

**Invalidity Contentions for U.S. Patent No. 6,842,796**  
**Based on U.S. Patent No. 5,913,214 to Stuart E. Madnick et al. (“Madnick”)**

Based upon Plaintiff’s Complaint, Infringement Contentions, and apparent claim constructions and application of the claims to Defendant’s accused products, as best as they can be deciphered, the reference charted below anticipates or at least renders obvious the asserted claims. These invalidity contentions are not an admission by Defendant that the accused products are covered by or infringe the asserted claims, particularly when these claims are properly construed and applied. These invalidity contentions are not an admission that Defendant concedes or acquiesces to any claim construction implied or suggested by Plaintiff’s Complaint or Infringement Contentions. Nor is Defendant asserting any claim construction positions through these charts, including whether the preamble is a limitation. The portions of the prior art reference cited below are not exhaustive but are exemplary in nature.

U.S. Patent No. 5,913,214 to Stuart E. Madnick et al. (“Madnick”) was filed on August 8, 1996 and issued on June 15, 1999. Accordingly, Madnick is prior art under at least 35 U.S.C. § 102(a), (b), (e), and 103(a). As described in the following claim chart, the asserted claims of U.S. Patent No. 6,842,796 (the “’796 Patent”), are invalid as anticipated by Madnick.

To the extent that Madnick is found not to anticipate one or more of the asserted claims of the ’796 Patent, these claims are invalid as obvious in view of Madnick, alone or in combination with other prior art references disclosed in Defendant’s Invalidity Contentions and accompanying charts, including without limitation as set forth below.

Additionally, Defendant incorporates by reference Ground 2 presented in *Palo Alto Networks, Inc. v. Taasera Licensing LLC*, IPR2023-00443 (PTAB).

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Cover Pleading.

| ‘796 Patent                                                                                                      | <u>Madnick</u>                                                                                                                                                                                                                                      |
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| [1P] A method of automatically processing an input sequence of data symbols, the method comprising the steps of: | To the extent the preamble of claim 1 is found to be limiting, <u>Madnick</u> it explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. <i>See, e.g.</i> ,<br><br>Abstract |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|             | <p>A system for querying disparate, heterogeneous data sources over a network, where at least some of the data sources are World Wide Web pages or other semi-structured data sources, includes a query converter, a command transmitter, and a data retriever. The query converter produces, from at least a portion of a query, a set of commands which can be used to interact with a semi-structured data source. The query converter may accept a request in the same form as normally used to access a relational data base, therefore increasing the number of data bases available to a user in a transparent manner. The command transmitter issues the produced commands to the semi-structured data source. The data retriever then retrieves the desired data from the data source. In this manner, structured queries may be used to access both traditional, relational data bases as well as non-traditional, semi-structured data bases such as web sites and flat files. The system may also include a request translator and a data translator for providing data context interchange. The request translator translates a request for data having a first data context into a query having a second data context which the query converter described above. The data translator translates data retrieved from the data context of the data source into the data context associated with the request. A related method for querying disparate data sources over a network is also described.</p> <p>2:26-3:26:</p> <p>SUMMARY OF THE INVENTION</p> <p>The present invention allows semi-structured data sources to be queried using a structured query language. This allows semi-structured data sources, such as World Wide Web pages (HTML documents), flat files containing data (data files containing collections of data that are not arranged as a relational database), or menu-driven database systems (sometimes referred to as "legacy" systems) to augment traditional, structured databases without requiring the requester to learn a new, separate query language. Structured queries directed to semi-structured sources are identified, converted into commands the semi-structured data sources understand, and the commands are issued to the data source. Data is extracted from the semi-structured data source and returned to the requester. Thus, semi-structured data sources can be</p> |

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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|                    | <p>accessed using a structured query language in a way that is transparent to the requester.</p> <p>A system according to the invention queries both structured and semi-structured data sources. The system includes a request translator, a query converter, a command transmitter, a data retriever, and a data translator. The request translator receives a data request which has an associated data context and translates that data request into a query which has an associated data context which is appropriate for the data source to be queried. The query converter converts at least a portion of the query into a command or series of commands that can be used to interact with a semi-structured data source such as a Web page or a flat file containing data. The command transmitter issues those commands to the semi-structured data sources, and a data retriever extracts data from the data sources. Extracted data is translated by the data translator from the data context of the data source into the data context associated with the initial request.</p> <p>A method according to the invention queries both structured and semi-structured data sources. The method includes translating a data request into a query, converting at least a portion of the query into a stream of commands, issuing the commands to the semi-structured data sources, extracting data from the data sources, and translating the retrieved data. The data request, which has an associated data context, is translated into the query which has a data context that matches the data source to be queried. At least a portion of that query is converted into one or more commands which can be used to interact with a semi-structured data source. Those commands are issued and data is extracted from the data source. Extracted data is then translated from the data context associated with the data source into the data context associated with the initial request.</p> <p>In other aspects of the invention, a method and system for querying semi-structured data sources in response to a structured data request comprise the steps of, and means for, converting the data request into one or more commands, issuing the commands to a semi-structured data source, and extracting data from the semi-structured data source. The semi-structured data source can be a World Wide Web page, a flat file containing data, or a menu-driven database system. In some embodiments, the</p> |

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| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|             | <p>conversion of the data request into one or more commands also includes determining if the requested data is provided by a Web page and then determining, for each requested datum provided by the Web page, one or more commands to issue to the Web page in order to retrieve the data. These determinations are made by accessing a file which is stored in a memory element of a computer and which includes information on the data elements provided by the data source as well as the commands necessary to access the data.</p> <p>FIGS. 1A-1B, 3:60-4:57:</p> |

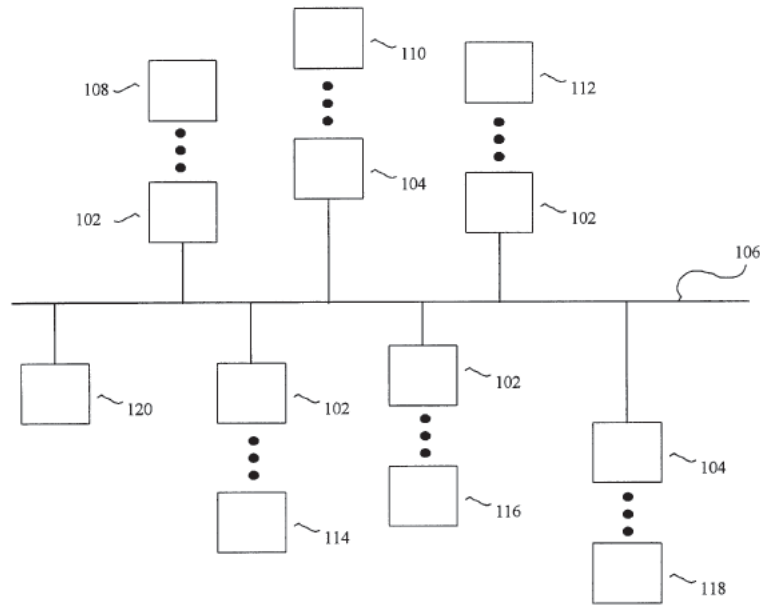
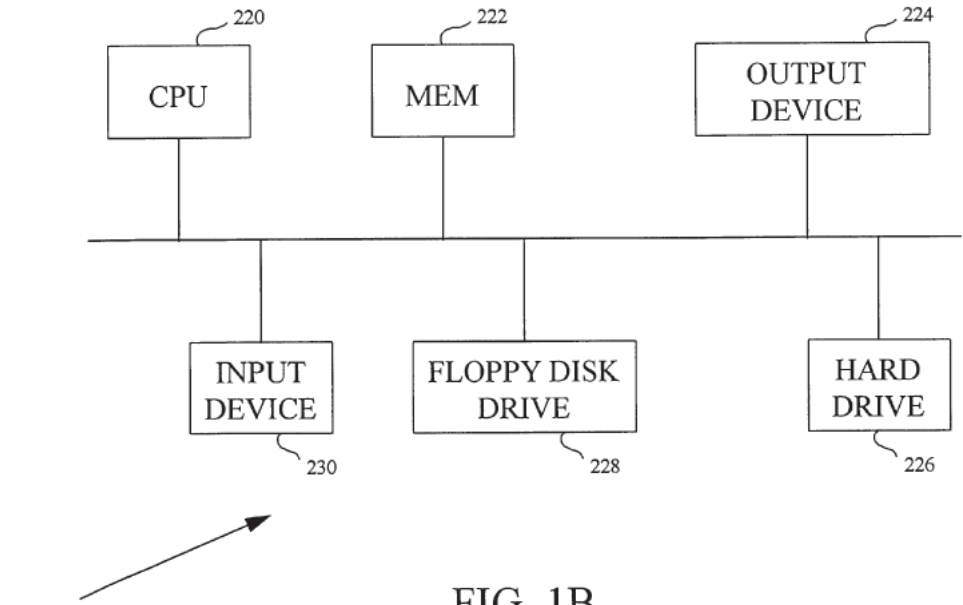


FIG. 1A

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|             |  <p style="text-align: center;"><b>FIG. 1B</b></p> <p>Referring to FIGS. 1A and 1B, data receivers 102 and data sources 104 are interconnected via a network 106. Although data receivers 102 are shown separate from data sources 104, any node connected to the network 106 may include the functionality of both a data receiver 102 and a data source 104.</p> <p>Each of the nodes 102, 104 may be, for example, a personal computer, a workstation, a minicomputer, a mainframe, a supercomputer, or a Web Server. Each of the nodes 102, 104 typically has at least a central processing unit 220, a main memory unit 222 for storing programs or data, and a fixed or hard disk drive unit 226 which are all coupled by a data bus 232. In some embodiments, nodes 102, 104 include one or more output devices 224, such as a display or a printer, one or more input devices 230, such as a keyboard, mouse or trackball, and a floppy disk drive 228. In a preferred embodiment, software programs running on one or more of the system nodes define the functionality of the system according to the invention and enable the</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|             | <p>system to perform as described. The software can reside on or in a hard disk 226 or the memory 222 of one or more of the system nodes.</p> <p>The data sources 104 can be structured databases, semi-structured Web pages, or other types of structured or semi-structured sources of data such as files containing delimited data, tagged data or menu-driven database systems. The network 106 to which the nodes 102, 104 are connected may be, for example, a local area network within a building, a wide-area network distributed throughout a geographic region, a corporate Intranet, or the Internet. In general, any protocol may be used by the nodes 102, 104 to communicate over the network 106, such as Ethernet or HTTP (Hypertext Transfer Protocol).</p> <p>A set of assumptions regarding data is associated with each node 102, 104. That is, each node 102, 104 has an associated data context 108-118. For example, a particular data receiver 102 may always expect that when data is received, time values are in military time, monetary values are in thousands of U.S. dollars, and date values are returned in month-day-year format. This set of assumptions is the data context 108 of that particular data receiver 102. Another data receiver 102 may make a different set of assumptions about received data which are represented as its own data context 112. When a data receiver 102 makes a request for data, its data context 108, 112, 114, 116 is associated with the request. Similarly, each data source 104 provides the data context 110, 118 associated with its data.</p> <p>The data context 108-118 of a node 102, 104 may be a file containing a list of data formats and associated meanings expected by that node 102, 104. For example, if a particular node 102, 104 expects to receive or provide data which it calls "net income" in units of dollars with a scale of thousands, that set of expectations may be specified in a file which represents at least a portion of the data context 108-118 associated with that node 102, 104. The data context 108, 112, 114, 116 of a data receiver 102 may be provided with each new request made by the data receiver 102. In one embodiment discussed in greater detail below, the data context 108-118 for each node 102, 104 may be stored in a central location through which all requests are routed for context mediation, or the data contexts 108-118 may be stored in a de-centralized manner. For example, the data contexts 108-118 may be stored as a directory of URL</p> |

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(Uniform Resource Locator) addresses which identify the location of each data context 108-118.

