IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

E-NUMERATE SOLUTIONS, INC. and E-NUMERATE, LLC, Plaintiffs, v. MATTRESS FIRM HOLDING CORP., MERRILL COMMUNICATIONS LLC, AND MERRILL CORPORATION, Defendants.	Civil Action No.: 17-933-RGA **JURY TRIAL DEMANDED**

SECOND AMENDED COMPLAINT

Plaintiffs, e-Numerate Solutions, Inc. ("ESI") and e-Numerate, LLC, bring this action against Defendants Mattress Firm Holding Corp. ("Mattress Firm"), Merrill Communications LLC, ("Merrill Communications") and Merrill Corporation and allege the following:

THE PARTIES

1. Plaintiff ESI is a corporation organized and existing under the laws of the State of Delaware with its principal place of business located in Great Falls, VA.

2. Plaintiff e-Numerate, LLC is a limited liability corporation organized and existing under the laws of Delaware with its principal place of business located in Reston, VA.

3. ESI is the owner of record and assignee of United States Patents 7,650,355 ("the '355 patent"); 8,185,816 ("the '816 patent"); 9,262,383 ("the '383 patent"); and 9,268,748 ("the '748 patent") (collectively, "the Asserted Patents").

4. Plaintiff e-Numerate, LLC is the exclusive licensee of the Asserted Patents and has the exclusive right to pursue this lawsuit based on infringement of the Asserted Patents.

5. Defendant Mattress Firm is a corporation organized and existing under the laws of the State of Delaware with its principal place of business at 5815 Gulf Freeway, Houston, TX 77023. Mattress Firm's agent for service of process is The Corporation Trust Company, Corporation Trust Center, 1209 Orange Street, Wilmington, DE 19801.

6. Defendant Merrill Communications is a Delaware limited liability company with its principal place of business at One Merrill Circle, St. Paul, MN 55108. Merrill Communications' agent for service of process is Corporation Service Company, 251 Little Falls Dr., Wilmington, DE 19808

7. Defendant Merrill Corporation is a corporation organized and existing under the laws of Minnesota with its principal place of business at 1 Merrill Circle, St Paul, MN 55108.

JURISDICTION AND VENUE

8. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. § 271, *et seq*.

9. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

10. This Court has personal jurisdiction over Defendant Mattress Firm since Defendant Mattress Firm is a Delaware corporation and Defendant Mattress Firm has regularly transacted business in this judicial district, directly or through intermediaries including various Mattress Firm subsidiaries. On information and belief, Defendant Mattress Firm or its subsidiaries operate multiple retail outlets within Delaware.

11. This Court has personal jurisdiction over Defendant Merrill Communications since Defendant Merrill Communications is a Delaware Limited Liability Company and, upon information and belief, has regularly transacted business in this district.

12. Upon information and belief, this Court has personal jurisdiction over Defendant Merrill Corporation since Merrill Corporation has regularly transacted business in this judicial district directly or through intermediaries including Merrill Communications. Upon information and belief, Merrill Corporation maintains a work-from-home program that includes employees located in this jurisdiction. A listing of the various work from home locations for Merrill Corporation is shown in Exhibit A which can be found on the world wide web at: https://hrx.talx.com/Files/Division143/Merrill%20Corporation%20List%20of%20Locations.pdf

13. Venue in this district is proper pursuant to 28 U.S.C. §§ 1391(c) and (d), and 1400(b). Defendant Mattress Firm resides in Delaware since it is a Delaware Corporation. Defendant Merrill Communications resides in Delaware since it is a Delaware LLC. Upon information and belief, venue is appropriate as to Defendant Merrill Corporation because it has committed acts of infringement in this district either directly or through its subsidiaries including Defendant Merrill Communications. Upon further information and belief, Defendant Merrill Corporation has a regular and established place of business in this district including via its work-from-home locations in Delaware.

14. Joinder of Mattress Firm, Merrill Communications and Merrill Corporation is appropriate under 35 U.S.C. § 299 because the claims herein relate to same transaction, occurrence, or series of transactions or occurrences relating to the making, using, importing into the United States, offering for sale, or selling of the same accused product or process; and questions of fact common to all defendants or counterclaim defendants will arise in the action. The Defendants in this action are in a supplier-customer relationship.

BACKGROUND OF THE TECHNOLOGY

15. Inventor Russell T. Davis pioneered several inventions related to Reusable Data

Markup Language including, but not limited to, the Asserted Patents. As discussed below, these patents provided numerous advantages over prior art Markup Languages.

16. In the late 1990's when numbers were treated the same as letters (text) in software programs, both online and offline, e-Numerate's key technical advancements allowed numbers to be substantively treated as the numerical values they represent. This opened the computer world, both online and offline, to vastly improve a user's ability to identify, manipulate, compare, convert and process numbers in software like never before. The technical innovations of the Patents-in-Suit are embodied in software that improves and enhances the functionalities of computer systems over the prior art. The problem that they solve relates to the need for the intelligent identification and processing of numerical information on the Internet.

