrong v. Executive Office of President, 1 F.3d 1274 (D.C. Cir. 1993) (dealing with the destruction of electronic copies of documents proposed to be maintained and achieved in "hard copy" only).

\textsuperscript{25} See, e.g., The Ceiling Out of America, ECONOMIST, Dec. 17, 1994, at 63.

\textsuperscript{26} Electronic Data Interchange (EDI) refers to a standardized method, agreed upon in advance between the participating parties, of communicating purchase orders, invoices, and all other types of transactions through electronic mail, where the intent of the parties is to eliminate
CPU chip requirements from the major manufacturers, so it regularly contacts brokers and "surfs the Net" in search of extra supplies.

Internet Memory Systems does business in spot market DRAMs, CPUs and related products. It is headquartered in Singapore, taking advantage of Singapore's fiber-optic telecommunications infrastructure and Singapore's location astride the major air and sea routes. IMS's world-wide sales force is constantly on the telephone, telex, fax and the Net, seeking out customers for legitimate and "gray market" DRAMs, CPUs and other computer components that are in short supply. The "back office" types at IMS are also on the Net, seeking sources of supply of products to furnish to IMS' customers.

Fred Smith, North American sales manager of Internet Memory Systems, is based in San Jose, California. Fred actively solicits potential customers to purchase their DRAMs and CPUs from IMS. One of Fred's principal marketing methods is posting messages about the availability of DRAMs and CPUs in various Net Usegroups. Fred also has his own "home page" on the World Wide Web.


27. Usenet describes a means by which computers exchange electronic mail tagged with predetermined message headers. The message headers are divided into standardized groupings so that messages can be addressed to the group as a whole. The group is called a Usegroup or Newsgroup.

Any computer can be part of the Usenet by installing the software necessary to download and upload the electronic mail destined to and received from the Usegroup. BACZEWKISKI, supra note 17, at 369-70. The Usegroup/Newsgroup address (viz. "misc.legal.computing") typically gives the "lurker" (someone who reads but does not post messages) some idea of the general topics under discussion. Be warned, however, the topics can vary widely off the point and interests of the Usegroup. There are in excess of 7000 different Usegroups, most of which are not moderated.

28. World Wide Web or WWW is a protocol allowing information to be linked by hypertext. The WWW was designed and prototyped at the European Laboratory for Particle Physics (CERN) in Geneva, Switzerland. Id. at 620-23. Its great advantage is allowing pictures and graphic pointers to be imbedded in ordinary text, thus presenting a magazine — like page to the viewer where the viewer has the ability with a mouse and the click of the mouse button to "jump" to another computer or to another area where information can be found.

A WWW session always starts at a "home page," typically the home page of the host computer or Internet provider. Logging into another computer via WWW usually causes the new host computer's home page to appear on the screen. The home page typically describes the company or individual sponsoring the home page, and provides other useful information about can be found at that location.
Fred recently posted the following message in the Usegroup “ba.market.computers”:

From: fsmith@ix.netcom.com (Fred Smith)
Subject: Internet Memory Systems
Date: 31 Dec 1994 23:53:18 GMT
Organization: Netcom

Come and check out my home page on the WWW.

Here are some of the savings that I offer:

- 486DX4-100 w/Test SW $350
- 486 75MHz MB and CPU $230
- 1MB SIMMS $36
- 4MB SIMMS $120
- 16MB SIMMS $420

Call us today, or order from the www.

Thank You

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Fred Smith | fsmith@ix.netcom.com
Certified Netware Engineer,
LAN Analysis

Disclaimer | Opinions are Mine, not my employer’s

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TIA Setup FAQ
Fred’s Home Port

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CONGRESS.SYS
Corrupted: Re-boot Washington D.C. (Y/N)?

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Garage Systems has obtained an order from a new customer, Global International Law Services ("GILS"), a prominent legal organization with offices and professional associates situated around the world. GILS is revamping the computer network that ties together all of its offices and professionals, replacing the aging but still powerful

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Mosaic, Netscape, and Netcruiser are some of the popular full featured WWW browser programs.
HAS HAL SIGNED A CONTRACT

VAX 11-780 based system at its headquarters, and the Novell Netware 2.12 and MS-DOS 5.0 based LANs in some of its outlying offices (some of the professionals still use IBM Selectrics or their equivalent) with a worldwide network of Intel 586-based netservers operating Novell Netware 3.12 and 4.0 LANs, all tied together over the Internet. The workstations on the professionals’ desks are to be Intel 486DX4-100 based. GILS requires that the workstations be configured with 32 MB RAM, in order to operate MS-DOS 6.22, Windows for Workgroups 3.11, OS/2 Warp and Windows 95.

The 1000 unit initial GILS order is the largest order Garage Systems has ever obtained. The prices at which Garage Systems committed to obtain the GILS business reflect the superior bargaining power of GILS and the acumen and technological foresight of its Executive Director. The margins to be earned by Garage Systems are, to put it mildly, “razor thin.” Garage Systems expects to “make it up in volume,” since GILS anticipates the need for 4000 workstations to outfit its ever growing group of professionals.

The order from GILS presents a business problem for Garage. Garage is committed to a rapid build of the workstations, but as a new business Garage is not high on the favored customer list at Intel and AMD. Likewise it is in the “background noise scatter” at Toshiba, Micron, NEC, TI, Samsung and the other large manufacturers of DRAMs. Andy Acquisition, the director of procurement at Garage Computers, is instructed by senior management at Garage to obtain supplies from whatever source he can locate.

Another of the unique aspects of Garage’s business is that its employees are located around the world. They travel where business dictates, and live where chance, weather, amenities, and previous employment has taken them. Andy Acquisition, for example, is living in Neuchâtel, Switzerland. He and his Swiss wife have a lovely home overlooking the Lake, and their children are happily attending the local schools. Andy also has a vacation home in Austria. Andy communicates with the “factory” by voice, voicemail, video conference links through his workstation facsimile and the Internet.

Andy frequents various on-line Usegroups to keep abreast of professional developments, and “lurks” in the groups known to contain announcements of the availability of supplies. He sees Fred Smith’s announcement of the availability of CPU chips and memory, and downloads a copy of the announcement to his workstation. Andy “surfs” the Net and discovers several individuals who have done business with Internet Memory Systems, and Fred, on a satisfactory basis. Andy gets positive references on IMS from his local banking sources.
Satisfied with this due diligence and under pressure from Garage headquarters in San Jose to get supplies of CPU and DRAM into the pipeline, Andy responds to Fred with an e-mail message. He copies the message to himself to preserve an electronic copy on his workstation. Andy's workstation has been programmed to automatically make a back up copy of his hard disk on a weekly basis on QIC-80 tape, thereby retaining an archived copy of all messages sent or received by Andy.

Andy's e-mail message to Fred Smith, filled with typographical errors as is typical of such traffic, reads as follows:

From: andya@garage.pr.net.ch
Sat Dec 31 05:31:04 1994
Received: from chsun.eunet.ch (chsun.eunet.ch [146.228.10.15]) by get.ix.netcom.com (8.6.9/8.6.5) with ESMTP id FAA09448 for <fsmith@ix.netcom.com>; Sat, 31 Dec 1994 05:31:03 -0800
Received: from andya.UUCP by chsun.eunet.ch (8.6.4/1.34) id OAA01660; Sat, 31 Dec 1994 14:32:39 +0100
Received: by garage.pr.net.ch (UUPC/extended 1.12b); Sat, 31 Dec 1994 14:15:10 MET
Date: Sat, 31 Dec 94 14:15:09.
From: "Andy Acquisition" <andya@garage.pr.net.CH>
Message-ID: <2f05595e.andya@garage.pr.net.ch>
To: Fred Smith <fsmith@ix.netcom.com>
Cc: andya@garage.pr.net.ch
Subject: DRAM and CPU Order

I wish to immediately place an order for CPUs and DRAMs necessary to fabricate 1000 work stations specially ordered by our customer. Customer demands 32MB DRAM per workstation. Seek 16MB DRAM chips (or 4x4MB DRAM chips if 16MB not available). Also seek 486DX4-100 chips. Each w/s to have test s/w on 3.5 floppy.

To facilitate fab, please assemble kits of 32MB DRAM and CPU w/Test SW in suitable antistat packaging.

Desired shipping schedule is:

Week 1: 100 sets
Week 2: 200 sets
Week 3: 300 sets
Week 4: 400 sets

Air Ship > SFO for pickup by Garage Computer Systems, 100 Howard Street, Belmont, CA.

Please confirm receipt of this order and prices by return E-Mail.
Andy Acquisition (andya@garage.pr.net.ch)
Fred Smith received Andy Acquisition’s message on his computer in San Jose. Fred sends an e-mail message to Singapore, forwarding Andy’s message and seeking guidance from Singapore as to availability of products, and prices. DRAM pricing is particularly volatile, and Fred wants to make sure that IMS makes money on the transaction and that he obtains his commission which is based on the profitability of the individual transaction. Singapore gives a favorable response. This following message from Fred then appears on Andy Acquisition’s workstation:

```
From fsnith@ix.netcom.com Sat Dec 31 09:41:24 1994
Received: from also.netcom.com (also.netcom.com [199.2.134.6])
by get.netcom.com (8.6.9/8.6.5) with ESMTP id JAA09541 for
<andya>; Sat, 31 Dec 1994 09:41:23 -0800
Received: (andya@localhost) by also.hooked.net (8.6.9/8.6.5) id
JAA26709; Sat, 31 Dec 1994 09:41:08 -0800 Date: Sat, 31 Dec
1994 09:41:08 -0800
From: Fred Smith <fsmith@ix.netcom.com>
Message-Id:<199412311741.JAA26709@also.ix.netcom.com>
To: andya@garage.pr.net.ch
Cc: fsmith@ix.netcom.com
Cc: jsmith@ims.com.sg
Subject: DRAM and 486DX4
Rec’vd UR email. Confirm Toshiba 4 MB 1x3 SIMMS 70 NS
available in quantities requested. Price $120 today. Can supply
AMD Am486DX4-100s at $350 with AMD test s/w for each set.
UR Schedule impossible. Can ship following:

Week 1:  50 sets
Week 2: 100 sets
Week 3: 250 sets
Week 4: 250 sets
Week 6: 350 sets

Shipment SFO via Singapore Air Cargo. Shipping manifest details
to follow by email from John Smith, IMS Singapore.

Please wire funds to our bank Development Bank of Singapore,
Acct #67743270 for first set kits. Good funds must be in hand
before each shipment.

Please confirm by return email to hold DRAM price.

Andy Acquisition immediately confirms by e-mail to Fred, with a
copy sent by e-mail to John Smith at IMS in Singapore. John Smith in
turn sends an e-mail message providing tentative shipping details.
Fred Smith follows John Smith’s e-mail message with one of his own,
promising that he can expedite shipment if funds are wired by Garage.
```
Garage faces a contract penalty if its shipments to GILS are delayed. Garage has not informed GILS of the ship schedule for DRAMs and CPUs – or for that matter the other components – nor has it advised GILS of the possible impact that the schedule might have on Garage’s shipments to GILS. Garage senior management thus advises Andy to arrange for a letter of credit in favor of IMS in the required amounts, to be drawn on when Development Bank of Singapore has possession of the shipping documents showing the dispatch of the DRAMs and CPUs to San Francisco. Garage’s bank deals directly with DBS over FedWire in creating the letter of credit, and Fred and John are notified by e-mail of the creation of the letter of credit at DBS in favor of IMS. Fred sends an e-mail promising to expedite all shipments.

