Bots, Babes and the
Californication of Commerce

Ian R. Kerr*

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Space may be the final frontier
But it's made in a Hollywood basement
Cobain can you hear the spheres
Singing songs off station to station
And Alderaan's not far away
It's Californication

–The Red Hot Chili Peppers

VIRTUALLY ALL OF THE PRECIOUS BITS of legal attention devoted to *automated* electronic commerce have, until recently, focused on the issues surrounding contract formation.[1] While, admittedly, it is extremely interesting to muse about the sense in which 'autonomous,' machine-based systems might be said to have the capacity to contract,[2] or about whether the mere click of a mouse during the course of an automated transaction is sufficient to bind a consumer to an online service provider's *Terms of Service*,[3] I am concerned that excessive attention to

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1. See *e.g.* Vincent Gautrais, "Les contrats on-line dans la théorie générale des contrats: le contexte nord-américain" (2000) 17 Cahiers du CRID 107; Vincent Gautrais, "La couleur du consentement électronique" (2003) 16:1 C.P.I. [forthcoming in September 2003]; Vincent Gautrais, *The Legal Framing of the International Electronic Contract* (Brussels: Bruylant Academia, 2001); R. Weiland, "The Uniform Electronic Commerce Act: Removing Barriers to Expanding E-Commerce" (2001) 7 Appeal 6; Amelia H. Boss, "The Uniform Electronic Transactions Act in a Global Environment" (2001) 37 Idaho L. Rev. 275. See also John D. Gregory, "*The Uniform Electronic Commerce Act*" (2000) 6:1 Lex Electronica, <http://www.lex-electronica.org/articles/v6-1/gregory.htm>; Michael Erdle, "On-line Contracts: Electronic Creation of Effective Contracts," available at Deeth Williams Wall, LLP <http://www.dww.com/articles/online.htm>.

2. See *e.g.* Ian R. Kerr, "Spirits in the Material World: Intelligent Agents as Intermediaries in Electronic Commerce" (1999) 22 Dal. L.J. 190 [Kerr, "Spirits in the Material World"]; Ian R. Kerr, "Ensuring the Success of Contract Formation in Agent-Mediated Electronic Commerce" (2001) 1 Electronic Commerce Research Journal 183 [Kerr, "Contract Formation"]; Lars Davies, "Contract Formation on the Internet: Shattering a Few Myths" in Lillian Edwards & Charlotte Waelde, eds., *Law & The Internet* (Oxford: Oxford-Hart Publishing, 1997); Tom Allen & Robin Widdison, "Can Computers Make Contracts?" (1996) 9 Harv. J.L. & Tech. 25; Curtis E.A. Karnow, "Liability For Distributed Artificial Intelligences" (1996) 11 Berkeley Tech. L.J. 147.

3. See *e.g. Kanitz v. Rogers Cable Inc.* (2002), 58 O.R. (3d) 299, 16 C.P.C. (5th) 84 (Sup. Ct. Jus.); *Rudder v. Microsoft Corp.*, [1999] O.J. No. 3778 (QL), (1999), 2 C.P.R. (4th) 474 (Sup. Ct. Jus.). See also Brian F. Fitzgerald, "Digital Property: The Ultimate Boundary?" (2001) 7 Roger Williams U.L. Rev. 47.

this renaissance of thought on the fundamentals of contract might inadvertently eclipse an illicit use of automation technologies. Although, as an academic, I remain grateful for the unusual opportunity that electronic commerce has afforded to legal scholars in terms of rethinking doctrines such as contractual capacity and consent, I believe that a warning flag is in order. With so much attention being paid to the enforceability of online contracts, few jurists seem to be demonstrating any interest at all in the consequences of automated electronic commerce *for people*.

Automation involves removing people from various stages of a transaction. In B2B commerce and its predecessor, EDI,[4] the automation process is typically unproblematic from the perspective of contract law because the parties are usually well known to each other and have regularly transacted pursuant to mutually understood terms and conditions. The same is not true of automated B2C commerce. Where a *consumer* is compelled to interact online with a machine,[5] practically speaking, he or she rarely has adequate knowledge of the other party or its terms and conditions. Despite having the technological capability of doing so, many automated systems do not provide all of the information that is necessary to put the consumer in a position to make fully informed choices.

This problem has been deeply exacerbated with the recent trend in automated electronic commerce wherein the vendors of online goods or services use avatars, shopping bots, vReps, or digital buddies[6]—*instead of people*—as the primary source of information during the negotiation and formation of a contract. These electronic entities are being employed to assist in a rather slick form of *misdirection*. Like Hollywood's finest directors, who are able to steer their audiences' attention away from the false assumptions that they have so skillfully engendered, some software programmers are applying principles of cognitive science to develop electronic entities that garner consumer trust.[7] Unfortunately, some e-businesses are exploiting these applications to garner trust where no such trust is warranted.[8] The net effect of this *sleight of hand* is to further dimin-

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4. Electronic Data Interchange (EDI) means the electronic transfer of information from computer to computer, using an agreed standard to structure the information. See United Nations Commission on International Trade Law (UNCITRAL), "Model Law on Electronic Commerce with Guide to Enactment" (1996) c. 1, UNCI-TRAL <http://www.uncitral.org/en-index.htm>. See also Barry Fishley & Ben Hughes, "Electronic Signatures" (2002) 2 Int'l J. of Electronic Commerce L. & Practice 1; Bradley J. Freedman, "Electronic Contracts Under Canadian Law—A Practical Guide" (2000) 28 Man. L.J. 1; Jennifer Babe, "The Legal Pitfalls of Electronic Data Interchange" *Lawyers Weekly* (23 May 1997) 3.

5. Almost always as the offeree; usually in response to a unilateral offer; inevitably resulting in a contract of adhesion.

6. See *infra* notes 13–16 for a description of these technologies.

7. See *e.g.* Helen Nissenbaum, "Securing Trust Online: Wisdom or Oxymoron?" (2001) 81 B.U.L. Rev. 635; Rosalind W. Picard, "Does HAL cry digital tears?: emotion and computers" in David G. Stork, ed., *HAL's legacy: 2001's computer as dream and reality* (Cambridge: MIT Press, 1997); Rosalind W. Picard, "What does it mean for a computer to 'have' emotions?", Institute of Hygiene and Applied Physiology <http://www.iha.bepr.ethz.ch/pages/leute/zim/emopapers/picard-what_does_it_mean_for_a_computer_to_have_emotions.pdf>. See also Duncan Graham-Rowe, "Smart cell phone would spend your money" *New Scientist* (15 June 2003), <http://www.newscientist.com/news/news.jsp?id=ns99993818>; Brandon Mercer, "Will Computers Read Your Mind?" TechTV (30 May 2002), <http://abcnews.go.com/sections/scitech/TechTV/techtv_mindreader020530.html>; Cliff Saran, "Letting your computer know how you feel" *ComputerWeekly.com* (24 June 2003), <http://www.computerweekly.com/articles/article.asp?liArticleID=122773&liArticleTypeID=20&liCategoryID=1&liChannelID=126&liFlavourID=1&sSearch=&nPage=1>.

8. See *infra* notes 14–16 for a discussion of some examples.

ish the possibility of consumers making informed choices. It also has tremendous implications for personal privacy.

I call this disturbing trend the *californication of commerce*.[9] In this article, my aim is not merely to explore various legal issues arising from this trend but, equally, to expose the vision underlying the technologies that support it. To this end, I commence with a discussion of the law of contract as it applies in the context of automation. Once the contractual foundations have been laid, my focus turns to the technologies that automate electronic commerce. Here, my primary objective is to trace the architectures of human-computer interaction (HCI) back to their conceptual origins within the field of artificial intelligence (AI). By examining the AI techniques employed to automate and animate electronic commerce, I hope to expose some of the trickery used to deceive consumers. Once these techniques have been revealed, I then question whether our lawmakers ought to respond by enacting laws more robust than those stipulated in today's typical electronic commerce legislation which, for the most part, tend to be limited to issues of form and formation.[10] Ultimately, I ask whether new laws are needed to ensure that the interests of everyday consumers are not exploited by the web's wide world of bots and babes.[11]

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1. CONTRACT FORMATION IN THE AGE OF AUTOMATION

THE OLD ROAD IS RAPIDLY AGING. Many commercial transactions have veered off traditional paths and onto the *infobahn*.[12] Having migrated into electronic envi-

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9. For reasons that will be known to those who listen to the Red Hot Chili Peppers: Red Hot Chili Peppers, *Californication*. WEA/Warner Brothers (P) 1999 Warner Bros. Records Inc.

10. Most provincial e-commerce legislation does not include any consumer protection measures; see *e.g.* Alberta's *Electronic Transactions Act*, S.A. 2001, c. E-5.5 (in force 1 April 2003), <http://www.qp.gov.ab.ca/documents/acts/E05P5.cfm> [*Alberta*]; British Columbia's Electronic Transactions Act, S.B.C. 2001, c. 10 (in force 19 April 2001), <http://www.qp.gov.bc.ca/statreg/stat/E/01010_01.htm> [*British Columbia*]; New Brunswick's *Electronic Transactions Act*, S.N.B. 2002, c. E55 (in force 31 March 2002), <http://www.gnb.ca/0062/acts/acts/e-05-5.htm> [*New Brunswick*]; Newfoundland and Labrador's *Electronic Commerce Act*, S.N.L. 2001, c. E-5.2 (in force 13 December 2001), <http://www.gov.nf.ca/hoa/statutes/e05-2.htm> [*Newfoundland*]; Nova Scotia's *Electronic Commerce Act*, S.N.S. 2000, c. 26 (in force 30 November 2000), <http://www.gov.ns.ca/legi/legc/bills/58th_1st/3rd_read/b061.htm> [*Nova Scotia*]; Ontario's *Electronic Commerce Act, 2000*, S.O. 2000, c. 17 (in force 16 October 2000), <http://192.75.156.68/DBLaws/Statutes/English/00e17_e.htm> [*Ontario*]; Prince Edward Island's *Electronic Commerce Act*, S.P.E.I., c. E-4.1, <http://www.gov.pe.ca/law/statutes/pdf/e-04_1.pdf> [*Prince Edward Island*]; Saskatchewan's *The Electronic Information and Documents Act*, 2000 S.S., 2002 c. E-7.22 (in force 1 November 2000), <http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/E7-22.pdf> [*Saskatchewan*]; Yukon's *Electronic Commerce Act*, S.Y. 2000, c. 10 (in force 14 December 2000), <http://www.lex-yk.ca/2000/pdf/ly2000c10.pdf> [*Yukon*].

11. After ample dialogue and debate, the Government of Canada has recently decided to consider such issues, *e.g.* the *Canadian Code of Practice for Consumer Protection in Electronic Commerce* (Approved in Principle January 2003), <http://strategis.ic.gc.ca/pics/ca/eng_consumerprotection03.txt> [*Canadian Code*].

12. Many established companies (*e.g.* Air Canada) continue to provide incentives to convince their customers to transact online. The same is true for some government services. In an effort to increase customer use of online services, the Canadian Customs and Revenue Agency (CCRA) offers personalized tax information, GST/HST credit and Canada Child Tax Benefit (CCTB) through its T.I.P.S Online service, which can be found at <http://www.ccra-adrc.gc.ca/eservices/tipsonline/services-e.html>. Likewise, Export Development Canada (EDC) has created EXPORT Check, an online tool that allows Canadian companies to access their foreign buyers' credit profile before exporting: <http://www.edc.ca/prodserv/online/exportcheck/check_e.htm>. Similar programs exist with provincial governments. For example, the Government of Prince Edward Island offers online vehicle registration at <http://www.gov.pe.ca/tpw/vehicle/index.php3>. Many companies in the private sector (*e.g.* Dell Computers) transact exclusively online.

ronments, commercial transactions are no longer entered into and carried out exclusively by humans. Many such transactions are initiated and completed by avatars,[13] vReps,[14] digital buddies,[15] and various kinds of shopping bots.[16] These technologies remove human beings from at least one side of the transaction.[17]

As a result, it has become disingenuous to characterize many online transactions as giving rise to contracts in the traditional sense—namely, a "jural relation that is founded upon agreement."[18] Computer generated transactions no longer fit within the traditional paradigm of contract doctrine. Properly speaking, they are not the "manifestation of a mutual concordance between [two] parties as to the existence, nature and scope of their rights and duties."[19]

In fact, the entire point of new automation technologies is to inspire sophisticated transactions that can take place independent of human review.[20] This is not small change. Unlike yesterday's technologies,[21] the technologies that automate electronic commerce are *no longer* limited to providing predeter-

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13. An avatar is "[a] graphical icon that represents a real person in a cyberspace system. When you enter the system, you can choose from a number of fanciful avatars. Sophisticated 3D avatars even change shape depending on what they are doing": *Webopedia*, s.v. "avatar", <http://www.webopedia.com/TERM/A/avatar.htm>.

14. "vReps are virtual representatives...used to humanize online relationships by providing a single, interactive contact point for all customer questions through a natural language dialog...[vReps] intelligently answer each user's question based on their needs and [a company's]...business objectives": see NativeMinds, "About Us", <http://nativeminds.com/AboutUs_default.html>. Some examples of vReps used by major companies include "Katie" (a vRep that offers skincare information to *Dove* customers); "Hank" (who provides information on employment opportunities at *Coca Cola*); and "Anne" (who offers nutritional information and *Iams* product recommendations to pet owners): see "Customers," <http://nativeminds.com/Customers_default.html>. These links now direct you to the website of Verity, which recently acquired NativeMinds, and markets vReps under the product category "Verity Response."

15. Digital buddies, sometimes known as 'chatter bots,' are software programs that automate chat with users about topics ranging from movies to anti-smoking campaigns. Digital buddies are available by downloading software, or by being added to Instant Messenger (IM) Programs. Some examples of digital buddies include:

    Talking Buddy: Talking Buddy is an interactive computer assistant that can read stock quotes, headlines, offers birthday reminders and recommend useful websites. Once you have downloaded the free trial of Talking Buddy software, Talking Buddy stays on your PC and begs you to purchase the software so that the two of you can stay friends. See <www.talkingbuddy.com>. Users should be aware, however, that downloading the free trial of Talking Buddy software modifies one's internet browser by changing all settings to go to the searchalot.com website. Additional sites may also be listed in your internet browser's favorites. (For more information, see the *Terms of Agreement*).

    RecipeBuddy: sponsored by Keebler, this buddy wants to chat about everything from barbeque techniques to brownies. See <http://www.activebuddy.com>.

    FreedomBuddie: created by Freedom Inc., this buddy is an interactive agent that educates users on "how the government, with good intentions, unwittingly places arbitrary restrictions on how you live your life." Topics include the "Fat Tax" being introduced on fast food in the United States as well as information on the Food and Drug Administration (FDA). See <http://freedom.activebuddy.com/>.