17. THE PROBLEM: In the late 1990's, the Internet was replete with numerical data but (i) there was no way of distinguishing this numerical data from text, (ii) data and analytic routines were not standardized, and (iii) calculations occurred at too low a conceptual level.

a. The advances of the inventions claimed in the patents-in-suit relate to deficiencies in the prior-art markup languages that existed at the time of the invention. These were Hyper Text Markup Language (HTML) and Extensible Markup Language (XML).

b. Internet browsers interpret and display documents formatted in HTML. In order to distinguish the text characters to be displayed from the information describing how the text characters are to be formatted, "annotations" that are not visible to the viewer of the displayed document are added to the document. The HTML specification describes the use of a markup language to include these non-displayed annotations. A markup language is a system for inserting information about the formatting and display of a group of text characters by placing non-displayed "markup" text before and after the group of text characters. These markups,

commonly known as “tags” in online and other documents in digital format, describe the structure and formatting of digital documents and instruct computer systems on how to display them.

c. HTML works only with text and images. Numbers in HTML documents are read and displayed as text characters. There is no HTML tag capable of annotating the context or meaning of numerical data appearing in a markup document for computer systems to interpret these numerical data as numbers representing a particular type of information instead of a simple string of text characters. At most, HTML tags can be used only to indicate the display format (e.g., font, size, color, alignment) of numerical data. For example, a financial statement showing numbers could be displayed by computer systems running browsers, but HTML cannot be used to annotate a given number as “revenue” or “expense,” or as “dollars” or “Euros,” or as representing “thousands” or “millions,” but rather only as a text character to be displayed in a certain way according to embedded formatting tags. Consequently, computer systems running web browsers could use HTML tags to display documents containing numbers, but the HTML tags do not enable computer systems to run analytical applications that read, manipulate, combine, compare, transform or analyze the numbers, load them into a spreadsheet, or display them in a graph, directly from multiple online sources.

d. XML version 1.0 was developed in the mid-to-late 1990s to help overcome some of HTML’s limitations. XML, itself, does not include a set of pre-defined tags, but rather is a specification that governs the creation of tags by particular users or groups. The XML specification allows developers to create customized tags that, via a glossary of terms, describe the structure and meaning of online content. In other words, XML allows developers to create their own individual markup languages. Thus, a user can use XML to create their own markup

tags that annotate data characteristics that are meaningful to that particular user. But at the time of the inventions of the patents-in-suit, no set of XML tags had been promulgated for general use, so any XML tag taxonomy created by one user would not be compatible with the taxonomies created by other users. One user's XML tag taxonomy, whether individuals or groups, is not ordinarily available to any other users or groups of users. XML's lack of standardization, and its separation of data and from its annotations (metadata), left users with no way to manipulate, combine, compare, transform or analyze numerical data from singular or multiple online sources using differing custom created XML tag taxonomies. The only way to correct the deficiency of XML was to convert unrelated documents by hand.

18. THE INVENTION: In contrast to XML, the Reusable Data Markup Language ("RDML") represented a significant advance over HTML and XML. The patents at issue in this case solved these HTML and XML-related problems with unique tools that allowed users for the first time to easily view, compare and analyze numerical data on the Internet. The Reusable Data Markup Language ("RDML") and RDML companion innovations include:

a. Pairing the metadata directly with the numerical data in machine-readable form so the numerical data could be easily identified and used in different program applications. This was a dramatically different approach than previously used, which was to keep document metadata and data itself separate from each other. Without the pairing of metadata directly with the numerical data as described in the patents-in-suit, the capabilities presented in the XBRL standard would not be possible.

b. Define standards for both data formats and analytic routines.

c. Enhance analytical calculation power by creating data objects at the line item and document levels. This overcame the limitations of traditional spreadsheets which operate only at the cell (single number) level.

i. Reusable Data Markup Language provided RDML tags for data characteristics that HTML lacked and supplied a set of tags for content and meaning of numbers for general use missing in XML.

ii. A suite of software applications was developed to create documents with RDML tag markups, read or parse the RDML documents, display them as graphs or in tree views, combine and compare data from multiple online sources, and manipulate, transform and analyze numerical data from multiple online sources. RDML permits the browsing and manipulation of numbers, and allows the "RDML Data Viewer" to act as a combination Web browser and spreadsheet/analytic application that automatically read numbers from multiple online sources, understand their meaning, and manipulate them without human intervention.

iii. RDML encodes information about numbers in tags that relate to each number. The encoded information is connected with the numbers themselves and the tags move with the numbers when the numbers are ported. By associating the numbers with the numbers' attributes and making it machine-readable, RDML facilitates browsing for and processing numbers.

iv. The RDML Data Viewer is an "Application" in accordance with the XML Specifications. The RDML Data Viewer accesses information contained in an XML-formatted document by invoking the XML Processor to obtain individual data elements based on their "extended" tags that have been defined in accordance with the "extensibility" features of

XML. The RDML Data Viewer automates the process of merging the tagged elements derived from documents written in different formats and languages into a single, standardized data set. Where there are conflicts, the RDML Data Viewer automatically resolves the conflicts between the characteristics of the varying documents to create a standard set of tags using the RDML taxonomy. The RDML Data Viewer also provides a macro development and management scheme that allows users to create reusable custom routines for the manipulation, transformation and display of RDML-formatted data. By defining standards for data characteristics and content-analysis, RDML addresses the problems caused by XML's use of customized tagging making RDML applicable for general use.

19. The impact of the improvements of the patents-in-suit, are as follows:

a. "Pairing the metadata directly with the numerical data in machine-readable form so the numerical data could be easily identified and used in different program applications." This had never been done before the inventions claimed in the patents-in-suit.