Two days after the letter of credit is created in favor of IMS, the morning news on the Internet announces that the Niihama, Japan, main resin plant of Sumitomo Chemical, producer of 60 percent of the epoxy resin used in the fabrication of plastic DRAM chip packaging, was destroyed in a fire.29 The price of DRAM “explodes,” with the price in the gray market doubling and tripling as the DRAM brokers and computer manufacturers anticipate immediate shortages of DRAM chips. Faced with this dramatic escalation in prices, IMS does not ship to Garage; rather it succumbs to the entreaties of Toshiba and agrees to sell the chips back to Toshiba at 20 percent over IMS’s cost. Toshiba is one of IMS’s main suppliers, although never publicly acknowledged as such, and IMS wishes to remain in its good graces. Toshiba wants the chips so that it will have stock on hand to allocate among its regular customers at long-term contract prices.

Garage is a Toshiba customer, having set up EDI purchase arrangements with Toshiba. In times of shortage Toshiba allocates available DRAM on the basis of historic purchasing volume, and the duration of the relationship with Toshiba. During the buying panic after the Sumitomo Chemical fire Toshiba’s best customers receive 50% of their historic shipments. As a new customer Garage can expect very little DRAM from Toshiba.

The prices of CPU chips were spared the impact of the Sumitomo Chemical fire, because CPU chips, unlike DRAM, are packaged in ceramic. The problem faced by Garage from the shortage of DRAMs is compounded by simultaneous local developments in San Jose, however. Acting at the request of Intel, a U.S. magistrate judge enjoins

the sale by AMD of the Am486. The initial public news of the order does not specify what is to happen to chips already fabricated by AMD, makes no mention of whether chips already in the hands of third parties can be shipped, and does not specify which variety of Am486 chips are effected. Rumors immediately circulate on the Net that Intel will bring suit to stop shipments of any AMD chips from coming into the United States from overseas. IMS decides not to risk shipment into the United States under these conditions. Fred sends an e-mail message to Garage announcing this decision – in the same message he offers to ship DRAM to Garage at $240 per 4MB.

Garage panics and resorts to the open market for cover. Garage manages to secure substitute DRAM chips, and replaces the AMD chips it had intended to use with higher priced Intel 486 DX4-100s. Unlike AMD, Intel does not supply test software with the chips. Garage secures a test suite from Intel that performs this function, but the Intel license agreement restricts the use of the suite to Garage. Garage thus cannot supply its customers with test software without procuring substitute software in the open market.

Garage Computer consults counsel, who recommends that suit be filed in federal court in San Francisco against Internet Memory Systems and Fred Smith to recover the difference between the contract price and the prices that Garage was forced to pay for cover. Garage also sues to recover the penalty that it expects to eventually pay CILS for late delivery. Fred Smith cannot be located for service of process, but IMS is eventually served in accordance with the Hague Convention and answers the suit. Almost immediately IMS moves for summary judgment, on the grounds that enforcement of any alleged agreement between IMS and Garage is barred by reason of the statute of frauds because there is no signed writing by IMS.

IV. THE STATUTE OF FRAUDS: ORIGINS AND PURPOSES

The original statute of frauds, passed in 1677,31 covers a number of categories and subjects of contracts. The section of interest here is section 17.32 Section 17 as originally written provided:

And be it further enacted by the Authority aforesaid, That from and after the said four and twentieth Day of June no Contract for the Sale of any Goods, Wares and Merchandizes, for the Price of ten Pounds Sterling or upwards, shall be allowed to be good, except the Buyer shall accept Part of the Goods so sold, and actually receive the same, or give something in earnest to bind the Bargain, or in Part of Payment, or that some Note or Memorandum in Writing of the said Bargain be made and signed by the Parties to be charged by such Contract, or their Agents thereunto lawfully authorized.

The original statute of frauds had as its objective the prevention of perjury, and the subornation of perjury, with respect to the formation of contracts. The statute of frauds takes the view, carried through to this day albeit with mounting criticism,33 that certain types of agreements, and certain subject matter of agreements, are so serious as to require their commitment to a writing signed by the parties or their authorized agents. In the absence of a writing no amount of swearing was to be permitted to prove contracts subject to the Statute.

When evaluating the objective of the Statute and the litigation that followed in its 300 year wake – creating exceptions that many say swallowed the Statute, we must bear in mind that the trial as we now know it was a relatively new phenomenon in 1677. The rules of evidence were then just being developed.34 Trial practice in 1677 prevented interested witnesses – those who were parties to the contract – from testifying to its terms and to the striking of a bargain. Instead, parol evidence from third parties was offered to show the making of a contract. Great dissatisfaction was expressed about this in the law courts:

31. The history of the enactment of the statute of frauds is examined in Crawford D. Hening, The Original Drafts of the Statute of Frauds (29 Car. II.c.3) and Their Authors, 61 U. Penn. L. Rev. 283 (1913); see also 6 W. S. Holdsworth, A History of English Law, 379 (1927).
32. In the original text this appears as paragraph 16, and is referenced as either paragraph 16 or paragraph 17 in the treatises. The error was apparently made in transcribing the original text when the Statutes at Large were compiled.
33. Sunset-Stemau Food Co. v. Bonzi, 389 P.2d 133, 136 n.3 (Cal. 1964) ("The commentators almost unanimously urge that considerations of policy indicate a restricted application of the statute of frauds, if not its total abolition.").
34. In Bushell's Case, just seven years before passage of the statute of frauds, the court thought it proper for a jury to evaluate the case from its own pre-trial understanding of the facts, without any evidence being presented. 124 Eng. Rep. 1006 (C.P. 1670).
It is come to that pass now, that every thing is made an action on the case, and actions on the case are become one of the great grievances of the nation; for two men cannot talk together but one fellow or other, who stands in a corner, swears a promise and cause of action. These catching promises must not be encouraged. It were well if a law were made whereby some ceremony, as striking hands etc., were required to every promise that should bind.\(^{35}\)

The statute of frauds can thus be viewed as a improvement on the law of evidence – by requiring better “proof” of contracts – and a device to control the otherwise unbridled discretion of the jury to find contracts upon the dubious evidence of third parties and not from the testimony of the principals.\(^{36}\) To both of these ends it required the production of a writing signed by the party to be charged in order to make the contract enforceable at law.\(^{37}\)

V. THE MODERN STATUTE OF FRAUDS

The statute of frauds survives in various forms today in the United States.\(^{38}\) The California codes, for example, contain several

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\(^{36}\) North, C.J., was trying an action brought by a cook for goods sold. The defendants produced a receipt which showed that he had been paid up to 1677. “The cook started forth from the crowd; and, ‘My Lord,’ said he very quick and earnest, ‘I was paid but to 1676.’ At that moment his lordship concluded the cook said true; for liars do not use to burst out in that unpremeditated manner. . . . He asked the cook again and again, if he was sure; to see if he would stammer or hesitate, as liars will often do; but his answer was blunt and positive as before. Then his lordship, in the nisi prius court in London, sitting under a window, turned round, and looked through the paper against the light; and so discovered plainly the last figure in the date of the year was 6, in rasure; but was wrote 7 with ink” — clearly this would not have been discovered if the judge had not been impressed by the demeanour of one who could not have been called as a witness.

Holdsworth, *supra* note 31, at 389 n.3.

\(^{37}\) The exceptions found in the original statute of frauds — earnest money, part payment, acceptance and receipt of the goods — continue to find their way into the modern statutes of frauds. Likewise the courts of Chancery developed the doctrine of part performance taking the contract out of the operation of the statute. The most popular modern “exception” to the statute of frauds is equitable estoppel. *See, e.g.*, Monarco v. Lo Greco, 220 P.2d 737 (Cal. 1950); Moore v. Day, 266 P.2d 51 (Cal. App. 1954); Allied Grape Growers v. Bronco Wine Co., 249 Cal. Rptr. 872 (1988).

\(^{38}\) The English version adopted in 1677 did not automatically become part of American law. Van Ness v. Pacard, 27 U.S. 137, 144 (1829) (“The common law of England is not to be taken, in all respects, to be that of America. Our ancestors brought with them its general principles, and claimed it as their birthright; but they brought with them and adopted, only that portion which was applicable to their situation.”). In fact, American law on the subject preceded developments in England. In 1647 the Rhode Island legislature passed a statute requiring that conveyances by deeds be in writing. William F. Walsh, *History of Anglo-American Law* 92 n.28 (2d ed. 1932).
provisions requiring contracts be in writing. The Uniform Commercial Code, adopted in 49 states, applies in the case of "transactions in goods." The California version of U.C.C. § 2201 provides:

39. For example, California Civil Code § 1624 applies to contracts that are not subject to the provisions of the California version of the Uniform Commercial Code. It provides that:

The following contracts are invalid, unless they, or some note or memorandum thereof, are in writing and subscribed by the party to be charged or by the party's agent:

(a) An agreement that by its terms is not to be performed within a year from the making thereof.

(b) A special promise to answer for the debt, default, or miscarriage of another, except in the cases provided for in Section 2794.

(c) An agreement for the leasing for a longer period than one year, or for the sale of real property, or of an interest therein; such an agreement, if made by an agent of the party sought to be charged, is invalid, unless the authority of the agent is in writing, subscribed by the party sought to be charged.

(d) An agreement authorizing or employing an agent, broker, or any other person to purchase or sell real estate, or to lease real estate for a longer period than one year, or to procure, introduce, or find a purchaser or seller of real estate or a lessee or lessor of real estate where the lease is for a longer period than one year, for compensation or a commission.

(e) An agreement which by its terms is not to be performed during the lifetime of the promisor.

(f) An agreement by a purchaser of real property to pay an indebtedness secured by a mortgage or deed of trust upon the property purchased, unless assumption of the indebtedness by the purchaser is specifically provided for in the conveyance of the property.