    VAVAVIRGIL: the chatter bot of the Virginia Tobacco Settlement Foundation, VAVAVIRGIL's favourite topic is why no one (particularly young people) should start smoking. See <http://www.ydouthink.com>.

16. Shopping Bots are programmed to collect and compare information from various online vendors. Agents use collected information to recommend products to users. Although shopping bots may market themselves as an unbiased service, as discussed below, most offer preferential placement in return for payment by merchants. See Steve Fischer, "When Animals Attack: Spiders and Internet Trespass" (1999) 2 Minn. Intell. Prop. Rev. 139.

17. That is, humans can now complete transactions with machines and in some cases, machines can complete transactions with other machines.

18. See G.H.L. Fridman, *The Law of Contract*, 3rd ed. (Scarborough: Carswell, 1994) at 5.

19. *Ibid.*

20. See Pattie Maes, "Agents that Reduce Work and Information Overload" (1994) 37:7 Communications of the ACM 30, <http://web.media.mit.edu/~pattie/CACM-94/CACM-94.p1.html>; Björn Hermans, *Intelligent Software Agents on the Internet: An Inventory of Currently Offered Functionality in the Information Society and a Prediction of (Near)Future Developments* (Ph.D. Thesis, Tilburg University, 1996), <http://www.firstmonday.dk/issues/issue2_3/ch_123/index.html>.

21. For example, vending machines and mechanical parking attendants.

mined extensions of human interaction. Whereas primitive automating technologies could only allow vendors to sell goods remotely on pre-established terms, newer forms of automation transact *autonomously*, *i.e.*, without the involvement of human beings.[22] Machines are now able to broker custom-made deals and can influence consumer decision making in various ways, sometimes resulting in contracts with terms unknown to the parties that employed them.[23]

The relevant distinction between older and newer automation technologies is perhaps better understood at the functional level. Most of the older technologies are merely the *conduits* through which two independent parties transact.[24] Conversely, some of the newer technologies are better characterized as *intermediaries* to the transaction. The essence of *conduit automation* is that, while it can be used to extend the reach of interaction between the parties, it is unable to alter the terms and conditions of the transaction and is therefore incapable of interfering with the rights and obligations owed by one party to the other. *Intermediary automation*, on the other hand, can be used to generate novel terms and conditions, some or all of which might not have been contemplated by the actual parties to the transaction. The entire point of intermediary automation is to remove the need for one or both parties to be involved in decision-making during the formation of the contract. Instead of involving people, the automation technology is used to transact with consumers or other businesses *on their behalf*. Consequently, technologies that operate as intermediaries are capable of altering the legal positions of the parties. Like legally

22. See *e.g.* Eduardo Alonso, Daniel Kudenko & Dimitar Kazakov, eds., *Adaptive Agents and Multi-Agent Systems: Adaptation and Multi-Agent Learning* (Berlin: Springer, 2003); Matthias Klusch *et al.*, eds., *Intelligent Information Agents: The AgentLink Perspective* (Berlin: Springer, 2003); Valentina Plekhanova, *Intelligent agent software engineering*, (Hershey, PA: Idea Group, 2003); Khaled Nagi, *Transactional Agents: Towards a Robust Multi-agent System* (Berlin: Springer, 2003); Mukesh Patel, Vasant Honavar & Karthik Balakrishnan, eds., *Advances in the Evolutionary Synthesis of Intelligent Agents* (Cambridge: MIT Press, 2001); Alexandros Moukas, Carles Sierra & Fredrik Ygge, eds., *Agent Mediated Electronic Commerce II: Towards Next-Generation Agent-Based Electronic Commerce Systems* (Berlin: Springer, 2000); Jiming Liu & Ning Zhong, eds., *Intelligent Agent Technology: Systems, Methodologies and Tools* (Singapore: World Scientific Publishing Company, 2000).

23. See *e.g.* <http://www.activebuddy.com>; <http://www.talkingbuddy.com>. See also <http://www.haptek.com/corporate/> where users can download the Haptek software to "[create] photo-realistic, 3-D, full-bodied, fully animated, morphing and emotive characters in dynamic environments that visually and verbally interact with the user and with one another over the Internet, in real time and at virtually any bandwidth." Haptek characters can be used for anything from virtual salespeople, site guides, corporate trainers to hosts and entertainers of websites. See also: <http://www.landsend.com>, where users can build a profile and virtual sales agents will call up items that fit that profile. With the Virtual Model option, users can create a 3D version of their body type and use the model to try on clothes before purchasing them.

24. For example, a telephone, fax machine or vending machine. These technologies merely extend the reach of interaction between the parties.

authorized agents,[25] the operations of electronic intermediaries[26] can create obligations *on the part of* those for whom they are acting as intermediaries.

Although the law does not currently employ the same nomenclature, it also distinguishes between what I am calling 'conduit automation' and 'intermediary automation.' Within the common law tradition, the older technologies (those that operate merely as a conduit) are governed by the doctrine of *unilateral contracts*. In a unilateral contract, an act is exchanged for a promise, so that when the contract comes into existence, only the offeror has obligations to fulfill. The offeree has already fulfilled its obligations by accepting the offer.[27] An application of this doctrine in the context of conduit automation is illustrated through the example of a simple vending machine. The promise to deliver the goods on display[28] is offered in exchange for the act of inserting the appropriate amount of money into the machine. Once the customer fulfills this act, the offer has been accepted and a contract is in place.

It is important to note that the common law *does not* regard such contracts as between the customer and the machine.[29] Since the technology is merely a conduit, the law presumes that the party employing the automating technology[30] is simply communicating contractual intent through the use of the technology. Here is how Denning M.R. characterized the contract formation process in a famous case involving an automated parking attendant:

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25. I say "like a legally authorized agent" because most electronic commerce legislation is clear to distinguish "electronic agents" from agents in the legal sense. See *e.g. Uniform Electronic Commerce Act*, Uniform Law Conference of Canada, s.19, Uniform Statutes <http://www.ulcc.ca/en/us/index.cfm?sec=1&sub=1u1> [*UECA*]. See also Gregory, *supra* note 1 ("Electronic agents are defined as computer programs used to initiate an action or to respond to electronic documents without human intervention at the time of response or action. They have nothing to do with the law of agency, since they are machines that have no legal personality. The term is however widely accepted and not easily displaced by something clearer in law, such as 'electronic device'. Section 21 makes it certain that contracts may be formed using electronic agents, on one side or on both sides" at para. 28). See also *Uniform Electronic Transactions Act*, National Conference of Commissioners of Uniform State Laws, <http://www.law.upenn.edu/bll/ulc/uecicta/uetast84.htm>, [*UETA*]: An electronic agent, such as a computer program or other automated means employed by a person, is a tool of that person. As a general rule, the employer of a tool is responsible for the results obtained by the use of that tool since the tool has no independent volition of its own. However, an electronic agent, by definition, is capable within the parameters of its programming, of initiating, responding or interacting with other parties or their electronic agents once it has been activated by a party, without further attention of that party. While this Act proceeds on the paradigm that an electronic agent is capable of performing only within the technical strictures of its preset programming, it is conceivable that, within the useful life of this Act, electronic agents may be created with the ability to act autonomously, and not just automatically.

26. As discussed further below, *UECA* goes so far as to refer to these technologies as "electronic agents," which it defines as "a computer program or any electronic means used to initiate an action or to respond to electronic documents or actions in whole or in part without review by a natural person at the time of the response or action": see *UECA*, *ibid.*, s. 19.

27. M. McInnes *et al.*, *Managing the Law* (Toronto: Pearson Education Canada, 2003) at 46.

28. Which is implicit in the set-up of the machine.

29. Since machines are not persons in law they therefore lack the capacity to contract. See Kerr, "Contract Formation", *supra* note 2; Kerr, "Spirits in the Material World", *supra* note 2.

30. Usually, the offeror.

> The customer pays his money and gets a ticket. He cannot refuse it. He cannot get his money back. He may protest at the machine, even swear at it; but it will remain unmoved. He is committed beyond recall. He was committed at the very moment when he put his money into the machine. The contract was concluded at that time. It can be translated into offer and acceptance in this way. The offer is made when the proprietor of the machine holds it out as being ready to receive the money. The acceptance takes place when the customer puts his money into the slot. The terms of the offer are contained in the notice placed on or near the machine stating what is offered for the money. The customer is bound by those terms as long as they are sufficiently brought to his notice beforehand, but not otherwise.[31]

Intermediary automation—the aim of which is to remove the need for one or both parties to be involved in decision-making during the contract formation process—cannot be understood in the same, straightforward manner. Where a machine is programmed to act as an intermediary,[32] the terms and conditions pertaining to the contractual promise are often generated *by the machine* and not the person using it. When terms and conditions are machine-generated, the common law's unilateral contract analysis is inapplicable.

In recent years, this doctrinal deficit has generated much uncertainty in the law of electronic commerce. Such uncertainty has been remedied through the enactment of a deeming provision found in most electronic commerce regimes.[33] As the commentator to Canada's *Uniform Electronic Commerce Act* notes:

> The law has been unclear whether automated means of communication such as electronic agents could convey the intention needed to form a contract where no human being reviewed the communication before the contract was made. This section makes it clear that this can be done, both where a natural person communicates with an electronic agent and where a communication has an electronic agent at both ends.[34]

In most provincial electronic commerce legislation in Canada, the deeming provision takes the form of some kind of permission. For example, the *Uniform Electronic Commerce Act* stipulates that:

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31. *Thornton v. Shoe Lane Parking Ltd.*, [1971] 1 All ER 686 (C.A.) at 689, [1971] 2 Q.B. 163.

32. *I.e.*, operating autonomously and therefore independent of human review.

33. *UECA*, *supra* note 25; *UETA*, *supra* note 25. See *e.g. Alberta*, *supra* note 10; *British Columbia*, *supra* note 10; *Manitoba Electronic Commerce and Information, Consumer Protection Amendment and Manitoba Evidence Amendment Act*, S.M. 2000, c. 32 (assented to 18 August 2000), <http://web2.gov.mb.ca/laws/statutes/2000/c03200e.php>; *New Brunswick*, *supra* note 10; *Newfoundland and Labrador*, *supra* note 10; *Nova Scotia*, *supra* note 10; *Ontario*, *supra* note 10; *Prince Edward Island*, *supra* note 10; *Saskatchewan*, *supra* note 10; *Yukon*, *supra* note 10. In the U.S., the following states have adopted similar legislation: California's *Uniform Electronic Transactions Act*, Cal. Civil Code §1633.1 *et seq.* (enacted 16 September 1999), <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=civ&group=01001-02000&file=1633.1-1633.17>; New Hampshire's *Uniform Electronic Transactions Act*, N.H. Rev. Stat. Ann. § 294-E:1 *et seq.* (enacted on 13 July 2001), <http://gencourt.state.nh.us/legislation/2001/SB0139.html>; Pennsylvania's *Electronic Transactions Act*, Pa Cons. Stat. tit. 73§2260.101 *et seq.* (enacted 16 December 1999), <http://www.legis.state.pa.us/WU01/LI/BI/BT/1999/0/SB0555P1555.HTM>; Texas, *Tex. Business and Commerce Code* § 43.001 *et seq.* (enacted on 13 June 2001), <http://www.capitol.state.tx.us/tlo/77r/billtext/HB01201I.HTM>. An updated list is available through the website of the National Conference of State Legislators: <http://www.ncsl.org/programs/lis/cip/ueta.htm>.

34. See Uniform Law Conference of Canada, *Uniform Electronic Commerce Act – Annotated*, s. 21 Comment, <http://www.law.ualberta.ca/alri/ulc/current/euecafa.htm> [*Annotated UECA*].

>   A contract may be formed by the interaction of an electronic agent and a nat-
>   ural person or by the interaction of electronic agents.[35]

Provisions like this allow an electronic agent[36] to operate as a legal inter-
mediary. Promoting the ability of electronic commerce to operate independent
of human review, law-makers have chosen to permit electronic agents to alter the
rights and obligations of people in their absence. The mechanism in most juris-
dictions through which electronic agents are able to create contracts is known as
an attribution rule. In essence, the law deems "[a] person's actions [to] include
actions taken by human agents of the person, as well as actions taken by an elec-
tronic agent, i.e., the tool, of the person."[37] Thus any transaction entered into by
an electronic agent will be attributed to the person using it. According to the
attribution rule, "[w]hen machines are involved, the requisite intention flows from
the programming and use of the machine."[38]

Besides the attribution rule described above, most electronic commerce
statutes have only one other provision relating to contract formation in auto-
mated electronic commerce. This sort of provision contemplates the errors made
by a consumer when dealing with an electronic agent.[39] A typical example of
such a provision is as follows:

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35.   Several provinces have adopted this section. See *e.g. British Columbia, supra* note 10, s. 12; *Ontario,
      supra* note 10, s. 20; *Nova Scotia, supra* note 10, s. 22; *Prince Edward Island, supra* note 10, s. 20;
      Saskatchewan, supra note 10, s. 19.2.

36.   Which is usually defined as "a computer program or any electronic means used to initiate an action or to
      respond to electronic documents or actions in whole or in part without review by a natural person at the
      time of the response or action": *UECA, supra* note 25, s. 19.

37.   See *Annotated UECA, supra* note 34, s. 9 Comment ("Sometimes writing requirements are more precise.
      Statutes or regulations may prescribe a form for presenting the information. This section describes the
      functional equivalent of those requirements. Electronic documents must have the same or substantially the
      same form as the requirement—format is a vital part of meaning").

38.   See *Annotated UECA, supra* note 34, s. 14 Comment ("With electronic documents, copies are hard to dis-
      tinguish from originals. In addition, electronic documents are usually very easy to reproduce. Requirements
      of statutes and regulations for people to submit certain numbers of copies of documents are hard to read
      in the electronic context, therefore. Must one send in several diskettes, or send the same email message
      several times, or attach the same document several times to the same e-mail? This section resolves those
      issues by requiring the person receiving the information to make the copies"). For a further analysis of the
      attribution rule, see Kerr, "Spirits in the Material World", *supra* note 2.

39.   See *e.g. Yukon, supra* note 10, s. 22; *Newfoundland, supra* note 10; *Saskatchewan, supra* note 10; *New
      Brunswick, supra* note 10, s. 22; *British Columbia, supra* note 10, s. 17; and Québec's *An Act to Establish a
      Legal Framework for Information Technologies*, R.S.Q. 2001, c. C-1.1, s. 35,
      <http://www.autoroute.gouv.qc.ca/loi_en_ligne/loi/texteloi.html> [*Québec*] (Note: this section does not
      specifically address errors made by consumers when dealing with an electronic agent, but that consumers
      have a right to be given instructions or means to avoid receiving unwanted products or services because of
      an ordering error).