The inventions claimed in the patents-in-suit were invented prior to the creation of the XBRL standard. Prior art, as embodied in HTML and XML at the time of the filing of the patents-in-suit, did not provide any metadata (i.e., information about the attributes or characteristics of a data element) beyond simple display formatting. Without these attributes and characteristics, it was not possible for a human or a computer to select, process, combine or output data elements without resorting to human intervention to find, associate and take into account how the appropriate attributes and characteristics would affect the selection, processing, combination and outputting activities. For example, financial statements, such as those submitted to the SEC by Mattress Firm, contain numeric values for typical accounting data items types such as "Assets", "Balances", "Cash", etc. To organize the multiple occurrences of these items,

accountants would create financial statements such as “Balance Sheets”, “Income Statements”, etc. that typically have formats that hierarchically display and summarize these accounting items in a manner that reflect how the individual organization or organizational unit represents its Financial condition. Before the introduction of the inventive concepts contained in the patents-in-suit, there were no tools that could automatically associate individual accounting data items with the appropriate sections of the organization’s financial statements. Typically, the organization would have to rely on its senior financial accountants to manually select, analyze, combine, and format accounting items in a manner that corresponded to that organization’s Financial Statement situation. Thus, each iteration of Financial Statement preparation required a large amount of human intervention n to create a Financial Statement that faithfully adhere to the “letter” and “intent” of the generally accepted accounting standards due to the lack of a means to capture and utilize the required metadata. The patents-in-suit provide these capabilities which are not addressed by either HTML or XML. The continuing significant efforts by the Financial Accounting Standards Board (FASB) and the XBRL International organization to grow and expand the Extensible Business Reporting Language are a testament to the necessity and value of the inventions contained in the patents-in-suit. The SEC is currently performing cross-financial entity and cross-industry “data mining” activities to better understand financial trends and to better discover improprieties by comparing financial entities. These activities would not be possible without the ability of different program applications to utilize the inventions contained in the patents-in-suit.

b. “Define standards for both data formats and analytic routines.”

Before the introduction of the inventions contained in the patents-in-suit, the preparation of financial statements involved the manual selection, analysis, combination and

outputting of numerical data items based on the best efforts of the organization's senior accountants and later accepted as appropriate by Certified Public Accountants. Without defined standards for capturing and accessing both numerical data attributes and characteristics, the selection of appropriate data formats and analytic routines could not be performed automatically by either human or machine. The patents-in-suit provide a mechanism to capture the metadata required to identify the attributes and characteristics of each numerical data element, and thereby allow the automated selection of the appropriate analytic routines based on the metadata associated with those analytical routines. For example, an international organization may operate in several political jurisdictions, each having their own financial regulations, reporting formats and analytical processing procedures. For the international organization to produce a combined Financial Statement of Condition, the financial statement within each jurisdiction must first be created and then combined into a consolidated financial statement. To facilitate this consolidation, senior international accountants would have to manually identify the variations associated with each jurisdiction and determine how these diverse statements of financial condition could be combined. The inventions contained in the patents-in-suit provide a mechanism to capture the necessary numerical data item metadata and analytical processing routine metadata to facilitate the required association of numerical data to routines needed to automatically produce combined financial statements without manual human intervention.

c. "Enhance analytical calculation power by creating data objects at the line item and document levels."

Prior art at the time of the filing of the patent-in-suit only provided for the automated display of structured data using HTML or XML. While these display structures provided an elementary "visual" representation of the relationship between the data elements, there was no

standard way of capturing these relationships in a manner that this information could be stored and accessed by human or automated processes. The patents-in-suit provide a mechanism to capture and utilize these types of relationships. For example, financial transactions typically might consist of a date, description, multiple account identifiers (e.g., debit, credit, distribution, etc.) and amounts for each. In a manual or automated accounting system, these components of a financial transaction would typically be stored together in an information processing system (e.g., "data base"). Without the inventions contained in the patents-in-suit there would be no automated way of unambiguously capturing these elements presented in an HTML or XML document due to the lack of the necessary metadata.

20. Further impacts of the key inventions embodied in the Reusable Data Markup Language (RDML) are identified as follows:

a. "A set of tags to encode attributes and meaning of numbers. RDML encodes information about numbers in tags that relate to each number. The encoded information is connected with the numbers themselves and the tags move with the numbers when the numbers are ported."

Prior art at the time of the filing of the patents-in-suit did not provide a mechanism to identify numerical data element attributes, characteristics, formats or relationships. For example, an information system would typically store structured data, such as financial transactions, in a "database" system that preserves record or "line item" relationships for a collection of related transactions (i.e., a business document). Typically, the metadata describing these record and data element characteristics would be stored in the "schema" subsystem of the database system. However, there was no universal mechanism to store and share the metadata describing the structure of the records, the metadata of the individual data elements within each record, the

metadata describing the relationship among different records representing a transaction, nor the semantic meaning of the data elements. For example, an "invoice" might consist of various information about the supplier (e.g., name, address, tax id, etc.), consumer (e.g., name, address, tax id, etc.), and individual invoice line items (e.g., item identifier, description, dimensions, cost, etc.). Without RDML's encoding of attributes and meaning, each time information from one information system (manual or automated) was to be shared with another information system, a "mapping" of all of these data elements had to be manually created. The inventions in the patents-in-suit provide for automated sharing of the metadata necessary for information to be shared among information systems without manual intervention.

b. "A suite of applications that create documents with RDML tag markups, read or parse the RDML documents, display them as graphs or in tree views, combine and compare data from multiple online sources, and manipulate, transform and analyze numerical data from multiple online sources."