(g) A contract, promise, undertaking, or commitment to loan money or to grant or extend credit, in an amount greater than one hundred thousand dollars ($100,000), not primarily for personal, family, or household purposes, made by a person engaged in the business of lending or arranging for the lending of money or extending credit. For purposes of this section, a contract, promise, undertaking or commitment to loan money secured solely by residential property consisting of one to four dwelling units shall be deemed to be for personal, family, or household purposes.

This section does not apply to leases subject to Division 10 (commencing with Section 10101) of the Commercial Code.

CAL. CIV. CODE. § 1624 (West Supp. 1996). In addition to the general statute of frauds, and the U.C.C. provisions covering "transactions in goods," most American jurisdictions have adopted the provisions of §§ 2A-201, 8-319, and 9-203 of the Uniform Commercial Code, requiring writings, as a prerequisite for enforcement of contracts, for the lease of personal property, purchase and sale of securities, or creation of a security interest in collateral not in the possession of the secured party.

40. Louisiana has not adopted the U.C.C.


(1) . . . means all things (including specially manufactured goods) which are movable at the time of identification to the contract for sale other than the money in which the price is to be paid, investment securities (Division 8) and things in action. "Goods" also includes the unborn young of animals and growing crops
(1) Except as otherwise provided in this section a contract for the sale of goods for the price of $500 or more is not enforceable by way of action or defense unless there is some writing sufficient to indicate that a contract for sale has been made between the parties and signed by the party against whom enforcement is sought or by his authorized agent or broker. A writing is not insufficient because it omits or incorrectly states a term agreed upon but the contract is not enforceable under this paragraph beyond the quantity of goods shown in such writing.

(2) Between merchants if within a reasonable time a writing in confirmation of the contract and sufficient against the sender is received and the party receiving it has reason to know its contents, it satisfies the requirements of subdivision (1) against such party unless written notice of objection to its contents is given within 10 days after it is received.

(3) A contract which does not satisfy the requirements of subdivision (1) but which is valid in other respects is enforceable

(a) If the goods are to be specially manufactured for the buyer and are not suitable for sale to others in the ordinary course of the seller's business and the seller, before notice of repudiation is received and under circumstances which reasonably indicate that the goods are for the buyer, has made either a substantial beginning of their manufacture or commitments for their procurement; or

and other identified things attached to realty as described in the section on goods to be severed from realty (Section 2107).

(2) Goods must be both existing and identified before any interest in them can pass. Goods which are not both existing and identified are "future" goods. A purported present sale of future goods or of any interest therein operates as a contract to sell.

(3) There may be a sale of a part interest in existing identified goods.

(4) An undivided share in an identified bulk of fungible goods is sufficiently identified to be sold although the quantity of the bulk is not determined. Any agreed proportion of such a bulk or any quantity thereof agreed upon by number, weight or other measure may to the extent of the seller's interest in the bulk be sold to the buyer who then becomes an owner in common.

(5) "Lot" means a parcel or a single article which is the subject matter of a separate sale or delivery, whether or not it is sufficient to perform the contract.

(6) "Commercial unit" means such a unit of goods as by commercial usage is a single whole for purposes of sale and division of which materially impairs its character or value on the market or in use. A commercial unit may be a single article (as a machine) or a set of articles (as a suite of furniture or an assortment of sizes) or a quantity (as a bale, gross, or carload) or any other unit treated in use or in the relevant market as a single whole.

(b) If the party against whom enforcement is sought admits in his or her pleading, testimony, or otherwise in court that a contract for sale was made, but the contract is not enforceable under this provision beyond the quantity of goods admitted.\(^42\)

(c) With respect to goods for which payment has been made and accepted or which have been received and accepted. (Section 2606).\(^43\)

A. Is the Transaction Exempt from the Statute of Frauds?

Invariably the question arises whether the statute of frauds is applicable to the contract in question. The monetary limitation on the application of the statute is one means of taking a contract out of the statute of frauds. The ten pounds sterling limit in the original statute of frauds has been increased on numerous occasions since 1677; in U.C.C. § 2201 the monetary limit for contracts involving “transactions in goods” is $500.\(^44\) In the case of the Garage-IMS transaction, the low monetary threshold does not bar the applicability of the statute.

U.C.C. § 2201(3) contains a series of exemptions from its application. These exemptions are of little help to Garage in the IMS-Garage transaction. The DRAMs and Intel 466 DX4-100 chips were not specially manufactured for Garage (Section 2201(3)(a)), and one must assume that in making the motion for summary judgment IMS has not admitted in its pleadings the making of a contract with Garage (Section 2201(3)(b)). The non-negotiation of the letter of credit would seem to preclude application of Section 2201(3)(c), although arguments could be made to the effect that the tender of a conditional letter of credit, where prevention of satisfaction of the conditions is exclusively within the control of the seller, is a form of payment satisfying section 2201(3)(c).\(^45\)

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\(^{42}\) California did not initially adopt § 2201(3)(b) of the Official Text. Section (b) was added in 1988. Cal. Uniform Com. Code § 2201(3)(b) (West 1964) (Amended by Stats. 1988, C.1368, § 8 (Supp. 1996)).

\(^{43}\) CAL. COM. CODE § 2201 (West 1964 & Supp. 1996)

\(^{44}\) The predecessor Uniform Sales Act had a similar $500 limit. As a historic footnote, 10 Pounds Sterling in 1677 was a sum of far greater value than $500 today. Jonathan Swift’s novel *Gulliver’s Travels*, written in 1726, makes reference to a 30 Pound Sterling grant to maintain Gulliver’s schooling for a year as a medical student at the University of Leyden. *Jonathan Swift, Gulliver’s Travels* 2 (G.P. Putnam’s Sons 1887) (1726).

B. Is This a Transaction in Goods?

The application of the U.C.C. § 2201 statute of frauds to the contract between IMS and Garage also depends upon the proper characterization of the subject matter of the contract. Does the contract involve a "transaction in goods?" In the case of the Garage-IMS, it was contemplated that there be a sale, and DRAM and CPU chips are clearly within the definition of goods.\textsuperscript{46} Note, however, the presence in the e-mail messages of reference to IMS' promise to deliver AMD's CPU test software.

Many computer technology transactions involve licenses, rather than sales. A license is neither a lease nor a sale; in the reported cases a license is sometimes characterized as a "mere waiver of the right to sue."\textsuperscript{47} The question is thus frequently presented whether a transaction in which computer software changes hands is a "transaction in goods" to which the Uniform Commercial Code applies.

It is often said that the courts look to the "essence of the agreement" to determine whether the provision of the software predominates, and the transaction is thus a license, or whether the furnishing of the software is only "incidental" to the sale of hardware, in which case there is a "transaction in goods."\textsuperscript{48} In \textit{Advent Systems, Ltd. v. Unisys Corp.},\textsuperscript{49} the Third Circuit Court of Appeals held that shrink-wrapped computer software is a good within the Uniform Commercial Code. The theory, as explained by the Third Circuit, is that:

Computer programs are the product of an intellectual process, but once implanted in a medium are widely distributed to computer owners. An analogy can be drawn to a compact disc recording of an orchestra rendition. The music is produced by the artistry of

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\textsuperscript{46} To the extent that a transaction involving computer technology involves a sale of personal property, not involving the sale of "goods" to which § 2201 provides the applicable rule, § 1206 of the Uniform Commercial Code provides an alternate statute of frauds:

\begin{quote}
(1) Except in the cases described in subdivision (2) of this section a contract for the sale of personal property is not enforceable by way of action or defense beyond five thousand dollars ($5,000) in amount or value of remedy unless there is some writing which indicates that a contract for sale has been made between the parties at a defined or stated price, reasonably identifies the subject matter, and is signed by the party against whom enforcement is sought or by his authorized agent.
\end{quote}


\textsuperscript{47} \textit{General Talking Pictures Corp. v. Western Elec. Co.}, 304 U.S. 175, 181 (1938). A license has been also been described as the "lowest form of property transfer." \textit{Cohen v. Paramount Pictures Corp.}, 845 F.2d 851 (9th Cir. 1988). \textit{See also Spindelfabrik Suessen-Schurr Stahlecker & Grill GmbH v. Schubert & Salzer Maschinenfabrik Aktiengesellschaft}, 829 F.2d 1075, 1081 (Fed. Cir. 1987), \textit{cert. denied}, 484 U.S. 1063 (1988).

\textsuperscript{48} \textit{See, e.g.}, \textit{RRX Indus. v. Lab-Con, Inc.}, 772 F.2d 543 (9th Cir. 1985).

\textsuperscript{49} 925 F.2d 670 (3d Cir. 1991).
musicians and in itself is not a "good," but when transferred to a laser-readable disc becomes a readily merchantable commodity. Similarly, when a professor delivers a lecture, it is not a good, but, when transcribed as a book, it becomes a good.50

In the Garage-IMS transaction it seems clear that the parties to the purported agreement contemplated only the incidental licensing of the AMD test software, and the transaction is predominately a "transaction in goods."

C. The Presence of Copyrighted Software in the Transaction

Mention should be made of the special statute of frauds contained in Section 204 of the Copyright Act. Section 204 provides:

(a) A transfer of copyright ownership, other than by operation of law, is not valid unless an instrument of conveyance, or a note or memorandum of the transfer, is in writing and signed by the owner of the rights conveyed or such owner’s duly authorized agent.
(b) A certificate of acknowledgement is not required for the validity of a transfer, but is prima facie evidence of the execution of the transfer if—

(1) in the case of a transfer executed in the United States, the certificate is issued by a person authorized to administer oaths within the United States; or
(2) in the case of a transfer executed in a foreign country, the certificate is issued by a diplomatic or consular office of the United States, or by a person authorized to administer oaths whose authority is proved by a certificate of such an officer.51

Confirmation that this copyright "statute of frauds" requires that there be a writing to convey an ownership or other interest in the copyright itself is found in Konigsberg Int’l. Inc. v. Rice.52 In Konigsberg, the court considered the validity of a joint venture formed between the author Anne Rice and the Hollywood producers for the creation of certain works. No writing was ever executed conveying ownership or any other interest in copyrights to the joint venture. The plaintiffs, Hollywood producers, contended that they acquired an ownership interest in the copyrights by oral agreement with defendant Rice. The Ninth Circuit Court of Appeals found otherwise:

52. 16 F.3d 355, 357 (9th Cir. 1994).
In *Effects II*,[53] we stated that the writing must ensure that the author "will not give away his copyright inadvertently" and "forces a party who wants to use the copyrighted work to negotiate with the creator to determine precisely what rights are being transferred and at what price." The writing should also serve as a guidepost for the parties to resolve their disputes: "Rather than look to the courts every time they disagree as to whether a particular use of the work violates their mutual understanding, parties need only look to the writing that sets out their respective rights." To serve these functions, the writing in question must, at the very least, be executed more or less contemporaneously with the agreement and must be a product of the parties’ negotiations.