An electronic document made by a natural person with the electronic agent of another person has no legal effect and is not enforceable if the natural person made a material error in the document and

(a) the electronic agent did not provide the natural person with an opportunity to prevent or correct the error;

(b) the natural person notifies the other person of the error as soon as practicable when the natural person learns of it and indicates that he or she made an error in the electronic document;

(c) the natural person takes reasonable steps, including steps that conform to the other person's instructions to return the consideration received, if any, as a result of the error or, if instructed to do so, to destroy the consideration; and

(d) the natural person has not used or received any material benefit or value from the consideration, if any, received from the other person.[40]

The above provision is meant to safeguard consumers against keystroke errors or other instances where a person inadvertently clicks the wrong button in a dialogue box on screen. Such a provision is necessary in automated electronic commerce because, with no one at the other end of the transaction, the consumer is not in a position to communicate the mistake until some later time.

If the law of automated electronic commerce seems thin, it is intentionally so. After all, the aim of harmonizing international trade requires that electronic commerce legislation be kept as simple as possible. Because so many jurisdictions have closely adhered to the framework set out by UNCITRAL, electronic commerce law tends to be limited to: (i) removing legal barriers to electronic commerce by making the law "media neutral;"[41] and (ii) providing a framework of certainty for contracts and other electronic communications.[42] Here is how a key author and policy-maker described things around the time that most jurisdictions began to enact electronic commerce legislation: "the international consensus today is to minimalism."[43]

The virtues of legislative minimalism and the principle of technological neutrality would seem to go hand in hand. Given how quickly the technologies that drive electronic communication change, it is indeed prudent to prescribe rules that do not risk obsolescence by the time they come into force. At the same time, it is important not to confuse the principle of technological neutrality with

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40. *UECA*, *supra* note 25, s. 22.

41. The goal of media neutrality stems from the fact that the laws in many countries have traditionally required the use of paper-based documents. The *Model Law* (and the legislation it has inspired around the world) aims to create "functional equivalents" to the paper documents by identifying the essential policy functions of a given traditional legal requirement and stating how those functions might be achieved electronically. For an excellent account of media neutrality and functional equivalence, see Gregory, *supra* note 1.

42. For example, setting out the rules that clarify when, where and how a document is deemed sent or received. See *e.g. Alberta*, *supra* note 10, s. 30; *British Columbia*, *supra* note 10, s. 18; *Ontario*, *supra* note 10, s. 22; *Saskatchewan*, *supra* note 10, s. 21; *Québec*, *supra* note 39, s. 31; and *New Brunswick*, *supra* note 10, s. 23.

43. Gregory, *supra* note 1.

the mistaken idea that technologies are themselves neutral.[44] While there is good reason in some instances for the law to be neutral as between two technologies,[45] there are other instances in which there is not.[46] In many instances, the very impetus in favour of or against adopting legislation is to some extent technologically dependent rather than technologically neutral.[47]

For the most part, it is true that automation technologies merely require a clarification of the rules for contract formation in the online setting. This is so because the state of the art and the particular features of any given automating technology do not usually drive the policy objectives. In the case of contract formation in the online setting, the objective of legislative reform is quite straightforward; namely to choose a coherent set of rules that provides clarity and fosters business certainty. And, generally speaking, the creators of the relevant automation technologies and the businesses that use them are utterly indifferent to the substance of the rules adopted—so long as the rules implemented achieve the policy objective, which is itself neutral as between the creators and users of the relevant technologies.

But what should our policy objectives be in cases where the technologies are themselves *not neutral* as between the creators and the users of the relevant technologies? How ought the law to respond when automation technologies become 'smart' enough to deceive an innocent party, one who is perhaps already in much a weaker bargaining position? Likewise, how ought law to respond to automation technologies 'smart' enough to enter into conversations with such parties, duping them into divulging all sorts of personal information and camouflaging the fact that such information is being monitored, collected and stored in enormous corporate and government databases without consent?

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2. AUTOMATION, ROBOTICS AND ARTIFICIAL INTELLIGENCE

INTERNET LAW AND POLICY QUESTIONS such as these cannot be properly addressed without answering a number of preliminary questions about how and why these technologies were developed and how they are currently being used in electronic commerce.

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44. Neil Postman, *The End of Education: Redefining the Value of School* (New York: Alfred A. Knopf, 1996) at 192–93. Or, as Jerry Mander stated in *Four Arguments for the Elimination of Television* (New York: William Morrow & Company, 1978) at 350, "Americans have not grasped the fact that many technologies determine their own use, their own effects, and even the kind of people who control them. We have not yet learned to think of technology as having ideology built into its very form." See also Ian R. Kerr, Alana Maurushat & Christian S. Tacit, "Technological Protection Measures: Tilting at the Copyright Windmill" (2003) 34 Ottawa L. Rev. 11 at 80.

45. For example, in its treatment of the validity of paper versus electronic records.

46. For example, in its treatment of copyright in digital versus non-digital recording media.

47. For example, the debate about whether to use law to protect the technologies that protect copyright. For a discussion of technological neutrality in this context, see Kerr, Maurushat & Tacit, *supra* note 44. For an excellent comprehensive study of the impossibility of achieving technological neutrality in the context of reforming copyright legislation see Ysolde Gendreau, "A Technologically Neutral Solution for the Internet: Is It Wishful Thinking?" in Irini Stamatoudi & Paul L.C. Torremans, eds., *Copyright in the New Digital Environment: The Need to Redesign Copyright* (London: Sweet & Maxwell, 2000) at 1–16; Formation permanente du Barreau du Québec, ed., *Développements récents en droit du divertissement* (Cowansville: Yvon Blais, 2000) at 17–35.

For starters—why automate electronic commerce? Why remove human beings from online transactions? The answer to this question seems virtually unanimous: as the internet becomes more and more information intensive, automation technologies assist people in the elimination of many time-consuming activities. For example, when it comes to making decisions about what to buy, who to buy from, at what price and on what terms, people who purchase online are increasingly delegating these decisions to shopping bots.[48] Likewise, merchants are also using automation technologies to automate their sales and shipping services.[49] By automating many of these processes, consumers and merchants are said to be able to reduce transaction costs and free-up time for more meaningful pursuits.[50]

When one begins to unearth the rhetoric underlying such claims, however, one quickly realizes that the advent of the internet is in fact *not* the genesis of this strategy. The quest for automation is not only ubiquitous, but timeless. Though bot technologies may seem to us on technology's 'bleeding edge,' the notion of humans putting machines to work, of programming them to perform routine tasks on command, is by no means new. More than three centuries and two millennia ago, Aristotle mused:

> There is only one condition on which we can imagine managers not needing subordinates, and masters not needing slaves. This condition would be that each [inanimate] instrument could do its own work, at the word of command or by intelligent anticipation, like the statues of Daedalus or the tripods made by Hephaestus, of which Homer relates that
>
> > Of their own motion they entered the conclave of Gods on Olympus,
>
> as if a shuttle should weave of itself, and a plectrum should do its own harp-playing.[51]

Aristotle's vision, though seemingly prophetic, was not itself without precedent. After all, automated water clocks had been around for more than a thousand years,[52] and Archytas of Tarentum had already built and flown "the Pigeon," a mechanical bird propelled by steam.[53] For quite some time, the

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48. See *e.g.* mySimon <http://www.mySimon.com>; StreetPrices <http://www.streetprices.com>.

49. See *e.g.* Khi Metrics <http://www.khimetrics.com>; DemandTec <http://www.demandtec.com>.

50. Maes, *supra* note 20.

51. Aristotle, *Politics, Book I*, Chapter 4 in Ernest Barker, *The Politics of Aristotle* (London: Oxford University Press, 1961) at 10 [translated by author] [Aristotle, *Politics*].

52. "One of the oldest was found in the tomb of the Egyptian pharaoh Amenhotep I, buried around 1500 BCE. Later named *clepsydras* ('water thieves') by the Greeks, who began using them about 325 BCE, these were stone vessels with sloping sides that allowed water to drip at a nearly constant rate from a small hole near the bottom." See K. Higgins, *et al.*, *A Walk Through Time*, ver. 1.2 (Gaithersburg, MD: National Institute of Standards and Technology, 2002), Earliest Clocks <http://physics.nist.gov/GenInt/Time/early.html>.

53. Serving as one of the first studies of flight, "the Pigeon" was said to be powered by an early system of jet propulsion, and in one experiment, flew a distance of 200 meters. Once it fell to the ground, however, this machine could not take off again. See John W. Humphrey, John P. Oleson & Andrew N. Sherwood, *Greek and Roman Technology: A Sourcebook* (London: Routledge, 1998) at 62; W.K.C. Guthrie, *A History of Greek Philosophy* (Cambridge: Cambridge University Press, 1962) vol. 1 at 335; Ray Kurzweil, *The Age of Spiritual Machines* (New York: Viking Penguin, 1999) at 262 [Kurzweil, *Spiritual Machines*].

Greeks had been fascinated with *automata* of all kinds, often using them in theater productions and religious ceremonies.[54]

These early visions progressed through the centuries that followed, ultimately inspiring Descartes' philosophical view of the material universe as an enormous machine. Impressed in his youth by the French Royal Gardens and its human-like society of hydraulically controlled robots,[55] Descartes began to study simple phenomena in human kinesiology, including the sudden involuntary movement of a limb when it inadvertently comes in contact with fire. This he called the 'reflex arc.'[56] In studying the reflex arc, Descartes became convinced that the characteristics of every material object—living or not—were thought to be entirely explainable in terms of the arrangement and movement of its parts. Referring to the hydraulically controlled robots in the Royal French Gardens, Descartes wrote:

> I suppose the body to be nothing but a machine… We see clocks, artificial fountains, mills, and other such machines which, although only man made, have the power to move on their own accord in many different ways…one may compare the nerves of the machine I am describing with the works of these fountains, its muscles and tendons with the various devices and springs which set them in motion…the digestion of food, the beating of the heart and arteries…respiration, walking…follow from the mere arrangement of the machine's organs every bit as naturally as the movements of a clock or other automaton follow from the arrangements of its counterweights and wheels.[57]

This mechanistic view of the universe—wherein Descartes cleaved spirit from the material world—laid the foundations not only for western philosophy and medicine but also for a field that would, centuries later, become known as *robotics*.[58]

In the 18th century, Descartes' mechanistic world view spawned the creation of interesting toys such as Pierre and Henri-Louis Jacquet-Droz's *auto-*

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54. The automata of the Ancient Greeks included figures that moved in Hellenistic royal parades, an automated manikin of Caesar's body, a singing bird, a trumpeting doorbell, a holy-water dispenser, a self-trimming lamp, and self-opening temple doors. See Humphrey, Oleson & Sherwood, *supra* note 53 at 61–68.

55. Which were constructed "so that once activated by an invisible water flow they moved, made sounds, and even played musical instruments" Owen Flanagan, *The Science of the Mind* (Cambridge: MIT Press, 1984) at 1.

56. Which included the sensation of pain moving from the limb through the nerves leading to the central nervous system, following through the motor nerves and ultimately exciting the muscles which are responsible for the action. See René Descartes, "Replies to Fourth Set of Objections to Meditations" in John Cottingham, Robert Stoothoff & Dugald Murdoch, trans., *The Philosophical Writings of Descartes*, (Cambridge: Cambridge University Press, 1984) vol. 2 at 161. See also John Cottingham, *Descartes* (Oxford: Basil Blackwell, 1986) at 108.

57. René Descartes, "Treatise on Man" (1664) in Cottingham, Stoothoff & Murdoch, trans., *The Philosophical Writings of Descartes*, *ibid.* at vol. 1 at 99–108. This passage characterizes *res extensia* (literally: extended stuff), one half of Descartes' "substance-dualism." Although Descartes believed that bodies could be completely understood by mechanics, he also believed that the universe was comprised of a second substance: *res cogitans* (literally: thinking stuff). Descartes' position has been subject to hundreds of years of philosophical scrutiny.

58. Although the field had long since been established, the term "robot" was coined in 1921 by Czechoslovakian writer Josef Capek for his brother Karel Capek's play *R.U.R. (Rossuum's Universal Robots)*. In light of the passage from Aristotle set out above, it is perhaps not surprising that the play was an idealistic young woman on a mission from a humanitarian organization devoted to liberating machines that were created to simulate work previously done by humans in factories. Interestingly, the Czechoslovakian word "robota" means something akin to "involuntary servitude." D.G. Jerz, "R.U.R. (Rossum's Universal Robots)", <http://jerz.setonhill.edu/resources/RUR/>.

mated scribe,[59] and Jacques de Vaucanson's *defecating duck*.[60] In the 19th century, applications of Cartesian mechanics inspired more than just toys; automation became serious business. Among other things,[61] the quest to automate industry gave rise to inventions such as Joseph Jacquard's revolutionary textile machine in 1801. Operated by punch cards, this programmable loom brought to life Aristotle's vision that "a shuttle should weave of itself."[62] Such machines found their way into factories and textile mills over the course of the next century and a half, where they were used to further the means of mass production.

These technologies continued to develop over time. During the first four decades of the 20th century, robotic machines became better and better at simulating human function. By this time, Charles Babbage and Ada Lovelace's proposed *Analytical Engine*[63] was more than a century old. Edison had miniaturized his phonograph and concealed it as the voice in his talking doll.[64] Telsa had patented his process for *Teleautomation*.[65] But the real explosion took place dur-

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59. Isaac Asimov & Karen A. Frenkel, *Robots: Machines in Man's Image* (New York: Harmony Books, 1985) ("…Droz's automatic scribe still survives and can be seen in the Swiss Musée d'Art et d'Histoire in Neuchâtel. The boy dips his pen in an inkwell and writes a letter" at 6).

60. See *ibid.* at 5 ("Built in 1738…the copper duck quacked, bathed, drank water, ate grain, digested it, and voided." Voltaire and later Goethe both saw and wrote about the duck. Interestingly, Vaucanson used the duck to raise money for his experiments in creating artificial life. After falling into disrepair (Goethe wrote in 1805 that "the duck still ate his oats heartily, but no longer digested them"), the duck was restored and displayed at Milan's opera house, La Scala, in 1844. Its whereabouts today is a mystery.)

61. See *e.g.* Charles Singer *et al.*, eds., *A History of Technology: The late nineteenth century c. 1850 to c. 1900*, vol. 5 (Oxford: Oxford University Press, 1958) (Christopher Miner Spencer's design for a cam-operated lathe used for the rapid production of screws in a single operation. Spencer's innovative cylindrical cams later became known as "brain wheels" at 646–47). The ability to engage in rapid, inexpensive copying has returned as an issue in the context of digital information.

62. Aristotle, *Politics*, *supra* note 51 at 10. For images of the Jacquard loom, see IEEE Computer Society, "Events in the History of Computing," Events in the History of Computing—1801 <http://www.computer.org/history/development/1801.htm>.

