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Some technological implications for ascertaining the contents of contracts in web-based transactions

Eliza MIK
Singapore Management University, elizamik@smu.edu.sg

SOME TECHNOLOGICAL IMPLICATIONS FOR ASCERTAINING THE CONTENTS OF CONTRACTS IN WEB-BASED TRANSACTIONS

Eliza Mik, PhD LLM (Sydney)

It has become a convention for papers concerning any aspect of e-commerce to carry the words "Internet" or "Cyber-" in their title. Such papers usually commence with a reminder of how much the Internet has revolutionized the way we communicate or conduct commerce. Next, a number is quoted – usually emphasizing the existing or projected growth of Internet-based transactions. At some stage, the word "electronic" takes centre stage and inundates the discussion with details about electronic bits flying through cyberspace with the speed of light. Traditionally, the paper asks "how can law cope with all those technological challenges?"

This paper breaks with the above conventions. As can be seen from the title, it carves out one aspect of e-commerce – web-based transactions, i.e. retail transactions conducted via the world-wide-web interface. The purpose of this paper is not to recycle common arguments but to point out some gaps in existing legal analyses and to discover some unexpected relationships between *specific* aspects of contract law and *specific* Internet-related technologies. The discussion is not about the interplay between "Law" and "Technology," or the "Law" and the "Internet." Terms starting with a capital letter are usually too general to be useful for any detailed analysis. And generalizations frequently lead to simplifications. It is not "Technology" *as such* that challenges the "Law", but specific technologies that render it difficult to apply well-established principles of contract law. The aim of this paper is modest: to identify some theoretical chokepoints created by the technologies involved in web-based commerce and to point out the legal uncertainties that persist in this area. The analysis is confined to the *process* of contract formation, not to matters of substantive law. It is during this process that parties assume their contractual obligations and the contents of a contract crystallize.

The paper follows a number of inter-connected threads: the first thread describes the challenges created by the client-server architecture underlying all web-based transactions. These challenges relate to the objective evaluation of contractual intention from the side of the addressee. The second thread relates to the concept of hyperlinks, which render it difficult to ascertain the source and scope of statements made during the formation process. The third thread discusses the existence of writing in web-based

transactions. All threads converge on one problem: establishing the contents of contracts underlying web-based transactions. The unifying theme is Hypertext Mark-up Language ('"HTML") - a method of organizing and displaying information.[1] Its idiosyncrasies add complexity to traditional and seemingly simple analyses. Three characteristics of HTML are pertinent: first, web-based transactions (or websites in general) rely on the *client-server* architecture; second, websites owe their ease of access and therefore their popularity to *hyperlinks*, which interconnect distributed files and enable a fast and almost imperceptible transfer between them; third, while pure HTML files are static, e-commerce relies on websites equipped with varying degrees of *interactivity*. In other words, this paper would be redundant if the world-wide-web consisted of PDF files, the contents of which never change and which were connected in a manner that predetermined the sequence of their display.

Most technologies require no introduction. While the argument presupposes that the reader has not only used the Internet but ordered goods on-line at least once, some technical explanations are apposite. The discussion could be further enriched by the inclusion of more technological factors – and exotic technical terms - but in most instances a simplified sketch of the basic technologies suffices to convey the problems at hand.

Two general observations are in place.

First, to produce a legal effect intention must be manifested. All e-commerce laws proclaim that legal effect cannot be denied solely on the ground that intention was expressed by means of an electronic message.[2] The legal effect should not depend on manner of expression. Assuming an identical informational content, a statement made on a website should produce an equivalent effect to a statement made in a written letter. After all, websites are nothing more than a new method of manifesting contractual intention. And intention remains paramount[3] - both in web-based transactions and in the real world. In the real-world, manifestations of intention take the form of words, spoken or written, and conduct. In web-based transactions, intention is expressed through HTML files (from the side of the website owner) and "clicks" and the filling out of on-line forms (from the side of the user). It is one thing, however, to proclaim that intention can be manifested by means of electronic messages, it is another to evaluate the legal effect of such intention when it takes the form of a website or a "click." Upon closer analysis, contractual intention expressed on websites may be more difficult to ascertain than in the case of traditional communications.

Second, principles from the world of paper "apply equally to the emergent world of online product delivery, pop-up screens, hyperlinked pages, clickwrap licensing, scrollable documents, and urgent admonitions to "Download Now."[4] Accordingly, this paper does not advocate the creation of *new* principles tailored to the idiosyncrasies of web-based transactions. What it does, though, is question the ability to directly and indiscriminately apply the existing principles to the transactional environment created by the world-wide-web. Contract law has never been media neutral – many principles evolved

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[1] HTML has gone through four major standards and is currently in version 4.1. Related technologies are Dynamic HTML ("DHTML") and Extensible HTML ("XHTML"), which enrich the original language with additional features, such as interactivity and dynamic content display. Technically, it would therefore be more correct to refer to all three languages. For the sake of brevity, this paper uses HTML. See generally: S M Schafer, *Web Standards Programmer's Reference: HTML, CSS, JavaScript, Perl, Python and PHP*, 2005 Indianapolis

[2] UNCITRAL Model Law on Electronic Commerce with Guide to Enactment (1996) with additional article 5 *bis* as adopted in 1998 ("MLEC"), art 5; Convention on the use of Electronic Communications in International Contracting, adopted on 23rd November 2005 ("CUECIC"), art 8