Although section 204 is often referred to as the "copyright statute of frauds," it actually differs materially from state statutes of frauds. While the latter may be satisfied by a writing not intended as a memorandum of contract, not communicated to the other party, and even made in pleadings or testimony years after the alleged agreement, section 204 may not. State statutes of frauds serve a purely evidentiary function – to prevent enforcement through fraud or perjury of fictitious agreements. Thus, agreements subject to statutes of frauds may be perfectly valid, yet unenforceable without evidence of a writing.

By contrast, a transfer of copyright is simply "not valid" without a writing. Section 204’s writing requirement not only protects authors from fraudulent claims, but also "enhances predictability and certainty of ownership" – ‘Congress’s paramount goal’ when it revised the Act in 1976.”[54]

No transfer of an ownership interest in the copyright in the AMD software was contemplated in the IMS-Garage transaction, so Section 204 of the Copyright Act does not apply.

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54. *Konigsberg Int’l. v. Rice*, 16 F.3d 355, at 356-57 (citations omitted). Judge Kozinski found that state law notions of equitable estoppel, part performance, and the like had no application to the statute of frauds contained in Copyright Act § 204.

Rice’s letter was written three and a half years after the alleged oral agreement, a year and a half after its alleged term would have expired and 6 months into a contentious lawsuit. Thus, it was not substantially contemporaneous with the oral agreement. Nor was it a product of the parties’ negotiations; it came far too late to provide any reference point for the parties’ license disputes. In short, Rice’s letter—though ill-advised—was not the type of writing contemplated by section 204 as sufficient to effect a transfer of the copyright to THE MUMMY.

*...*

In sum, Konigsberg, Sanitsky and Rice did lunch, not contracts.

*Id.* at 357-58.
D. The International Character of the Transaction Does Not Bar Application of Section 2201

Given the international character of the IMS-Garage transaction, does the 1980 United Nations Convention on Contracts for the International Sale Of Goods (UNCISG) supply the rule of law applicable to the IMS-Garage transaction? UNCISG governs contracts for the sale of goods between parties whose places of business are in different contracting states.\(^{55}\) Parties in those contracting states may expressly preclude the application of the Convention by appropriate contract language,\(^{56}\) and may provide that writings are required to modify contracts that are themselves in writing.\(^{57}\)

The pertinent part of the UNCISG for present purposes is Article 11, which provides that "A contract of sale need not be concluded in or evidenced by writing and is not subject to any other requirement as to form. It may be proved by any means, including witnesses."\(^{58}\) Under the UNCISG it would seem that any contract made by e-mail communication,\(^{59}\) between parties whose places of business are contracting states, is enforceable without regard to the character of the writing.\(^{60}\)

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56. UNCISG, supra note 55, art. 6.
57. Id. art. 29.
58. Id. art. 11.
59. Article 13 specifically defines a writing as including telex and telegram. Id. art. 13.
60. The provisions of article 11 do not apply where a party has his place of business in a contracting state that has made a declaration under article 96 of the Convention. Article 96 provides that:

[a] contracting state whose legislation requires contracts of sale to be concluded in or evidenced by writing may at any time make a declaration in accordance with article 12 that any provision in article 11, article 29, or Part II of this Convention, that allows a contract of sale or its modification or termination by agreement or any offer, acceptance, or other indication of intention to be made in any form other than in writing, does not apply where any party has his place of business in that State.

UNCISG, supra note 55, art. 96. Countries having made such reservations include Argentina, Chile, China, Hungary, and the Russian Federation.
Singapore was not a UNCISG contracting state at the time of the hypothetical events. Therefore, the UNCISG does not apply to the IMS-Garage contract.

VI. God Hath Wrought Writings Sufficient Under the Statute

Given the applicability of the U.C.C. to the transaction between IMS and Garage, Garage must demonstrate that the e-mail messages transmitted over the Internet between Fred Smith's computer and Andy Acquisition's computer satisfy the writing and subscription requirements of U.C.C. § 2201(1). The case law regarding e-mail messages, and to what extent they satisfy the U.C.C. statute of frauds, is non-existent. The closest analogy seems to be the 19th century predecessor to e-mail: the telegram.

Samuel F. B. Morse's May, 1844 telegram message, "What Hath God Wrought," did not take long to have its impact in the courts of law. In what may be the earliest case on record, the 1856 case of Durkee v. Vermont Cent. R.R., an action was brought to recover commissions earned by the plaintiff for his services in the negotiation of a loan to the defendants. Plaintiff Durkee found a lender Holbrook, and requested authorization from his principals at the railroad to conclude loan negotiations with Holbrook. In response to the request for authority to conclude the loan, Durkee received a telegram from Peck, who had been authorized to act on behalf of the defendant railroad: "Mr. Harrison Durkee, Saratoga: Yes; effect it with Holbrook. Signed John H. Peck." The Vermont Supreme Court viewed the issue as turning on proper proof of the telegram containing the contractual commitment:

In regard to the proof offered to establish telegraphic communications, it seems to us that where such communications are relied upon to establish contracts, where their force and effect will depend

61. Singapore was a signatory to the original Vienna text and ratified the Convention on February 16, 1995. However, the convention only came into effect in Singapore on March 1, 1996.

62. It is possible that a court could find the contract governed by the law of Singapore, on choice of law principles. Singapore law was not reviewed to determine whether there is a statute of frauds applicable to the transaction.

63. The words of the prophet Balaam, "What God Hath Wrought," were chosen by Annie Ellsworth, daughter of U.S. Commissioner of Patents, for transmission at the official May 24, 1844, opening of Morse's Washington to Baltimore Telegraph Line. See L. Sprague de Camp, The Heroic Age of American Invention 71 (1961).

64. For a brief history of the development of the law applicable to the telegraph, see Lester G. Lindley, The Impact of the Telegraph on Contract Law (1990).

65. 29 Vt. 127 (1856).
upon the terms used, they must be proved in the same manner other writings, as in letters and contracts, are. For a telegraphic communication is ordinarily in writing, in the vernacular, at both ends of the line, and must of necessity be so at the last end, unless the person to whom it is addressed is in the office at the time, which is sometimes the fact. In such case, if the communication were never reduced to writing, it could only be proved like other matter resting in parol, by the recollection of witnesses in whose hearing it was repeated. In regard to the particular end of the line where inquiry is first to be made for the original, it depends upon which party is responsible for the transmission across the line, or in other words, whose agent the telegraph is. The first communication in a transaction, if it is all negotiated across the wires, will only be effective in the form in which it reaches its destination. In such case inquiry should first be made for the very dispatch delivered. In default of that, its contents may be shown by the next best proof. If the course of business is, as in the cites, to preserve copies of all messages received in books kept for that purpose, a copy might readily be obtained which would ordinarily be regarded as better proof than the mere recollection of a witness. And according to the early English and the American practice, the party is bound to produce a copy of the original, (that being lost,) when in his power, and known a sufficient time before the trial to enable him to do so.

And perhaps if no copy of such message is preserved, but the original message ordered to be sent is preserved, that should be produced, although this were not strictly the original in the case, the letter delivered, which was the original, being lost.

But where the party to whom the communication is made is to take the risk of transmission, the message delivered to the operator is the original, and that is to be produced, or the nearest approach to it by way of copy or otherwise.66

In Trevor v. Wood,67 another early case, the parties, dealers in bullion and currency, agreed in advance to deal by telegraph. Trevor & Colgate sent a telegram to Wood & Co. accepting Wood & Co.'s offer to sell Mexican dollars. Between the Wood & Co. offer and Wood & Co.'s receipt of Trevor's telegraphed acceptance four days passed "because of some derangement of the line." In that four day period the price moved, and Wood & Co. refused to ship the currency. When suit was brought, Wood & Co. acknowledged sending a telegram putting the Mexican dollars on offer, but denied that this was a writing. The Court held otherwise.

66. Id. at 140-41 (citations omitted).
It was agreed between these parties that their business should be transacted through the medium of the telegraph. The object of this agreement was to substitute the telegraph for other methods of communication, and to give to their transactions by it the same force and validity they would derive if they had been performed through other agencies. In accordance with this agreement, the offer was made by telegraph to the appellants in New York, and the acceptance addressed to the respondents in New Orleans, and immediately dispatched from New York by order of the appellants. It cannot, therefore be said that the appellants did not put their acceptance in a proper way to be communicated to the respondents, for they adopted the method of communication which had been used in the transaction by the respondents, and which had been selected by prior agreement between them as that by means of which their business should be transacted. Under these circumstances the sending of the dispatch must be regarded as an acceptance of the respondents' offer and thereupon the contract became complete.  

By 1946 courts were stating that "[i]t is well established that a telegram satisfies the requirements of the statute of frauds."  

VII. The Multiplicity of E-mail Messages

A number of the cases involving telegrams considered whether a telegram of acceptance was required to state all of the contract terms. The rule developed early on was that a telegram of acceptance need not state all of the terms. The contract would be taken out of the operation of the statute of frauds. Issues concerning both the intent to contract and the sufficiency and specificity of the contract terms would be resolved by proof of a series of writings that included telegrams.

Did the papers which passed between the parties, constituting the memorandum of the transaction [sic], contain such a description of the lands in dispute as was sufficient, in connection with extrinsic evidence not contradictory of nor adding to the written description, to meet the requirements of the Michigan statute of frauds? We say

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68. Id. at 513. See also Farmers' Produce Co. v. McAlester Storage & Comm'n Co., 150 P. 483, 485 (Okla. 1915).

69. Joseph Denunzio Fruit Co. v. Crane, 79 F. Supp. 117, 126 n.13 (S.D. Cal. 1948), motion for new trial granted, 89 F. Supp. 962 (S.D. Cal. 1950), rev'd, 188 F.2d 569 (9th Cir. 1951), cert. denied, 344 U.S. 829 (1952). It is not so well established, however, that the aberrational decision does not come along, as in Pike Indus. v. Middlebury Assocs., 398 A.2d 280, 281-82 (Vt. 1979), cert. denied, 455 U.S. 947 (1982) (where the Vermont Supreme Court has difficulty explaining how the sending of a telegram stating "you are directed to bill [guarantor] directly for the work performed and you are authorized to perform all necessary overtime to complete your work by Sunday, Oct. 20, 1974" was insufficient under the statute of frauds).
‘the papers,’ because the principle is well established that a complete contract, binding under the statute of frauds, may be gathered from letters, writings, and telegrams between the parties relating to the subject-matter of the contract, and so connected with each other that they may be fairly said to constitute one paper relating to the contract.70

In Gibson v. De La Salle Institute71 the plaintiff alleged that a contract for the purchase and sale of wine was formed as a result of the exchange of telegrams between plaintiff and defendant. The defendant contended that the enforcement of any such contract was barred by the statute of frauds. The trial court struck from the record evidence of the circumstances surrounding the sending of the telegrams with the result that the agreement was held unenforceable by reason of the statute of frauds. The California Supreme Court reversed, holding that a contract can be established through proof of the circumstances surrounding the exchange of telegrams, where those circumstances and the telegrams identify the parties to the contract, the terms of the agreement, and whether those terms are sufficient to constitute an enforceable contract.