The patents-in-suit include the specifications for the implementation of automated information application systems to provide the benefits of the inventions and the implementation specifications for the "RDML Data Viewer" describe the mechanisms necessary to provide the benefits of these inventions. Just as the "dial telephone" enhanced the efficiency and ease of use of the telephone system beyond that experienced when human operators were necessary to make a telephone call, the RDML Data Viewer provides for the automated creation and sharing of the metadata necessary for information systems (manual or computerized) to more efficiently share and use complex structured information without the necessity for manual creation of "mappings" each time a new pair of information systems need to share information.

21. The inventions of the patents-in-suit have numerous advantages over prior art systems such as Excel. For example, if a person had an Excel spreadsheet with a column entitled "pounds" along with numbers in that column the disadvantages of prior art systems are manifest. For example, without additional metadata, it would not be clear whether the column heading "Pound" was a unit of measure for the weight of an object or a unit of measure for British currency. All the ways in which this information in the "Pound" column could be combined for use in conjunction with other data in the spreadsheet is not indicated since metadata about its semantic meaning is not available in the spreadsheet itself. While Excel spreadsheets can encode formulas, formats and relationships, the encoding of this information is unique to the layout of each individual spreadsheet. When new or different analyses or outputs are required, the spreadsheet must be manually modified in structure and analytical content to provide the desired results. While "templates" were available to define generic documents such as invoices, these must be manually revised to deal with each specific situation since the spreadsheet structure is not based on the semantic meaning of the numerical data elements nor universal concepts of how the data elements in a specific template can be selected, analyzed, combined and output. The patents-in-suit provide the ability to analyze and share this information among manual and automated information systems by recording both semantic meaning and macros that embody logical tests to select the appropriate processing based on this and other data elements contained in the document.

22. The patents-in-suit have particular advantages when dealing with macros. Some analysts considered a macro a "shortcut" which appears to imply the "recorded series of steps" required to achieve a given computation or formatting result. For example, such a "shortcut" might be recorded in spreadsheet "formula" to sum a column of numbers and combine that sum

with other sums. However, that formula would be only related to the set of cells that the analyst identified during the construction of the formula, and the rationale used in creating that formula would not be recorded in a way that a human or automated process could access or evaluate. RDML standardizes the recording of these steps in a "macro" that includes the identification of the specific data items that these steps apply to by specifying the data element metadata needed to determine which data elements are to be selected and how they are to be processed given their individual attributes and characteristics. Further, RDML stores this information in a "Second Document" (i.e., external file) that is accessible on the Internet so that it can be used by any process related to the specific data elements involved. For example, XBRL uses such external "linkbase" files containing "rules" (i.e., "Macros") that perform "recorded series of steps" (i.e., "shortcuts" or "calculations") but also contain rules for data validation, data element combination and transformation that are based on metadata that identify the attributes and characteristics of the data element (e.g., "Fixed Asset" vs. "Financial Asset") rather than the specifics of a spreadsheet template. The patents-in-suit invent the solution to the data sharing problem by storing semantically sensitive Macros in universally accessible "second documents" available to all human and automated processor on the Internet.

23. The inventions of the patents-in-suit cannot simply be performed "by hand". The patents-in-suit address the problem of combining information from data elements that are in different formats and units of measure in two different documents. For example, the financial statement for a company's U.S. and Canadian divisions might record information related to fixed assets in different formats and units of measure. Prior art before the filing of the patents-in-suit would not encode the metadata necessary for a human or automated process to unambiguously identify the attributes and characteristics of similarly named numerical data elements so that

these differing data elements could be combined to yield an identified result. The inventions contained in ‘816 patent together with the other patents-in-suit provide for the encoding of the attributes and characteristics in the “First Document” and a mechanism to access the selection, analysis, processing and output formatting information contained in a “Second Document” on the Internet. For a human to perform the required process “by hand” the human would have to have access to the specific set of instructions that would apply to the specific document and data elements to be processed. Without the semantic relationship capabilities invented by the patents-in-suit a human could not unambiguously locate these recorded steps by hand. Even if a human was provided with a document containing the processing steps, prior art did not provide for the encoding of the necessary metadata needed to ensure that, based on the attributes and characteristics of the data elements to be combined, they would qualify for the application of the selected process.

24. The use of semantic tags in the inventions of the patents-in-suit is a major breakthrough of the patented inventions. As used in the patents-in-suit, the term semantic tags indicate that in addition to the association of a descriptive “name” with a data item (e.g., “Pounds”), additional attributes and characteristics information is recorded. These additional attributes and characteristics provide semantic meaning, allowing the RDML Data Viewer to select, analyze, process and output results based on information stored in universally accessible “Second Documents” stored on the Internet. While the patents-in-suit do not claim the invention of semantic tags, RDML invented the use of semantic tags to enable the unambiguous selection, analysis, processing and outputting of information based on the information contained in the semantic tags that were not prior art at the time of patent filing.