[3] *Paal Wilson & Co A/S v Partenreederei Hannah Blumenthal* [1983] 1 AC 854 at 917

[4] *Specht v Netscape Communications* 306 F 3d 17 at 31

around paper[5] or around specific modes of communication.[6] The current discussion is therefore positioned between two extremes: the creation of a parallel, contractual regime for cyberspace on one side and the automatic application of contract law principles "as if nothing has changed" on the other. The question is not: "do traditional principles apply?" but "how do they apply?" In the words of one court:

> *"Basic principles of contract law continue to prevail on contracts made over the Internet. However, not all principles will or can apply in the same manner that they apply to traditional paper-based and oral contracts."*[7]

The application of principles of contract law must be based on a sound understanding of the characteristics of new transaction environment.[8] One of the analytical difficulties lies in distinguishing between those technologies, which remain transparent and do not interfere with traditional legal analysis and those, which affect this analysis. Not all technological factors are of relevance. Traditionally, the impact of certain technologies is being overstated while the importance of others is being played down. Much legal analysis was devoted to so-called digital signatures and their role in fulfilling formal requirements. Surprisingly little attention has been directed to hypertext or the client-server architecture of the web. Web-based transactions have been discussed predominantly in relation to the manifestation of assent and the enforceability (or incorporation) terms. The buzz-words are "click-wrap" and "browse-wrap" agreements. This paper does not jump on the click-/browse-wrap bandwagon, but asks some antecedent questions: what statements were made? If assent can be expressed by means of a click, what did the website visitor assent to? The over-reaching question is: *What did the parties really promise?*

The first thread relates to the client-server architecture, which underlies all web-based transactions. It is trite law that contractual intention is based on an objective assessment of what the parties said or did.[9] Given that a statement is evaluated from the side of a reasonable *addressee*, the client-server architecture complicates the evaluation of such statement. The objective theory of contract assumes that when a statement is made by A to B (in writing or orally), B sees or hears the statement in the same form as made by A. The statement made by A is identical to the statement read or heard by B. After all, the content of a promise is "determined by the content of the undertaking that the promisor communicated and as such is prima facie within the control of the promisor."[10] It is assumed that A controls both the content and the form of his statements, that actual intention mirrors expressed intention. This seemingly simple assumption cannot be made in web-based transactions.

The web relies on the "client-server" paradigm. The *client* initiates contact and requests a service or resource, the server awaits requests and provides services or resources on demand.[11] In general, clients reside on the user's computer and are – at least theoretically – under the user's control, whereas servers run on remote computers.[12] Websites are the output of HTML files, which are hosted on web-servers.

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[5] A H Boss, *Searching for Security in the Law of Electronic Commerce* (1999) 23 Nova L Rev 585 at 585-587; Ch N Faerber, *Book Versus Byte: The Prospects and Desirability of a Paperless Society* (1999) 17 J Marshall J Computer & Info L 797; D L Kidd Jr, W H Daughtrey, Jr, *Adapting Contract Law to Accommodate Electronic Contracts: Overview and Suggestions* (2000) 26 Rutgers Computer & Tech L J 215 at 216; Toh See Kiat, *Paperless International Trade: The Law of Telematic Data Exchange*, Singapore 1992, p 64

[6] R Bradgate, M Furmston, A Grubb, *The Law of Contract*, London 2007 par 2.4 ("*The Law of Contract*")

[7] *Chwee Kin Keong v Digilandmall.com Pte Ltd* [2004] SGHC 71 at 91 per V K Rajah JC

[8] L Lessig, *Code and other Laws of Cyberspace*, New York 1999, p 78, 79; Y Benkler, *Net Regulation: Taking Stock and Looking Forward* (2000) 71 U Colo L Rev 1203

[9] see in general: J M Perillo, *The Origins of the Objective Theory of Contract Formation and Interpretation* (2000) 69 Fordham L Rev 427

[10] S.A. Smith, *Contract Theory*, Oxford 2004, p 59

[11] Brookshear, *Computer Science, An Overview*, Boston 2004 p 138;

[12] D E Comer, *Computer Networks and Internets with Internet Applications* 4th edn, New Jersey 2004, p 424

Websites are viewed by means of web-browsers on the computer of the end-user. HTML files contain text representing the content as well as instructions specifying how this content is to be displayed.[13] The manner of this display (and sometimes whether specific content is displayed at all) depends on how a browser processes these instructions. Each browser processes HTML files differently.[14] In other words, the manner a website is displayed depends not only by the code of the HTML file but on the manner this code is *interpreted* by a browser. A website viewed on Internet Explorer ("IE") will not look identical as viewed on Firefox.[15] While the HTML file remains the unchanged, every user accessing such file may see it differently. A person setting up a website has limited control over the manner such website is displayed on the client side. The appearance of a website is largely dependent on the browser used by the addressee.

Needless to say, the HTML file on the web-server (i.e. the original statement of the website owner) looks *very* different from its processed output – the website itself. Given that intention is evaluated from the addressee's side, it must be assumed that the HTML file must be disregarded altogether. Only the client side is decisive. This raises some practical difficulties. A problem that has plagued web-site development from its inception is non-compliance of browsers with the relevant standards.[16] The latter prescribe the coding HTML files (amongst others) and, indirectly, how browsers should interpret this coding. If the website is developed in accordance with the standards but the browser is non-compliant, the website will not be displayed correctly – i.e. in the manner it was intended to display. There are more than 5 web-browsers, which differ in popularity and in the degree of compliance. Internet Explorer ("IE"), the browser with the *currently* biggest market share, has been notorious for not following the standards. Other browsers may be more compliant but less popular. This leads to the question: Should a website be designed to follow the standards (there is no *legal* sanction for non-compliance) or should it be tailored to the browser with the dominant market share? The practical implications of this decision are far-reaching. The owner of an e-commerce website may carefully design each transactional page to display a conspicuously positioned red button alerting each visitor to the terms governing the transaction. Colors and fonts may, however, not survive a specific browser type.[17] Some browsers may not display the button altogether.