In Brewer v. Horst & Lachmund Co.,72 the question was also the sufficiency of the exchange of telegrams. In Brewer the statute of frauds was deemed to be satisfied by the fact of the sending of a telegram of acceptance in response to the telegram of offer:

The two telegrams bear the same date; on their face the last one was sent to plaintiff in response to the first; and it is clear that they should be read together to determine whether they constitute a note or a memorandum required by the statute of frauds. We are satisfied that the telegrams, thus read by the light of the circumstances surrounding the parties, are sufficient to take the contract out of the statute of frauds. Any other conclusion than the one here reached would certainly impair the usefulness of modern appliances to modern business, tend to hamper trade, and increase the expense thereof.73

72. 60 P. 418 (Cal. 1900).
73. Id. at 420 (citations omitted). See also Clipper Maritime Ltd. v. Shirlstar Container Transp. Ltd., 1 Lloyd’s Rep. 546 [Q.B. (Com. Ct.) 1987].
VIII. The E-mail Message is Signed

The early writers on the subject of telegrams took the view that the longhand writing on the telegram form, delivered to the telegrapher with a request that the text be transmitted, satisfied the statute of frauds when the text was then transmitted in Morse code to the recipient or telegraph office nearest the recipient. In one fanciful passage, the court viewed the telegraph operator's key as a thousand-mile long steel pen.

So when a contract is made by telegraph, which must be in writing by the statute of frauds, if the parties authorize their agents either in writing or by parol, to make a proposition on one side and the other party accepts it through the telegraph, that constitutes a contract in writing under the statute of frauds; because each party authorizes his agents, the company or the company's operator, to write for him; and it makes no difference whether that operator writes the offer or the acceptance in the presence of his principal and by his express direction, with a steel pen an inch long attached to an ordinary penholder, or whether his pen be a copper wire a thousand miles long. In either case the thought is communicated to the paper by the use of the finger resting upon the pen; nor does it make any difference that in one case common record ink is used, while in the other case a more subtle fluid, known as electricity, performs the same office.

Where the text of the telegram was orally dictated to the telegrapher, rather than written out or typed, the view was adopted that the telegraph company was the agent of the author, and the writing requirement was satisfied by the telegram itself which was "written" by the sender's agent. "[T]he manipulations of [the operator] by which the defendant's name became appended to the dispatch were his own, and were equivalent to an actual personal signing of his name with pen and ink."

In A & G Construction Co. v. Reid Bros. Logging Co., the question was whether the writing was sufficient under the U.C.C. The writing did not contain a personal signature: rather the words Glenn W. Reid were typed at the end of the letter. The Alaska

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74. See Morris Gray, A Treatise on Communication by Telegraph 245-46 (1885).
76. In some instances the telegraph company may be the common agent of both parties. William L. Scott & Milton P. Jarnagin, A Treatise Upon the Law of Telegraphs 331-32 (1868).
Supreme Court held that the typed words satisfied the requirements of Alaska Statute 45.05.050 (U.C.C. § 2201). The Court adopted the view that the U.C.C.'s signing requirement turns on authentication, and concluded that an authenticated "signature"\textsuperscript{80} may be "printed, stamped or written; it may be by initials or thumbprint. It may be on any part of the document and in appropriate cases, may be found in a billhead or letterhead."\textsuperscript{81}

*Reid Bros.* is typical of the modern cases, where the focus of attention is on intent to authenticate, coupled with the use of a symbol, mark or other device affixed to the document with that intent. Thus in *Hansen v. Hill*,\textsuperscript{82} the question was whether the name typed on a telegram constituted the required signature:

> We come now to the question of whether there was a valid subscription. The telegram to which the seller defendant's name has been affixed may be considered as having been signed by the defendant Donald W. Hill within the meaning of the statute of frauds. "The signing of a paper-writing or instrument is the affixing of one's name thereto, with the purpose or intent to identify the paper or instrument, or to give it effect as one's act."

This is usually accomplished when a person affixes his name in his own handwriting; in such case the very fact clearly evidences the intent of the signer. Affixing one's handwritten signature, however, is not the only method by which a paper writing may be considered as being signed within the meaning of the statute of frauds. As long ago as Lord Ellenborough's opinion in *Schneider and Another against Norris*, 2 M. & S. 286, 105 Eng. Rep. 388 (1814), it has been recognized that a printed name may constitute a sufficient signing under the statute of frauds, provided that it is recognized by the party sought to be charged. The courts of this country have generally recognized that principle.

The above view has been adopted in the Restatement of Contracts § 210 (1932), which provides that the signature to a memorandum under the statute may be in writing or printed and need not be subscribed at the foot of the memorandum, but must be made or adopted with the declared or apparent intent of authenticating the memorandum as that of the signer.

\textsuperscript{80} The U.C.C. gives special definitions of "signed" and "writing." "Signed" includes "any symbol executed or adopted by a party with present intention to authenticate a writing." U.C.C. § 1-201(39). "Written" or "writing" includes "printing, typewriting or any other intentional reduction to tangible form." U.C.C. § 1-201(46).

\textsuperscript{81} 547 P.2d at 1216 (quoting U.C.C. § 1-201 (official comment)). See, e.g., Benedict v. Lebowitz, 346 F.2d 120 (2d Cir. 1965).

\textsuperscript{82} 340 N.W.2d 8 (Neb. 1983).
In *Heffernan v. Keith*, 127 So.2d 903 (Fla. App. 1961), the court, in answering the defendant’s contention that the telegram was not sufficient under the statute because it was not a signed copy, indicated that the defendant’s admissions of having sent the telegram amounted to acquiescence.

In the late case of *Hillstrom v. Gosnay*, Mont., 614 P.2d 466 (1980) the court, on facts nearly identical to those confronting the court in this particular case, ruled that a telegram may constitute sufficient written memorandum to satisfy the requirements of the statute of frauds, and also ruled that a typewritten signature on a telegram is proper subscription within the meaning of the statute of frauds, provided that the necessary intent to authenticate is shown.\(^8\)

The “signature” need not be in any particular form or location.\(^84\) In *Brown v. The Butchers & Drovers’ Bank*\(^85\) a bill of exchange endorsed with the figures 1.2.8, written in lead pencil, was held sufficient: “[A] person may become bound by any mark or designation he thinks proper to adopt, provided it is used as a substitute for his name, and he intends to bind himself.”\(^86\) Code words adopted by prearrangement,\(^87\) stationery containing a business letterhead,\(^88\) and purchase order forms with the firm name at the top,\(^89\) have all been held to satisfy the “signed” requirement of the statute of frauds. Hand markings on a notepad\(^90\) and a handwritten “X”\(^91\) have been held sufficient. In *Clark v. Coats & Suits Unlimited*,\(^92\) the court held that a typewritten memorandum, addressed in the To: From: style of business memoranda,

\(^{83}\) Id. at 12-13 (citations omitted). *See also* Joseph Martinelli & Co. v. L. Gillarde Co., 73 F. Supp. 293 (D. Mass. 1947), vacated, 168 F.2d 276 (1st Cir. 1948), modified, 169 F.2d 60 (1st Cir. 1948), cert. denied, 335 U.S. 885 (1948).

\(^{84}\) Vess Beverages, Inc. v. Paddington Corp., 886 F.2d 208, 213 (8th Cir. 1989) (“The signature may take many forms and be located anywhere in the writing, so long as it conveys an intention to authenticate the writing. Whether a particular ‘signature’ was intended to authenticate a document is a question of fact.” (Citations omitted)).

\(^{85}\) 6 Hill 443 (N.Y. Sup. Ct. 1844).

\(^{86}\) *Id.* at 444.

\(^{87}\) Bibb v. Allen, 149 U.S. 481, 494 (1893).

\(^{88}\) Associated Hardware Supply Co. v. Big Wheel Distributing Co., 355 F.2d 114, 118 (3d Cir. 1965):

[It] is also admitted that Big Wheel received invoices for the sales in question which contained the letterhead of Associated, the quantity and price terms. Because it is clear that the parties were “merchants” within U.C.C. sales article; and since no written objections were sent within ten days of receipt, statute of frauds was satisfied.


\(^{91}\) *See, e.g.*, Zacharie v. Franklin, 37 U.S. 151, 161-62 (1838).

could satisfy the signing requirement of the Michigan statute of frauds.

The memorandum purports to be "From Ted Goldsmith". As stated by Professor Corbin, the manner and means used to inscribe the signature are a "question of intention to authenticate". Plaintiff, therefore, should be permitted to present evidence to show that Ted Goldsmith sent plaintiff the memorandum and that Ted Goldsmith intended to authenticate the document when sent, thus satisfying the signature requirement of the statute of frauds. Furthermore, if it can be shown that Ted Goldsmith sent plaintiff the memorandum and he intended to authenticate such, a question of fact remains on the issue of whether or not Ted Goldsmith signed the memorandum in his individual capacity, as an agent of the remaining defendants, or both. Because several questions of fact exist, it is our opinion that the trial court improperly granted accelerated judgment on the ground that the memorandum did not satisfy the writing requirement of the statute of frauds. Thus, we find it necessary to reverse the court's order and remand for trial on this issue.93

In Hessenthaler v. Farzin,94 the Farzins engaged real estate agents to sell their property. An offer of sale was drawn up by the

93. Id. at 354. In Ellis Canning Co. v. Bernstein, the question was whether a contract was created between the parties when the terms of the contract were recorded on audiotape. The case arose out of the impending bankruptcy of a meat packing company. Ellis agreed to provide financing to the meat packing company, owned by Bernstein. The financing contemplated the filing of a Chapter 11 Plan. A meeting was held to confirm the arrangements between the parties and the details of the Chapter 11 agreement. The parties reached agreement but agreed there was no time to put the agreement in writing. The lawyer for Ellis then agreed with Bernstein that their statement of the terms of the agreement should be tape recorded. The Court held that the statute of frauds provisions of U.C.C. § 8319, regarding the sale of securities, were satisfied by the tape recording. 348 F. Supp. 1212 (D. Colo. 1972).