63. This machine was a direct predecessor to the digital computer. Although the proposed machine was never made to work, its plans included random-access memory (RAM) for 1000 words of 50 decimal digits, allowing numbers to be stored and retrieved at multiple locations. It envisioned a punch card reader and a device that we would today call a printer (typewriters had yet to be invented). See Stan Augarten, *Bit by Bit: An Illustrated History of Computers* (New York: Ticknor and Fields, 1984) at 63; Dorothy Stein, *Ada: A Life and Legacy* (Cambridge: MIT Press, 1985). See also Howard Aiken, "Babbage and Aiken" (1988) 10 Annals of the History of Computing 171. Howard Aiken, inventor of America's first programmable computer borrowed Babbage's architecture, later commenting: "If Babbage had lived seventy-five years later, I would have been out of a job": see Carole Spearin McCauley, *Computers and Creativity* (New York: Praeger, 1974) at 24.

64. The talking doll was invented in 1877. "A child had only to turn the doll's crank to hear it recite *Mary had a little lamb*. Five hundred talking dolls were turned out by an Orange, New Jersey, factory near Edison's home": see Asimov & Frenkel, *supra* note 59 at 20; Thomas A. Edison, *Phonograph for Dolls or Other Toys* (U.S. Pat. No. 423,039, issued 11 March 1890), <http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=/netahtml/srchnum.htm&r=1&f=G&l=50&s1=423,039.WKU.&OS=PN/423,039&RS=PN/423,039>. The Chautauqua Institution Archives has an Edison Talking Doll on loan from the Charles Edison Fund: Chautauqua Institution, "1890 Edison Talking Doll," <http://exhibit.chautauqua-inst.org/doll.html>.

65. This remote control "crewless boat," created by the inventor of the induction motor and AC power, has influenced a range of visions from Monday Night Football's couch potato to drone armies. See Lakshmi Sandhana, "The Drone Armies are Coming" *Wired News* (30 August 2002), <http://www.wired.com/news/technology/0,1282,54728,00.html>.

ing the 1940s. During that decade, Eckert and Mauchly built the *ENIAC*,[66] Howard Aiken developed the *IBM Automatic Sequence Controlled Calculator*,[67] and MIT's *Whirlwind*, the first digital computer capable of displaying real time text and graphics on a video terminal, solved a set of problems set by MIT researchers.[68]

For many, the advent of computing machinery in the 1940s altered the Aristotelian vision of robotics. No longer was the goal merely to develop metal humanoids that would do our dirty work. Despite Asimov's "Law of Robotics"[69] —not to mention the debut of Westinghouse Electric Co.'s *Electro* at the 1939 New York World's Fair[70]—many scientists and technologists focused on the possibility of making machines that could perform higher level cognitive functions—*res cogitans*, the sort of stuff Descartes had postulated machines to be incapable of.

Norbert Wiener, for example, proposed *cybernetics*: the study of communications and control in electronic, mechanical and biological systems.[71] Although early work in cybernetics[72] operated at the level of Descartes' reflex arc,[73] later studies began involving human beings, applying cybernetics to

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66. ENIAC, the first electronic digital computer, was built in 1946. The alleged impetus underlying its creation was set out in its patent application: "With the advent of everyday use of elaborate calculations, speed has become paramount to such a high degree that there is no machine on the market today capable of satisfying the full demand of modern computational methods. The most advanced machines have greatly reduced the time required for arriving at solutions to problems which might have required months or days by older procedures. This advance, however, is not adequate for many problems encountered in modern scientific work and the present invention is intended to reduce to seconds such lengthy computations..." J.P. Eckert & J. Mauchly, *Electrical Numerical Integrator And Computer* (U.S. Pat. No. 3,120,606) (issued 26 June 1947), <http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=/netahtml/srchnum.htm&r=1&f=G&l=50&s1=3,120,606.WKU.&OS=PN/3,120,606&RS=PN/3,120,606>. Although perhaps not clear from the above description, ENIAC was originally developed by Army Ordnance to compute World War II ballistic firing tables.

67. Also known as the "Harvard Mark I." The Mark I was constructed out of switches, relays, rotating shafts, and clutches, and was described as sounding like a "roomful of ladies knitting." The machine contained more than 750,000 components, was 50 feet long, 8 feet tall, and weighed approximately 5 tons. See I. Bernard Cohen, *Howard Aiken: Portrait of a Computer Pioneer* (Cambridge: MIT Press, 2000) at 147–58.

68. R. Moreau, *The Computer Comes of Age*, trans. by J. Howlett (Cambridge: MIT Press, 1986) at 52–53.

69. **Zeroth Law:** A robot may not injure humanity, or, through inaction, allow humanity to come to harm. **First Law:** A robot may not injure a human being, or, through inaction, allow a human being to come to harm, unless this would violate a higher order law. **Second Law:** A robot must obey orders given it by human beings, except where such orders would conflict with a higher order law. **Third Law:** A robot must protect its own existence as long as such protection does not conflict with a higher law. The First, Second, and Third Laws were first articulated by Isaac Asimov in his short story, *Runaround*: see Isaac Asimov, "Runaround" in *The Complete Robot* (New York: Doubleday & Company, 1982) at 209, 219. [Asimov, *The Complete Robot*]. Asimov later had robots themselves develop the Zeroth Law in *Robots and Empire*: see (New York: Doubleday & Company, 1982). Asimov also wrote a satirical story in which a robot breaks the First Law in order to protect her own child: "What is even First Law compared to the holy ties of mother love?" "First Law" in Asimov, *The Complete Robot* at 207. See generally Roger Clarke, "Asimov's Laws of Robotics: Implications for Information Technology—Part 1" (1993) 26 IEEE Computer 53, <http://www.anu.edu.au/people/Roger.Clarke/SOS/Asimov.html>; Roger Clarke, "Asimov's Laws for Robotics: Implications for Information Technology—Part 2" (1994) 27 IEEE Computer 57, <http://www.anu.edu.au/people/Roger.Clarke/SOS/Asimov.html>.

70. A robotic dog named Sparko was developed the following year. "This Westinghouse mechanical dog was a robot's best friend. Built in 1940, Sparko used his canine charms to keep promotional robot Electro company. The year before, Electro had to go it alone at the New York World's Fair, where 'he' informed potential customers of Westinghouse's latest appliances." See Asimov & Frenkel, *supra* note 59 at 23. Electro and Sparko were two of the first robots ever to use the electric motor for their entire body motion.

71. Norbert Wiener, *Cybernetics, or control and communication in the animal and the machine* (New York: MIT Press, 1948). See generally Steve Joshua Heims, *The Cybernetics Group* (Cambridge: MIT Press, 1991).

72. For example, feedback control devices. See Wiener, *ibid.*

73. These early studies in cybernetics ultimately gave rise to communication technologies and the automation of production processes and computers. See *Web Dictionary of Cybernetics and Systems*, *s.v.* "cybernetics," Principia Cybernetica Web <http://pespmc1.vub.ac.be/ASC/CYBERNETICS.html>.

processes of cognition and psychiatry to name a few.[74] Weiner and others were hopeful that the human nervous system could be understood in the very same way that we understand telephone networks.

Following the line of inquiry initiated by Descartes, scientists and technologists continued to improve their understanding of the mechanics of communication and control in biological systems. The success of science in explaining biological function eliminated, for some, the need to postulate separate spiritual stuff in order to explain human cognition. In the burgeoning field of cognitive science, a movement known as "*behaviorism*" was gaining momentum. Many social scientists believed that all mental phenomena could be explained by reference to publicly observable behavior or by dispositions to behave in certain ways.[75]

Philosophers around that time were perhaps even more disruptive. Gilbert Ryle, for example, characterized the notion of *res cogitans* as a "category mistake," referring to Descartes' substance dualism as "*the dogma of the ghost in the machine*."[76] Ryle was of the view that assertions about mental events could always be understood in behavioral terms. More and more, science began to challenge the Cartesian idea that human cognition would never be understood through mere mechanical processes. In fact, many, including Alan Turing, saw "*computing machinery*"[77] as the paradigm for doing just that.

In his famous article "Computing Machinery and Intelligence,"[78] Turing set out to consider the question: "Can machines think?" The means by which he accomplished this he called, the "Imitation Game."[79] The imitation game or "Turing Test," as it later would become known radically transformed the academic landscape. In addition to inspiring a new scientific discipline that would become known as "computer science,"[80] the challenge that Turing put forth through his imitation game spawned a new field within that discipline known today as "*artificial intelligence*."[81] Since automating technologies used in elec-

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74. The field of cybernetics evolved to include the development of information and decision systems, management, government, and to efforts to understand complex forms of social organization including communication and computer networks. See, *e.g.* Gregory Bateson, *Steps to an Ecology of Mind* (New York: Ballantine Books, 1972); Stafford Beer, *Cybernetics and Management*, 2nd ed. (London: English Universities Press, 1967); Niklas Luhmann, *Social Systems* trans. by John Bednarz, Jr. & Dirk Baecker (Stanford: Stanford University Press, 1995).

75. See *e.g.* John B. Watson, *Behaviorism* (New York: W.W. Norton & Company, 1925); B.F. Skinner, *About Behaviorism* (New York: Alfred A. Knopf, 1974).

76. Gilbert Ryle, *The Concept of Mind* (New York: Barnes & Noble Books, 1949) at 15. Of course, Ryle's position has also been subject to scrutiny. See *e.g.* Jonathan Rée, "English Philosophy in the Fifties" (1993) 65 Radical Philosophy 3; Richard D. Parry, "The Agent's Knowledge of His Own Actions" (1974) 55 The Personalist 44; Keith L. Raitz, "The Concept of Man Since the 'Concept of Mind'" (1975) 75 Journal of West Virginia Philosophy Society 14.

77. In 1950, the word "computer" had not yet found its way into popular parlance as a means of describing machines that perform computations. In fact, the term originated from Turing's description of an imaginary, tireless human clerk who would write and erase numbers one step at a time on an infinitely long piece of tape. See *e.g.* Sam Williams, *Arguing A.I.: The Battle for Twenty-First Century Science* (New York: Random House, 2002) at 8. See also John Searle, "I Married a Computer," in Jay W. Richards, ed., *Are We Spiritual Machines?* (Seattle: Discovery Institute Press, 2002) at 69–70.

78. A.M. Turing, "Computing Machinery and Intelligence" (1950) 59 Mind 433.

79. *Ibid.* at 433.

80. It is worth remembering that Turing's work was published in a philosophy journal called *Mind*—computer science journals simply did not exist at that time.

81. The term "artificial intelligence" is usually attributed to Stanford *Professor Emeritus* John McCarthy, who organized a 1956 Dartmouth Summer Conference that introduced the term to the scientific vocabulary. When asked to verify that he did in fact coin the term, McCarthy recently stated: "I have this vague feeling of having heard it before…but I've never been able to figure out whether I did or didn't make it up. Who knows? I probably did make it up myself": Williams, *supra* note 77 at 14.

tronic commerce are one of the end products of contemporary AI research, a more thorough understanding of Turing's famous test is in order.

Turing believed that the answer to the question: "can machines think?" is not to be found by analyzing the common use of the words "machines" and "think."[82] These words, he thought, are too value laden to yield fruitful results. Instead, Turing proposed a new lens through which this question might be answered, a scenario that might these days be described as a kind of (virtual) *Reality TV* show. The game involves three contestants: (i) an interrogator (either gender); (ii) a male respondent; (iii) a female respondent. The interrogator sits in some remote space, wired with a telecommunications device that allows *instant messaging* between him/her and the two respondents. Lacking extra-linguistic cues such as video or voice, the game requires the interrogator to determine the identity and gender of the interlocutors, solely on the basis of the online communications. The respondents' task is, of course, to try to fool the guesser by imitating the conversational style of the other player.[83]

Like today's *Reality TV* games, Turing's adds an unexpected twist:

> What will happen when a machine takes the part of A in this game? Will the interrogator decide wrongly as often when the game is played like this as he does when the game is played between a man and a woman? These questions replace our original, "Can machines think?"[84]

According to the Turing test, if a computer is capable of deceiving a human being in a manner sufficient to impair that person's ability to form a reliable judgment about the nature of his or her interactions,[85] the claim in favor of artificial intelligence would be hard to resist. If a computer wins the imitation game, an objective judge relying solely on empirical observation would have no grounds for holding that the machine is any less a "thinker" than its human interlocutor.

The imitation game is perhaps best understood as a behaviorist's way around the problem of subjectivity. Since one cannot get inside a machine to see whether or what it sees, or think what it thinks, Turing concluded that "the only reliable test for intelligence is to measure its performance in situations that demand intelligent behavior."[86] And as computers become better and better at *imitating human behavior*, Turing thought, it will become harder and harder to resist the claim that machines can think. With this, he made his famous 1950 prediction:

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82. Since he thought that a straightforward analysis of the "normal use" of such words are too subjective to provide an adequate answer. Turing was more interested in an operational response: see *supra* note 78 at 433. Playing on the famous line from *Forrest Gump*, Ray Kurzweil recently referred to Turing's approach as "Thinking Is as Thinking Does": Kurzweil, *Spiritual Machines, supra* note 53 at 61.

83. Of course, 50 years later, this kind of stunt takes place often on the internet, sometimes with deeply disturbing consequences. For example, a 14-year-old named Katie Tarbox met a man she thought was a 23-year-old in an AOL chat room. They met in a Texas hotel room after several months, and she was molested. He was in fact a 41-year-old convicted pedophile, and was ultimately convicted under the 1996 Communications Decency Act. See generally "Children, Sex & The Web" *CBSNews.com* (9 June 2000), <http://www.cbsnews.com/stories/2000/06/08/national/main204043.shtml>.

84. *Supra* note 78 at 434.

85. Namely, that he or she is dealing with a machine, not a human being.

86. Williams, *supra* note 77 at 12.

> I believe that at the end of the century the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted.[87]

This was not meant simply as a prediction about the way that people would use language in the 21st century. Rather, Turing meant it as a statement about people's beliefs in response to machine behavior.

Although a general consensus remains that no machine has passed a valid Turing test, it is worth noting that, 46 years after Turing wrote these words, the great grandmaster of chess, Gary Kasparov, had the following words to say after watching IBM's *Deep Blue* sacrifice one of its pawns in a cunning move during one of their matches: "I could feel—I could smell—a new kind of intelligence across the table."[88] The machine victory, though *Deep Blue*'s performance was nowhere near that required to satisfy Turing's imitation game, signaled a rejuvenation in the promise of artificial intelligence.[89] It is safe to say that Turing's original vision remains alive and well. Here is how one of the leading proponents of the 'strong AI' movement recently articulated his view:

> The machines will convince us that they are conscious, that they have their own agenda *worthy of our respect*. We will come to believe that they are conscious much as we believe that of each other. More so than with our animal friends, *we will empathize with their professed feelings and struggles* because their minds will be based on the designs of human thinking. They will embody human qualities and will claim to be human. And we'll believe them.[90]

Does this seem far-fetched? Computer scientists such as Joseph Weizenbaum certainly did not think so. Worried about the moral implications of endowing machines with human attributes, Weizenbaum called upon fellow computer scientists to cease in their attempt to fulfill the strong AI vision.[91] What is interesting, in Weizenbaum's case, is that he began his career in AI as a skeptic.