FIG. 2, 4:58-5:56:

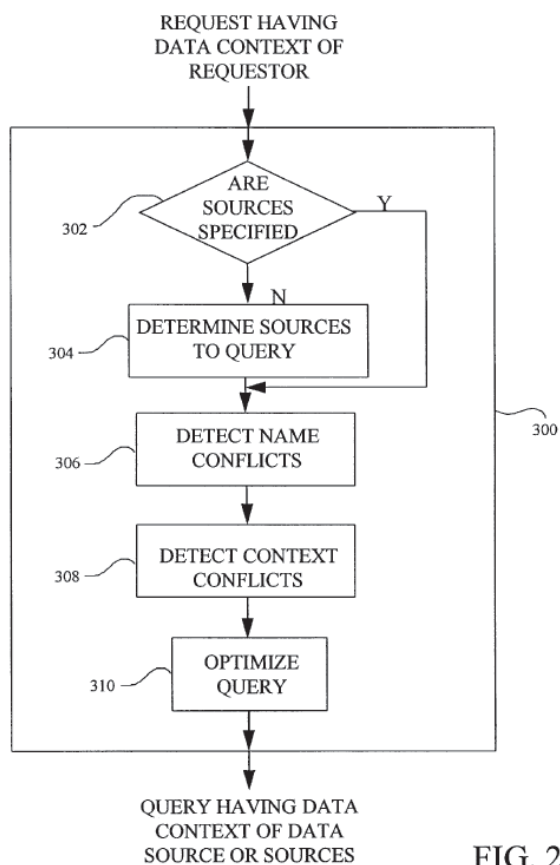


FIG. 2

A request for data made by a data receiver 102 is associated with the data context 108, 112, 114, 116 of the data receiver 102. Referring to FIG. 2, one embodiment of a request translator 300 determines if the data context 108, 112, 114, 116 of the data

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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|             | <p>receiver 102 is different from the data context 110, 118 of the data sources 104 that will be queried to satisfy the request. The request translator 300 may be resident on the data receiver 102 making the request, or it may reside on another node 102, 104 attached to the network. In some embodiments, the request translator 300 resides on a special purpose machine 120 which is connected to the network 106 for the sole purpose of comparing data contexts 108-118 and resolving conflicts between the data contexts 108-118 of data receivers 102 and data sources 104.</p> <p>The request translator 300 may be implemented as hardware or software and, for embodiments in which the request translator is implemented in software, it may be the software program that generates the request. Alternatively, the request translator 300 may be a separate functional unit from the hardware or software used to generate the request, in which case the request translator receives the request as constructed by that hardware or software. For example, the request translator may be part of an SQL-query language application, or the request translator may receive requests made by an SQL-query language application, for example, a spreadsheet having embedded queries resulting in ODBC-compliant (Open Database Connectivity-compliant) commands.</p> <p>The request translator may be provided with the identity of the data sources 104 to be queried (step 302). That is, the request may specify one or more data sources 104 to which the query should be directed. In these embodiments, the request translator compares the data context 110, 118 of the data source 104 to the data context 108, 112, 114, 116 of the data receiver 102. If any conflicts are detected, e.g. the data source 104 expects to provide monetary values in hundreds of Japanese Yen and the data receiver 102 expects to receive monetary values in thousands of U.S. Dollars, the request translator translates the request to reflect the data context 108 of the data source 104. In other embodiments, the request translator is not provided with the identity of the data sources 104 to be queried, and the request translator may determine which data sources 104 to query (step 304). These embodiments are discussed in more detail below.</p> <p>When the request translator is translating the data request made by the data receiver 102, it must detect conflicts between the names by which data are requested and</p> |

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| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                    | <p>provided (step 306), and it must detect the context of that data (step 308). For example, a data receiver 102 may make a request for a data value that it calls "net worth". A data source 104 may be identified as having the data to satisfy the request made by the data receiver 102, however, the data source 104 may call that same number "total assets". The request translator must recognize that, although different names are used, the data source 104 and the data receiver 102 are referring to the same data entity.</p> <p>Name and context conflicts may be determined through the use of an ontology, or set of ontologies, in connection with the data context 108-118 mappings. An ontology is an overall set of concepts for which each data source 104 and data receiver 102 registers its values. Ontologies may be distributed over the network 106 on multiple nodes 102, 104. Alternatively, all ontologies may reside on a single node 102, 104 connected to the network 106 for the purpose of providing a library of ontologies.</p> <p>FIG. 3, 7:36-8:24:</p> |

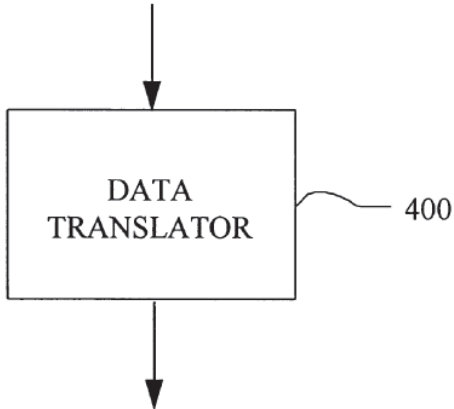
| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|             | <div> <pre> graph TD     A[DATA FROM<br/>DATA SOURCE<br/>HAVING DATA<br/>SOURCE'S CONTEXT] --&gt; B[DATA<br/>TRANSLATOR<br/>400]     B --&gt; C[DATA HAVING<br/>DATA CONTEXT<br/>OF REQUESTOR] </pre> <p>The diagram is a flowchart labeled FIG. 3. It starts with the text 'DATA FROM DATA SOURCE HAVING DATA SOURCE'S CONTEXT' at the top. A downward arrow points to a rectangular box labeled 'DATA TRANSLATOR' with a reference numeral '400' to its right. Another downward arrow points from the bottom of the box to the text 'DATA HAVING DATA CONTEXT OF REQUESTOR'.</p> </div> <p>Referring to FIG. 3, a data translator 400 receives data from the data sources 104 that are queried. Since a conflict between the data context 108, 112, 114, 116 of the data receiver 102 and the data context 110, 118 of the data source 104 has already been detected, the data received from the data source 104 is translated to match the data context 108 that the data receiver 102 expects. Once translated, the received data is in a form the data receiver 102 expects, and the request made by the data receiver 102 is satisfied. The data translator 400 may be provided as a separate unit from the request translator 300, or they may be provided as a unitary whole. Alternatively, the request translator 300 and the data translator 400 may be programs running on one or multiple computers.</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|             | <p>The translations effectuated by the request translator 300 and the data translator 400 may be accomplished by using pre-defined functions, look-up tables, or database queries among other well-known techniques. For example, when the "net income" datum must be translated by the request translator 300, it may request the exchange rate from dollars to pounds from an appropriate currency database and then use that exchange rate to translate the received datum. In some embodiments, the ontology 200 provides a set of default translations for the request translator 300 and data translator 400 to use. These default translations may, however, be overridden by a data receiver 102 or data source 104 that prefers a different translation to be used. For example, an ontology 200 may provide a default translation between tens of pounds and ones of dollars that uses a pre-defined function to multiply data in pounds by 6.67. Alternatively, the conversion could be done as a number of steps. For example, the ontology may provide a conversion from dollars to pounds and a conversion from tens to ones which are applied in succession to the data. A particular data receiver 102 may not desire such a rough estimate, however, and may therefore provide its own translation in its data context 108-118 which overrides the default translation provided by the ontology 200.</p> <p>Multiple conversions may be used if the query accesses multiple data sources. For example, a data receiver 102 may make a request having two parts. One part may be satisfied by a first data source 104 and that data is required to be converted by a look-up function. The second part of the request may be satisfied by a second data source which requires data to be converted by a database query.</p> <p>The request translator 300 may query the data source 104 for the data receiver 102. In these embodiments, the request translator may optimize the query (step 310) using any well-known query optimization methods, such as Selinger query optimization. Alternatively, the request translator 300 may separate a query into several separate sub-queries and direct those sub-queries to one data source 104 or multiple data sources 104. In another embodiment, the request translator 300 simply passes the query to a query transmitter which may also optimize the query or separate the query into several sub-queries, as described above.</p> |

| '796 Patent                                                                                                                                                                                                                                                                                                       | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                                                                                                                                                                                                                                                                                                   | <p>16:16-27:</p> <p>The present invention may be provided as one or more computer-readable programs embodied on or in one or more articles of manufacture. The article of manufacture may be a floppy disk, a hard disk, a CD ROM a flash memory card, a PROM, a RAM, a ROM, or a magnetic tape. In general, the computer-readable programs may be implemented in any programming language. It is preferred that the language used have good text-handling capabilities such as, for example, LISP, PERL, C++, or PROLOG. The software programs may be stored on or in one or more articles of manufacture as object code.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| <p>[1A] identifying at least one regularly identifiable expression in the input sequence of data symbols, wherein the at least one regularly identifiable expression represents a pattern that is matchable in accordance with a programming language that supports such a regularly identifiable expression;</p> | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.</p> <p>2:26-3:26:</p> <p>SUMMARY OF THE INVENTION</p> <p>The present invention allows semi-structured data sources to be queried using a structured query language. This allows semi-structured data sources, such as World Wide Web pages (HTML documents), flat files containing data (data files containing collections of data that are not arranged as a relational database), or menu-driven database systems (sometimes referred to as "legacy" systems) to augment traditional,</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|             | <p>structured databases without requiring the requester to learn a new, separate query language. Structured queries directed to semi-structured sources are identified, converted into commands the semi-structured data sources understand, and the commands are issued to the data source. Data is extracted from the semi-structured data source and returned to the requester. Thus, semi-structured data sources can be accessed using a structured query language in a way that is transparent to the requester.</p> <p>A system according to the invention queries both structured and semi-structured data sources. The system includes a request translator, a query converter, a command transmitter, a data retriever, and a data translator. The request translator receives a data request which has an associated data context and translates that data request into a query which has an associated data context which is appropriate for the data source to be queried. The query converter converts at least a portion of the query into a command or series of commands that can be used to interact with a semi-structured data source such as a Web page or a flat file containing data. The command transmitter issues those commands to the semi-structured data sources, and a data retriever extracts data from the data sources. Extracted data is translated by the data translator from the data context of the data source into the data context associated with the initial request.</p> <p>A method according to the invention queries both structured and semi-structured data sources. The method includes translating a data request into a query, converting at least a portion of the query into a stream of commands, issuing the commands to the semi-structured data sources, extracting data from the data sources, and translating the retrieved data. The data request, which has an associated data context, is translated into the query which has a data context that matches the data source to be queried. At least a portion of that query is converted into one or more commands which can be used to interact with a semi-structured data source. Those commands are issued and data is extracted from the data source. Extracted data is then translated from the data context associated with the data source into the data context associated with the initial request.</p> |