The *technical* problem described above translates into a *legal* problem: who should bear the risk of incorrect display? The user, who chose the most popular but non-compliant browser or the website owner, who followed all relevant standards but disregarded the fact that the most popular browser may not display some of the code? If the website is fully compliant, but the browser is not and the red button does not display - have the terms been successfully incorporated? The picture gets more complicated if one actually analyses the "choice" of browser on the side of the user. On one hand, more technology-literate users will generally avoid Microsoft's Internet Explorer, opting for Mozilla's Firefox or Google's Chrome. On the other, the average user may have no real choice what browser to use if he accesses the web on a work computer. Company policies may prohibit any alteration of the default settings of a workstation, which usually comes pre-installed with IE. Moreover, users of Apple computers are not able to use IE at all given that Microsoft discontinued IE for OS X (Apple's operating system) in 2004. The only

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[13] H M Deitel, P J Deitel, A B Goldberg, *Internet & World Wide Web, How to Program*, 3rd ed; New Jersey 2004 p 83

[14] See generally: J Zeldman, *Designing with Web Standards*, Indianapolis 2003, pp 24, 26, 27

[15] This problem may not be fully appreciated by persons who have only ever used Internet Explorer on a PC and who have rarely ventured beyond such popular websites like amazon.com.

[16] A general term referring to standards and technical specifications describing different aspects of the world-wide-web, e.g. the accessibility and usability of websites. Web standards include recommendations by the W3C, Internet Standards and Requests for Comment published by the IETF, as well as Standards published by ISO (amongst others); the current standards regulate the coding of, amongst others, the following languages: HTML 4.0, XML 1.0, XHTML 1.0, see: www.webstandards.org and www.w3c.org

[17] R Nimmer, H Towle, *The Law of Electronic Commercial Transactions*, Arlington 2003, para 5.05[5]

way Apple users can download IE is by installing virtualization software to run a second operating system (Windows) on the same machine. Why would one go to all this trouble and expense to install a web-browser that is frequently regarded as inferior? The discussion regarding browser-choice could be further refined and more technical factors (e.g. browser security, browser versions, platforms etc.) could be introduced on both sides on the argument. The point is simple: the type of browser affects the way a statement is viewed by the addressee - the same content will look different and some content may even not be displayed at all.

The scale and gravity of the problem is constantly changing. To illustrate: with the release of IE 8 in March, 2009, the latest versions of all major desktop browsers passed the so-called Acid2 test.[18] The latter consists in a test-page that verifies the browser's ability to correctly render a set of particular web-*technologies*. Given the fact that it tests only certain aspects of the browser's rendering, Acid2 is being overtaken by Acid3, which tests the ability to correctly display, amongst others, DOM and Javascript – two essential components of web-site interactivity.[19] At the date of writing, only some browsers achieved a relatively high score on this test. It must be assumed that the problem of browser compatibility and the resulting discrepancies in browsers display will not disappear in the near future.

In light of the above, should a court ever leave aside the principle that intention is evaluated form the side of the addressee and consider examining the source document in a web-based transaction, i.e the HTML file itself? Before debating what a statement was supposed to look like on the addresse's side, shouldn't one first look at the original manifestation of intention? This could be the case when an outdated browser version or an uncommon browser have been used by the addressee. Even if the original HTML file is not examined, which browser should the court use to evaluate what was displayed during the transaction? Courts may have to face the very same decision as a web-site owner: which browser should be presumed as operating on the addressee's side? What should the statement look like from the side of a reasonable addressee? Which browser choice is *reasonable*: standard-compliant or popular?

The above questions remain open – the risk of incorrect or incomplete display of a contractual statement is left unallocated.

The second thread relates to the most distinguishing feature of HTML - the ability to connect to other files by means of hyperlinks.[20] The following discussion illustrates the difficulties of establishing the informational content - and therefore the legal effect - of a statement in a hypertext environment. At first glance, the question "how much of what [the parties] have said or written has been caught up into the contract?"[21] seems to transform into "which of the contents displayed on the website during the transacting process become part of the contract?" The problem seems, however, more complex than establishing what was *displayed*. It must be remembered that the full dimensions of a website remain hidden from view: hypertext is non-linear[22] and there is not pre-determined sequence of viewing the pages of a website.[23] The contents of a website (and even a webpage) may be distributed over multiple, interconnected files. The problem does not lie in the fact that HTML files constituting one single web*site* may be hosted on multiple servers in different locations. The problem lies in the fact that the contents

[18] see: acid2.acidtests.org
[19] see: acid3.acidtests.org
[20] J F Rayport, B J Jaworski, *Introduction to E-Commerce*, Sydney 2002, p 40; Tim Berners-Lee, "Links and Law," in "Commentary on Web Architecture", at www.w3.org/designissues/linklaw.html
[21] D E Allan, *The Scope of the Contract, Affirmations and Promises Made in the Course of Contract Negotiations* (1967) 41 ALJ 275
[22] J W Delapenna, *Law in a Shrinking World: The Interaction of Science and Technology with International Law* (1999-2000) 88 Ky J 809 at 872
[23] M.J. Madison, *The Narratives of Cyberspace Law (or, Learning from Casablanca)*, 2004, 27 Colum. J.L. & Arts 249 at 257

displayed on one single web-*page* may come from multiple sources. Accordingly, the source and/or the scope of a statement may be difficult to determine. In extreme cases, given that a contract must be certain and complete, hypertext linkages may threaten the very existence of agreement.