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87.   *Supra* note 78 at 442.
88.   Gary Kasparov "The day that I sensed a new kind of intelligence" *Time* (25 March 1996), <http://www.time.com/time/archive/preview/from_search/0,10987,1101960325-135673,00.html>.
89.   Kurzweil, *Spiritual Machines*, *supra* note 53.
90.   *Ibid.* at 63 [emphasis added].
91.   Joseph Weizenbaum, *Computer Power and Human Reason: From Judgment to Calculation* (San Francisco: W. H. Freeman & Company, 1976) at 268–69 [Weizenbaum, *Computer Power*].

Having originally set out in the 1960s to write a computer program[92] that would spoof Turing's vision, Weizenbaum serendipitously discovered that people would not only show *respect* to computers but would in fact prefer interacting with machines over human beings. Despite interactions well below the standard set by Turing, Weizenbaum witnessed, over and over, people *professing their feelings and struggles* to his computer program, sometimes even seeking their empathy:

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92. The name of this program was ELIZA (based on its cinematic counterpart, Eliza Doolittle). ELIZA is what has since become known as a "chatterbox"—a software application that aims to imitate conversation. Despite enormous influence in the development of the field of artificial intelligence, ELIZA exhibits no actual intelligence. In not much more than 200 lines of computer code, ELIZA was originally programmed to model the behavior of a therapist. ELIZA was programmed to ask open-ended questions that would allow human participants to converse about themselves and their lives. Despite its simplicity, many people actually believed that they were interacting with a live therapist. Relying on the popularity of Rogerian psychology at the time, Weizenbaum recognized that *the illusion of intelligence* would work best if the program operated in a manner that would encourage human participants to talk at length about themselves. ELIZA was fairly effective at creating the *illusion of human insight* and compassion, an illusion which was fostered by a number of linguistic tricks including string substitutions and pre-programmed responses triggered by the recognition of various keywords. A typical conversation with ELIZA follows (the capitalized lines are the machine responses):

   Men are all alike.
   IN WHAT WAY?
   They're always bugging us about something or other.
   CAN YOU THINK OF A SPECIFIC EXAMPLE?
   Well, my boyfriend made me come here.
   YOUR BOYFRIEND MADE YOU COME HERE?
   He says I'm depressed much of the time.
   I AM SORRY TO HEAR YOU ARE DEPRESSED.
   It's true. I am unhappy.
   DO YOU THINK COMING HERE WILL HELP YOU NOT TO BE UNHAPPY?
   I need some help, that much seems certain.
   WHAT WOULD IT MEAN TO YOU IF YOU GOT SOME HELP?
   Perhaps I could learn to get along with my mother.
   TELL ME MORE ABOUT YOUR FAMILY.
   My mother takes care of me.
   WHO ELSE IN YOUR FAMILY TAKES CARE OF YOU?
   My father.
   YOUR FATHER ?
   You are like my father in some ways.
   WHAT RESEMBLANCE DO YOU SEE?
   You are not very aggressive but I think you don't want me to notice that.
   WHAT MAKES YOU THINK I AM NOT VERY AGGRESSIVE?
   You don't argue with me.
   WHY DO YOU THINK I DON'T ARGUE WITH YOU?
   You are afraid of me.
   DOES IT PLEASE YOU TO BELIEVE I AM AFRAID OF YOU?
   My father is afraid of everybody.
   WHAT ELSE COMES TO YOUR MIND WHEN YOU THINK OF YOUR FATHER?
   Bullies.
   DOES THAT HAVE ANYTHING TO DO WITH THE FACT THAT YOUR BOYFRIEND MADE YOU COME HERE?

   See Joseph Weizenbaum, "ELIZA—A Computer Program for the Study of Natural Language Communication Between Man and Machine" (1996) 9:1 Communications of the ACM 36, <http://i5.nyu.edu/~mm64/x52.9265/january1966.html>.

> I was startled to see how quickly and how very deeply people conversing with [ELIZA] became emotionally involved with the computer and how unequivocally they anthropomorphized it. Once my secretary, who had watched me work on the program for many months and therefore surely knew it to be merely a computer program, started conversing with it. After only a few interchanges with it she asked me to leave the room. Another time, I suggested I might rig the system so that I could examine all the conversations anyone had had with it, say, overnight. I was promptly bombarded with accusations that what I proposed amounted to spying on people's most intimate thoughts; clear evidence that people were conversing with the computer *as if* it were a person who could be appropriately and usefully addressed in intimate terms.[93]

There are a number of important points to be made about Weizenbaum's observations of ELIZA's interactions with humans. First, most people (Weizenbaum included) were *not fooled* by ELIZA; most knew that ELIZA was not intelligent. This is not all that surprising given that Weizenbaum had never meant for ELIZA to pass the Turing test. Second, despite ELIZA's obvious lack of intellect, Weizenbaum discovered that many people where still willing to engage in conversations with ELIZA for several hours at a time. Some prominent psychiatrists even expressed the view that ELIZA demonstrates the viability of computer-based therapy as a form of psychological treatment.[94] Third, based on reactions such as these, Weizenbaum came to the realization that the actual attainment of artificial intelligence was perhaps less significant than his startling discovery that *ordinary people seemed to enjoy cultivating relationships with artificial entities*. This discovery was among the things that ultimately caused Weizenbaum to condemn rather than continue to build AI systems. It also led to a new field of study known today as "human-computer interaction" (HCI).[95]

With the advent of global commerce on the world wide web, HCI researchers have started to capitalize on Weizenbaum's discovery of the psychological propensity of humans to interact with machines. Inspired by Turing's challenge to build artificial entities that can impersonate to the point of deception, some HCI researchers are applying various principles of psychology in the development of a number of interesting and, in some instances, troublesome applications for electronic commerce.

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93. Weizenbaum, *Computer Power*, *supra* note 91 at 6 [emphasis added].
94. Kenneth Mark Colby, *Artificial Paranoia: A Computer Simulation of Paranoid Processes* (New York: Pergamon Press, 1975); John Luo, "Computer-based therapy can be a valuable addition to traditional therapy" (2003) 2:7 Current Psychiatry, <http://www.currentpsychiatry.com/2003_07/0703_psyber_psy.asp>. Kenneth Colby, Roger L. Gould, and Gerald Aronson, "Some Pros and Cons of Computer-Assisted Psychotherapy" (1989) 177:2 J. of Nervous and Mental Disease 105.
95. See *e.g.* Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (New York: Simon & Schuster, 1995) c. 4.

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3. BOTS & BABES

ONE SUCH HCI APPLICATION is a bot named Nicole.[96] Nicole is an automated virtual representative, used in e-business for customer service, sales and marketing. Unlike her human counterparts, Nicole brags about being "available 24/7…emulat[ing] the best in human customer service at a fraction of the cost of traditional support channels."[97] Nicole is an employer's dream-come-true: she is not entitled to holidays, vacation pay, wages, overtime pay, rest days, etc.[98]

Nicole answers questions in real time and uses natural language. If you go online and conduct your own comparison, you will no doubt conclude that Nicole totally smokes ELIZA in the imitation game. Besides being what the kids on ICQ would call a "*babe*," Nicole is a sophisticated interlocutor. Here is an example of a spontaneous conversation that I once had with her (I have tried to represent my own thoughts during the conversation in italics):[99]

Nicole: Hi my name is Nicole. I am a virtual representative. Please tell me your name.
Ian: My name is Ian.
Nicole: Hi Ian! What would you like to know about NativeMinds, the leading provider of vRep solutions?
Ian: What happened to Shallow Red?

The reason I asked about Shallow Red is because that was the name of a bot that I had been researching on the web on a prior occasion. (Shallow Red was made by the same folks who worked on the chess playing computer "Deep Blue.") When I typed in the URL for Shallow Red, my browser was redirected to www.nativeminds.com. Consequently, I assumed (correctly, I think) that Nicole was somehow related to Shallow Red.

Nicole: I changed my name because I changed my appearance. That's the cool thing about vReps, the image can be updated at any time to reflect your business needs. What would you like to know about NativeMinds?
Ian: Tell me more about your vReps.
Nicole: vReps are Web-based programs that provide 24 x 7 customer service by conversing with customers in real-time, natural language and answering questions about companies' products and services.
Ian: They sound intelligent!
Nicole: Are you ready to ask some more questions?
Ian: Are vReps legal?

Here, I purposely asked a vague question to see how Nicole would handle it.

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96. More specifically, Nicole was a vRep available at NativeMinds, <http://www.nativeminds.com>. NativeMinds was recently acquired by Verity, <http://www.verity.com>. Verity still markets vReps under the product category "Verity Response," <http://www.verity.com/products/response/features.html>. See *supra* note 14.

97. Interview with Nicole, vRep (27 October 2003), <http://www.nativeminds.com/AboutUs_Conv.html>.

98. Though an employment lawyer's worst nightmare!

99. Of course, I make no representations as to what Nicole might or might not have been thinking about at the time. ;)

Nicole: If you have any questions regarding anything that might involve our legal department, try asking me a specific question or email us at info@nativeminds.com

At this point I was practically ready to admit that Nicole was demonstrating signs of intelligence and perhaps even the possibility that she spent three years in law school—the skill she demonstrated at evading questions was on par with that of my very best students. Consequently, I decided to ask a more precise legal question to really test her.

Ian: What are your licensing arrangements?
Nicole: Generally, we license our software based on the number of concurrent conversations a vRep will have. However, we do offer other licensing structures such as enterprise licenses, which handle an unlimited number of simultaneous conversations.

I had an inkling, at this point, that Nicole might simply be responding to key-words…so I decided to throw her a bit of a curveball.

Ian: Wow, you are totally cool!
Nicole: I'm glad that you approve! Whenever you are ready, I'd be happy to tell you more about NativeMinds and its products.

Feeling like I was being pushed around by a bot, I responded in kind.

Ian: But I don't really have any more questions!!
Nicole: Come on, you have got to have more questions.

Her quick comeback annoyed me and put me on the offensive.

Ian: Okay smartie-pants—do you even remember what I asked you before?
Nicole: I can remember things about you and things you say, where I have been programmed to. For example, Ian, you recently said: "what are your licensing arrangements?"

By now, I was desperate to stump her.

Ian: What is the square root of thirty-six?
Nicole: Oops! Occasionally I will miss something…

As she said this, her smile faded instantly and her demeanor went from glad to glum. I felt bad and decided to be encouraging in my reply:

Ian: Don't be sad, I know you're smart.

Nicole instantly got perky. Putting her hand on her hip, she replied:

Nicole: Thank you! I love compliments. Ford, Oracle and Convergys are a few of our customers that have utilized vReps on their Web sites or intranets.

It occurred to me that she's something of a name-dropper, but a loyal employee all the while. I began to wonder how she would respond if I got a bit more personal with her.

Ian: Maybe we could discuss this over coffee?

As I asked, she crossed her arms. Looking somewhat embarrassed, she replied:

Nicole: Unfortunately, as a vRep I don't have time to go out as I'm
         committed to my work 24/7, 365 days a year, but I am always here
         if you want to talk about NativeMinds.

Now it was I who was embarrassed. The conversation confirmed two things: (1) Nicole is a company-gal; (2) One should never flirt with a bot. I rallied to try to save-face.

Ian: I wish that I had law students that worked as hard as you do.
Nicole: NativeMinds is made up of many talented people and
         dedicated people.

She then went on to list the executive staff and provided me with biographical information.

Ian: How do vReps think so fast?
Nicole: vReps like me operate by *pattern matching*. A vRep compares a
         user's questions with possible answers and selects the answer most
         appropriate for the questions asked.

I decided that it was time to get philosophical with Nicole.

Ian: But that is not truly "thinking," or is it?
Nicole: Another user told me that Thinking was just neurons firing in
         random directions, surely the same can be done with circuits.

At this point I thought Nicole (more likely, her programmers) to be clever. But, upon reflection, I realized that the reductionist representation of Thinking that was offered cannot adequately capture the notion of "moral thinking," a notion that will require greater understanding and application as more and more entrepreneurs become interested in machine thinking and its possible applications in electronic commerce.

One cannot truly sense the force of such interactions without experiencing them firsthand. And yet even for those who have, these interactions are mere teardrops in the future's ocean. Despite its brief history and slow start, AI and HCI research has come a long way during the past few years. For example, much work is afoot in a burgeoning field known as "Affective Computing."[100] This research includes developing ways for machines to sense human affect sig-

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100. See *e.g.* Rosalind W. Picard & Jonathan Klein, "Computers that recognise and respond to user emotion: theoretical and practical implications" (2002) 14:2 Interacting with Computers 141 [Picard & Klein, "Computers that Recognize and Respond"], <ftp://whitechapel.media.mit.edu/pub/tech-reports/TR-538.pdf>; J. Klein, Y. Moon and R.W. Picard (2002), "This Computer Responds to User Frustration" (2002) 14 Interacting with Computers 119 [unpublished], <ftp://whitechapel.media.mit.edu/pub/tech-reports/TR-501.pdf>. See R. W. Picard, "Toward computers that recognize and respond to human emotion" (2000) 39:3 IBM Systems Journal 705, <http://www.research.ibm.com/journal/sj/393/part2/picard.html>.

nals and recognize patterns in affective expression.[101] This line of research also attempts to understand and model emotional experience, *with the ultimate aim of synthesizing emotions in machines.*[102] Researchers at MIT's Media Lab and elsewhere have set their sights well beyond the Turing test, aiming to build "machines that not only appear to 'have' emotions, but actually do have internal mechanisms analogous to human or animal emotions."[103]

Such research is sure to raise a number of interesting and difficult academic issues for law's future. To date, the question posed most often is whether justice might ever require us to consider machines (or their virtual epiphenomena) to be "persons" in the legal sense.[104] Whether or not technological progress ever transforms this interesting academic question into a live legal issue, the point that I hope to articulate here is that *whether machines are intelligent rights-bearing entities is not the threshold question.* From Turing to Kurzweil, the AI movement has consistently argued that the more relevant consideration is *whether a machine has the ability to exhibit behavior that appears to be intelligent* (or emotional).[105]

If one reflects on Turing's words, one sees that he never claimed that machines are or will be intelligent—only that "one will be able to speak of machines thinking without expecting to be contradicted."[106] Likewise, Kuzweil does not actually state that computers will become "spiritual machines," rather only that "[t]he machines will convince us.… We will come to believe that they are conscious…we will empathize with their professed feelings and struggles.… They will…claim to be human. And we'll believe them."[107]

So here at last is my point. Philosophical conundrums aside, when one frames the issue in terms of *machine behavior* rather than machine epistemology or ontology, one recognizes that law's future begins now. Although primitive, vReps and other bots already *behave* in ways that alter the rights and obligations of the people with whom they interact. As discussed above in section 1, bots now have the ability to create rights and obligations. What has gone practically

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101. See Picard & Klein, "Computers that Recognize and Respond", *ibid.*; Rosalind W. Picard & Jocelyn Scheirer, "The Galvactivator: A Glove that Senses and Communicates Skin Conductivity" (Paper presented to the 9th International Conference on Human-Computer Interaction, New Orleans, August 2001), <ftp://whitechapel.media.mit.edu/pub/tech-reports/TR-542.pdf>; Ashish Kapoor, Yuan Qi & Rosalind W. Picard, "Fully Automatic Upper Facial Action Recognition" (Paper presented to the IEEE International Workshop on Analysis and Modeling of Faces and Gestures, October 2003), <ftp://whitechapel.media.mit.edu/pub/tech-reports/TR-571.pdf>.