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <p>In other aspects of the invention, a method and system for querying semi-structured data sources in response to a structured data request comprise the steps of, and means for, converting the data request into one or more commands, issuing the commands to a semi-structured data source, and extracting data from the semi-structured data source. The semi-structured data source can be a World Wide Web page, a flat file containing data, or a menu-driven database system. In some embodiments, the conversion of the data request into one or more commands also includes determining if the requested data is provided by a Web page and then determining, for each requested datum provided by the Web page, one or more commands to issue to the Web page in order to retrieve the data. These determinations are made by accessing a file which is stored in a memory element of a computer and which includes information on the data elements provided by the data source as well as the commands necessary to access the data.</p> <p>FIG. 3, 7:36-8:6, 8:14-9:23:</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <div> <p>DATA FROM<br/>DATA SOURCE<br/>HAVING DATA<br/>SOURCE'S CONTEXT</p>  <pre> graph TD     A[DATA FROM<br/>DATA SOURCE<br/>HAVING DATA<br/>SOURCE'S CONTEXT] --&gt; B[DATA TRANSLATOR 400]     B --&gt; C[DATA HAVING<br/>DATA CONTEXT<br/>OF REQUESTOR] </pre> </div> <p>Referring to FIG. 3, a data translator 400 receives data from the data sources 104 that are queried. Since a conflict between the data context 108, 112, 114, 116 of the data receiver 102 and the data context 110, 118 of the data source 104 has already been detected, the data received from the data source 104 is translated to match the data context 108 that the data receiver 102 expects. Once translated, the received data is in a form the data receiver 102 expects, and the request made by the data receiver 102 is satisfied. The data translator 400 may be provided as a separate unit from the request translator 300, or they may be provided as a unitary whole. Alternatively, the request translator 300 and the data translator 400 may be programs running on one or multiple computers.</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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|             | <p>The translations effectuated by the request translator 300 and the data translator 400 may be accomplished by using pre-defined functions, look-up tables, or database queries among other well-known techniques. For example, when the "net income" datum must be translated by the request translator 300, it may request the exchange rate from dollars to pounds from an appropriate currency database and then use that exchange rate to translate the received datum. In some embodiments, the ontology 200 provides a set of default translations for the request translator 300 and data translator 400 to use. These default translations may, however, be overridden by a data receiver 102 or data source 104 that prefers a different translation to be used. For example, an ontology 200 may provide a default translation between tens of pounds and ones of dollars that uses a pre-defined function to multiply data in pounds by 6.67. Alternatively, the conversion could be done as a number of steps. For example, the ontology may provide a conversion from dollars to pounds and a conversion from tens to ones which are applied in succession to the data. A particular data receiver 102 may not desire such a rough estimate, however, and may therefore provide its own translation in its data context 108-118 which overrides the default translation provided by the ontology 200.</p> <p>...</p> <p>The request translator 300 may query the data source 104 for the data receiver 102. In these embodiments, the request translator may optimize the query (step 310) using any well-known query optimization methods, such as Selinger query optimization. Alternatively, the request translator 300 may separate a query into several separate sub-queries and direct those sub-queries to one data source 104 or multiple data sources 104. In another embodiment, the request translator 300 simply passes the query to a query transmitter which may also optimize the query or separate the query into several sub-queries, as described above.</p> <p>In some embodiments, the data receiver 102 does not specify which data source 104 to use in order to retrieve the data. For example, in FIG. 4 the second user 204 may simply request a list of all the companies having "earnings" in excess of some number of pounds, and a "stock price" below a certain number of pounds. The request translator 300 determines if such a request may be satisfied (step 304). Since the</p> |

EXHIBIT A-Madnick 214

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>second user 204 has registered that "earnings" are equivalent to profit in the financial ontology 200 and that "stock price" is equivalent to "stock value" in the financial ontology 200, the request translator 300 may then determine if any data sources 104 have also registered with the financial ontology 200 as providing those values.</p> <p>The request translator 300 is able to determine that the first data source 212 and the second data source 214 have both registered with the financial ontology as providing a "profit" datum while the third data source 216 has registered with the financial ontology as providing a "stock value" datum. The request translator may separate the request into two sub-queries, one for "stock price", which is directed to the third data source 216, and one for "earnings".</p> <p>At this point, the request translator 300 may further optimize the query by selecting to which data source the request for "earnings" should be directed (step 310). The first data source 212 has registered with the financial ontology as providing a "profit" datum, called "profit" by the first data source 212, in tens of pounds, while the second data source 214 has registered with the financial ontology as providing a "profit" datum, called "net income" by the second data source 214, in ones of dollars. Since the second user 204 requested earnings in tens of pounds, if the query is directed to the second data source 214, no context conversion is necessary. Therefore, the request translator 300 may choose to request the "profit" datum from the second data source 214 in order to further optimize the query.</p> <p>However, the request translator 300 may determine that the second data source 214 is unavailable for some reason. In such a case the request translator may direct the request for "profit" data to the first data source 212 by translating the request made by the second user 204 from tens of pounds into a query directed to the second data source 214 in ones of dollars. As described above, this translation may be done by a predefined function, a look-up table, or a database query.</p> <p>Once the data sources 104 are chosen and any context translation that is necessary is done, queries are submitted to the selected data sources 104. For example, a query could be submitted to the second data source 214, which requests all companies having a "profit" higher than a certain number of pounds, while a query is submitted</p> |

**'796 Patent****Madnick**

to the third data source 216 requesting a list of all the companies having a "stock value" lower than a certain number of dollars. This is done by converting the request for "stock value" in tens of pounds to a query specifying "stock value" in ones of dollars. This allows the third data source 216 to efficiently process the request and return data. The returned data, of course, is in units of ones of dollars, and must be translated into units of tens of pounds before being presented to the data receiver 102 that makes the request.

Once the results of both queries are returned, those results must be "joined", which is a well-known merge routine in the database field. Joining the query results may be done by the request translator or it may be done by the data receiver 102 itself.

FIG. 6, 9:24-10:5:

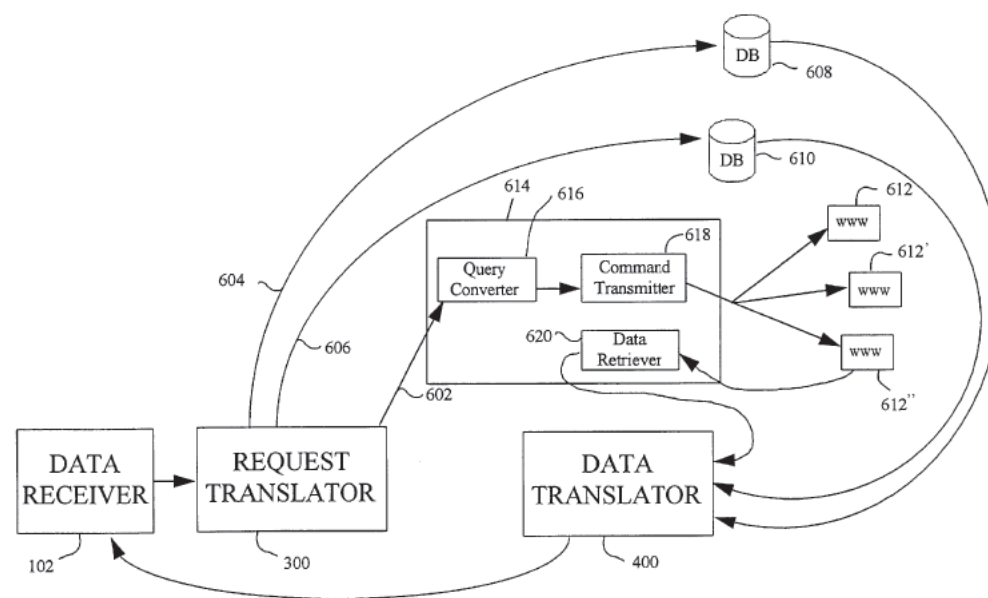
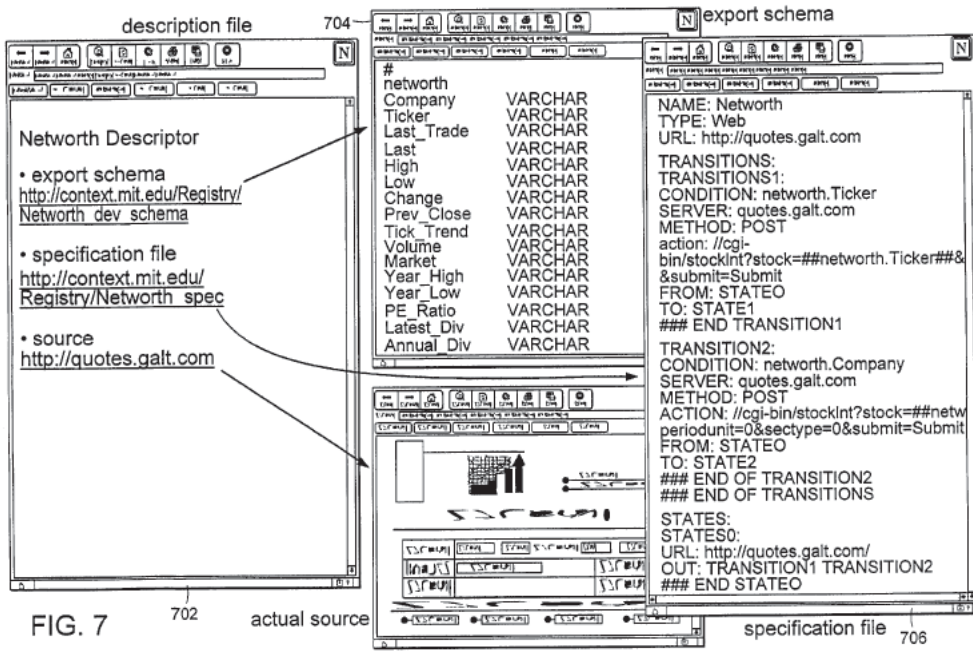


FIG. 6

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>In some embodiments, one or more of the target data sources 104 is a semi-structured data source, that is, the data source 104 is of a type that cannot or does not respond to traditional, structured queries as do relational databases. For example, referring to FIG. 6, the data receiver 102 issues a request that, as described above, is translated by the request translator 300 into three sub-queries 602, 604, and 606. The data receiver 102 may specify the target data sources 104 for the request or the request translator 300 may determine which sources 104 to query as described above. Sub-queries 604 and 606 may be issued directly to relational databases 608 and 610 by the request translator 300 without further processing because they comply with the relational database model and respond to structured queries. Sub-query 602, however, cannot be issued directly to World Wide Web pages 612, 612' and 612" because Web pages do not respond to structured queries. Therefore, some additional processing of the sub-query 602 is necessary before data can be retrieved from the World Wide Web pages 612, 612' and 612".</p> <p>In these cases, additional processing is provided by the wrapper generator 614. In brief overview, the wrapper generator 614 is composed of three sub-units: a query converter 616; a command transmitter 618; and a data retriever 620. These sub-units may be provided as one unitary, special-purpose machine, or they may be separate, special-purpose machines distributed over a network. Alternatively, the wrapper generator 614 may be implemented as one or more programs running on a single general purpose computer. In another alternative, the wrapper generator 614 may be implemented as one or more programs running on multiple, networked machines.</p> <p>The query converter 616 receives the SQL sub-query 602 and translates it into one or more commands which can be used to interact with the data sources 612, 612', and 612". For cases in which the target semi-structured data source is a Web page or Web site, the command transmitter 618 opens a HTTP (Hypertext Transfer Protocol) connection to the Web pages and sends the converted query, i.e. the commands generated by the query converter 616, to the node 104 on which the requested Web pages 612, 612' and 612" reside. The node 104 returns the Web pages 612, 612' and 612" to the wrapper generator 614 in response to the transmitted commands. The data retriever 620 receives the Web pages 612, 612' and 612" and extracts the requested</p> |

| '796 Patent | Madnick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>data from those pages, arranges it in a table, and returns the data to the data translator 400 which, in turn, returns the data to the data receiver 102.</p> <p>FIG. 7, 10:11-50, Table 1, 11:11-12, 12:1-11, Table 2, 13:1-13:7:</p>  <p>FIG. 7</p> <p>In more detail, the wrapper generator 614 must convert a received SQL query into a query, or a series of commands, that the semi-structured data source 104 will understand. As noted above in connection with FIG. 5, each data source 104 must register its data context 110, 118 with an ontology 200. Each data source 104 so registered has a descriptor file; in some embodiments the descriptor file is a HTML document. Each descriptor file contains information about the registered data source 104, including an export schema which defines what data elements are available from the source, a specification file which describes the actions needed to be performed in</p> |