A brief note before proceeding: ascertaining the contents of a contract is synonymous with establishing the obligations of the parties. Contractual contents are, however, not limited to "terms" defined as a set of usually standardized legal provisions. They may also include descriptions of the contractual subject matter and assertions as to its quality or performance. From a boader liability perspective the question can also be expanded to *what representations were made during the formation process?* Certain statements may induce the counterparty to enter into a contract without becoming part of the contract. Accordingly, the analytical process of establishing the contents of a contract is broader than the traditional analysis relating to the incorporation of terms.

Both in web-based and in traditional transactions, parties may disagree about their mutual obligations. To determine *what* has been agreed traditional analysis dictates an examination of the statements passing between the parties during the formation process. Acceptance, which is the final act concluding the formation process encompasses all information that was communicated.[24] The question arises: what was communicated? Is the content linked to "communicated"? Does everything a webpage links to constitute part of the statement made on such webpage?

The advantages of hyperlinks are obvious: instead of presenting large amounts of free-flowing text on one page (be it the legal terms of the transaction or the specifications of the subject matter), they can be displayed on separate pages and conveniently referred to. The contents linked to are treated *at par* with the contents containing the hyperlink, i.e. they may have the same legal effect as if they had been fully stated.[25] The latter fact, however, also carries an obvious disadvantage: hyperlinks may create or expand the liability of the maker of a statement beyond such statement. From the perspective of the website owner this raises the risk of being held liable for the statements made on other websites. As long as the website owner only creates links within his/her website, the problem does not arise as referencing one's own statements does not carry the risk of additional liability. The problem occurs only once a website owner decides to link to another website. This has been distinctly noted by US regulators in relation to electronic prospectuses and financial products[26]. A different question arises from the perspective of the visitor of a website: when expressing his final assent, is he bound by or presumed to agree to all the contents that the website links to?

The concept of "referencing" is not a legal novelty. Paper documents are frequently read together if they expressly or impliedly refer to each other.[27] Whether certain documents should be placed side-by-side is a matter of construction and involves in the identification of those words "which are capable of being construed as referring to another document."[28] Similarly, terms may be incorporated "by reference." Referencing by means of hyperlinks in an environment made of interconnected HTML files is, however, different. It is the number of references, the sheer amount of material being referenced[29] and – most importantly - the ease of transition between the referenced materials. The difficulties created by

[24] J Fairfield, *The Cost Of Consent: Optimal Standardization in the Law of Contract* (2009) Emory Law Journal 1401, at 1422

[25] MLEC, Guide to Enactment, comments to article 5bis dealing with Incorporation by Reference

[26] SEC Interpretation, *Use of Electronic Media*, SEC Release No. 7856, 65 Fed. Reg 25843, available at www.sec.gov/rules/interp/34-42728.htm

[27] J W Carter, D J Harland, *Contract Law in Australia*, 4th ed, Sydney 2002; par [516]

[28] *Thomson v McInnes* (1911) 12 CLR 562 at 569

[29] A M Balloon, *From Wax Seals to Hypertext: Electronic Signatures, Contract Formation, and a New Model for Consumer Protection in Internet Transactions* (2001) 50 Emory L J 905 at 915, 932

hyperlinks are not the result of HTML alone, but HTML deployed in a *networked* environment. If multiple interconnected HTML files were placed on a CD-ROM, the number of files to be examined would be finite. In web-based transactions, the number of inter-connected files is not physically confined. It would be an exaggeration to say that determining the contents requires the examination of *every* web-page that links *to* or is linked *from* the website in question. At the same time, there seem to be few, if any, rules as to which web-pages should be read together or - where to draw the line when following hyperlinks. The resulting uncertainty cannot be remedied by drawing analogies to concepts from the world of paper.

Technically, the content linked to is not part of the file containing the link.[30] Hyperlinks associate files or sections of the same file but by themselves do not carry meaning. Only the content of the linking document or the language of the link do. At the same time, although a hyperlink is *only* an address of the information, it "has the functional capacity to bring the content of the linked web page to the user's computer screen."[31] A famous case compared hyperlinks to a library card index but faster and more efficient.[32] This analogy fails, however, to appreciate the cognitive difficulties of differentiating between interconnected statements. The words of one author must be quoted in full:

> *If linkages were considered in the context of traditional scholarly footnoting, a claim that reference to other materials confuses readers as to the origins of the referenced material seems absurd. Indeed, the traditional purpose of such references is to make clear the origins of the material drawn upon in the preparation of the referencing document. [I]n non-hypertext referencing, the time required for manual location and retrieval of the referenced material, as well as the physical space between the referencing material and the referenced material, makes clear that they are separate documents – in a hypertext environment, such temporal and physical spaces between the documents collapse. Additionally, in non-hypertext referencing, the information displayed in the reference itself differentiates referencing and referenced material, because complete reference and location information are necessary to enable the reader to locate the referenced materials. In a hypertext environment, however, the reference … may not convey the distinct origins of the referenced work.*[33]