25. The inventions of the patents-in-suit are more than merely XML. XML's specifications define a syntax for writing documents containing "character data entities" and associated "markup entities". This syntax for writing serves the same purpose English grammar provides a syntax for writing prose. XML by definition is extensible, allowing the creation of XML-compliant documents that can be accessed by any human or automated process that has access to the Internet. The inventions contained in the patents-in-suit utilize XML-compliant document formats to ensure that all available Internet "Applications" can interface with the "XML Processor" described in the XML specifications to "read" the document's contents. Using the XML-compliant document formats, the patents-in-suit implement the inventions for using semantic tags to select, analyze, process and output results claimed and not within the capabilities provided by the XML specification.

26. The patents-in-suit use the XML syntax and the "XML Processor" as an established and universal method of accessing formatted information on the Internet. Each of the patents-in-suit utilize semantic tags defined using the extensibility features of XML to record information used by the "RDML Data Viewer" to provide the invented capabilities for selecting, analyzing, processing and outputting information based on the values of those semantic tags and the information contained in "Second Document(s)" as described in the patents-in-suit. The patents-in-suit are not simply a "dialect" of XML, rather they utilize the XML-compliant document format as a platform for deploying the inventive concepts in a manner that is universally accessible on the Internet. XML's limitation to providing an extensible syntax for accessing "character data entities" and "markup entities" through the XML Processor does not in any way support the implementation of these inventions.

27. Further Points Regarding Technical Advancement of the claimed invention: These patented inventions represent a significant advance over XML and HTML since they invent the ability to:

a. View and select data through semantic tags identifying attributes and characteristics beyond the limited formatting capabilities of HTML and XBRL.

b. Automatically invoke processing procedures ("Macros") that are stored in external "Second Documents" accessible on the Internet. Note that these Macros embody procedures that would be necessary for processing by a human or computer.

c. Compare, combine and analyze numerical data on the Internet.

28. The patents are not simply XML inventions. The claims do not use "XML elements". Although the preferred embodiment of the patents-in-suit is XML compliant, that does not mean that the tags used in the patented invention are XML tags. The patents use the International XML document syntax (or format) and the XML extensibility features to add the inventive capabilities claimed, thus ensuring that all computers and humans can receive, interpret and process the documents using existing computer systems.

29. As a further point about allegedly performing the claimed inventions "by hand", that is not possible. Without the patents' claimed invention to semantically link the XML "character data entities" (See XML Standard) to external "Second Documents", a human would not have access to the selection, macro, output and document combination information contained in the "Second Documents" needed to be able to perform these inventions by hand.

a. With regard to the '355 patent dealing with macros, the human would not have unambiguous identification of the specific XML "character data entity" attributes needed to select the appropriate Macro.

b. With regard to the ‘383 and ‘816 patents, they are designed to make processing data by the computer far more efficient than processing by hand. In fact, without the claimed inventions in ‘383 and ‘816, a person attempting to perform these actions by hand would not have the information to perform these actions unambiguously. Since the XML “character data entity” is not unambiguously identified, the person attempting to perform these actions would have to first analyze the “character data entity” to determine its true identity, characteristics, attributes and meaning, and then decide which procedure to select, process, display and combine with other “character data entities” would be appropriate. This cannot be done in any practical manner with human intervention.

c. With regard to the ‘748 patent, it addresses the need to format the output in accordance with the combined characteristics and attributes of all related “character data entities”. For example, in Mattress Firm’s Financial Statement, information is displayed in a hierarchical fashion were individual data elements are arrayed in relation to each other (e.g., a section on “assets”). Without the invention claimed in the ’748 patent this could not be completed unambiguously by hand or computer.

BACKGROUND OF THE ACCUSED PRODUCTS

30. Upon information and belief, Defendant Merrill Corporation markets the Merrill Bridge product to assist companies in filing reports in the eXtensible Business Reporting Language (“XBRL”).

31. Upon information and belief, Merrill Corporation’s customers enter into contracts with Merrill Corporation via Merrill Communications. A standard contract is attached hereto as Exhibit B.

32. Mattress Firm uses the eXtensible Business Reporting Language standard to

routinely file documents with, inter alia, the Securities and Exchange Commission ("SEC"). An example of a Mattress Firm SEC filing is located at: https://www.sec.gov/Archives/edgar/data/1419852/000141985216000022/0001419852-16-000022-index.htm. Upon information and belief, Mattress Firm uses Merrill Bridge to prepare its filings.

33. Upon information and belief, Merrill Corporation and/or Merrill Communications has agreed to defend and indemnify Mattress Firm for the claims set forth in this Complaint.

COUNT I: INFRINGEMENT OF THE U.S. PATENT 7,650,355

34. Plaintiffs re-allege and incorporate by reference the prior paragraphs 1 through 33 of this Second Amended Complaint, as if fully set forth herein.

35. On January 19, 2010, U.S. Patent No. 7,650,355 was duly and legally issued to Russell T. Davis as the inventor thereof. A true and correct copy of the '355 Patent, which is entitled "Reusable Macro Markup Language", is attached hereto as Exhibit C.

36. During the prosecution of the application which issued as the '355 patent, the USPTO rejected the claims under 35 U.S.C. § 101. This rejection was overcome during prosecution and, as a result, the '383 patent has a heightened presumption of validity vis-à-vis 35 U.S.C. § 101.