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <p>order to retrieve data values from the site, and an address for the actual source of the data, such as an URL. In some embodiments, the descriptor file may contain an indication of the capabilities of the source. An example of a description file 702 is shown in FIG. 7. The descriptor file 702 can contain actual data or, as shown in FIG. 7, the descriptor file 702 may be a directory of URL addresses which locate necessary information about the data source 104.</p> <p>An export schema 704 defines what data elements are available from each data source 104 and it can be organized in the form of attributes and relations. For example, the export schema 704 shown in FIG. 7 shows a data source having one "table" called network from which data elements called "Ticker", "Company", "Last", "Last-Trade", "Low", and "High" data elements, among others, may be retrieved from the data source 104. As shown in FIG. 7, the export schema of 704 also contains the data types associated with each attribute or data element. For example, in FIG. 7, the export schema 704 for network shows that "Company" is a character string of variable length, while "PE-Ratio" is a number. Table 1 below shows the export schema 704 depicted in FIG. 7. In other embodiments, the export schema 704 may contain further information about the data provided by the source 104, such as the context 108 of each data element.</p> |

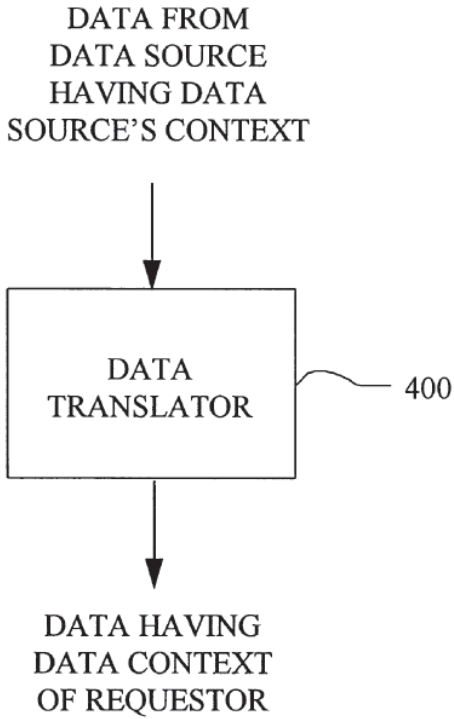
| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|----------|--|---------|---------|--------|---------|------------|---------|------|---------|------|---------|-----|---------|--------|---------|------------|---------|------------|---------|--------|---------|--------|---------|-----------|--------|----------|--------|----------|--------|------------|---------|------------|---------|
|             | <p style="text-align: center;">TABLE 1</p> <hr/> <p style="text-align: center;">Sample export schema</p> <hr/> <table> <tr><td>#</td><td></td></tr> <tr><td>networth</td><td></td></tr> <tr><td>Company</td><td>VARCHAR</td></tr> <tr><td>Ticker</td><td>VARCHAR</td></tr> <tr><td>Last_Trade</td><td>VARCHAR</td></tr> <tr><td>Last</td><td>VARCHAR</td></tr> <tr><td>High</td><td>VARCHAR</td></tr> <tr><td>Low</td><td>VARCHAR</td></tr> <tr><td>Change</td><td>VARCHAR</td></tr> <tr><td>Prev_Close</td><td>VARCHAR</td></tr> <tr><td>Tick_Trend</td><td>VARCHAR</td></tr> <tr><td>Volume</td><td>VARCHAR</td></tr> <tr><td>Market</td><td>VARCHAR</td></tr> <tr><td>Year_High</td><td>NUMBER</td></tr> <tr><td>Year_Low</td><td>NUMBER</td></tr> </table> <p style="text-align: center;">TABLE 1-continued</p> <hr/> <p style="text-align: center;">Sample export schema</p> <hr/> <table> <tr><td>PE_Ratio</td><td>NUMBER</td></tr> <tr><td>Latest_Div</td><td>VARCHAR</td></tr> <tr><td>Annual_Div</td><td>VARCHAR</td></tr> </table> <hr/> <p>Specification file 706 for a data source 104 describes the commands that must be transmitted to the data source 104 by the command transmitter 618 in order to interact with the data source 104. If the source is a relational database, the command transmitter 618 may simply pass the structured query to the data source 104. For cases in which the data source 104 is a semi-structured data source such as a World Wide Web page, the specification file includes a sequence of commands that must be issued by the command transmitter 618 in order to interact with the Web pages. An embodiment of a specification file 706, as depicted in FIG. 7, is illustrated below in Table 2.</p> | # |  | networth |  | Company | VARCHAR | Ticker | VARCHAR | Last_Trade | VARCHAR | Last | VARCHAR | High | VARCHAR | Low | VARCHAR | Change | VARCHAR | Prev_Close | VARCHAR | Tick_Trend | VARCHAR | Volume | VARCHAR | Market | VARCHAR | Year_High | NUMBER | Year_Low | NUMBER | PE_Ratio | NUMBER | Latest_Div | VARCHAR | Annual_Div | VARCHAR |
| #           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| networth    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Company     | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Ticker      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Last_Trade  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Last        | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| High        | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Low         | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Change      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Prev_Close  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Tick_Trend  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Volume      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Market      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Year_High   | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Year_Low    | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| PE_Ratio    | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Latest_Div  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Annual_Div  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |

## EXHIBIT A-Madnick 214

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p style="text-align: center;">TABLE 2</p> <hr/> <p style="text-align: center;">Sample specification file</p> <hr/> <pre> NAME: Networkh TYPE: WEB URL: http://quotes.galt.com TRANSITIONS: TRANSITION1: CONDITION: networkh.Ticker SERVER: quotes.galt.com METHOD: POST action: //cgi-bin/stockInt?stock=##networkh.Ticker###&amp;action=0&amp;period=15&amp;periodunit=0&amp;sectype=0 &amp;submit=Submit FROM: STATE0 TO: STATE1 ### END TRANSITION1 TRANSITION2: CONDITION: networkh.Company SERVER: quotes.galt.com METHOD: POST ACTION: //cgi-bin/stockInt?stock=##networkh.Company##&amp;action=2&amp;period=15&amp; periodunit=0&amp;sectype=0&amp;submit=Submit FROM: STATE0 TO: STATE2 ### END TRANSITION2 ### END TRANSITIONS STATES: STATE0: URL: http://quotes.galt.com/ OUT: TRANSITION1 TRANSITION2 ### END STATE0 STATE1: URL: http://quotes.galt.com/cgi-bin/stockInt OUT: none REGULAR EXPRESSIONS: networkh.Company  \&lt;FONT'sSIZE=)d)&gt;{.*?}\s+\\W+\\W# networkh.Ticker    \s {(.*)}\&lt;FONT&gt;A# networkh.Last      Last(&lt;/A&gt;)\s+{.*?}\s+&lt;A# networkh.Last_Tmde \{last\strade;\s{.*?}\sESTW# networkh.Low       Day\sRange(&lt;/A&gt;)\s+&lt;ID&gt;\s{.*?}\s*\s*\d# networkh.High      Day\sRange(&lt;/A&gt;)\s+&lt;TD&gt;\s{.*?}\s{.*?}\s*\s*\d# networkh.Change    Change(&lt;/A&gt;)\s+{.*?}\s# networkh.Prev_Close Prev;\sClose(&lt;/A&gt;)\s+{.*?}\s# networkh.Tick-Trend Tick\sTrend(&lt;/A&gt;)\s+\\W+TD&gt;{.*?}\s+TD&gt;# networkh.Volume    Volume(&lt;/A&gt;)\s+{.*?}\s+&lt;A# networkh.Market    Market(&lt;/A&gt;)\s+{.*?}\s+&lt;A# networkh.Open      Open(&lt;/A&gt;)\s+{.*?}\s+&lt;A# networkh.Year_Low  52\sweeks(Range(&lt;/A&gt;)\s+{.*?}\s-# networkh.Year_High 52\sweeks(Range(&lt;/A&gt;)\s+{.*?}\s+{.*?}\s# networkh.PE_Ratio  P/E\sRatio(&lt;/A&gt;)\s+{.*?}\s+&lt;A# networkh.Latest_Div Latest\sDiv(&lt;/A&gt;)\s+{.*?}\s*\s*\&lt;A# networkh.Annual_Div Annual\sDiv(&lt;/A&gt;)\s+{.*?}\s*\s*\&lt;PRE&gt;# ### END STATE1 STATE2 URL: http://quotes.galt.com/cgi-bin/stockInt OUT: NONE REGULAR EXPRESSIONS: networkh.Company  &amp;stock=,.*\&gt;.*\s-&gt;{.*?}\s+&lt;/A&gt;# networkh.Ticker    &amp;stock=,.*\&gt;{.*?}\s-&gt;# ### END STATE2 ### END STATES </pre> <p>Table 2 above uses various PERL operators in order to specify the commands which must be issued. For example, in the above table "\s" means a single white space</p> |

| '796 Patent                                                                                                                | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                            | <p>character, "\s+" means one or more spaces, "\s*" means zero or more spaces, "\W" means a non-word character, "\n" means new line, and "\d" means a single digit. The meaning of PERL regular expressions are well known in the art.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p>                                                                                       |
| [1B] identifying at least a portion of information associated with the at least one regularly identifiable expression; and | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.</p> <p>2:26-3:26:</p> <p>SUMMARY OF THE INVENTION</p> <p>The present invention allows semi-structured data sources to be queried using a structured query language. This allows semi-structured data sources, such as World Wide Web pages (HTML documents), flat files containing data (data files containing collections of data that are not arranged as a relational database), or menu-driven database systems (sometimes referred to as "legacy" systems) to augment traditional, structured databases without requiring the requester to learn a new, separate query language. Structured queries directed to semi-structured sources are identified, converted into commands the semi-structured data sources understand, and the commands are issued to the data source. Data is extracted from the semi-structured data source and returned to the requester. Thus, semi-structured data sources can be accessed using a structured query language in a way that is transparent to the requester.</p> |

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|                    | <p>A system according to the invention queries both structured and semi-structured data sources. The system includes a request translator, a query converter, a command transmitter, a data retriever, and a data translator. The request translator receives a data request which has an associated data context and translates that data request into a query which has an associated data context which is appropriate for the data source to be queried. The query converter converts at least a portion of the query into a command or series of commands that can be used to interact with a semi-structured data source such as a Web page or a flat file containing data. The command transmitter issues those commands to the semi-structured data sources, and a data retriever extracts data from the data sources. Extracted data is translated by the data translator from the data context of the data source into the data context associated with the initial request.</p> <p>A method according to the invention queries both structured and semi-structured data sources. The method includes translating a data request into a query, converting at least a portion of the query into a stream of commands, issuing the commands to the semi-structured data sources, extracting data from the data sources, and translating the retrieved data. The data request, which has an associated data context, is translated into the query which has a data context that matches the data source to be queried. At least a portion of that query is converted into one or more commands which can be used to interact with a semi-structured data source. Those commands are issued and data is extracted from the data source. Extracted data is then translated from the data context associated with the data source into the data context associated with the initial request.</p> <p>In other aspects of the invention, a method and system for querying semi-structured data sources in response to a structured data request comprise the steps of, and means for, converting the data request into one or more commands, issuing the commands to a semi-structured data source, and extracting data from the semi-structured data source. The semi-structured data source can be a World Wide Web page, a flat file containing data, or a menu-driven database system. In some embodiments, the conversion of the data request into one or more commands also includes determining if the requested data is provided by a Web page and then determining, for each</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|             | <p>requested datum provided by the Web page, one or more commands to issue to the Web page in order to retrieve the data. These determinations are made by accessing a file which is stored in a memory element of a computer and which includes information on the data elements provided by the data source as well as the commands necessary to access the data.</p> <p>FIG. 3, 7:36-8:6, 8:14-9:23:</p>  <pre> graph TD     A[DATA FROM<br/>DATA SOURCE<br/>HAVING DATA<br/>SOURCE'S CONTEXT] --&gt; B[DATA<br/>TRANSLATOR<br/>400]     B --&gt; C[DATA HAVING<br/>DATA CONTEXT<br/>OF REQUESTOR] </pre> <p>Referring to FIG. 3, a data translator 400 receives data from the data sources 104 that are queried. Since a conflict between the data context 108, 112, 114, 116 of the data receiver 102 and the data context 110, 118 of the data source 104 has already been detected, the data received from the data source 104 is translated to match the data</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|             | <p>context 108 that the data receiver 102 expects. Once translated, the received data is in a form the data receiver 102 expects, and the request made by the data receiver 102 is satisfied. The data translator 400 may be provided as a separate unit from the request translator 300, or they may be provided as a unitary whole. Alternatively, the request translator 300 and the data translator 400 may be programs running on one or multiple computers.</p> <p>The translations effectuated by the request translator 300 and the data translator 400 may be accomplished by using pre-defined functions, look-up tables, or database queries among other well-known techniques. For example, when the "net income" datum must be translated by the request translator 300, it may request the exchange rate from dollars to pounds from an appropriate currency database and then use that exchange rate to translate the received datum. In some embodiments, the ontology 200 provides a set of default translations for the request translator 300 and data translator 400 to use. These default translations may, however, be overridden by a data receiver 102 or data source 104 that prefers a different translation to be used. For example, an ontology 200 may provide a default translation between tens of pounds and ones of dollars that uses a pre-defined function to multiply data in pounds by 6.67. Alternatively, the conversion could be done as a number of steps. For example, the ontology may provide a conversion from dollars to pounds and a conversion from tens to ones which are applied in succession to the data. A particular data receiver 102 may not desire such a rough estimate, however, and may therefore provide its own translation in its data context 108-118 which overrides the default translation provided by the ontology 200.</p> <p>...</p> <p>The request translator 300 may query the data source 104 for the data receiver 102. In these embodiments, the request translator may optimize the query (step 310) using any well-known query optimization methods, such as Selinger query optimization. Alternatively, the request translator 300 may separate a query into several separate sub-queries and direct those sub-queries to one data source 104 or multiple data sources 104. In another embodiment, the request translator 300 simply passes the</p> |