The analogy to "simple" references underestimates the ease and speed of bringing the referred contents to the screen. Unlike their paper-world "equivalents," hyperlinks mask the source of the displayed content. Users may view a picture of "an item available for sale by clicking on a graphic image of the item. That item may be for sale at the current site or at another site."[34] It may be unclear that the item is no longer displayed by the original site. The transfer to a different site can be imperceptible, particularly when the link bypasses the home-page of the website being linked to. Consequently, the ease of transition between *different* websites may create confusion as to whose contents are displayed. A minimal level of perceptiveness on the user's side must be expected: two graphically distinct web-pages should not be regarded as coming from one source (i.e. form part of the same statement) only because they are connected by a hyperlink. At the same time, the cognitive difficulties inherent in the web-environment must be appreciated, especially regarding the lack of spatial distance between graphical and textual elements, the information overload[35] and the proximity of unrelated files. The average user may not be sufficiently technology savvy to observe the changing URL in the browser bar.

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[30] *Ticketmaster Corp v Tickets.com* 2000 WL 525390 (CD Cal)

[31] *Universal City Studios Inc v Corley*, 272 F 3d 429 (2nd Cir 2001); see also: M A Lemley, *Place and Cyberspace* (2003) 91 Cal L Rev 521 at 525

[32] *Ticketmaster Corp v Tickets.com* 2000 WL 525390 1344 (CD Cal) at 1346

[33] D L Burk, *Proprietary Right in Hypertext Linkages* (1998) 2 JILT at 10

[34] R. Nimmer, H. Towle above at note 17, para 9.02

[35] S. Becher, T. Zarsky, *E-Contract Doctrine 2.0: Standard Form Contracting in the Agre of Online User Particiaption*, 2008, 14 Mich Telecomm & Tech L Rev 303, at

It is difficult to predict how courts would interpret a particular conglomeration of interlinked web-pages in a case involving contract law. There are no general rules regarding which statements should be read together or whether a contents of a statement include the statement hyperlinked to. The broad assumption that "everything depends on the language of the hyperlink" does not introduce any certainty. Neither do forced analogies from the world of paper documents.

The third thread concerns a question that has plagued academics and regulators alike - can the concept of writing be mapped onto web-based transactions? "Writing" is usually discussed in the context of formal requirements. In contract law, such requirements are, however, an exception not the rule.[36] Contracts generally need not be in writing or signed. As a result, the absence of "writing" does not seem to affect the validity or enforceability of contracts made in web-based transactions and may therefore be regarded as irrelevant for the present discussion. Why, then, discuss "writing" at all? An important distinction must be made. "Writing" as a formal requirement must be separated from the *existence* of writing. "Writing" implicitly underlies the application of many principles of contract law and triggers specific mechanisms of analysis. To repeat: "writing" as formal requirement must be distinguished from "writing" as a method of manifesting intention, or - as one commentator put it - *informal* writing.[37] As an example, the parol evidence rule does not presume a *formal* written document but "writing" in general.[38] When a contract is "reduced to writing" there is a rebuttable presumption that the writing includes all its terms.[39] If there is a "written memorandum," the fact that a statement has not been recorded speaks against its contractual character.[40] Furthermore, even if a contract is formed orally or inferred from conduct, its terms may be "in writing."[41] Cases on mistaken identity clearly distinguish between situations where the interactions between the parties occurred face-to-face and situations where the interactions were limited to a written exchange.[42] In other words, numerous principles of contract law are associated with *written* manifestations of intention. "Writing" can be discussed solely with regards to the information (i.e. intention) conveyed thereby. It is therefore directly relevant to the determination of the contents of a contract.

Given that web-based transactions are predominantly based on text, are they "in writing"? If so, is it possible to apply the traditional principles of contract law to such "writing"?

Analyses of "on-line writing" traditionally focus on the fleeting nature of electronic files and their imperceptibility without the intermediation of a computer.[43] This paper does not join the discussion whether electrical impulses constitute writing. The answer is simple: electronic impulses are not writing – just as ink is not synonymous with the words written in ink.[44] According to current definitions, however, the *text* displayed on the computer screen is.[45] As long as the text is perceivable – there is writing.[46]

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[36] *Law of Contract* par 2.261

[37] *Law of Contract* par 2.246

[38] *State Rail Authority of New South Wales v Heath Outdoor Pty Ltd* (1986) 7 NSWLR 170 at 191

[39] *Gillespie Bros & Co v Cheney, Eggar & Co* [1896] 2 Q B 59 at 62

[40] *Oscar Chess Ltd v Williams* [1957] 1 WLR 370 at 376

[41] *Clipper Maritime Ltd v Shirlstar Container Transport Ltd (The "Anemone")* [1987] 1 Lloyd's Rep 546

[42] *Lake v Simmons* [1927] ACN 487; *Lewis v Averay* [1972] 1 QB 198; *King's Norton Metal Co Ltd v Edridge Merrett & Co Ltd* (1897) 14 TLR 98

[43] See: UK Law Commission, *Electronic Commerce: Formal Requirements in Commercial Transactions*, December 2001, par 3.5-3.19

[44] *Victor Chandler International Ltd v Customs and Excise Commissioners and Another* [2000] 1 WLR 1296, where Chadwick LJ stated that the transmission of electronic impulses is "nothing more or less than the transmission of electronic impulses," at 1309