We think and we hold that when the parties to an oral contract agree that the oral contract shall be tape recorded, the contract is "reduced to tangible form" when it is placed on the tape. We do not overlook the requirement for signature contained in the statute, but the clear purpose of this is to require identification of the contracting party, and where, as here, the identity of the oral contractors is established, and, in fact, admitted, the tape itself is enough. So, we hold that even if the signed correspondence is insufficient to get around the statute [which it isn't], the tape recording of the oral contract would be a "reduction to tangible form" under the provisions of the U.C.C. Probably the opposite result would be required under historical statutes of frauds which do not contain the tangible form language of this somewhat unusual definition of the word "written." However, under this statute, we think the tape recorded agreement meets the requirements.

purchasers and sent to the sellers. The purchasers told the sellers that if they wished to accept the offer a telegram should be sent. The sellers sent a mailgram confirming their acceptance, and the purchasers mailed an agreement for signature. The sellers defaulted and the purchasers sued for specific performance. The issue on appeal was whether there was a memorandum sufficient to satisfy the statute of frauds, the sellers never having signed the written contract tendered after the sending of the mailgram in purported acceptance of the offer.

The first question we must decide is whether or not the mailgram [sellers] sent to Dougherty [buyer] constitutes a "signed" writing as contemplated by the statute. Neither our research nor that of the parties has revealed any Pennsylvania cases that address the issue of whether or not a mailgram can be sufficient to satisfy the statute. A consideration of the purpose served by the statute, however, convinces us that the mailgram that was sent in this case is sufficient to constitute a signed writing.95

In a footnote, the court in Hessenthaler stated that, "Although the issue is one of first impression in Pennsylvania, these types of questions are likely to arise with greater frequency in the future, as businesses and individuals increasingly rely on similar methods of negotiation such as electronic mail, telexes and facsimile machines in conducting their business affairs."96

The Hessenthaler court stated that the question was whether the signature requirement had been satisfied. According to the court, the focus was on whether there was some reliable indication that the party to be charged under the writing intended to authenticate it. "[T]here is no requirement in the Statute or the decisional law that a signature be in any particular form. Instead, the focus has been on whether there is some reliable indication that the person to be charged with performing under the writing intended to authenticate it."97 Referring to a series of earlier cases, the court in Hessenthaler ruled that the proper approach was to look to the reliability of the memorandum, judged by the circumstances attending its preparation, its content, and its external appearance. In the particular case at hand, the court felt that the mailgram constituted a signed writing because its content suggested little question of its reliability. The authors of the mailgram identified themselves, they made certain that their intention be clearly understood by declaring their acceptance, and they identified the terms and conditions of the performance of the acceptance.

95. Id. at 992 (footnotes omitted).
96. Id. n.3.
97. Id. at 993.
In light of the primary declaration of identity, combined with the inclusion of the precise terms of the agreement, we are satisfied that the mailgram sufficiently reveals appellants' intention to adopt the writing as their own, and thus is sufficient to constitute a "signed" writing for purposes of the Statute.98

IX. THE TELEX ARRIVES

In the twentieth century the telegram gradually gave way to the telex machine, allowing each user to have direct access to every other user with a telex machine.99 The telex machine gave rise to familiar issues, such as whether, where and when the contract was formed.

In the Denunzio case,100 the parties conceded that "teletype messages do not bear the signature in writing of the party to be charged in the sense that they were not literally signed with pen and ink in the ordinary signature of the sender."101 Examining the early cases holding that any mark or sign written or placed on an instrument of writing with the intent to execute or authenticate the writing sufficed for purposes of the signature requirement, the Denunzio court concluded that it:

[M]ust take a realistic view of modern business practices, and can probably take judicial notice of the extensive use to which the teletype machine is being used today among business firms, particularly brokers, in the expeditious transmission of typewritten messages. No case in point has been called to the court's attention on this particular point, and a diligent search of the authorities has failed to uncover the status of teletype machines as satisfying the California Statute of Frauds. The point appears to be a res nova,

98. Id. at 994. Other modern cases demonstrate the focus on intent. See, e.g., State v. Watts, 222 S.E.2d 389, 391 (N.Y. Sup. Ct. 1976) (quoting Salt Lake City v. Hanson, 425 P.2d 773 (1967):

In regard to a signature, it is the intent rather than the form of the act that is important. While one's signature is usually made by writing his name, the same purpose can be accomplished by placing any writing, indicia or symbol which the signer chooses to adopt and use as his signature and by which it may be proved: e.g., by finger or thumb prints, by cross or other mark, or by any type of mechanically reproduced or stamped facsimile of his signature, as effectively as by his own handwriting.

99. Computers can be programmed to act like telex machines, and have considerable advantage compared to the conventional telex both in the method of composition of messages and in the elimination of the unwieldy punched paper tape used in transmission.


101. 79 F. Supp. at 128.
but this court will hold that the teletype messages in this case satisfied the Statute of Frauds in California.102

The significance of the Denunzio case lies in its reliance upon the use of symbols or code letters as identifying the sender and recipient and as authenticating the document.

The issue of where, for purposes of jurisdiction, a contract is made when the contract is formed by an exchange of telexes was raised in Entores, Ltd. v. Miles Far East Corp.103 There Lord Denning held that the instantaneous communications rule – the contract is formed when the acceptance is communicated and received – applied to contracts formed by telex communications as well as those contracts made over the telephone or shouted across rivers and crowded rooms. Thus, for purposes of jurisdiction and venue statutes the contract is deemed formed at the place of receipt. Lord Denning noted that American decisions have often applied the post office “drop box” rule to telex communications – the contract is formed when the acceptance is placed in the mail – but thought the American decisions wrongly decided.104

In Brinkibon Ltd. v. Stahag Stahl und Stahlwarenhandelsgesellschaft mbH,105 the House of Lords approved the Entores rule, holding that telex communications were governed by the “instantaneous communications” rule, while letters and telegrams were governed by the “drop box” rule.106 Lord Wilburforce did concede, however, that the instantaneous communications rule, even when applied to telex messages, had its limitations:

Since 1955 the use of telex communication has been greatly expanded, and there are many variants on it. The senders and recipients may not be the principals to the contemplated contract. They may be servants or agents with limited authority. The message may not reach, or be intended to reach, the designated recipient immediately: messages may be sent out of office hours, or at night, with the intention, or on the assumption, that they will be read at a later time. There may be some error or default at the recipient’s end which prevents receipt at the time contemplated and believed by the sender. The message may have been sent and/or received through machines operated by third persons. Any many other variations may occur. No universal rule can over all such cases; they must be resolved by reference to the intentions of the

102. Id. at 128-29.
103. 2 All E.R. 493 (C.A. 1955).
104. Id. at 496.
105. 1 All E.R. 293 (House of Lords 1982).
106. Id. at 297.
parties, by sound business practice and in some cases by a judgment where the risks should lie.\(^{107}\)

X. **JUST THE FAX**

The facsimile (fax) machine was invented in 1843,\(^ {108}\) just after the introduction of the telegraph. For years fax languished due to lack of standardization. Now, with standardization through CCITT, near universal compatibility has been achieved, and fax machines are a staple of commerce. In the United States, there are an estimated six million fax machines, supplemented by an estimated one million fax boards in desktop computers. The number of transmitted pages soared from 1.5 billion in 1985 to 17 billion in 1991.\(^ {109}\)

The effect of a document transmitted by fax has received some attention in the courts. In *Calabrese v. Springer Personnel of New York, Inc.*\(^ {110}\) interrogatories were served on defendants pursuant to a court order requiring answers within twenty days. Defendants received the copy of the interrogatories transmitted by fax, but rejected them as not being served in compliance with the requirements of local law. When the answers were not received within the twenty days after service by facsimile, but rather eight days later, plaintiff moved for sanctions. The question presented turned on whether the copy was received during business hours:

Perhaps, literally reading Rule # 2103(b)(3) CPLR, there could now ensue controversy as to whether the recipient’s office is open, whether anyone is in charge, and whether the fax machine is in a conspicuous place. I refuse, however, to engage in such Augustinian folly. Of course the office is open when the fax machine is receiving. If an operator is present, of course there is delivery. If no operator is present, of course the fax machine, which is visited regularly, is in a conspicuous place. Faxing patently satisfied the plain intent of the subsection. Any other interpretation would war with the canon of construction contained in Section # 104 CPLR, and would justify the blunt observation about the Law which Charles Dickens put in the mouth of Mr. Bumble in *Oliver Twist*.\(^ {111}\)

In *Beatty v. First Exploration Fund 1987 and Company*,\(^ {112}\) respondent partnership gave notice of a partnership meeting, and sent

\(^{107}\) Id. at 296.


\(^{109}\) Id. at 48.


\(^{111}\) Id. at 84.

the limited partners a form of proxy for use at the meeting. To be effective, the partnership agreement required delivery of the executed proxy to the partnership prior to the meeting. Some of the proxies were returned by fax. The chairman refused to count the ballots cast by proxy, and declared the motion at hand passed. Suit was then filed by plaintiffs, who contended that if the proxies sent by fax were counted the motion would have been defeated. The court found the proxies valid:

It was argued by counsel for the Fund that validating faxed proxies would increase the risk of fraud, create uncertainty, and give an unfair advantage to those limited partners who had access to a telex or fax machine. I reject that argument. Faxed proxies are, in effect, a photocopy of an original proxy. They reveal what is depicted on an original proxy, including an exact replica of the signature of the person who signed the original proxy. I observe no greater opportunity for the perpetration of a fraud by the use of faxed proxies than by the use of original proxies. The same observation applies to the matter of uncertainty.\(^{113}\)

The facsimile has been analogized to the telex for purposes of determining where, and when, a contact has been formed. In *Gunac Hawkes Bay (1986) Ltd. v. Palmer*,\(^ {114} \) a New Zealand court held that, for purpose of the New Zealand contract venue statute, the instantaneous nature of the facsimile communication led to the conclusion that a contract is formed at the time and place where the communication is received.\(^ {115} \) In two Canadian cases, *Joan Balcom Sales Inc. v. Poirier*\(^ {116} \) and *Rolling v. Willann Investments Ltd.*,\(^ {117} \) the courts held that a contract was formed in the county of receipt, where the facsimile was received. In *Asher v. Goldman Sachs & Co.*,\(^ {118} \) a Queen’s Bench court held that the *Entores* rule, developed for telexes, also applied to faxes, and ruled that a contract formed by exchange of facsimile transmission is created at the location of the facsimile machine where the acceptance is received.\(^ {119} \)

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113. *Id.* at 385.
114. 3 N.Z.L.R. 297 (High Court 1991).
115. *Id.* at 302-03.
XI. THE LAW OF COMPUTER EVIDENCE

The foregoing analysis indicates that a California court hearing the Garage v. IMS dispute should find that the writing and signature requirements of the UCC statute of frauds satisfied by proof of the e-mail messages between Andy Acquisition and Fred Smith. To prove the creation of the contract the e-mail message must be introduced into evidence.