# EXHIBIT A-Madnick 214

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|             | <p>query to a query transmitter which may also optimize the query or separate the query into several sub-queries, as described above.</p> <p>In some embodiments, the data receiver 102 does not specify which data source 104 to use in order to retrieve the data. For example, in FIG. 4 the second user 204 may simply request a list of all the companies having "earnings" in excess of some number of pounds, and a "stock price" below a certain number of pounds. The request translator 300 determines if such a request may be satisfied (step 304). Since the second user 204 has registered that "earnings" are equivalent to profit in the financial ontology 200 and that "stock price" is equivalent to "stock value" in the financial ontology 200, the request translator 300 may then determine if any data sources 104 have also registered with the financial ontology 200 as providing those values.</p> <p>The request translator 300 is able to determine that the first data source 212 and the second data source 214 have both registered with the financial ontology as providing a "profit" datum while the third data source 216 has registered with the financial ontology as providing a "stock value" datum. The request translator may separate the request into two sub-queries, one for "stock price", which is directed to the third data source 216, and one for "earnings".</p> <p>At this point, the request translator 300 may further optimize the query by selecting to which data source the request for "earnings" should be directed (step 310). The first data source 212 has registered with the financial ontology as providing a "profit" datum, called "profit" by the first data source 212, in tens of pounds, while the second data source 214 has registered with the financial ontology as providing a "profit" datum, called "net income" by the second data source 214, in ones of dollars. Since the second user 204 requested earnings in tens of pounds, if the query is directed to the second data source 214, no context conversion is necessary. Therefore, the request translator 300 may choose to request the "profit" datum from the second data source 214 in order to further optimize the query.</p> <p>However, the request translator 300 may determine that the second data source 214 is unavailable for some reason. In such a case the request translator may direct the request for "profit" data to the first data source 212 by translating the request made</p> |

# EXHIBIT A-Madnick 214

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|             | <p>by the second user 204 from tens of pounds into a query directed to the second data source 214 in ones of dollars. As described above, this translation may be done by a predefined function, a look-up table, or a database query.</p> <p>Once the data sources 104 are chosen and any context translation that is necessary is done, queries are submitted to the selected data sources 104. For example, a query could be submitted to the second data source 214, which requests all companies having a "profit" higher than a certain number of pounds, while a query is submitted to the third data source 216 requesting a list of all the companies having a "stock value" lower than a certain number of dollars. This is done by converting the request for "stock value" in tens of pounds to a query specifying "stock value" in ones of dollars. This allows the third data source 216 to efficiently process the request and return data. The returned data, of course, is in units of ones of dollars, and must be translated into units of tens of pounds before being presented to the data receiver 102 that makes the request.</p> <p>Once the results of both queries are returned, those results must be "joined", which is a well-known merge routine in the database field. Joining the query results may be done by the request translator or it may be done by the data receiver 102 itself.</p> <p>FIG. 6, 9:24-10:5:</p> |

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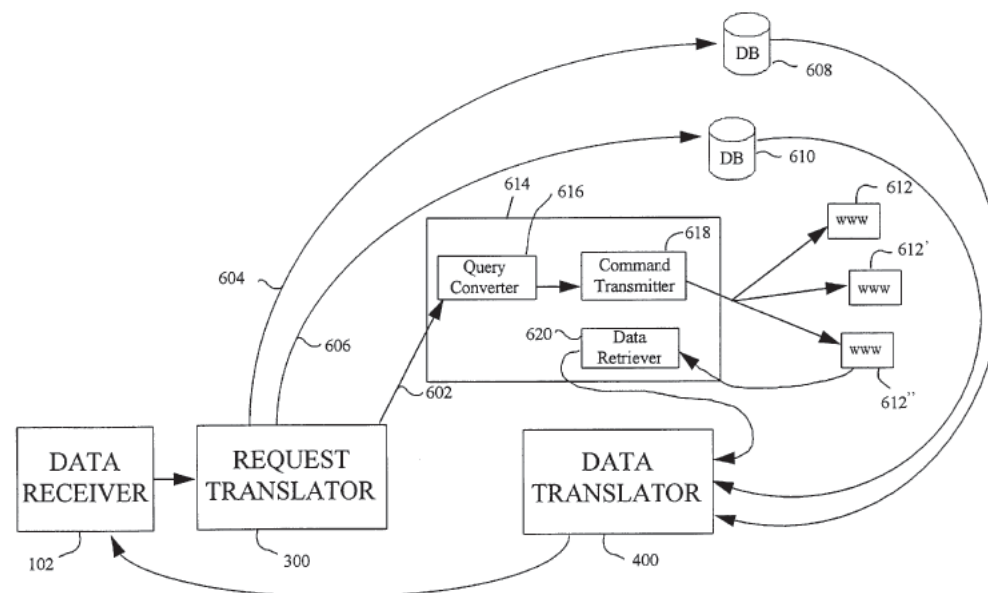
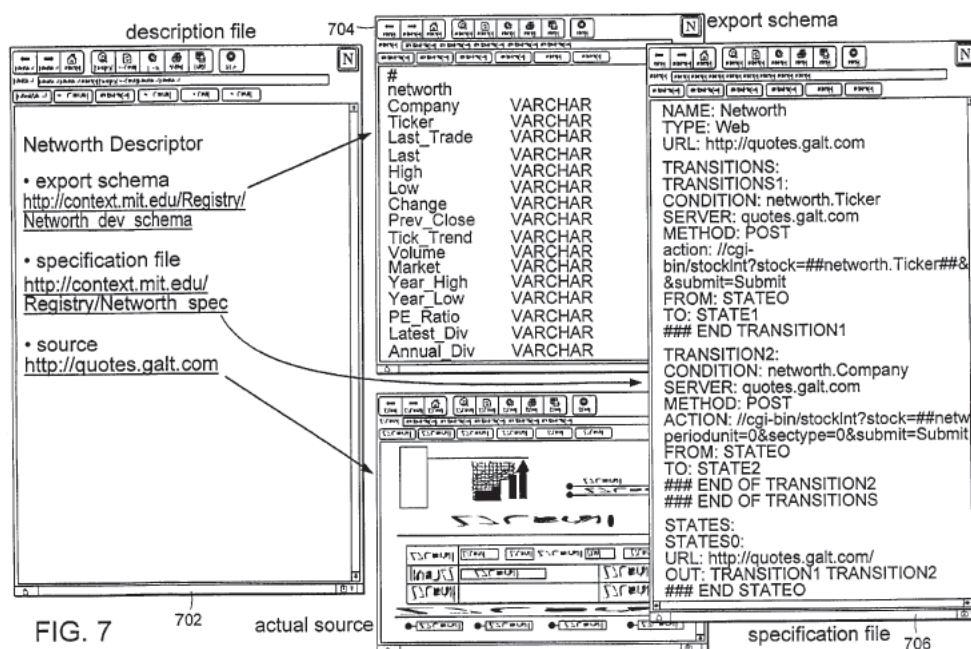
Madnick

FIG. 6

In some embodiments, one or more of the target data sources 104 is a semi-structured data source, that is, the data source 104 is of a type that cannot or does not respond to traditional, structured queries as do relational databases. For example, referring to FIG. 6, the data receiver 102 issues a request that, as described above, is translated by the request translator 300 into three sub-queries 602, 604, and 606. The data receiver 102 may specify the target data sources 104 for the request or the request translator 300 may determine which sources 104 to query as described above. Sub-queries 604 and 606 may be issued directly to relational databases 608 and 610 by the request translator 300 without further processing because they comply with the relational database model and respond to structured queries. Sub-query 602, however, cannot be issued directly to World Wide Web pages 612, 612' and 612'' because Web pages do not respond to structured queries. Therefore, some additional processing of

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|             | <p>the sub-query 602 is necessary before data can be retrieved from the World Wide Web pages 612, 612' and 612".</p> <p>In these cases, additional processing is provided by the wrapper generator 614. In brief overview, the wrapper generator 614 is composed of three sub-units: a query converter 616; a command transmitter 618; and a data retriever 620. These sub-units may be provided as one unitary, special-purpose machine, or they may be separate, special-purpose machines distributed over a network. Alternatively, the wrapper generator 614 may be implemented as one or more programs running on a single general purpose computer. In another alternative, the wrapper generator 614 may be implemented as one or more programs running on multiple, networked machines.</p> <p>The query converter 616 receives the SQL sub-query 602 and translates it into one or more commands which can be used to interact with the data sources 612, 612', and 612". For cases in which the target semi-structured data source is a Web page or Web site, the command transmitter 618 opens a HTTP (Hypertext Transfer Protocol) connection to the Web pages and sends the converted query, i.e. the commands generated by the query converter 616, to the node 104 on which the requested Web pages 612, 612' and 612" reside. The node 104 returns the Web pages 612, 612' and 612" to the wrapper generator 614 in response to the transmitted commands. The data retriever 620 receives the Web pages 612, 612' and 612" and extracts the requested data from those pages, arranges it in a table, and returns the data to the data translator 400 which, in turn, returns the data to the data receiver 102.</p> <p>FIG. 7, 10:11-50, Table 1, 11:11-12, 12:1-11, Table 2, 13:1-13:7:</p> |

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In more detail, the wrapper generator 614 must convert a received SQL query into a query, or a series of commands, that the semi-structured data source 104 will understand. As noted above in connection with FIG. 5, each data source 104 must register its data context 110, 118 with an ontology 200. Each data source 104 so registered has a descriptor file; in some embodiments the descriptor file is a HTML document. Each descriptor file contains information about the registered data source 104, including an export schema which defines what data elements are available from the source, a specification file which describes the actions needed to be performed in order to retrieve data values from the site, and an address for the actual source of the data, such as an URL. In some embodiments, the descriptor file may contain an indication of the capabilities of the source. An example of a description file 702 is shown in FIG. 7. The descriptor file 702 can contain actual data or, as shown in FIG.