[45] UK Acts Interpretation Act 1978, Schedule 1; see also: *Howley v Whipple* 48 N H 487 (1869)

Without *any* analysis, the Federal Court of Australia stated that contracts formed on websites are in writing.[47] Similarly, two US courts[48] were satisfied that "electronic" text in websites and emails constitutes writing. The dominant approach is liberal: perceptible text *is* writing.[49]

Looking at the question from a different angle: do websites meet the "writing" requirements prescribed by the model laws? The latter associate "writing" with accessibility for subsequent reference.[50] As the length of such "accessibility" is not indicated, both the HTML file hosted on the web-server *and* the web-page displayed on the computer screen can be regarded as "writing."[51] To explain the point: once downloaded and displayed, web-pages may remain on-screen for as long as the user does not close the browser window or load another page into the same window. Electricity supply permitting, the web-page remains available for subsequent reference.[52] Downloading also creates transient copies in the computer's RAM[53] and in the browser's cache.[54] As HTML files on the web-server are, by their very definition, available for subsequent reference, the requirements for "writing" seem to be met on both the client and the server side of the transaction. Accordingly, given their perceivability on screen as well as their inherent storage, websites should be regarded as "writing." This is the unexpected result of the wording of the model laws and the liberal definition of "writing." It must be acknowledged that the primary purpose of these laws is to enable the fulfilment of *formal or regulatory requirements* by on-line communications.[55] The actual legal effect or the "usability" of the functional equivalents of "writing" for contract formation are beyond their scope. It must also be assumed that the existing definitions of writing came into being long before the advent of screen-to-screen communications and therefore did not require any degree of permanence or tangibility. This does not change the fact that, following the definitions and the wording of the model laws verbatim, websites appear to be...in writing.

In light of the above, should it be assumed that the website constitutes a *memorandum*, is it a contract "*evidenced in writing*"? Does all content presented on the website raise the presumption that it is a term? Despite the fact that websites seem to meet the definition of "writing" it is questionable whether such "writing" enables the application of those contract formation principles that are built around the original concepts. The reasons are manifold.

The first theoretical objection to the unqualified statement that "websites are writing" is that when a contract is made "in writing" or is "evidenced in writing" it has contractual effect because the parties *intend* so. The parties *adopt* a particular document as embodying their agreement. The existence of

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[46] The Law Commission, above at note 43 para 3.10; see also: J Braucher, *Rent-Seeking in the New Statutory Law of Electronic Commerce: Difficulties in Moving Consumer Protection Online* (2001) Wis L Rev 527 at 533; B Wright, J K Winn, *The Law of Electronic Commerce*, Gaithersburg 1999, par 14.03 for a review of the inconsistent approaches to "writing" adopted by US courts

[47] *eBay International AG v Creative Festival Entertainment Pty Limited* [2006] FCA 1768 at 48,49

[48] *In re RealNetworks, Inc., Privacy Litigation,* 2000 WL 631241*; Campbell v. General Dynamics Government Systems Corp.*, 407 F. 3d 546, 556 (1st Cir. 2005)

[49] but see: S E Freidman, *Protecting Consumers from Arbitration provisions in Cyberspace, the Federal Arbitration Act and E-Sign Notwithstanding* (2008) 57 Cath U L Rev 377 at 396 for the concept of "electronically displayed text"

[50] See MLEC art 6; CUECIC art 9 (2)

[51] J D Gregory, *The UETA and the UECA – Canadian Reflections* (2001) 37 Idaho L Rev 441 at 454, 455

[52] Pages may also be minimized in the browser menu or behind a tab, remaining available for immediate retrieval.

[53] Transient copies are traditionally discussed in relation to copyright infringement, see: *MAI Systems Corp v Peak Computer Inc* 991 F 2d 511 (9th Cir 1993).

[54] For an explanation of the differences see: J Band, J Marcinko, *A New Perspective on Temporary Copies: The Fourth Circuit's Opinion in Costar v Loopnet* (2005) Stan Tech L Rev 1 at 3

[55] see MLEC Guide to Enactment para 47

"writing" as a matter of contract law must be regarded as a question of intention.[56] The existence of "writing" also depends on *who* created that writing: if someone makes a video recording of two parties contracting by means of writing by smoke in the sky, such recording does not constitute "writing". It appears that in most instances the term "record" is more appropriate to describe the text in emails, websites and server-logs. Records indicate the occurrence of certain events without necessarily implying their legal effects. The fixation of contractual statements is often a question of evidence – not necessarily a premise of their legal effect. Just because a sequence of words has been recorded and hence remains available for subsequent reference does not mean it is "in writing."