37. The '355 patent represents a specific implementation to a problem in the software arts. Specifically, RDML standardizes the recording of these steps in a "macro" that includes the identification of the specific data items that these steps apply to by specifying the data element metadata needed to determine which data elements are to be selected and how they are to be processed given their individual attributes and characteristics. Further, RDML stores this information in a "Second Document" (i.e., external file) that is accessible on the Internet so that

it can be used by any process related to the specific data elements involved. For example, XBRL uses such external "linkbase" files containing "rules" (i.e., "Macros") that perform "recorded series of steps" (i.e., "shortcuts" or "calculations") but also contain rules for data validation, data element combination and transformation that are based on metadata that identify the attributes and characteristics of the data element (e.g., "Fixed Asset" vs. "Financial Asset") rather than the specifics of a spreadsheet template. The patents-in-suit invent the solution to the data sharing problem by storing semantically sensitive Macros in universally accessible "second documents" available to all human and automated processors on the Internet.

38. Upon information and belief, Defendant Mattress Firm has infringed the '355 Patent in violation of 35 U.S.C. § 271(a) by using the patented invention to, *inter alia*, prepare and file multiple XBRL-compliant filings. This includes practicing the method set forth in claim 1 of the '355 patent; using a system as claimed in claim 27 of the '355 patent; using a computer readable medium as set forth in claim 28 of the '355 patent; and using a system as set forth in claim 54 of the '355 patent. An Infringement Chart detailing the infringement by Defendant Mattress Firm of Claims 1, 27, 28 and 54 of the '355 Patent is attached hereto as Exhibit D. In addition, Mattress Firm also infringes claims 2 – 15, 21, 25 – 26, 29 – 42, 46, 52-53, and 55. An infringement chart detailing the infringement by Defendant Mattress Firm of these claims is also attached in Exhibit D.

39. Upon information and belief, defendant Merrill Communications and Merrill Corporation have directly infringed the '355 patent by making, using, selling or offering to sell the Merrill Bridge product to its customers and prospective customers. Use of the Merrill Bridge product by, for example, Mattress Firm, is demonstrated in the chart set forth in Exhibit D.

40. Defendants Merrill Corporation and Merrill Communications have infringed the

‘355 patent by inducing others to engage in direct infringement under 35 U.S.C. § 271(a) with knowledge and an intent to induce the specific acts and to cause infringement.

41. Defendant Mattress Firm has had knowledge of the ‘355 patent at least as early as August 18, 2016, by virtue of a letter sent from William Diefenderfer, ESI’s Vice-Chairman & Co-Founder, to Ms. Kindel L. Elam, the General Counsel of Mattress Firm Holdings.

42. Upon information and belief, Defendants Merrill Corporation and Merrill Communication have had knowledge of the ‘355 patent on or about August 18, 2016 when Defendant Mattress Firm requested indemnification from Merrill Corporation and/or Merrill Communications.

43. Upon information and belief, Defendants Merrill Corporation and Merrill Communications, Inc. have contributed to infringement under 35 U.S.C. §271(c) by selling within the United States components used by its customers to infringe the ‘355 patent knowing that these components: (a) are especially made for use in infringing products, and (b) are not a staple articles of commerce suitable for substantial non-infringing use.

44. Upon information and belief, Mattress Firm’s infringement has been and continues to be willful.

45. Upon information and belief, Merrill Corporations and Merrill Communications infringement has been and continues to be willful.

46. Plaintiffs are entitled to recover damages as a result of Mattress Firm’s, Merrill Corporation’s, and Merrill Communications’ acts of infringement of the ‘355 Patent in amounts subject to proof at trial.

COUNT II: INFRINGEMENT OF THE '816 PATENT

47. Plaintiffs re-allege and incorporate by reference the prior paragraphs 1 through 33 of this Second Amended Complaint, as if fully set forth herein.

48. On May 22, 2012, U.S. Patent No. 8,185,816 was duly and legally issued to Russell T. Davis as the inventor thereof. A true and correct copy of the '816 Patent, which is entitled "Combining Reusable Data Markup Language", is attached hereto as Exhibit E.

49. The '816 patent represents a specific implementation to a problem in the software arts. Specifically Reusable Data Markup Language provided RDML tags for data characteristics that HTML lacked and supplied a set of tags for content and meaning of numbers for general use missing in XML. In addition, RDML encodes information about numbers in tags that relate to each number. The encoded information is connected with the numbers themselves and the tags move with the numbers when the numbers are ported. By associating the numbers with the numbers' attributes and making it machine-readable, RDML facilitates browsing for and processing numbers. RDML invented the use of semantic tags to enable the unambiguous selection, analysis, processing and outputting of information based on the information contained in the semantic tags that were not prior art at the time of patent filing. In short, the claims at issue are necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks. In addition, the solution provided by the claimed subject matter is tethered to the technology that created the problem.

50. Upon information and belief, Mattress Firm infringed the '816 Patent in violation of 35 U.S.C. § 271(a) by using the patented invention to, *inter alia*, prepare and file multiple XBRL-compliant filings. This includes practicing the method set forth in claim 1 of the '816 patent; using a system as claimed in claim 10 of the '816 patent; using a computer readable

medium as set forth in claim 17 of the ‘816 patent; using a system as set forth in claim 26 of the ‘816 patent, and practicing a method as claimed in claim 27 of the ‘816 patent. An Infringement Chart detailing the infringement by Mattress Firm of Claims 1, 10, 17, 26 and 27 of the ‘816 Patent is attached hereto as Exhibit F. In addition, Mattress Firm also infringes claims–3 – 9, 12 – 14, and 19 - 25. An infringement chart detailing the infringement by Defendant Mattress Firm of these claims is also attached in Exhibit F.