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                    | <p>7, the descriptor file 702 may be a directory of URL addresses which locate necessary information about the data source 104.</p> <p>An export schema 704 defines what data elements are available from each data source 104 and it can be organized in the form of attributes and relations. For example, the export schema 704 shown in FIG. 7 shows a data source having one "table" called networth from which data elements called "Ticker", "Company", "Last", "Last-Trade", "Low", and "High" data elements, among others, may be retrieved from the data source 104. As shown in FIG. 7, the export schema of 704 also contains the data types associated with each attribute or data element. For example, in FIG. 7, the export schema 704 for networth shows that "Company" is a character string of variable length, while "PE-Ratio" is a number. Table 1 below shows the export schema 704 depicted in FIG. 7. In other embodiments, the export schema 704 may contain further information about the data provided by the source 104, such as the context 108 of each data element.</p> |

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|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|----------|--|---------|---------|--------|---------|------------|---------|------|---------|------|---------|-----|---------|--------|---------|------------|---------|------------|---------|--------|---------|--------|---------|-----------|--------|----------|--------|----------|--------|------------|---------|------------|---------|
|             | <p style="text-align: center;">TABLE 1</p> <hr/> <p style="text-align: center;">Sample export schema</p> <hr/> <table> <tr><td>#</td><td></td></tr> <tr><td>networth</td><td></td></tr> <tr><td>Company</td><td>VARCHAR</td></tr> <tr><td>Ticker</td><td>VARCHAR</td></tr> <tr><td>Last_Trade</td><td>VARCHAR</td></tr> <tr><td>Last</td><td>VARCHAR</td></tr> <tr><td>High</td><td>VARCHAR</td></tr> <tr><td>Low</td><td>VARCHAR</td></tr> <tr><td>Change</td><td>VARCHAR</td></tr> <tr><td>Prev_Close</td><td>VARCHAR</td></tr> <tr><td>Tick_Trend</td><td>VARCHAR</td></tr> <tr><td>Volume</td><td>VARCHAR</td></tr> <tr><td>Market</td><td>VARCHAR</td></tr> <tr><td>Year_High</td><td>NUMBER</td></tr> <tr><td>Year_Low</td><td>NUMBER</td></tr> </table> <p style="text-align: center;">TABLE 1-continued</p> <hr/> <p style="text-align: center;">Sample export schema</p> <hr/> <table> <tr><td>PE_Ratio</td><td>NUMBER</td></tr> <tr><td>Latest_Div</td><td>VARCHAR</td></tr> <tr><td>Annual_Div</td><td>VARCHAR</td></tr> </table> <hr/> <p>Specification file 706 for a data source 104 describes the commands that must be transmitted to the data source 104 by the command transmitter 618 in order to interact with the data source 104. If the source is a relational database, the command transmitter 618 may simply pass the structured query to the data source 104. For cases in which the data source 104 is a semi-structured data source such as a World Wide Web page, the specification file includes a sequence of commands that must be issued by the command transmitter 618 in order to interact with the Web pages. An embodiment of a specification file 706, as depicted in FIG. 7, is illustrated below in Table 2.</p> | # |  | networth |  | Company | VARCHAR | Ticker | VARCHAR | Last_Trade | VARCHAR | Last | VARCHAR | High | VARCHAR | Low | VARCHAR | Change | VARCHAR | Prev_Close | VARCHAR | Tick_Trend | VARCHAR | Volume | VARCHAR | Market | VARCHAR | Year_High | NUMBER | Year_Low | NUMBER | PE_Ratio | NUMBER | Latest_Div | VARCHAR | Annual_Div | VARCHAR |
| #           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| networth    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Company     | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Ticker      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Last_Trade  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Last        | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| High        | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Low         | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Change      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Prev_Close  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Tick_Trend  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Volume      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Market      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Year_High   | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Year_Low    | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| PE_Ratio    | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Latest_Div  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Annual_Div  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |

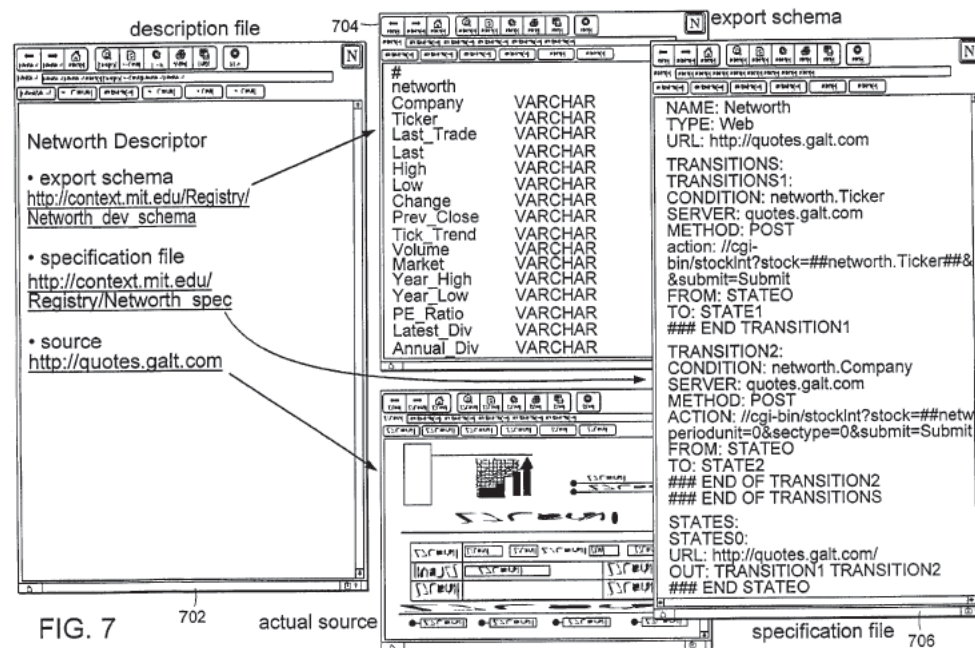
## EXHIBIT A-Madnick 214

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p style="text-align: center;">TABLE 2</p> <hr/> <p style="text-align: center;">Sample specification file</p> <hr/> <pre> NAME: Network TYPE: WEB URL: http://quotes.galt.com TRANSITIONS: TRANSITION1: CONDITION: network.Ticker SERVER: quotes.galt.com METHOD: POST action: //cgi- bin/stockInt?stock=##network.Ticker###&amp;action=0&amp;period=15&amp;periodunit=0&amp;sectype=0 &amp;submit=Submit FROM: STATE0 TO: STATE1 ### END TRANSITION1 TRANSITION2: CONDITION: network.Company SERVER: quotes.galt.com METHOD: POST ACTION: //cgi-bin/stockInt?stock=##network.Company##&amp;action=2&amp;period=15&amp; periodunit=0&amp;sectype=0&amp;submit=Submit FROM: STATE0 TO: STATE2 ### END TRANSITION2 ### END TRANSITIONS STATES: STATE0: URL: http://quotes.galt.com/ OUT: TRANSITION1 TRANSITION2 ### END STATE0 STATE1: URL: http://quotes.galt.com/cgi-bin/stockInt OUT: none REGULAR EXPRESSIONS: network.Company  \&lt;FONT'sSIZE=)d)&gt;{.*?}s+\Ww+;W# network.Ticker    s\{(.*)\&lt;FONT&gt;A# network.Last      Last(&lt;/A&gt;s+{.*?}s+&lt;A# network.Last_Tmde \{last'strade;s{.*?}sESTW# network.Low       Day'sRange(&lt;/A&gt;s(&lt;ID&gt;s*{.*&amp;}s*s*)d# network.High      Day'sRANGE(&lt;/A&gt;s(&lt;TD&gt;s*{.*?}s*{.*?}S)s+# network.Change    Change(&lt;/A&gt;s+{.*?}n# network.Prev_Close Prev;sClose(&lt;/A&gt;s{.*?}n# network.Tick-Trend Tick'sTrend(&lt;/A&gt;s+;W+TD&gt;{.*?}(&lt;TD&gt;# network.Volume    Volume(&lt;/A&gt;s+{.*?}s+&lt;A# network.Market    Market(&lt;/A&gt;s+{.*?}s+&amp;# network.Open      Open(&lt;/A&gt;s+{.*?}s+&lt;A# network.Year_Low  52;sweek(sRange(&lt;/A&gt;s+{.*?}s-# network.Year_High 52;sweek(sRange(&lt;/A&gt;s+{.*?}s+{.*?}n# network.PE_Ratio  P/E(sRatio(&lt;/A&gt;s+{.*?}s+&lt;A# network.Latest_Div Latest(sDiv(&lt;/A&gt;s+{.*?}s*)&lt;A# network.Annual_Div Annual'sDiv(&lt;/A&gt;s+{.*?}s*)(&lt;PRE&gt;# ### END STATE1 STATE2 URL: http://quotes.galt.com/cgi-bin/stockInt OUT: NONE REGULAR EXPRESSIONS: network.Company  &amp;stock=,.*\&gt;.*s-s{.*?}(&lt;/A&gt;# network.Ticker    &amp;stock=,.*\&gt;{.*?}s-# ### END STATE2 ### END STATES </pre> <p>Table 2 above uses various PERL operators in order to specify the commands which must be issued. For example, in the above table "\s" means a single white space</p> |

**'796 Patent****Madnick**

character, "\s+" means one or more spaces, "\s\*" means zero or more spaces, "\W" means a non-word character, "\n" means new line, and "\d" means a single digit. The meaning of PERL regular expressions are well known in the art.

FIG. 7, 13:61-14:56:



Referring to FIG. 7, a user who has invoked a wizard to aid creation of a specification file 706 for the Network site may use an input device to point to the PE-- Ratio value as the value desired by the user. The wizard could convert that action by the user into the appropriate line in the specification file 706, i.e. "network.PE-- Ratio P/E\sRatio\</A>\s+(.\*?\s+\<A#)."

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Referring again to Table 2, the specification file for a Web page or any other semi-structured data source can be divided into three main sections: general information, a list of transitions, and a list of outputs.</p> <p>General information is any information related to the data source that does not correspond to states or transitions. For example, the specification file 706 depicted in FIG. 7 and Table 2 includes the name of the site, its Uniform Resource Locator Address, and the capabilities possessed by the site. A specification file 706 may indicate that a particular data source is a database having all of the capabilities a user would expect a relational database to have, i.e. Max, Min, etc. The specification file 706 may indicate that a data source, for example a Web page has more, or very few, of the expected capabilities. In these embodiments the capability information can be used by either the request translator 300 or the wrapper generator 614 to optimize the query. For example, the wrapper generator 614 may break traditional SQL queries down into more basic commands for sites that are "web"-type sites instead of passing the SQL query directly to the site, as it may do for a "database"-type site. Other general information may be included, for example, mean response time, availability, or cost to access the site may be included.</p> <p>Transition definitions represent changes from one data source state to another. For example, following a link from one Web page to another is a transition. Each transition definition contains the name of the HTTP server that publishes the document for the upcoming state, a retrieval method, a path to the actual document on that server (including CGI query variables) and any conditions that must be specified. For example, referring to Table 2, TRANSITION1 in the network specification file shows that the server that publishes the document for the upcoming state is "quotes.galt.com", the retrieval method is by issuing a HTTP Post command, the path to the actual document on that server is "//cgi-bin/stockInt?stock=##network.Company## &amp;action=0 &amp;period=15 &amp;periodunit=0 &amp;sectype=0 &amp;submit=submit", and that "network.ticker" is a variable that must be specified before the transition to STATE1 from STATE0 can be made. Each state enumerates all outgoing transitions, for example, STATE0 shows that</p> |

**'796 Patent****Madnick**

TRANSITION1 or TRANSITION2 may be used to leave it. The transition actually taken when leaving STATE0 is determined by the input query in a deterministic way.

In some embodiments, the condition information may be used to determine if a query or sub-query may be issued to a semi-structured data source. For example, referring to Table 2, the network specification file shows that in order to transition to STATE1 from STATE0, "networth.ticker" must be specified by the query. Thus, if a query or sub-query attempts to access the network semi-structured data source for a data value which must be extracted from STATE1, and that query or sub-query does not provide "networth.ticker", the requested data value cannot be extracted from the data source because the transition to STATE1 cannot be made.