The second objection is more technical in nature and requires a more lengthy explanation. Before the emergence of networked communications, the carrier of the "writing" was rarely, if ever, the subject of analysis.[57] Although "writing" does not include notions of permanence or tangibility[58] it generally presupposes the existence of a document.[59] Legal principles built around the concept of "writing" assume a minimal degree of durability, which is a side effect of the tangibility of paper.[60] The terms "writing" and "document" are often used interchangeably, a popular expression is "written document."[61] Sometimes, it is the "writing" that is emphasized: a famous case refers to the "terms of a written contract,"[62] commentators speak of "written instruments."[63] In other instances, the "document" comes to the forefront: "the bargain is the document; the certainty of the contract depends on it,"[64] it is the meaning or the language *of the document*, not that of the writing or of the words used.[65] Documents, however, are not synonymous with writing - they are made of physical substances and are intuitively associated with tangibility.[66] At the same time it must be admitted that the definition of document has expanded to allow for technological advances and includes anything "in which, or on which" information is stored or recorded.[67] Legal definitions notwithstanding, the main characteristic of a document is that it *contains* or *embodies* certain content. In the case of web-based transactions, one deals with the screen-to-screen display of information. Such information is not embedded in any physical substance and can therefore be regarded as truly medium-independent.[68] This "media-independence" brought about by the lack of a tangible carrier has implications for the information conveyed thereby and therefore its legal effect. After

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[56] D W McLauchlan, *Parol Evidence and Contract Formation* (2005) 121 LQR 9 at 11

[57] See J D Gregory, above at note 51 at 442; E T Laryea, *Paperless Shipping Documents: An Australian Perspective* (2000) 25 Tul Mar L J 255

[58] But see: UCC Section 1-201 (46), which defines "writing" to include "printing, typewriting or any other reduction to tangible form."

[59] For example, the MLEC prescribes the functional equivalent of "writing" but focuses on *paper*-based writing and associates this equivalent with functions commonly performed by paper documents, see MLEC Guide to Enactment paras 16 & 48

[60] note that the model laws relegate questions of integrity and permanence to the provisions dealing with record retention and originals, See, e.g. MLEC art 8, art 10

[61] *Chitty on Contracts* vol 1 (H G Beale gen ed) Sweet & Maxwell, 12th ed, 2004) at 12-117

[62] *Bank of Australasia v Palmer* [1987] AC 540 per Lord Morris at 545

[63] E Peel, *Treitel: The Law of Contract*, 12 ed, London 2007, p 192; *North Eastern Railway Co v Lord Hastings* [1900] AC 260 at 263

[64] *Shogun Finance Ltd v Hudson* [2004] 1 AC 919, at [49]; see also G McMeel, *The Construction of Contracts: Interpretation, Implication, and Rectification*, Oxford 2007 at 1.28, who speaks of "intentions as manifested in the document which embodies the agreement."

[65] *Investors Compensation Scheme Ltd v West Bromwich Building Society* [1998] 1 WLR 896 at 912 per Lord Hoffman

[66] A Stewart, *Oral Promises, Ad Hoc Implication and the Sanctity of Written Agreements* (1987) 61 ALJ 119 at 120; C N Faerber, *Book versus Byte: The Prospects and Desirability of a Paperless Society* (1999) 17 J Marshall J Computer & Info L 797

[67] *Victor Chandler International Ltd v Customs and Excise Commissioners and Another* [2000] 1 WLR 1296

[68] J Sommer, *Against Cyberlaw* (2000) 15 Berkeley Tech L J 1145 at 1170

all, written notes or memoranda must *contain* all the terms of the contract[69] or at least the essential terms.[70] How can this "containment" be achieved in the case of hyperlinked and interactive web-pages? Unquestionably, the information conveyed by the writing is more important than the writing itself. It is the content, not the form, that is decisive. In web-based transactions, the previous two sentences may require a careful re-examination. The absence of any physical form may directly affect the informational content of a statement and therefore its legal effect.

So far, it has been sufficient to focus on simple HTML to describe the problems related to web-based transactions. At this stage, the discussion must be enriched with further technical detail. E-commerce would not have thrived were it not for the introduction of various coding techniques and technologies that render websites interactive and dynamic.[71] A typical e-commerce system is consists of a web-server, an e-commerce server and a database server. [72] Transactional websites display the output of the e-commerce engine and the database, while also serving as a means of collecting user input.[73] The contents of a webpage may dynamically change in response to external input. Different content may be displayed depending on *who* and/or *when* visits a website. To illustrate the point: the contents of a simple HTML file are *static*, each time the file is requested the same contents are downloaded from the server to the client. In the case of dynamic webpages, new content is created by an application run by the web-server for each request. Content will therefore "vary from one request to another."[74] In the case of *active* documents, the contents of a website are determined by scripts run on the client-side.[75] In sum, the contents of some web-pages can be generated differently for each user or depend on external events (e.g. time, exchange rates, stock indices). It must be pointed out that the problem is not one of integrity, which relates to the preservation and protection of contents from alteration by third parties. E-commerce websites are *designed* to change in accordance with pre-set parameters.[76]

In light of the above, the question whether "websites are writing" loses its relevance because of the obvious difficulty – or impossibility – to use such "writing" in traditional legal analysis. The latter assumes that the information conveyed by "writing" does not change every 5 minutes. "Writing," by its nature – if not by its definition – is stable. It also appears pointless to speak of "accessibility for subsequent reference" if each reference may return different content.[77] In the case of some technologies it may even be impossible to view the previously displayed page by pressing the "return" button.[78]

Moreover, leaving aside the dynamic and interactive character of the content, the problems related to hypertext must be recalled. Even if it is assumed that *some* websites are "writing", the *scope* of such writing in a hypertext environment is not clear. The legal effect of a statement is difficult to determine if it is unclear which words must be taken into account. This problem practically does not occur in traditional communications, where "writing" is usually accompanied by a "document." The latter confines the scope of writing that must be taken into account. How could the parol evidence rule be applied to construe the meaning of contracts in web-based transactions? The certainty, which the rule is