51. Upon information and belief, defendant Merrill Communications and Merrill Corporation have directly infringed the ‘816 patent by making, using, selling or offering to sell the Merrill Bridge product to its customers and prospective customers. Use of the Merrill Bridge product by, for example, Mattress Firm, is demonstrated in the chart set forth in Exhibit F.

52. Defendants Merrill Corporation and Merrill Communications have infringed the ‘816 patent by inducing others to engage in direct infringement under 35 U.S.C. § 271(a) with knowledge and an intent to induce the specific acts and to cause infringement.

53. Mattress Firm was aware of the ‘816 patent at least as early as August 18, 2016, by virtue of a letter sent from William Diefenderfer, ESI’s Vice-Chairman & Co-Founder, to Ms. Kindel L. Elam, the General Counsel of Mattress Firm Holdings.

54. Upon information and belief, Defendants Merrill Corporation and Merrill Communication have had knowledge of the ‘816 patent on or about August 18, 2016 when Defendant Mattress Firm requested indemnification from Merrill Corporation and/or Merrill Communications.

55. Upon information and belief, Defendants Merrill Corporation and Merrill Communications, Inc. have contributed to infringement under 356 U.S.C. §271(c) by selling within the United States components used by its customers to infringe the ‘816 patent knowing

that these components (a) are especially made for use in infringing products, and (b) are not a staple articles of commerce suitable for substantial non-infringing use.

56. Upon information and belief, Mattress Firm's infringement has been and continues to be willful.

57. Upon information and belief, Merrill Corporation's and Merrill Communication's infringement has been and continues to be willful.

58. Plaintiffs are entitled to recover damages as a result of Defendant Mattress Firm's, Merrill Corporation, and Merrill Communications acts of infringement of the '816 Patent with damages in amounts subject to proof at trial.

COUNT III: INFRINGEMENT OF THE '383 PATENT

59. Plaintiffs re-allege and incorporate by reference the prior paragraphs 1 through 33 of this Complaint, as if fully set forth herein.

60. On February 16, 2016, U.S. Patent No. 9,262,383 was duly and legally issued to Russell T. Davis as the inventor thereof. A true and correct copy of the '383 Patent, which is entitled "System, Method, And Computer Program Product For Processing A Markup Document", is attached hereto as Exhibit G.

61. The '383 patent represents a specific implementation to a problem in the software arts. Specifically Reusable Data Markup Language provided RDML tags for data characteristics that HTML lacked and supplied a set of tags for content and meaning of numbers for general use missing in XML. In addition, RDML encodes information about numbers in tags that relate to each number. The encoded information is connected with the numbers themselves and the tags move with the numbers when the numbers are ported. By associating the numbers with the numbers' attributes and making it machine-readable, RDML facilitates browsing for and

processing numbers. RDML invented the use of semantic tags to enable the unambiguous selection, analysis, processing and outputting of information based on the information contained in the semantic tags that were not prior art at the time of patent filing. In short, the claims at issue are necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks. In addition, the solution provided by the claimed subject matter is tethered to the technology that created the problem.Upon information and belief, Mattress Firm infringed the '383 Patent in violation of 35 U.S.C. § 271(a) by using the patented invention to, *inter alia*, prepare and file multiple XBRL-compliant filings. This includes using a computer readable medium as claimed in claim1 of the '383 patent; practicing the method set forth in claim 17 of the '383 patent; and using an apparatus as claimed in claim 18 of the '383 patent. An Infringement Chart detailing the infringement by Mattress Firm of Claims 1, 17 and 18 of the '383 Patent is attached hereto as Exhibit H. In addition, Mattress Firm also infringes claims 3, 4, 6 – 12, 14 and 15. An infringement chart detailing the infringement by Defendant Mattress Firm of these claims is also attached in Exhibit H.

62. Upon information and belief, defendant Merrill Communications and Merrill Corporation have directly infringed the '383 patent by making, using, selling or offering to sell the Merrill Bridge product to its customers and prospective customers. Use of the Merrill Bridge product by, for example, Mattress Firm, is demonstrated in the chart set forth in Exhibit H.

63. Defendants Merrill Corporation and Merrill Communications have infringed the '383 patent by inducing others to engage in direct infringement under 35 U.S.C. § 271(a) with knowledge and an intent to induce the specific acts and to cause infringement.

64. Mattress Firm was aware of the '383 patent at least as early as August 18, 2016, by virtue of a letter sent from William Diefenderfer, ESI's Vice-Chairman & Co-Founder, to Ms.

Kindel L. Elam, the General Counsel of Mattress Firm Holdings.

65. Upon information and belief, Defendants Merrill Corporation and Merrill Communication have had knowledge of the '383 patent on or about August 18, 2016 when Defendant Mattress Firm requested indemnification from Merrill Corporation and/or Merrill Communications.

66. Upon information and belief, Defendants Merrill Corporation and Merrill Communications, Inc. have contributed to infringement under 356 U.S.C. §271(c) by selling within the United States components used by its customers to infringe the '383 patent knowing that these components (a) are especially made for use in infringing products, and (b) are not a staple articles of commerce suitable for substantial non-infringing use.