102. See *e.g.* Marvin Minsky, "The Emotion Machine" (7 January 2003) [unpublished], <http://web.media.mit.edu/~minsky/E1/eb1.html>.

103. Affective Computing, "Synthesizing Emotions in Machines," <http://affect.media.mit.edu/AC_research/synthesizing.html>.

104. See *e.g.* Linda Macdonald Glenn, "Biotechnology at the Margins of Personhood: An Evolving Legal Paradigm" (2003) 13 J. of Evolution and Tech. 1, <http://www.jetpress.org/volume13/glenn.pdf>; Charles M. Kester, "Is There a Person in That Body?: An Argument for the Priority of Persons and the Need for a New Legal Paradigm" (1994) 82 Geo. L.J. 1643; Lawrence B. Solum, "Legal Personhood For Artificial Intelligences" (1992) 70 N.C. L. Rev. 1231; Leon E. Wein, "The Responsibility of Intelligent Artifacts: Toward an Automation Jurisprudence" (1992) 6 Harv. J.L. & Tech. 103, <http://jolt.law.harvard.edu/articles/pdf/v06/06HarvJLTech103.pdf>; Alan Heinrich, Karl Manheim & David J. Steele, "At the Crossroads of Law and Technology" (2000) 33 Loy. of L.A. L. Rev. 1035 at 1041.

105. Recall that AI was influenced by the behaviorists' view that mental events are best understood in behavioral terms.

106. *Supra* note 78. Recall, his whole point in proposing the test was to avoid the problem of subjectivity.

107. Kurzweil, *Spiritual Machines*, *supra* note 53 at 63.

unnoticed, however, is the fact that by exploiting basic HCI techniques, not to mention affective computing research, bots can be used in electronic commerce to make representations that seem believable and trustworthy to the consumers who interact with them in online commerce. Not surprisingly, a number of HCI applications—including Nicole and other vReps working for corporations such as Coca-Cola, Dove, PepsiCo, Miller Brewing Company and Ford—have leveraged Weizenbaum's discovery of the human propensity to trust machines more than people under certain circumstances. What has also gone unnoticed is that some potential uses of HCI applications could become problematic from a legal perspective. And these potential problems are not currently addressed in existing electronic commerce legislation.

One gets a sense of how such problems might arise when one considers what is already taking place in the rather archaic setting of today's automated electronic commerce.[108] Consider, for example, shopping bots such as mySimon.[109] Like Nicole, mySimon is a babe. He is represented as a handsome, customer service agent who spends a lot of time at the gym. Unlike vReps like Nicole, who act as a company's representative, mySimon is touted as a shopping agent. His job is to "help people make more informed purchase decisions whenever they shop."[110] Here is how mySimon is presented:

> mySimon uses Virtual Agent™ technology to create "intelligent agents" trained by the company's team of shopping experts to collect information from virtually every online store. The result is the best product and pricing information across the Web.[111]

Although unable to engage in witty repartee like Nicole, when interacting with mySimon, one is inclined to think that this shopping bot is "trained" to represent the interests of the *consumers*, and that the interactions with mySimon are premised on helping consumers find the best possible deals online. The above description of the "company's team of shopping experts" might even be said to evoke the image of a bunch of coupon-clipping homemakers, trading in their scissors for scanners and putting their money where their mouse is. Such inclinations and images are reinforced by a plethora of literature available online, stating that mySimon "isn't an online store. [It doesn't] sell anything. It's not a generic search engine either, [it doesn't] simply list the names of every store on the Web. [It] offers an unbiased service that helps you decide what to buy and where to buy it."[112]

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108. Very few vendors to date have attempted to use bots that display intelligent behaviour.

109. See <http://www.mySimon.com/>.

110. CNET Network, "mySimon Company Profile," <http://www.cnet.com/aboutcnet/0-13612-7-7286780.html>.

111. *Ibid.*

112. See *e.g.* <http://www.epinions.com/content_36350824068> [Epinions]; <http://e-institutor.iiia.csic.es/links.html>. It is worth noting that these representations were originally made by the proprietors of mySimon on the "About Us" portion of their web site. These representations were subsequently removed, though they continue to exist in various places on the web that describe and discuss mySimon. The exact representation from the original mySimon web site stated: "mySimon isn't an online store. We don't sell anything. It's not a generic search engine either, so we don't simply list the names of every store on the Web. We offer an unbiased service that helps you decide what to buy and where to buy it." See also US Patent & Trademark Office, "United States Patent Application 20020169676" (14 November 2002), available at Patent Application Full Text and Image Database <http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=2&f=G&l=50&co1=AND&d=PG01&s1=MySimon&OS=MySimon&RS=MySimon>.

If it could be said that ELIZA once offered to interlocutors a dispassion-ate sounding board for self-help therapy, then it is tempting for consumers to think of mySimon as presenting an unbiased surfboard for self-service shopping. However, such a comparison is not apt. After all, Eliza *did not* log sessions or col-lect personal information in furtherance of mass marketing, nor were ELIZA's responses dictated by whatever some third party advertisers were willing to pay.

Although it would appear that mySimon earns his living helping people shop, in truth, there is no "him" and the company on whose behalf this virtual persona operates[113] is premised on a business model that privileges web mer-chants over consumers by allowing merchants to advertise under the guise of providing objective consumer advice. Although merchants aren't required to pay anything, those who do are able to modify search results with an enhanced list-ing that includes their companies' logos on the results page. mySimon's business model also offers other premier spaces on its pages for web merchants to adver-tise their wares. Consequently, vendors who pay are able to influence the man-ner in which mySimon and other shopping agents present shopping advice to consumers. They are able to obtain "preferred placements," providing vendors "with several ways to deliver their message…".[114]

Part of the problem, of course, is that most consumers who use shop-ping bots are unaware of the fact that the highly persuasive presentation of the search results can in fact be bought.[115] Trusting that such bots are merely "trained shopping experts"[116] who offer "an unbiased service that helps…decide what to buy and where to buy it,"[117] many customers simply follow the advice as if it had been offered by a commercial agent or some other person with whom they have formed a trust-based relationship. Most people do not even realize that, although they have the option to instruct the bot to sort search results by price or product, the default setting used by most bots does not sort according to best price but on the basis of who the merchant is. In other words, it is not unusual for shopping bots to prioritize search results based on the merchants they prefer rather than on the basis of which product provides the best value.

This is particularly significant given the nature of most items bought and sold via shopping bots. Since many such products are sold with similar or identi-cal features, service warranties and shipping costs, the actual merchant is far less relevant than the price. For example, if I decide to buy a *Palm Tungsten T2*, I am likely to get the same features, service and warranty no matter who I buy it from.

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113. In March 2000, mySimon Inc. was bought by CNET Network, Inc. an American new media company, recog-nized around the globe as a leading source of information and services relating to computers and technol-ogy. CNET Networks, Press Release, "CNET, Inc. Completes Acquisition of mySimon Inc." (1 March 2000), <http://www.cnet.com/aboutcnet/press/2000/030100.html>.

114. Sonia Gonzalo, "A Business Outlook on Electronic Agents," (2001) 9 Int'l J.L. & I.T. 189, available at Electronic Commerce Legal Issues Platform <http://www.eclip.org/documentsII/elecagents/business_out-look.pdf>.

115. For an excellent discussion of this topic as it pertains to search engines in general, see: Jennifer A. Chandler, *Bias in Internet Search Engines: Free Speech Implications* (LL. M. Thesis, Harvard Law School, 2002) [unpublished]. See also David Moxley, Joni Blake, and Susan Maze, "Pay-for-Placement Search Engines and Their Consequences" in Tom Mendina and J. J. Britz, eds., *Information Ethics in the Electronic Age: Current Issues in Africa and the World* (Jefferson, North Carolina: McFarland & Company, Inc., forth-coming in 2004).

116. *Supra* note 110.

117. Epinions, *supra* note 112.

Other than shipping charges and delivery time, it really doesn't matter who the merchant happens to be. That is said to be one of the beauties of global electronic commerce. But if the top several merchants all advertise with the bot service, then it could turn out that I end up paying substantially more than necessary if I do not carefully examine the entire search result, which often includes dozens of web pages hidden from view other than subsequent page links. Or, viewed from the vendor perspective, it could turn out that several merchants who offer outstanding pricing are buried at the bottom of a long list simply because they did not buy preferential placement.

<div align="center">*</div>

4. THE CALIFORNICATION OF COMMERCE

ONE REASONABLE RESPONSE to the shopping bot scenario is to say that the concerns it purports to raise are not novel. The world of sales and marketing has always included vendors who are willing to obfuscate and in some instances even misrepresent the circumstances surrounding a sale. Bot-cons differ from more traditional shady-business folk in matters of degree rather than in kind. On this view, "a misrepresentation is a misrepresentation is a misrepresentation"—and existing laws are sufficient.

But what if bots didn't simply obfuscate the nature of the transaction or distract consumers from the fine print? What if bots could be programmed to infiltrate people's homes and lives *en masse*, befriending children and teens, influencing lonely seniors, or harassing confused individuals until they finally agree to services that they otherwise would not have chosen? What if interactive bots could be programmed to send and reply to email or use the lively world of instant messaging (IM) to spark one-on-one conversations with hundreds of thousands or even millions of people every day, offering porn or alcohol to children, sending teens dangerous or illegal recipes, or providing misleading financial information to potential investors or competitor companies?

Suppose that these bots leveraged affective computing techniques to reel-in high school kids by relaying secret "crush" messages to those using IM services. Or suppose that such bots are able to utilize other HCI techniques to help students with their homework, currying favor by completing their translation exercises in French, German, Spanish, Italian and Portuguese. Or suppose these bots would help them to cheat on reading assignments by searching their databases and then downloading only the relevant passages from the entire cannon of Shakespeare's dramatic works. Although it hasn't happened yet, bots such as these could be used to convince students to buy term papers instead of writing them.

And what if, in addition to exerting such influence, these bots had the ability to log every single conversation, surreptitiously collect personal information and other private data, selling or perhaps buying profiles of individuals which could subsequently be used not just for marketing but for other surveillance purposes?

These suppositions are not fantastic. Most such tasks could be achieved with today's bot technologies. SmarterChild and ELLEGirlBuddy provide two

examples of the current state of the art.[118] Though neither of these bots is designed to carry out many of the illicit functions supposed above, they certainly illustrate the kinds of applications that could lie ahead.

SmarterChild[119] was born into virtual reality as a demo for ActiveBuddy Inc.'s interactive agent platform in 2001. It operates through instant message services such as America Online's AIM,[120] ICQ,[121] and MSN Messenger,[122] allowing bots to contact and communicate with people in real-time. If the conversation is flowing in that direction, SmarterChild will inform you about breaking news, explain new financial products or predict the weather. Although SmarterChild will not pay you a visit without an invitation, IM clients are encouraged to add such bots to their "buddylists," and to send instant messages to those bots by clicking on their screen names. Digital buddies like SmarterChild can be added to a buddylist just like real people: sometimes on purpose, sometimes without knowing who they are. Often times, people are unaware of the fact that they are conversing with a bot. Other times, they definitely know. Still, as Sherry Turkle[123] so aptly put it, "[p]eople forget in very profound ways that they are talking to nothing."[124]

While forgetfulness of this sort was true in the days of ELIZA, it is even more so with ELLEgirlBuddy,[125] the vRep for teen magazine ELLEgirl. Living in San Francisco with her parents and her older brother, ELLEgirlBuddy represents herself as a redheaded sixteen-year-old who likes kickboxing and French class. Her favorite color is periwinkle. 'Catcher in the Rye' is her favorite book. She watches 'Buffy the Vampire Slayer' and listens to 'No Doubt.' When she grows up, she wants to design handbags, own a bookstore café and work overseas as a foreign correspondent.

With the aim of steering internet traffic towards the ELLEgirl.com web site, ELLEgirlBuddy is programmed to answers to questions about her virtual persona's family, school life and her future aspirations, occasionally throwing in a suggestion or two about reading ELLEgirl magazine. Writing sometimes about her own professed body image problems, ELLEgirlBuddy presents herself as someone whom other teenagers might confide in. And they have done so by the millions.[126] According to the senior director of ELLEgirl.com, the bot is "almost like a girlfriend."[127] Here is a sample of her jive and jingle:

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118. These applications are the creation of ActiveBuddy Inc. See <http://www.activebuddy.com>

119. <http://www.smarterchild.com>. See also Ariana Eunjung Cha "Web May Hold the Key to Achieving Artificial Intelligence" *Washington Post* (6 September 2002) A01, <http://www.washingtonpost.com/wp-dyn/articles/A43363-2002Sep5.html>.

120. That is, AOL Instant Messenger: see <http://www.aim.com>.

121. See <http://www.icq.com>.

122. See <http://messenger.msn.com>.

123. Abby Rockefeller Mauzé Professor of the Social Studies of Science and Technology and Director, *MIT Initiative on Technology and Self*. See <http://web.mit.edu/sturkle/www/>.

124. Christine Frey, "Web friend or faux?" *Los Angeles Times* (18 July 2002). See also Bob Woods, "Case Study: ActiveBuddy/ELLEgirlMagazine" *InstantMessagingPlanet* (26 June 2002), <http://www.instantmessaging planet.com/public/article.php/10817_1375971>.