[69] *Sinclair Scott & Co Ltd v Naughton* (1929) 43 CLR 310 at 318
[70] *Harvey v Edwards Dunlop v Co Ltd* (1927) 39 CLR 302 at 307
[71] for a general description see: L Moroney, *Beginning Web Development, Silverlight, ASP.Net AJAX: From Novice to Professional*, New York 2008
[72] For a more detailed description see: G P Schneider, J T Perry, *Electronic Commerce*, Cambridge 2001, p 64, 65
[73] D Chafey, *E-Business and E-Commerce Management*, 4th ed, Harlow 2009, p 686, 687
[74] B A Farouzan, *Data Communications and Networking*, 3rd ed, Sydney 2004, p 745
[75] id p 748
[76] D Flannagan, *JavaScript, The Definitive Guide*, Sebastopol 1998, p 11
[77] See also: C Coteanu, *Cyber Consumer Law and Unfair Trading Practices*, 2005 Aldershot, p 30; MLEC Guide to Enactment para 32: data messages are presumed to have "*fixed* information content."
[78] e.g. AJAX (Asynchronous JavaScript and XHTML)

supposed to provide, assumes the confinement of contractual contents by the "four corners" of the document. [79] What are the four corners of a website? The parol evidence rule also excludes extrinsic evidence if the contract looks complete.[80] What evidence would, however, be considered *extrinsic*? The rule cannot exist without an element that limits the writing and *contains* the words.[81] Similarly, how can the concept of integration be applied? Integration presumes that the written document *embodies* all terms of the contract. Accordingly, it is not only the interactivity of e-commerce websites but also the uncertainties relating to hypertext referencing that render the use of any "writing" on websites illusory. At least for the purpose of establishing the contractual obligations of the parties.

One could raise the argument that each website can be easily transformed into a paper document. A print-out of a website could therefore serve as the starting point for evaluating the statements made during the formation process and for the determination of contractual contents. This argument logically assumes that the content originally viewed is the same as the content printed for future reference. Technically, capturing the content - inclusive of all interactive animations - viewed during the transaction may be difficult. Different saving techniques preserve different contents.[82] A web-page printed or saved on Friday morning may have different contents than the same web-page printed on Friday afternoon. Even the retention of applications, which generate the contents of websites may not enable the return of the exact contents viewed during the formation process, as they may be generated in response to external input. The problem of dynamic and interactive content may therefore not be solved. Moreover, the transformation of a website into a paper document does not address the issue of hyperlinks – should one print all web-pages referred to in website being printed?

FINAL REMARKS

The last paragraphs of this paper do not amount to a conclusion. After all, a "conclusion" should suggest solutions or provide a clear-cut path for future analyses. Instead of a "conclusion," these "final remarks" round up the discussion with the simple statement that at present, web-based transactions carry many uncertainties when it comes to establishing the contractual obligations of the parties. While most of these uncertainties are related to the novel technologies of manifesting intention, the main problem underpinning all analytical difficulties is the absence of not so much a stable carrier but of an established unit of analysis, which would *logically* – if not physically – *delineate* the statements made.

In attempting to resolve the uncertainties, little recourse can be had to analogies to concepts from the world of paper. Legal concepts, which developed around "paper" are difficult to map onto an environment made of distributed, dynamic and interactive elements. With the disassociation of "writing" from tangible carriers it becomes difficult to apply principles that were built on the assumption that writing is *contained by* a paper document. Even if most web-based transactions fulfil the definitions of "writing," they do not facilitate the determination of the contents of web-based transactions. Absent spatial confinement, it is unclear which words should be taken into account when establishing the contents of a contract. It is not the electronic form that causes legal challenges, but the emergence of hypertext and its related technologies, which *disperse* and *destabilize* the statements made during the contracting process.

[79] see e.g. UK Law Commission, Law of Contract: The Parol Evidence Rule (Law Com No 154, 1986) para 1.2
[80] R Stevens, *"Objectivity, Mistake and the Parol Evidence Rule"* in *Contract Terms* (Andrew Burrows & Edwin Peel eds) Oxford 2007
[81] *Law of Contract* para 3.4
[82] webpages may be "bookmarked", saved as a PDF file or in the web-archive format

The assumption that the legal effect of a statement depends on its content, not on its form, must be approached with some caution. As the content of a statement may be directly related to the manner of expression, the form may indirectly predetermine the legal effect of a statement. This is not to say that manifestations of intention made by electronic means – especially websites – should be discriminated against or denied legal enforceability. This is to say, however, that manifestations of intention in the form of websites may require a more careful and calculated analysis. What, after all, is the value of enforceability if it is uncertain what can be enforced? Similar caution is warranted when applying the seemingly straightforward principle that intention is evaluated from the side of the addressee. In web-based transactions, the manner the content is displayed to the address depends on the browser used to view such content. Manifestations of intention are therefore user-dependent. At present, it is difficult if not impossible to state with any confidence what choice of browser can be considered reasonable. Should standard-compliance trump market share?

Legal uncertainties notwithstanding, it can be expected that in the near future some if not all problems sketched out in this paper will disappear. Not only will contract law fully absorb the novel methods of manifesting intention but the analytical challenges created by problems of browser compliance will be solved. Similarly, clear rules will be developed how to interpret references in a hypertext environment. It must also be remembered that from a broader perspective, both the Internet and e-commerce are relatively new. In 10-20 years (if not less), this paper may be reduced to an interesting reminder of things past – similar to the old cases dealing with the first telegrams or the first uses of the telephone for transactional purposes.