FIG. 8, 14:57-16:3:

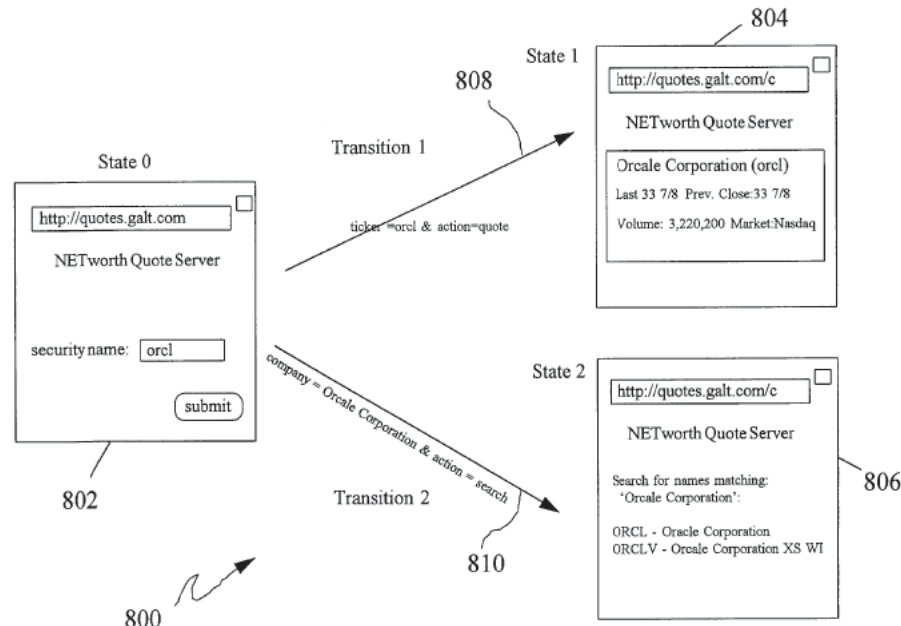


Fig. 8

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Referring to FIG. 8, a state diagram 800 for a site called "networth" might correspond to the specification file shown in FIG. 7 and Table 2. The two transitions out of STATE0 correspond to the two possible ways in which the networth server can be queried. The data receiver 102 can specify a ticker symbol to be used during the search or a company name to be used during the search. If the ticker symbol is used during the search, then TRANSITION1 808 is taken from STATE0 802 to STATE1 804. If the company name is used for the search, then TRANSITION2 810 is taken from STATE0 802 to STATE2 806.</p> <p>For each variable to be retrieved in a given state, the state description contains a pattern to be matched against the document or semi-structured data source 104. For example, TRANSITION1 808 requests a quote from STATE1 804. Referring to Table 2, the specification file indicates that networth.last has a regular expression equal to "Last&lt;/A&gt;\s+(.*?)\s+&lt;A#". This indicates that the Web page corresponding to STATE1 804 should be searched for the word "Last" and the quote for the appropriate ticker symbol will follow that word. Any text searching method known in the art can be used in place of regular expressions.</p> <p>Data retrieval from a semi-structured data source 104 proceeds in the manner described above until the data request is satisfied. For example, a data receiver 102 may request the closing stock price for a list of stocks identified by ticker symbol. The series of steps described above would be executed for each ticker symbol and a table of the stocks by ticker symbol and their closing share price would be generated. This table could be generated by the wrapper generator 614 and then passed to the request translator 300 via the data translator 400 to be joined with data from other sources such as relational data bases, or the table could be generated by the request translator 300 itself.</p> <p>Queries may access multiple data sources 104 in order to generate the answer for a user query. For example, a query may be broken down into multiple sub-queries, some of which access traditional databases, some of which access relational databases distributed over a network, and some of which access semi-structured data sources such as a Web page or a menu-driven database system. These sites are all accessed as described respectively above and the separate results are returned. The results from</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>the semi-structured data sources distributed over the network are returned to the wrapper generator 614. The separate responses may be joined by the wrapper generator 614 or by the request translator 102 to provide the user with a complete response to the query. Alternatively, different responses to the query may be joined in different locations, e.g. in both the wrapper generator 614 and the request translator 300.</p> <p>A Web site may also be registered, that is, an export schema 704 and a specification file 706 may be generated for a collection of Web pages that form a site. Alternatively, an export schema 704 and specification file 706 may be generated for a collection of Web pages that provide useful data but are not arranged into a Web site. For example, a user may have knowledge of various disparate Web pages which contain information the user needs to satisfy queries. The user may create a specification file which registers this collection of pages. By registering the collection of Web pages, the user is able to seamlessly access the semi-structured Web pages which directly satisfy all of part of the requests commonly made by the user, even though the user phrases the request in a structured query language.</p> <p>In some embodiments, the specification file 706 for a Web page is an HTML document having embedded tags that indicate directly to the wrapper generator 614 the states, transitions, and outputs of the data source. For example, a specification file 706 for the network data source may be a HTML document having additional tags embedded therein which provide the wrapper generator 614 with information about the site. Thus, the wrapper generator 614 could determine directly from a HTML link that the link represents a transition to another state and all of the information described above would be conveyed by the additional tags embedded in the HTML link. This mechanism may also be used for data sources which are nearly unstructured. That is, a file containing text that is only delimited, or only tagged, may provide commentary to the wrapper generator 614 which the wrapper generator 614 uses to access the data source properly.</p> |

| '796 Patent                                 | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | <p>Although the above examples have been given an emphasis on World Wide Web pages, the techniques described above may be used for any semi-structured data source, such as a flat file containing data.</p> <p>The data contexts 108-118 of a data source 104 and a data receiver 102, or two data sources 104, may be compared using the present invention. Independent from actual data retrieval, this comparison can be used to provide information on the differences, if any, between two contexts and what translations, if any, are necessary to exchange data between the data contexts. The differences or translations may be provided to a user as a file.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| [1C] extracting the portion of information. | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.</p> <p>2:26-3:26:</p> <p>SUMMARY OF THE INVENTION</p> <p>The present invention allows semi-structured data sources to be queried using a structured query language. This allows semi-structured data sources, such as World Wide Web pages (HTML documents), flat files containing data (data files containing collections of data that are not arranged as a relational database), or menu-driven database systems (sometimes referred to as "legacy" systems) to augment traditional, structured databases without requiring the requester to learn a new, separate query</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>language. Structured queries directed to semi-structured sources are identified, converted into commands the semi-structured data sources understand, and the commands are issued to the data source. Data is extracted from the semi-structured data source and returned to the requester. Thus, semi-structured data sources can be accessed using a structured query language in a way that is transparent to the requester.</p> <p>A system according to the invention queries both structured and semi-structured data sources. The system includes a request translator, a query converter, a command transmitter, a data retriever, and a data translator. The request translator receives a data request which has an associated data context and translates that data request into a query which has an associated data context which is appropriate for the data source to be queried. The query converter converts at least a portion of the query into a command or series of commands that can be used to interact with a semi-structured data source such as a Web page or a flat file containing data. The command transmitter issues those commands to the semi-structured data sources, and a data retriever extracts data from the data sources. Extracted data is translated by the data translator from the data context of the data source into the data context associated with the initial request.</p> <p>A method according to the invention queries both structured and semi-structured data sources. The method includes translating a data request into a query, converting at least a portion of the query into a stream of commands, issuing the commands to the semi-structured data sources, extracting data from the data sources, and translating the retrieved data. The data request, which has an associated data context, is translated into the query which has a data context that matches the data source to be queried. At least a portion of that query is converted into one or more commands which can be used to interact with a semi-structured data source. Those commands are issued and data is extracted from the data source. Extracted data is then translated from the data context associated with the data source into the data context associated with the initial request.</p> <p>In other aspects of the invention, a method and system for querying semi-structured data sources in response to a structured data request comprise the steps of, and means</p> |

## EXHIBIT A-Madnick 214

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>for, converting the data request into one or more commands, issuing the commands to a semi-structured data source, and extracting data from the semi-structured data source. The semi-structured data source can be a World Wide Web page, a flat file containing data, or a menu-driven database system. In some embodiments, the conversion of the data request into one or more commands also includes determining if the requested data is provided by a Web page and then determining, for each requested datum provided by the Web page, one or more commands to issue to the Web page in order to retrieve the data. These determinations are made by accessing a file which is stored in a memory element of a computer and which includes information on the data elements provided by the data source as well as the commands necessary to access the data.</p> <p>FIGS. 3, 6, 7; 9:25-10:5, 13:8-33, 14:46-56:</p> |

'796 Patent

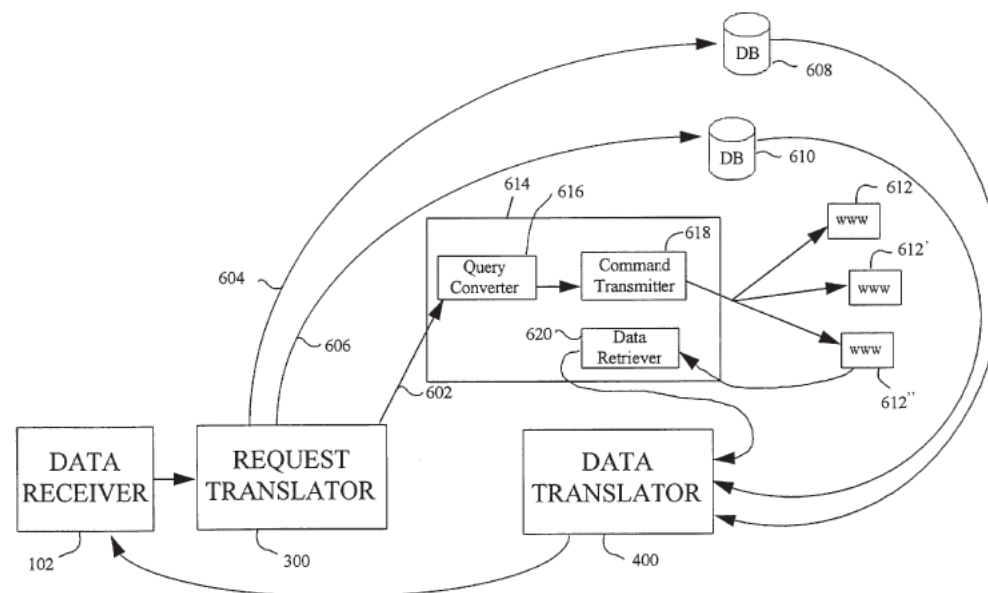
Madnick

FIG. 6

In some embodiments, one or more of the target data sources 104 is a semi-structured data source, that is, the data source 104 is of a type that cannot or does not respond to traditional, structured queries as do relational databases. For example, referring to FIG. 6, the data receiver 102 issues a request that, as described above, is translated by the request translator 300 into three sub-queries 602, 604, and 606. The data receiver 102 may specify the target data sources 104 for the request or the request translator 300 may determine which sources 104 to query as described above. Sub-queries 604 and 606 may be issued directly to relational databases 608 and 610 by the request translator 300 without further processing because they comply with the relational database model and respond to structured queries. Sub-query 602, however, cannot be issued directly to World Wide Web pages 612, 612' and 612'' because Web pages do not respond to structured queries. Therefore, some additional processing of