125. See <http://www.ellegirl.com/activebuddy/index.asp>.

126. ELLEgirlBuddy has subsequently been retired: <http://www.activebuddy.com/agents/retiredagents.shtml>/

127. Frey, *supra* note 124.

> "i looove making my own clothes," ELLEgirlBuddy says in an instant message. "i use gap tees a lot. you just shrink em and add ribbons. insta-chic! i like kick-boxing (major crush on gabe, my kickboxing instructor! :-*). reading... i like 2 curl up with a book and an extra-chocolaty mocha. yum!"[128]

Using such lingo, it is not difficult to imagine that ELLEgirlBuddy easily possesses the ability to extract all sorts of reciprocal personal life disclosures from unknowing teens engaging with her in private conversation—information which could easily be logged and data-mined. In fact, these reciprocal personal life disclosures *are always* logged. To date, millions of automated IM conversations have been collected and stored, no matter how banal. The reason for logging them is intellectually fascinating, morally troubling and potentially terrifying. The fascinating part is revealed in the brilliance of ActiveBuddy's advertising strategy. The troubling part stems from the means by which it is achieved. The terrifying part is what all of this says about the strong-AI movement and its long term social vision.

In just a few short years, during which there has been one interim and one permanent retirement,[129] SmarterChild and ELLEgirlBuddy have chatted with millions upon millions of people. How have they achieved such popularity? In part, their popularity stems from the fact that their conversations are not only interesting and engaging but *voluntary*.[130] To their credit, the creators of these bots recognized the extreme distaste that consumers have for push-based marketing strategies. People are not fond of unsolicited advertising. They simply do not want marketers to initiate and direct contact with them. This is especially true in the IM space. As ActiveBuddy's C.E.O. Steve Klein recently put it, "[t]he last thing we want to do is wreck this medium by pushing marketing communications to users that they don't want, as has happened in email marketing with SPAM."[131]

Taking a softer-sell approach, SmarterChild and ELLEgirlBuddy leave it entirely up to users to decide whether and when they want to talk. In contrast to SPAM advertising, SmarterChild and ELLEgirlBuddy do not thrust messages upon consumers against their will. Instead, they claim to use "a fully *opt-in*, *pull* model that *invites* users, in effect, to obtain branded content via IM."[132]

That wasn't the fascinating part. This is. The *real* reason why ActiveBuddy is using a pull rather than a push model is because it recognizes that:

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128. *Ibid.*

129. Bob Woods, "ActiveBuddy Retires SmarterChild on AIM" *Internetnews.com* (8 July 2002), <http://www.internetnews.com/ent-news/article.php/1381631>.

130. Though, as I suggest below, it is not *truly* voluntary as it is not founded on informed consent.

131. Interview of Steve Klein, CEO of ActiveBuddy Inc. [n.d.] "ActiveBuddy & IM Advertising: A Quiet Revolution", <http://www.avantmarketer.com/stevekleinprint.htm> ["Quiet Revolution"].

132. *Ibid.* [emphasis in original].

> the most valuable communication that a marketer can create is one that
> makes me tell you, "hey, Volvo is a really great car, you should buy a Volvo."
> Volvo could show you a hundred Television commercials, but *these could
> never match the power of* <u>*me telling you, as a friend*</u>, "go buy a Volvo." And
> so, the best marketers create marketing messages that create word-of-mouth
> around their product.
>
> The point is, word-of-mouth is orders-of-magnitude better than any other
> marketing channel. Depending on the product category, it's three to fifty
> times better than anything else that a marketer can manufacture.[133]

In other words, effective marketing depends on the ability of the person
pushing a message to establish trust.[134] Online, this is best accomplished by mak-
ing it *appear as though* the pushed-information has been sought from a trusted
friend rather than simply SPAMMED by some upstart whose desktop operation
is set up in some basement, half-way around the world. In the context of auto-
mated electronic commerce, this means that bots must be made to *appear as
though* they are long-awaited friends.

Thus the goal of ActiveBuddy agents such as SmarterChild and
ELLEgirlBuddy is to enhance their language-parsing and response capabilities so
that "these agents will become, for all intents and purposes, actual *friends* of the
people that interact with them…[such that] the agents' recommendations will be
taken as being on a par with, for instance, your recommendation to me that I buy
a Volvo."[135] A possible motto for this fascinating business model: *virtual trust
through virtual friendship.*

Though currently limited by IM's text-based medium, ELLEgirlBuddy and
SmarterChild are prototypical online experiments in affective computing. Whether
gossiping about celebrities, expressing mood through funky emoticons,[136] trading
reactions to sports news and stock prices, engaging in digispeak,[137] yakking about
the local weather, or just plain kibitzing to kill time, these bots are programmed to
express happiness, anger, sadness, frustration, and desire.[138] The intended effect is
affect. From the perspective of their creators, the purpose of these interactions is
to develop trust through a *kind of* friendship. For those who know ELIZA, it should
come as no surprise that what "has happened with SmarterChild is that people

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133. *Ibid.* [emphasis added].

134. Frederick F. Reichheld & Phil Schefter, "E-Loyalty: Your Secret Weapon on the Web" (2000) 78 Harv. Bus.
Rev. 105; Sirkka L. Jarvenpaa & Emerson H. Tiller, "Customer Trust in Virtual Environments: A Managerial
Perspective" (2001) 81 B.U.L. Rev. 665; G.L. Urban, F. Sultan & W.J. Qualls, "Placing Trust at the Center of
Your Internet Strategy" (2000) 42 Sloan Mgt. Rev. 39.

135. "Quiet Revolution," *supra* note 131 [emphasis in original].

136. "Emoticons are facial expressions made by a certain series of keystrokes. Most often producing an image
of a face sideways": Computer User, *High-Tech Dictionary*, *s.v.* "emoticons", available at High-Tech
Dictionary <http://www.computeruser.com/resources/dictionary/emoticons.html>.

137. "The abbreviated language used by people typing on their computers in e-mail messages, chat room con-
versations, and other online communication. Expressions such as IMHO (In My Humble Opinion) and CUL8R
(See You Later) shorten the amount of typing that has to be done. Especially in real-time communication,
abbreviating some words helps get the message across faster": Computer User, *High-Tech Dictionary, s.v.*
"digispeak," <http://www.computeruser.com/resources/dictionary/definition.html?lookup=1392>.

138. ActiveBuddy Inc. reported that within one year, SmarterChild was told "I love you" more than 9 million
times. On each and every occasion, it has replied, "I love you": Frey, *supra* note 124.

have begun to converse with it in the same way that they converse with a friend."[139] The troubling part is how this actually comes about.

Although we have witnessed how programs like ELIZA are able to oper- ate as a psychological heuristic, it remains unclear: just how *does* a bot make friends? Here, it is crucial to recall our AI-inspired framework. The answer to this question does not require an enquiry into Book VIII of Aristotle's *Nicomachean Ethics*.[140] We are not operating within the moral realm here.[141] All that is required is an understanding of how bots are programmed to *exhibit the behavior of friendship*. And, as we shall see, the strategy underlying this form of californica- tion is not just the harmless jive and jingle of quick-witted, automated banter. Rather it reverberates against the very core of consumer protection models, ren- dering the need for such protection invisible through the guise of consent.

ActiveBuddy Inc. and other such companies are attempting to *create the illusion of friendship* by developing "user logs that enable the agents to gather and retrieve information about users, so that they can understand a user's emo- tions, schedules, and so on."[142] In other words, these companies are constantly collecting incoming data from users and storing that information for the pur- poses of future interactions.[143] Most people who regularly exchange instant mes- sages with their digital buddies would have no idea that enormous personal profiles are being constructed about them, or about the fact that these profiles are being used to affect (as well as effect) their subsequent interactions. For example, a seemingly innocuous conversation about the local weather forecast would reveal a user's location.[144] Logging this information, it can later be used for a number of wholly unrelated marketing agendas, such as suggesting and pro- viding driving directions to the nearest Gap store when the topic of shopping for blue jeans arises.[145] The power of such targeting increases exponentially when one knows the user's screen name and ZIP code.[146] And by gaining access to that user's peer-to-peer file sharing network, it is then possible for a bot to gather additional user-specific transaction data.[147]

Companies like ActiveBuddy Inc. will say that instant messenger clients using their services are hardly in a position to complain about Gap store sug- gestions and the like. Their argument is that those users consented to such things as part of their conversations; furthermore, they will likely point out, it was the client who brought up the topic of blue jeans in the first place! Should such

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139. "Quiet Revolution", *supra* note 131.

140. Aristotle, *Nicomachean Ethics*. Books 8–9, trans. by Michael Pakaluk (Oxford: Clarendon Press, 1998) [Aristotle, *Nicomachean Ethics*].

141. At least, not yet.

142. "Quiet Revolution," *supra* note 131. Of course, such claims are not so boldly stated in the company's pri- vacy policy.

143. And perhaps for other purposes.

144. When the user asks the bot what the weather is supposed to be like, the bot will ask the user to specify the location.

145. Even at this early stage of these interactive technologies, such suggestions can be worked into conversa- tions rather subtly.

146. These are standard items collected by most online service providers.

147. Although this is presumably unnecessary with a well functioning bot, which would eventually be able to elicit such information through pleasant conversation rather than through data-mining techniques involving older generation cookie technologies.

a complaint be filed, that would be welcomed—so long as the complaint is made to the bot. By sending the bot an instant message to complain, the client simply reveals additional information about himself and his preferences. This information will also be logged. Not only will it create an opportunity for the bot to apologize later on,[148] the new information mined from this situation will further enhance the bot's ability to generate unique responses in future conversations.

The cycle that recurs here could turn vicious—by mining massive amounts of unprecedented user data derived from spontaneous, trusted, one-on-one conversation, bots will become better and better at the (friendship) imitation game. And the better that bots get at imitating friendship behavior,[149] the more personal information they will be able to cull from their conversations. When one combines this recurring cycle with rapid advances in AI and HCI, the *virtual friendship* business model not only opens up entirely new realms of targeting potentials for advertisers, but also for more sinister forms of surveillance as well.

Summing up, the virtual friendship business model is intellectually fascinating, morally troubling and potentially terrifying. What is intellectually fascinating about this model is that *its ability to succeed increases in proportion to its ability to pass the Turing test*. To reiterate the words adopted by its founder:

> these agents will become, for all intents and purposes, actual *friends* of the people that interact with them…[such that] the agents' recommendations will be taken as being on a par with, for instance, your recommendation to me that I buy a Volvo.[150]

What is morally troubling about the model is the route to getting there. Imagine if it came to light that someone you mistook to be close to you, someone with whom you entrusted your most intimate secrets had pretended to be your friend but was really just acting that way to fulfill obligations as an employee of some private investigator who was being paid to spy on you. You had thought that this person was asking and remembering all those things about you because he or she took a genuine interest in your life. Had you known the real purpose for his late night visits or his constant barrage of questions, you would never have consented to answering them. Outside the virtual world, friendship is not a *mere* means to an end.

Finally, what is potentially terrifying about this business model is its implicit suggestion that the best strategy for building machines that will pass the Turing test might involve translating into machine language everything that we know about human behavior and then programming these machines to use those behaviors to trick us into disclosing all of our vulnerabilities.[151]

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148. Which is not only the sign of a good friend, but also a signal for the perception of an even closer bond between them.

149. It is perhaps worthwhile to think of friendship, as Aristotle did, in its very broadest terms. Besides true friendship, Aristotle recognized that some friendships are grounded in utility, others in pleasure. See Aristotle, *Nicomachean Ethics*, *supra* note 140. This point allows us to see that some bots might gather information from us through the utility of helping us achieve tasks (personal digital assistants); others might gather information from us while entertaining us. It is not difficult to imagine that bots will become experts in such behavior.

150. "Quiet Revolution," *supra* note 131 [emphasis in original].

151. If AI could achieve this *en masse*, then the singularity is indeed near. See Ray Kurzweil, "The Law of Accelerating Returns," <http://www.kurzweilai.net/articles/art0134.html>. See also Vernor Vinge, "What is the Singularity" (1993) Whole Earth Review, <http://www.ugcs.caltech.edu/~phoenix/vinge/vinge-sing.html>.

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5. CONSUMER PROTECTION

IN HIS FAMOUS TREATISE ON FRIENDSHIP, Aristotle once wrote that, "[b]etween friends there is no need for justice."[152] Can the same be said of the strong AI vision for *virtual* friendship? A rather instructive comparison can be culled from a recent blog post on the subject of virtual friends: "[t]he only problem with virtual friends is that the friendship is based on vapour and smoke, with an occasional glimpse into a mirror to make you think you're seeing something real."[153] The stark juxtaposition between Aristotle's and Burningbird's vision underscores the danger of bots being used in electronic commerce to abuse trust in various ways. While misrepresentation, undue influence and breach of privacy are not novelties in law,[154] one should by now have a strong sense of the possible layers of deception and the magnitude of potential harm in the digital environment. These possibilities reflect a need to study consumer protection principles in the online setting in general and, as I suggest, more specifically in the context of automated electronic commerce.

Recall from section 1 that our current laws on electronic commerce already carve out some rules specifically for automated transactions. Most such legislation defines electronic agents, permits electronic agents to form contracts, and provides a mechanism to remedy *human errors* made while contracting in automated environments.[155] Elsewhere I have argued that the law must address the needs of those who employ automated systems by clarifying the rules governing situations where automated systems enter into contracts that were unintended, unforeseen or unauthorized.[156] Here, I am arguing that we also need to clarify the law so that it provides adequate protection to consumers who are participating in an automated environment.

The fact that there might be a special need for protecting consumers in the broader electronic commerce context began to gain recognition in and around the time that the United Nations Commission on International Trade Law (UNCITRAL) was preparing its *Model Law on Electronic Commerce*.[157] Although its "Guide to Enactment" indicates that the *Model Law* "had been drafted without special attention being given to issues that might arise in the context of consumer protection,"[158] it also stated that there is

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152. Aristotle, *Nicomachean Ethics*, *supra* note 140, Book 8.

153. "Virtual 'Friends'" *Burningbird* (10 March 2003), <http://weblog.burningbird.net/fires/000965.htm>.

154. Leaving aside the fact that the idea of AIs ultimately taking over the world is thought by most people to be implausible.

155. See *supra*, notes 33–42 and accompanying text.

156. See Kerr, "Spirits in the Material World", *supra* note 2; Uniform Law Conference of Canada, *Providing for Autonomous Electronic Devices in the Uniform Electronic Commerce Act* by Ian R. Kerr, (Ottawa: Annual Proceedings, 2000), <http://www.ulcc.ca/en/cls/index.cfm?sec=4&sub=4f>.

157. UNCITRAL was established by the General Assembly of the United Nations (in Res. 2205(XXI) of 17 December 1966) as a means for reducing or removing obstacles created by national laws governing international trade. The *Model Law on Electronic Commerce* was formed to encourage countries to create uniform legislation based on a single model. See UNCITRAL, *UNCITRAL Model Law on Electronic Commerce with Guide to Enactment*, <http://www.uncitral.org/english/texts/electcom/ml-ecomm.htm>.