67. Upon information and belief, Mattress Firm's infringement has been and continues to be willful.

68. Upon information and belief, Merrill Corporation's and Merrill Communications' infringement has been and continues to be willful.

69. Plaintiffs are entitled to recover damages as a result of Defendant Mattress Firm's acts of infringement of the '383 Patent with damages in amounts subject to proof at trial.

COUNT IV: INFRINGEMENT OF THE '748 PATENT

70. Plaintiffs re-allege and incorporate by reference the prior paragraphs 1 through 33 of this Second Amended Complaint, as if fully set forth herein.

71. On February 23, 2016, U.S. Patent No. 9,268,748 was duly and legally issued to Russell T. Davis as the inventor thereof. A true and correct copy of the '748 Patent, which is entitled "System, Method, And Computer Program Product For Outputting Markup Language Documents", is attached hereto as Exhibit I.

72. The ‘748 patent represents a specific implementation to a problem in the software arts. Specifically, it addresses the need to format the output in accordance with the combined characteristics and attributes of all related “character data entities”. For example, in a company financial statement, information is displayed in a hierarchical fashion where individual data elements are arrayed in relation to each other (e.g., a section on “assets”). Without the invention claimed in the ’748 patent this could not be completed unambiguously by hand or computer. . In short, the claims at issue are necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks. In addition, the solution provided by the claimed subject matter is tethered to the technology that created the problem.

73. Upon information and belief, Mattress Firm infringed the ‘748 Patent in violation of 35 U.S.C. § 271(a) by using the patented invention to, *inter alia*, prepare and file multiple XBRL-compliant filings. This includes using an apparatus as claimed in claim 1 of the ‘748 patent; using a computer readable medium as claimed in claim 11 of the ‘748 patent; and practicing the method set forth in claim 19 of the ‘748 patent. An Infringement Chart detailing the infringement by Mattress Firm of Claims 1, 11 and 19 of the ‘748 Patent is attached hereto as Exhibit J. In addition, Mattress Firm also infringes claims 2 – 5, 10, 12 – 16, and 20. An infringement chart detailing the infringement by Defendant Mattress Firm of these claims is also attached in Exhibit J.

74. Upon information and belief, defendant Merrill Communications and Merrill Corporation have directly infringed the ‘748 patent by making, using, selling or offering to sell the Merrill Bridge product to its customers and prospective customers. Use of the Merrill Bridge product by, for example, Mattress Firm, is demonstrated in the chart set forth in Exhibit J.

75. Defendants Merrill Corporation and Merrill Communications have infringed the

‘748 patent by inducing others to engage in direct infringement under 35 U.S.C. § 271(a) with knowledge and an intent to induce the specific acts and to cause infringement.

76. Mattress Firm was aware of the ‘748 patent at least as early as August 18, 2016, by virtue of a letter sent from William Diefenderfer, ESI’s Vice-Chairman & Co-Founder, to Ms. Kindel L. Elam, the General Counsel of Mattress Firm Holdings.

77. Upon information and belief, Defendants Merrill Corporation and Merrill Communication have had knowledge of the ‘748 patent on or about August 18, 2016 when Defendant Mattress Firm requested indemnification from Merrill Corporation and/or Merrill Communications.

78. Upon information and belief, Defendants Merrill Corporation and Merrill Communications, Inc. have contributed to infringement under 356 U.S.C. §271(c) by selling within the United States components used by its customers to infringe the ‘355 patent knowing that these components (a) are especially made for use in infringing products, and (b) are not a staple articles of commerce suitable for substantial non-infringing use.

79. Upon information and belief, Mattress Firm’s infringement has been and continues to be willful.

80. Upon information and belief, Merrill Corporation’s and Merrill Communication’s infringement has been and continues to be willful.

81. Plaintiffs are entitled to recover damages as a result of Defendant Mattress Firm’s, Merrill Corporation’s and Merrill Communications’ acts of infringement of the ‘748 Patent with damages in amounts subject to proof at trial.

PRAYER AND RELIEF

WHEREFORE, Plaintiffs pray for judgment against Defendant Mattress Firm, Merrill Corporation and Merrill Communications for the following relief:

A. For judgment in favor of Plaintiffs that, either literally or under the doctrine of equivalents, the Defendants have infringed one or more claims of the ‘355, ‘816, ‘383, and ‘748 patents;

B. For an award of damages, requiring Defendant Mattress Firm, Merrill Corporation and Merrill Communications to pay Plaintiffs their damages adequate to compensate them for the infringement of the ‘355, ‘816, ‘383, and ‘748 patents together with costs, expenses and prejudgment and post-judgment interest, for Defendants’ infringement of the ‘355, ‘816, ‘383, and ‘748 patents as provided under 35 U.S.C. § 284;

C. For an injunction ordering Mattress Firm, Merrill Corporation and Merrill Communications to cease infringement of ‘355, ‘816, ‘383, and ‘748 patents pursuant to 35 U.S.C. § 283;

D. For treble damages pursuant to 35 U.S.C. § 284;

E. For a judgment and Order granting Plaintiffs their reasonable attorneys’ fees under 35 U.S.C. § 285; and

F. For such other and further relief as the Court may deem just and proper.

JURY DEMAND

Plaintiffs demand a trial by jury of all issues properly triable by jury in this action.

Respectfully submitted,

O'KELLY ERNST & JOYCE, LLC

Dated: July 20, 2018

/s/ Sean T. O'Kelly

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