Modern trial technique emphasizes the use of documentary evidence. Juries generally view documents as more trustworthy, and more deserving of belief, than oral testimony. The policies behind the statute of frauds, emphasizing documents and writings showing that a party agreed to be bound in contract as a means of insuring reliable evidence and legal rulings, have thus come full circle.

When Garage offers the Fred Smith e-mail message in evidence at the trial, or arguments arise concerning its admissibility in a summary judgment proceeding, the questions that need to be addressed are as follows:

1. Is the document a writing?120
2. Has the writing been properly authenticated?121
3. If the original122 is not available, may a duplicate123 be offered into evidence under an exception to the best evidence rule?124

120. "Writing" means handwriting, typewriting, printing, photostating, photographing, and every other means of recording upon any tangible thing any form of communication or representation, including letters, words, pictures, sounds, or symbols, or combinations thereof.” CAL. EVID. CODE § 250 (West 1996). A tape recording of a telephone conversation, for example, is a “writing” within the meaning of California Evidence Code § 250. See People v. Estrada, 155 Cal. Rptr. 731 (1979). Motion pictures and phonograph records are also “writings.” See People v. Enskat, 98 Cal. Rptr. 646 (1971); People v. Manson, 132 Cal. Rptr. 265 (1976), cert. denied, 430 U.S. 986 (1977).

121. See CAL. EVID. CODE § 1400 (West 1996).

122. "Original" means the writing itself or any counterpart intended to have the same effect by a person executing or issuing it. An “original” of a photograph includes the negative or any print therefrom. If data are stored in a computer or similar device, any printout or other output readable by sight, shown to reflect the data accurately, is an “original.” CAL. EVID. CODE § 255 (West 1996).

123. A “duplicate” is a counterpart produced by the same impression as the original, or from the same matrix, or by means of photography, including enlargements and miniatures, or by mechanical or electronic rerecording, or by chemical reproduction, or by other equivalent technique which accurately reproduces the original. CAL. EVID. CODE § 260 (West 1996).


Notwithstanding the provisions of Section 1500, a printed representation of computer information or a computer program which is being used by or stored on a
4. If the document is offered to prove the truth of the statements asserted therein, are the statements admissible under an exception to the hearsay rule, such as the business records exception?\textsuperscript{125}

5. Has the secondary evidence, offered to prove the contents of the transmission, been properly authenticated?\textsuperscript{126}

The admissibility of a document offered to prove the existence of a contract, such as the print-out of the Fred Smith counter-offer message transmitted over the Internet, is a question of ordinary proof. In the United States documents are not automatically assumed to be authentic and are not automatically admitted into evidence. They are admitted only through the establishment of a foundation for their receipt.\textsuperscript{127}

A foundation is preliminary proof establishing that the document is what it is claimed to be by its proponent.\textsuperscript{128} With documents offered into evidence for purposes of presenting their content to the finder of fact, as opposed to exhibits used for illustrative or demonstrative purposes, foundational testimony must be given by a competent witness to "authenticate" the document and "identify" the computer or computer readable storage media shall be admissible to prove the existence and content of the computer information or computer program.

Computer recorded information or computer programs, or copies of computer recorded information or computer programs, shall not be rendered inadmissible by the best evidence rule. Printed representations of computer information and computer programs will be presumed to be accurate representations of the computer information or computer programs that they purport to represent. This presumption, however, will be a presumption affecting the burden of producing evidence only. If any party to a judicial proceeding introduces evidence that such a printed representation is inaccurate or unreliable, the party introducing it into evidence will have the burden of proving, by a preponderance of evidence, that the printed representation is the best available evidence of the existence and content of the computer information or computer programs that it purports to represent.


\textsuperscript{126} \textit{See Cal. Evid. Code} § 1401 (West 1996). \textit{In Crabtree v. Elizabeth Arden Sales Corp.}, the New York Court of Appeal held that it was proper to resort to parol evidence to show the connection between the document and its author, and the manifestation of the purported author's intent to be bound by the stated terms. 110 N.E.2d 551 (1953).

\textsuperscript{127} \textit{See} Ford v. United States, 10 F.2d 339, 1349-50 (9th Cir. 1926), aff'd, 273 U.S. 593 (1927) ("There is no presumption that a telegram is sent by the party who purports to send it. Before it can be received in evidence, there must be some proof connecting it with its alleged author."); Continental Baking Co. v. Katz, 439 P.2d 889, 897 (1968) ("We understand that in some legal systems it is assumed that documents are what they purport to be, unless shown to be otherwise. With us it is the other way around. Generally speaking, documents must be authenticated in some fashion before they are admissible in evidence.").

\textsuperscript{128} \textit{See}, e.g., \textit{Mayer v Angelica}, 790 F.2d 1315, 1340 (7th Cir. 1986) \textit{cert. denied}, 479 U.S. 1037 (1987).
purported author. The witness may have firsthand knowledge of the document — for example, Andy Acquisition’s testimony that “Exhibit A is the e-mail message I received on December 31, 1994 from Fred Smith making an offer to sell us chips.”

In the absence of testimony from a witness with direct knowledge, the proponent of the document might authenticate the document by offering evidence of the protection of the document against alteration, and of the system used to send, receive, store, and print the document so as to establish that it was and can be treated as reliable. A systems administrator might be called to testify to (1) the fact that the firm maintained a system of automatically storing e-mail messages received from internal and external sources, (2) the procedure by which those documents are stored, (3) the steps taken by the firm to safeguard the tapes, and (4) the process by which the witness caused the message to be printed out for purposes of bringing it to court. This is not much different than traditional testimony given by document custodians that a particular piece of paper, such as the printout of the e-mail message, was regularly placed in the company’s files, that it was the company’s practice to keep such documents in its files, and that the exhibit in question was found in the company’s files. Alternatively, the person who set up Andy’s computer system, including the nightly back-up of the e-mail traffic, could testify to the existence of the backup system, and to the finding of the electronic version of the message on the back-up tape.

Garage must do more than offer the e-mail message into evidence — it must show that the message came from Fred Smith, who manifested an intent to be bound by its contents. In this case, Garage

129. Failure to preserve archived copies of electronic messages may result in criticism of those who testify from memory of the events unaided, or unhindered, by their then-recorded communications. See Candle Servs. Ltd. v. Warren Reid Meadowcraft, Q.B. Jan. 27, 1995.

130. In some respects the electronic version of the Fred Smith e-mail message is superior in evidentiary character to the paper version. The electronic version, as saved on the hard drive when received and stored on the nightly or weekly backup tape, contains a time and date indicating the details of the receipt and saving of the message. See Armstrong v. Executive Office of President, 1 F.3d 1274 (D.C. Cir. 1993).

131. In Harlow v. Commonwealth, a telegraph office manager testified to the contents of a telegram received by his office nine months prior to his employment. The telegram was dated at a location some 400 miles from the scene of the crime, and was offered apparently to show that the defendant had transferred the stolen money by wire. On appeal from the conviction, defendant argued that:

[T]here was no evidence that he sent or authorized the sending of the telegram, and that the testimony of McClane was pure hearsay and inadmissible in evidence.

This is a case of first impression in Virginia dealing with the question of the nature of the evidence necessary to prove the authorship or identity of the sender of a telegram. The authorities elsewhere are agreed that it is difficult, if not im-
might offer the declaration of Andy Acquisition as the foundation for the admission of a print out of Fred Smith’s e-mail message. Andy would testify to the sending of his e-mail message and to the receipt of Fred’s counteroffer in return. Normally, this would be sufficient.\textsuperscript{132}

In the \textit{Garage v. IMS} proceedings, the system supervisor cannot “authenticate” the Fred Smith e-mail message, because the supervisor has no personal knowledge of the actual content of the message or of the fact that Andy received the Fred Smith e-mail message in response to Andy’s outbound e-mail. The contents of Fred’s e-mail, however, serve to authenticate it as a message from Fred when Andy’s outbound offer message is offered as additional foundation evidence.\textsuperscript{133} The analogy is again to the law developed with respect to telegrams, where the law has firmly established reply telegrams as self-authenticating.

In \textit{House Grain Co. v. Finerman & Sons},\textsuperscript{134} the plaintiff and defendant allegedly formed a contract for the sale of barley by means of an exchange of telegrams. At trial the plaintiff offered into evidence the telegram he received from the defendant, and it was received. On appeal, this was argued as error.

The argument is that the telegram was not admissible because there was no proof George sent it nor proof of his handwriting; that it was sent by one Borut, who it appears from the evidence was a business associate of George; and that George testified he did not send it. House testified that in course of the telephone conversation he had with George on February 20th, he told George he would send him a telegram confirming the terms and conditions of the sale and asked him to send a similar confirming telegram back to House. When House finished Palmer took the telephone and told George some of the language to be incorporated in the telegram. In the course of the conversation House had with Harry on February
27th, House showed Harry the telegram. Harry did not question its authenticity.

The telegram was sent in response to the one sent by House to George. The fact that the two telegrams may have crossed in transmission does not alter the fact. It is settled that a telegram received in reply to a telegram addressed to the sender is presumed to be genuine, and is admissible in evidence without further proof of the identity of the sender. A reply-telegram authenticates itself.\textsuperscript{135}

The fact that the e-mail message from Fred Smith was sent in reply to Andy Acquisition’s proposal, coupled with proof of the subsequent communications between the parties, admittedly by long distance telephone call and e-mail, conjoined with Garage’s taking out of the letter of credit and its receipt in Singapore by IMS’s bank, all serve to authenticate Fred Smith’s counteroffer as a genuine e-mail message from Fred.\textsuperscript{136}

E-mail messages, like the message from Fred Smith which Garage seeks to authenticate, consist of two parts: the header and the body. In the message from Fred Smith to Andy Acquisition dated December 31, the header is all of the message from the From: line at the top to the Subject: line about half way down. The information in the header tells the reader various things about the message:

1. From: shows the address of the userid that sent the message, in this case fsmith@ix.netcom.com. Netcom is a commercial Internet supplier, and ix is the identifier given by one of Netcom’s mail servers.

2. Received: shows the path the message took, and the times, dates and programs used in the communication process. The last Received in Fred Smith’s message 31 Dec 1994 09:41:08 - 0800, is the date and time the message was received at also.hooked.net, Andy’s local Internet supplier. The time is local time where the local time is eight hours behind Greenwich Mean Time.