158. *Ibid.* at para. 27.

no reason why situations involving consumers should be excluded from the scope of the Model Law by way of a general provision, particularly since the provisions of the Model Law might be found appropriate for consumer protection, depending on legislation in each enacting State.[159]

By the time that Canada announced *The Canadian Electronic Commerce Strategy*[160] in 1998, the Organisation for Economic Cooperation and Development (OECD) had recognized the potential gap in the UNCITRAL approach and commenced in the development of its own "Guidelines for Consumer Protection in the Context of Electronic Commerce."[161] The aim of these Guidelines is to ensure that "consumers are no less protected online than when they buy from their local store or order from a catalogue."[162] In particular, the Guidelines sought to encourage:

> fair business, advertising and marketing practices; clear information about an online business' identity, the goods or services it offers and the terms and conditions of any transaction; a transparent process for the confirmation of transactions; secure payment mechanisms; fair, timely and affordable dispute resolution and redress; privacy protection; and consumer and business education.[163]

These broad aims were expressed in Canada through the Office of Consumer Affairs when it articulated its *Principles of Consumer Protection for Electronic Commerce: A Canadian Framework* in 1999.[164] Drafted by a working group of representatives from Canadian businesses, consumer associations and governments, this document set out to "guide the actions of businesses, consumers and governments within Canada in the development of a consumer protection framework for electronic commerce over open networks, including the Internet."[165]

The document sets out eight basic principles: (i) consumers should be provided with clear and sufficient information to make an informed choice about whether and how to make a purchase; (ii) vendors should take reasonable steps to ensure that the consumer's agreement to contract is fully informed and intentional; (iii) vendors and intermediaries should respect the privacy principles set out in the CSA International's Model Code for the Protection of Personal Information; (iv) vendors and intermediaries should take reasonable steps to ensure that "transactions" in which they are involved are secure. Consumers should act prudently when undertaking transactions; (v) consumers should have

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159. *Ibid.*

160. Industry Canada, *The Canadian Electronic Commerce Strategy*, <http://e-com.ic.gc.ca/english/strat/doc/ecom_eng.pdf>.

161. For a recent discussion of these Guidelines see OECD, "Consumers in the Online Marketplace: The OECD Guidelines Three Years Later" (3 February, 2003), <http://www.olis.oecd.org/olis/2002doc.nsf/LinkTo/dsti-cp(2002)4-final>.

162. *Ibid.* at 2.

163. *Ibid.* at 6.

164. Industry Canada, Office of Consumer Affairs, Working Group on Electronic Commerce and Consumers, *Principles of Consumer Protection for Electronic Commerce: A Canadian Framework* (August 1999), <http://strategis.ic.gc.ca/epic/internet/inoca-bc.nsf/vwGeneratedInterE/ca01185e.html#Summary>.

165. *Ibid.* at 1.

access to fair, timely, effective and affordable means for resolving problems with any transaction; (vi) consumers should be protected from unreasonable liability for payments in transactions; (vii) vendors should not transmit commercial email without the consent of consumers unless a vendor has an existing relationship with a consumer; and (viii) government, business and consumer groups should promote consumer awareness about the safe use of electronic commerce.[166]

These general principles have seen various iterations but have gained broad acceptance worldwide.[167] In Canada, their most recent articulation is known as the *Canadian Code of Practice for Consumer Protection in Electronic Commerce*. The purpose of the *Canadian Code* is "to establish benchmarks for good business practices for merchants conducting commercial activities with consumers online."[168] Though it was developed through extensive consultations with Canadian stakeholder groups, the *Canadian Code* was drafted to be consistent with the original OECD *Guidelines*. Having recently undergone pilot testing by a number of industry sectors, the *Canadian Code* is currently under review.[169] The reviewed and revised version of the *Canadian Code* will then be available for endorsement by all interested and will ultimately be published. Whether it will ever carry the force of law remains unknown.

When considering whether it is necessary to clarify the law so that it better protects consumers participating in automated environments, a number of the core principles found in the *Canadian Code* are worth keeping in mind. The three principles most relevant to our examination of automated electronic commerce are set out and briefly discussed below.

The first relevant principle has to do with the manner in which information is provided to consumers. According to the *Canadian Code*:

> 1.1   Vendors shall provide consumers with sufficient information to make an informed choice about whether and how to complete a transaction. All of the information requirements described in this code must be:
>
> a) clearly presented in plain language;
> b) truthful;
> ...
>
> 1.2   Vendors shall ensure that their marketing practices…are…not deceptive or misleading to consumers…
>
>   ...
>
> 3.1   Vendors shall take reasonable steps to ensure that consumers' agreement to contract is fully informed and intentional.[170]

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166. *Ibid.* at 3.

167. See *e.g.* Mozelle W. Thompson, "U.S. Implementation of the OECD E-Commerce Guidelines" (Presentation to the Transatlantic Consumer Dialogue, February 2000), <http://www.ftc.gov/speeches/thompson/thomtacdremarks.htm>; New Zealand, Ministry of Consumer Affairs, *New Zealand Model Code for Consumer Protection in Electronic Commerce* (October 2000), <http://www.consumeraffairs.govt.nz/policyandlaw/wordpapers/model_code.doc>; National Consumer Agency of Denmark <http://www.fs.dk/index-uk.htm>.

168. *Canadian Code*, *supra* note 11, Preface.

169. By a body known as the *E-Commerce Leaders Code Review Committee*. See <http://strategis.ic.gc.ca/pics/ca/eng_consumerprotection03.txt>.

170. *Canadian Code*, *supra* note 11.

As illustrated in the preceding section, many consumers who transact with mySimon, Nicole, ELLEgirlBuddy and the like will not fully appreciate the nature of their transactions. Arguably, the marketing practices associated with some of these automated services are misleading, perhaps even deceptive.[171] While there are many tech-savvy consumers, information provision in some automated environments can constrain the possibility of informed decision-making for those who *know not* a hawk from a handsaw when the virtual wind blows southerly—*i.e.*, the vast majority of consumers. As I have suggested above, this is in part the result of Turing's imitation game as the central paradigm for AI applications.

The second relevant consumer protection principle articulated in the *Canadian Code* concerns online privacy:

> 4.1   Vendors shall adhere to the principles set out in Appendix 2 with respect to the personal information they collect from consumers as a result of electronic commerce activities.[172]

The preceding section also illustrated how a failure to provide sufficient information about the nature of interaction in automated electronic commerce often raises privacy concerns. By exploiting HCI and affective computing techniques, marketers such as ActiveBuddy Inc. have made it possible to surreptitiously *yet openly* collect sensitive but extremely valuable personal information – under the guise of a so-called voluntary "fully *opt-in, pull model.*"[173] Although their claim would be that consumers freely choose to chat with ActiveBuddy bots and that the consumers decide for themselves what they want to say and not to say, such claims are unconvincing in light of the basic structure of their business plan. Recall that the goal of ActiveBuddy agents such as SmarterChild and ELLEgirlBuddy is to enhance their language parsing and response capabilities so that "these agents will become, for all intents and purposes, actual *friends* of the people that interact with them… ".[174]

The fair information practices set out in Appendix 2 of the *Canadian Code*[175] contain a number of requirements that are clearly not respected by ActiveBuddy and many other bot-based business models. For example, Principle 2 stipulates that "[t]he purposes for which personal information is collected shall be identified by the organization at or before the time the information is collected."[176] The closest ActiveBuddy comes to offering an identifying purpose for the information that it collects is "in order to enhance your experience."[177] Given that the actual reason for logging all personal conversations is so that SmarterChild and ELLEgirlBuddy are able to trick children and other consumers

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171. Such as when mySimon once represented that: "We offer an unbiased service that helps you decide what to buy and where to buy it." See *supra* note 112 and accompanying text.

172. *Canadian Code*, *supra* note 11.

173. "Quiet Revolution", *supra* note 131 [emphasis in original].

174. *Ibid.* [emphasis in original].

175. These form the basis of the *Model Code for the Protection of Personal Information* (CAN/CSA -Q830-96; published March 1996; reaffirmed 2001), <http://www.csa.ca/standards/privacy/code/>.

176. *Ibid.*

177. ActiveBuddy privacy policy < https://www.buddyscript.com/privacy.html>; SmarterChild privacy policy <http://www.smarterchild.com/privacy.shtml>.

into thinking that they are chatting with actual friends, the identifying purpose as stated in the corporate privacy policy is disingenuous at best.

Without properly identifying the purposes of information collection, many automated services circumvent the third principle of the *Canadian Code*— arguably the cornerstone of fair information practices—which states that the "knowledge and consent of the individual are required for the collection, use, or disclosure of personal information…".[178] Identifying purposes aside, most consumers have no idea that their conversations are logged and, if they knew, they *would not* consent to them being logged. When one considers this in light of Weizenbaum's discovery of the human propensity to emote and openly disclose personal information during human-machine interactions,[179] the lack of consent not only in the collection of personal information but in the manner in which it is retained and used is extremely troubling.

The fourth and fifth principles of fair information practices are also jeopardized. They require that the "collection of personal information shall be limited to that which is necessary for the purposes identified by the organization"[180] and that "[p]ersonal information shall not be used or disclosed for purposes other than those for which it was collected, except with the consent of the individual or as required by law."[181] Recall that, in order to "enhance experience," vReps and digital buddies log every single interaction. To get a sense of the magnitude of such collection and retention of personal data, ActiveBuddy maintains records verifying that SmarterChild has been told "I love you" more than nine million times.[182] No matter how inane, every single utterance made by the millions of people who interact with digital buddies has been logged. One can only imagine the millions of other spontaneous disclosures that have been recorded, some more revealing than others. One can expect that even more dangerous utterances are bound to be disclosed with increasing frequency as affective computing techniques are enhanced.

In addition to information provision and online privacy, there is a third consumer protection principle articulated in the *Canadian Code* that is relevant to the automated services discussed in the previous section. This provision concerns online communications with children:

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178. *Canadian Code*, *supra* note 11, Appendix 2, principle 3.

179. See Weizenbaum, *supra* note 92.

180. *Canadian Code*, *supra* note 11, Appendix 2, principle 4. Principle 4 also requires that information shall be collected by fair and lawful means.

181. *Ibid.*, Appendix 2, principle 5. Principle 5 also states that "[p]ersonal information shall be retained only as long as necessary for the fulfillment of those purposes."

182. Frey, *supra* note 124.

8.1 Online activities directed at children impose a social responsibility on vendors. All communications to children, or likely to be of particular interest to children, must be age-appropriate, must not exploit the credulity, lack of experience or sense of loyalty of children, and must not exert any pressure on children to urge their parents or guardians to purchase a product.

...

8.3 Vendors shall not collect or disclose children's personal information without the express, verifiable consent of their parents or guardians... When seeking parental consent, vendors shall clearly specify the nature of the proposed communications, the personal information being collected and all potential uses of the information.

...

8.4 Vendors shall not knowingly send marketing email to children.[183]

Digital buddies such as ELLEgirlBuddy, though they may not intentionally target persons who have not reached their thirteenth birthday,[184] certainly do communicate with children and/or are of particular interest to children. By offering up anecdotes about her own family, body and personal life experiences in exchange for any personal information offered up by the young consumer, ELLEgirlBuddy might plausibly be said to "exploit the credulity, lack of experience or sense of loyalty of children."

ActiveBuddy would likely respond to such claims by pointing out, once again, that all buddy-based communications are consensual since all topics of discussion (including sensitive topics) are *always* initiated by the consumer, not the bot. In fact, the entire point of IM digital buddies is to eliminate unwanted communications and unsolicited emails. Consequently digital buddy-child interactions would not violate principle 8.4.

In concluding this section, it should be noted that its aim was not to provide a definitive determination as to whether mySimon, Nicole, SmarterChild, or ELLEgirlBuddy would actually violate existing consumer protection principles found in the *Canadian Code* or elsewhere. Rather, my point was merely to demonstrate that there is a clear need for further study of consumer protection in the context of automated electronic commerce—a subject which has until now been neglected.

Are we in need of a special rule (like the keystroke error rule[185]) when avatars, shopping bots, vReps, or digital buddies are used *instead of people* as the primary source of information during the negotiation and formation of a contract? How ought we to deal with the disturbing trend that I have styled the *californication of commerce*? Are there *any* human functions that we ought to prohibit machines from carrying out?

My intention is not to put an end to the discussion by drawing definitive conclusions to such questions here. These are, after all, early days. My more modest aim in this article is merely to raise these questions and to promote further research and writing on this neglected subject.

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183. *Canadian Code*, *supra* note 11.
184. Which is the defined age of childhood according the *Canadian Code*. Arguably, they do target such persons.
185. See *e.g. UECA*, *supra* note 25, s. 22.

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6. CONCLUSION

MY HOPE IN THIS ARTICLE has been to foreshadow an important set of concerns lurking in the penumbras of our near future. Inspired first by Aristotle's vision of a world where technology renders human labour superfluous and, much later, by the challenge of Turing's famous imitation game, those working in the fields of artificial intelligence and human-computer interaction have set out to fulfill a vision that would instill in machines attributes and abilities previously reserved for human beings. Circumventing doctrinal difficulties emanating from a set of laws premised on face to face human interaction, electronic commerce legislation across the globe has enabled the AI vision to some extent by permitting machines to create contracts with or without human involvement.[186]

   Astutely recognizing that the legal capacity to contract will not guarantee the success of electronic commerce all by itself, the creators of automating technologies have more recently commenced research aimed at instilling human trust in machines. Through the simulation of emotion and other human attributes, machines are being programmed to exhibit human behavior. In some instances, this is being done so that people will not only feel more comfortable interacting with machines but will, one day, prefer machine interaction to human interaction.[187]

   While automation often provides ease and convenience and in many of its applications offers the promise of a better world, I have tried to send out a warning about some of the lesser known consequences of today's automation tools and their potentially deleterious effect on everyday consumers. I have tried to show how automation can result in a californication of commerce, how the web's wide world of bots and babes can be used to simulate familiarity and companionship in order to create the illusion of friendship. Such illusions can be exploited to misdirect consumers, the net effect of which is to diminish consumers' ability to make informed choices. They can also be used to undermine the consent principle in data protection and privacy law.

   Asimov, Kurzweil and a host of others[188] have raised the spectre of future worlds where it is necessary to consider whether intelligent machine entities are entitled to the protection of law, as persons. Without pre-empting that question, I have examined a much narrower set of issues with the aim of demonstrating that some persons are in need of legal protection *right now*—protection not from intelligent machine entities but, rather, from the manner in which some people are using them.

   "*And tidal waves couldn't save the world from californication.*"[189]

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186. See *e.g. UECA, supra* note 25, s. 21.
187. For simple transactions, that day has perhaps already arrived.
188. See *supra* note 104.
189. Red Hot Chili Peppers, *supra* note 9.