3. Message-ID: is a unique number tag given to the message at the time it was first sent.

\textsuperscript{135} Id. at 1039 (citations omitted). \textsuperscript{136} See, e.g., Halstead v. Minn. Tribune Co., 180 N.W. 556 (Minn. 1920) (copy of telegram of acceptance received by plaintiff in reply to his offer to work for defendant on terms stated by plaintiff, coupled with proof of destruction of the original message at the sending office and the parties actual entry into employment relationship, conclusive proof of authentication of telegram of acceptance); La Mar Hosiery Mills, Inc. v. Credit & Commodity Corp., 216 N.Y.S.2d 186 (1961) (telegram of guaranty bearing name of guarantor held to be authentic when defendant admits causing telegraph company to type its name on the original, since defendant authorized its name to be affixed upon it).
HAS HAL SIGNED A CONTRACT

4. CC: shows the userids of addressees to whom copies of have been posted. In this case, copies are shown as having been sent to Fred Smith (he sent a copy of the message to himself so he can compare the message as composed with the message as transmitted, and as a means of notifying himself that his mail is getting through), and Jim Smith at IMS in Singapore (ims.com.sg).

5. Subject: gives a short description of the text of the message that follows. The short description has a real world importance larger than the word subject suggests, because the recipients frequently will delete mail messages, without reading them, based upon the userid of the sender and the Subject line. To get Andy’s attention, Fred Smith might have given the Subject line of his e-mail to Andy Acquisition a better description, such as “Your Order Confirmed With Changes.”

The header information is important for evidentiary purposes, because it purports to show that Fred Smith was the creator of the message, shows the time of the creation of the message, and shows the means by which the message travelled to Andy Acquisition. This showing, coupled with the “reply letter” doctrine, also serves to authenticate the e-mail message.

In the absence of the application of the reply doctrine, the rule seems to be developing that a proper foundation for the admission of the record in evidence is present as long as sufficient facts are presented to the court to warrant a finding that the records are trustworthy and the opposing party is afforded an opportunity to inquire into the accuracy thereof and how the records were maintained and produced.

[T]he foundation for admission of such evidence consists of showing the input procedures used, the tests for accuracy and reliability and the fact that an established business relies on the computerized records in the ordinary course of carrying on its activities. The [opposing party] then has the opportunity to cross-examine concerning company practices with respect to the input and as to the

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137. See, e.g., Scofield v. Parlin & Orendorff Co., 61 F. 804 (7th Cir. 1894); Lewis v. Couch, 65 P.2d 988 (Okla. 1937).

138. See Fed. R. Evid. § 901(b)(4) (“Appearance, contents, substance, internal patterns, or other distinctive characteristics, taken in conjunction with circumstances” satisfy the authentication requirement.). See, e.g., House Grain Co. v. Finerman & Sons, 253 P.2d 1034 (1953) (telegram received in response to telegram addressed to sender authenticates itself).

accuracy of the computer as a memory bank and retriever of information . . . . [T]he court [must] "be satisfied with all reasonable certainty that both the machine and those who supply its information have performed their functions with utmost accuracy." . . . [T]he trustworthiness of the particular records should be ascertained before they are admitted and . . . the burden of presenting an adequate foundation for receiving the evidence should be on the parties seeking to introduce it rather than upon the party opposing its introduction.140

As one court said, "[b]usiness records are reliable to the extent they are compiled consistently and conscientiously."141

In the reported decisions discussed above, such as Bibb v. Allen,142 the courts have permitted extrinsic proof to be offered that a nickname, cipher, or assumed name has been adopted or used by a particular person or firm, and that a document "signed" with the assumed name is binding upon the person or firm adopting the name. In the Garage-IMS transaction under discussion, both Fred Smith (fsmith) and Andy Acquisition (andy) have adopted Internet "handles," and the court should conclude that the e-mail message bearing the name "fsmith" is "signed" for purposes of the Statute of Frauds. The fact that the "signature" is mechanically reproduced, rather than placed upon paper, is no longer a valid objection.143 As discussed above, in dealing with the requirement for a signature it is the intent rather than the form of the act that is important. While one's signature is usually made by writing one's name in long-hand, the same purpose can be accomplished by placing any writing, indicia or symbol which the signer chooses to adopt and use as his signature and by which it may be proved, e.g., by finger- or thumbprints, by a cross or other mark, or by any type of mechanically reproduced or stamped facsimile of his signature, as effectively as by his own handwriting.144

In certain situations there might be a further evidentiary objection, hearsay. In the Garage v. IMS proceedings, Garage offers the

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142. 149 U.S. 481 (1893). In the Bibb case, telegrams ordering commodities to be purchased on the New York Cotton Exchange were sent in cipher using aliases; the sender was held bound on the contracts, against a statute of frauds objection.


144. Salt Lake City v. Hanson, 425 P.2d 773 (Utah 1967).
Fred Smith e-mail message to prove the receipt and its contents, *i.e.*, the terms stated in the e-mail which Garage accepted through Andy Acquisition’s e-mail. Given Fred Smith’s apparent position with IMS, the court would probably consider the e-mail message a party admission and find the contents admissible.

In the first reported case dealing with the admissibility of an e-mail message, *Monotype Corp. PLC v. International Typeface Corp.*, an e-mail message from Adler, a Microsoft employee, to another Microsoft employee was sought to be admitted as a business record. The Court of Appeals upheld the trial court’s denial of admission of the e-mail message on the grounds that the trial court properly found that its prejudicial content outweighed its probative value. The Court of Appeals went on to say, however, the e-mail message was not a systematic business activity, but rather “an ongoing electronic message and retrieval system.”

The *Monotype* court seems to have missed the point, which was whether an e-mail message, prepared by one employee and sent to another employee in the ordinary course of business, and either captured on paper, or archived electronically, is a document falling within the business records exception to the hearsay rule. Under the Federal Rules of Evidence, all that is required to be shown is that the record was “kept in the usual course of a regularly conducted business activity, and if it was the regular practice of that business activity to make the memorandum.” It would seem sufficient, under the business records exception to the hearsay rule, that a witness be offered to identify the details of the electronic mail system, to the finding of the particular message in question in the archives or among the printouts of messages, that it was the regular practices of the employees of the company in question to use e-mail and send messages, and that the company in question, or companies in general, rely upon e-mail in the course of business communications. Thus, for example, a series of incoming file messages, seized from trash cans, were held to be ad-

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145. 43 F.3d 443 (9th Cir. 1994).
146. *Id.* at 450.
147. FED. R. EVID. § 803(6).
148. See, e.g., United States v. Linn, 880 F.2d 209 (9th Cir. 1989) (hotel director of communications properly authenticated hotel telephone billing records, generated by a computer system, showing calls made to particular telephone number from the defendant’s hotel room at a particular time); United States v. Wables, 731 F.2d 440 (7th Cir. 1984) (witness need not be personally familiar with the entries, only the procedures under which the records were kept); United States v. Hyde, 448 F.2d 815 (5th Cir. 1971), cert. denied, 404 U.S. 1058 (1972) (upholding admissibility of notes made by a company official while participating in an extortion ring); United States v. Moran, 151 F.2d 661 (2d Cir. 1945) (memorandum of a telephone conversation made by a bank employee).
missible as business records in a prosecution for illegal export activities in United States v. Gregg.149

The questions posed by the law of evidence in the context of e-mail, as stated by Baum and Perritt, can thus be summarized as follows:

1. Proving that an electronic communication actually came from the party that it purports to come from
2. Proving the content of the transaction, namely, the communications that actually occurred between the parties during the contract formation process
3. Reducing the possibility of deliberate alteration of the contents of the electronic record of the transactions
4. Reducing the possibility of inadvertent alteration of the contents of the electronic record of the transaction.150

XII. THE FUTURE OF THE STATUTE OF FRAUDS

The continuing existence of a statute of frauds with respect to contracts is currently the matter of wide ranging debate in the United States. There is some feeling that the statute of frauds should be abolished, not only for sales transactions, but for licensing transactions as well. Others have argued that licensing transactions should be subject to the same requirements of a writing signed by the party to be charged that is required of contracts for the sale of goods.151 At present, the drafting committee organized under the auspices of the National Conference of Commissioners on Uniform State Laws has both options under study.

Many contract scholars believe that contracts ought to be allowed to be formed and proven by any means, and that requiring writings is inconsistent with modern high speed communications mechanisms resulting in nonpaper-based transactions. The arguments advanced in favor of the abolition of the statute of frauds tend to focus on the many exceptions to the application of the statute, and to the supposed reali-

149. 829 F.2d 1430 (8th Cir. 1987), cert. denied, 486 U.S. 1022 (1988).
ties of "modern commerce" that transactions are created by exchanges of electronic or other communications that supposedly are not "signed" "writings." The recent UNIDROIT Principles of International Commercial Contracts,\textsuperscript{152} intended to harmonize international contract law, does not require a contract to be concluded in or evidenced by writing. It may be proved by any means, including witnesses.\textsuperscript{153}

Although many transactions do take place without "signed writings" in the traditional sense of letters and subscribed contracts, particularly given the increasing importance of electronic contracts, this paper suggests that there are in reality few analytical problems with traditional law. In any event the perceived limitations on the traditional notions of "writing" and "signed" can be easily corrected by modernized definitions of "signed" and "writing," or by the adoption of an electronic concept of adequate contract documentation.

The goal to be achieved is the facilitation of proof of the formation of contracts, and the assurance that the offeree truly manifested an intent to be bound. In \textit{Alaska Airlines v. Stephenson,}\textsuperscript{154} the Ninth Circuit, reviewing a statute of frauds question, mused about the role of enforcement attitudes on achieving this goal.

[O]ne well may wonder if the courts from the beginning had vigorously enforced the statute of frauds from its first adoption in England, wouldn't we have less injustice? If people were brought up in the tradition that certain contracts inescapably had to be in writing, wouldn't those affected thereby get their contracts into writing and, on the whole, wouldn't the public be better off?

But we have to take the law as we find it. For generations, in hard cases, the courts have been making exceptions to "do justice," granting relief here, calling a halt there. The result is that one with difficulty can predict the result in a given state and the situation becomes more confounded when the query arises as to whose (what state's) law we should apply.\textsuperscript{155}

\textsuperscript{152} \textsc{Principles of International Commercial Contracts}, (International Institute for the Unification of Private Law, 1994) [hereinafter UNIDROIT PRINCIPLES].

\textsuperscript{153} Id. art 1.2. The Commentary to Article 1.2 notes that this Principle can be overridden by applicable local law, which may impose special requirements — such as writings — with respect to certain types of contracts and certain contract clauses. \textit{Iid.} art 1.2, cmt.2. The parties to the agreement or negotiation are of course free to insist that no agreement is effective until a writing is created and signed. \textit{Iid.} art. 2.13.

\textsuperscript{154} 217 F.2d 295 (9th Cir. 1954).

\textsuperscript{155} \textit{Iid.} at 297.