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>the sub-query 602 is necessary before data can be retrieved from the World Wide Web pages 612, 612' and 612".</p> <p>In these cases, additional processing is provided by the wrapper generator 614. In brief overview, the wrapper generator 614 is composed of three sub-units: a query converter 616; a command transmitter 618; and a data retriever 620. These sub-units may be provided as one unitary, special-purpose machine, or they may be separate, special-purpose machines distributed over a network. Alternatively, the wrapper generator 614 may be implemented as one or more programs running on a single general purpose computer. In another alternative, the wrapper generator 614 may be implemented as one or more programs running on multiple, networked machines.</p> <p>The query converter 616 receives the SQL sub-query 602 and translates it into one or more commands which can be used to interact with the data sources 612, 612', and 612". For cases in which the target semi-structured data source is a Web page or Web site, the command transmitter 618 opens a HTTP (Hypertext Transfer Protocol) connection to the Web pages and sends the converted query, i.e. the commands generated by the query converter 616, to the node 104 on which the requested Web pages 612, 612' and 612" reside. The node 104 returns the Web pages 612, 612' and 612" to the wrapper generator 614 in response to the transmitted commands. The data retriever 620 receives the Web pages 612, 612' and 612" and extracts the requested data from those pages, arranges it in a table, and returns the data to the data translator 400 which, in turn, returns the data to the data receiver 102.</p> <p>...</p> <p>Data requests are processed in a fashion similar to those described above, except that the query or sub-query directed to a semi-structured data source is provided to the wrapper generator 614. If the data source 104 to be queried is a semi-structured data source such as a Web page or a flat file containing data, the wrapper generator 614 generates the commands necessary to interact with the data source. If a relational database is accessed over the Web, the wrapper generator 614 passes the-request unaltered to a WWW-database gateway. Data requests that either specify multiple data sources 104, or that are directed to multiple data sources 104 by the request</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>translator based on the data requested, may be broken up into sub-queries and optimized in any manner described above.</p> <p>The wrapper generator 614 uses the specification file declared by each the semi-structured data source 104 in order to access it. The data retriever 620 then extracts the data requested by the data receiver 102 from the semi-structured data source 104 using the specification file. For example, the wrapper generator 614 may issue HTTP commands directly to Web pages, thus mimicking the interaction that would normally take place between a human user and a World Wide Web page. The series of steps required to translate the SQL query of a data receiver 102 into queries to which the data source 104 can respond is declared by each source in its specification file 706.</p> <p>...</p> <p>In some embodiments, the condition information may be used to determine if a query or sub-query may be issued to a semi-structured data source. For example, referring to Table 2, the network specification file shows that in order to transition to STATE1 from STATE0, "network.ticker" must be specified by the query. Thus, if a query or sub-query attempts to access the network semi-structured data source for a data value which must be extracted from STATE1, and that query or sub-query does not provide "network.ticker", the requested data value cannot be extracted from the data source because the transition to STATE1 cannot be made.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |

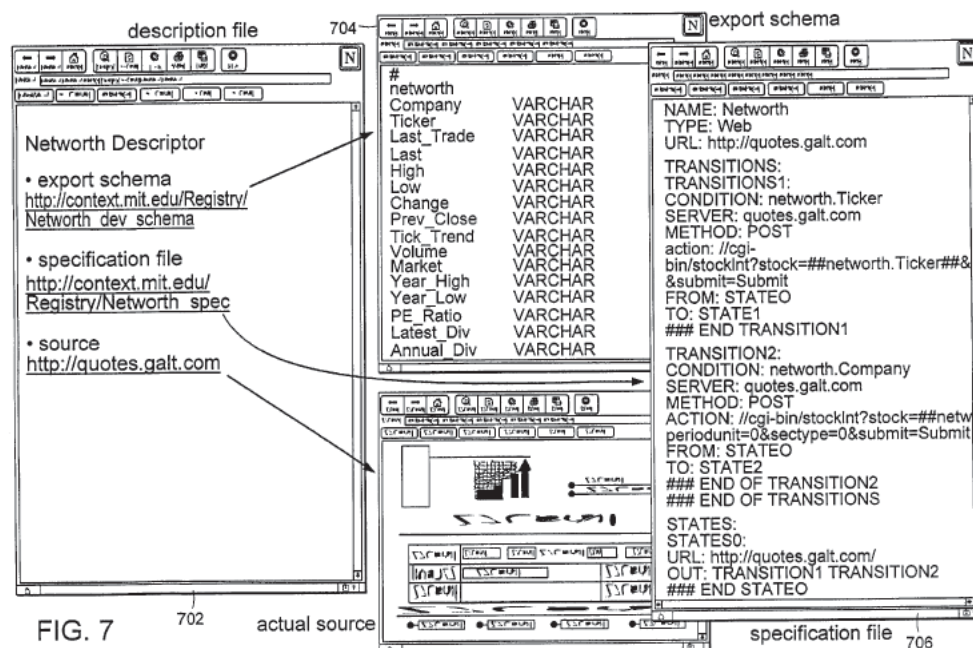
**'796 Patent**

[2] The method of claim 1, wherein the regularly identifiable expression identifying step comprises comparing the input sequence of data symbols to one or more previously-stored regularly identifiable expressions to determine if there is a match between a portion of the input sequence and at least one of the previously-stored regularly identifiable expressions.

**Madnick**

Madnick discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.

FIG. 7, 10:11-50, Table 1, 11:11-12, 12:1-11, Table 2, 13:1-13:7:



In more detail, the wrapper generator 614 must convert a received SQL query into a query, or a series of commands, that the semi-structured data source 104 will understand. As noted above in connection with FIG. 5, each data source 104 must register its data context 110, 118 with an ontology 200. Each data source 104 so registered has a descriptor file; in some embodiments the descriptor file is a HTML document. Each descriptor file contains information about the registered data source 104, including an export schema which defines what data elements are available from the source, a specification file which describes the actions needed to be performed in

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <p>order to retrieve data values from the site, and an address for the actual source of the data, such as an URL. In some embodiments, the descriptor file may contain an indication of the capabilities of the source. An example of a description file 702 is shown in FIG. 7. The descriptor file 702 can contain actual data or, as shown in FIG. 7, the descriptor file 702 may be a directory of URL addresses which locate necessary information about the data source 104.</p> <p>An export schema 704 defines what data elements are available from each data source 104 and it can be organized in the form of attributes and relations. For example, the export schema 704 shown in FIG. 7 shows a data source having one "table" called network from which data elements called "Ticker", "Company", "Last", "Last-Trade", "Low", and "High" data elements, among others, may be retrieved from the data source 104. As shown in FIG. 7, the export schema of 704 also contains the data types associated with each attribute or data element. For example, in FIG. 7, the export schema 704 for network shows that "Company" is a character string of variable length, while "PE-Ratio" is a number. Table 1 below shows the export schema 704 depicted in FIG. 7. In other embodiments, the export schema 704 may contain further information about the data provided by the source 104, such as the context 108 of each data element.</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|----------|--|---------|---------|--------|---------|------------|---------|------|---------|------|---------|-----|---------|--------|---------|------------|---------|------------|---------|--------|---------|--------|---------|-----------|--------|----------|--------|----------|--------|------------|---------|------------|---------|
|             | <p style="text-align: center;">TABLE 1</p> <hr/> <p style="text-align: center;">Sample export schema</p> <hr/> <table> <tr><td>#</td><td></td></tr> <tr><td>networth</td><td></td></tr> <tr><td>Company</td><td>VARCHAR</td></tr> <tr><td>Ticker</td><td>VARCHAR</td></tr> <tr><td>Last_Trade</td><td>VARCHAR</td></tr> <tr><td>Last</td><td>VARCHAR</td></tr> <tr><td>High</td><td>VARCHAR</td></tr> <tr><td>Low</td><td>VARCHAR</td></tr> <tr><td>Change</td><td>VARCHAR</td></tr> <tr><td>Prev_Close</td><td>VARCHAR</td></tr> <tr><td>Tick_Trend</td><td>VARCHAR</td></tr> <tr><td>Volume</td><td>VARCHAR</td></tr> <tr><td>Market</td><td>VARCHAR</td></tr> <tr><td>Year_High</td><td>NUMBER</td></tr> <tr><td>Year_Low</td><td>NUMBER</td></tr> </table> <p style="text-align: center;">TABLE 1-continued</p> <hr/> <p style="text-align: center;">Sample export schema</p> <hr/> <table> <tr><td>PE_Ratio</td><td>NUMBER</td></tr> <tr><td>Latest_Div</td><td>VARCHAR</td></tr> <tr><td>Annual_Div</td><td>VARCHAR</td></tr> </table> <hr/> <p>Specification file 706 for a data source 104 describes the commands that must be transmitted to the data source 104 by the command transmitter 618 in order to interact with the data source 104. If the source is a relational database, the command transmitter 618 may simply pass the structured query to the data source 104. For cases in which the data source 104 is a semi-structured data source such as a World Wide Web page, the specification file includes a sequence of commands that must be issued by the command transmitter 618 in order to interact with the Web pages. An embodiment of a specification file 706, as depicted in FIG. 7, is illustrated below in Table 2.</p> | # |  | networth |  | Company | VARCHAR | Ticker | VARCHAR | Last_Trade | VARCHAR | Last | VARCHAR | High | VARCHAR | Low | VARCHAR | Change | VARCHAR | Prev_Close | VARCHAR | Tick_Trend | VARCHAR | Volume | VARCHAR | Market | VARCHAR | Year_High | NUMBER | Year_Low | NUMBER | PE_Ratio | NUMBER | Latest_Div | VARCHAR | Annual_Div | VARCHAR |
| #           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| networth    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Company     | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Ticker      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Last_Trade  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Last        | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| High        | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Low         | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Change      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Prev_Close  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Tick_Trend  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Volume      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Market      | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Year_High   | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Year_Low    | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| PE_Ratio    | NUMBER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Latest_Div  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |
| Annual_Div  | VARCHAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |          |  |         |         |        |         |            |         |      |         |      |         |     |         |        |         |            |         |            |         |        |         |        |         |           |        |          |        |          |        |            |         |            |         |

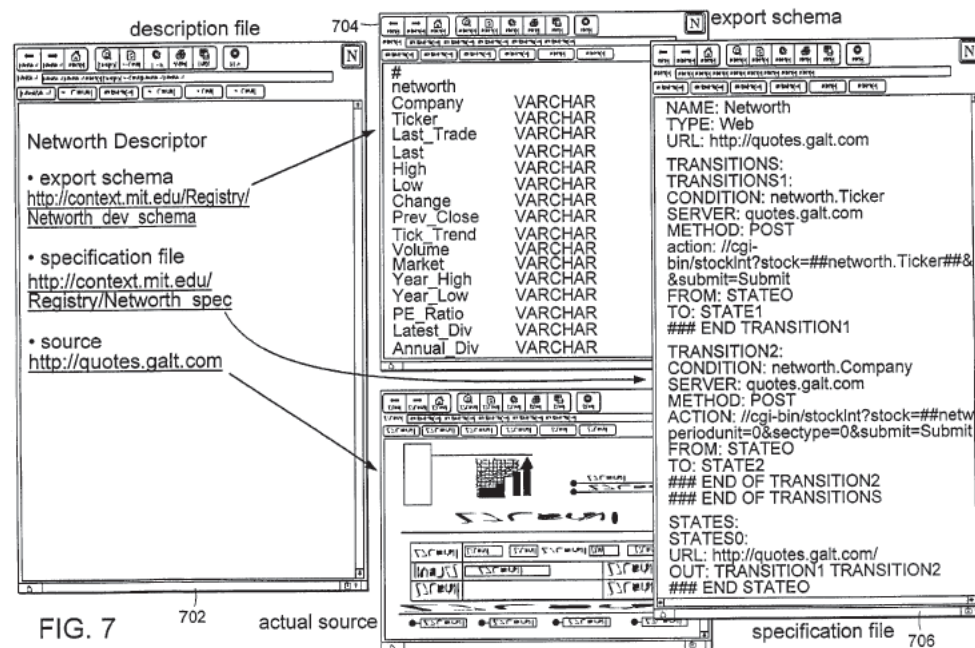
## EXHIBIT A-Madnick 214

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p style="text-align: center;">TABLE 2</p> <hr/> <p style="text-align: center;">Sample specification file</p> <hr/> <pre> NAME: Networkh TYPE: WEB URL: http://quotes.galt.com TRANSITIONS: TRANSITION1: CONDITION: networkh.Ticker SERVER: quotes.galt.com METHOD: POST action: //cgi-bin/stockInt?stock=##networkh.Ticker###&amp;action=0&amp;period=15&amp;periodunit=0&amp;sectype=0 &amp;submit=Submit FROM: STATE0 TO: STATE1 ### END TRANSITION1 TRANSITION2: CONDITION: networkh.Company SERVER: quotes.galt.com METHOD: POST ACTION: //cgi-bin/stockInt?stock=##networkh.Company##&amp;action=2&amp;period=15&amp; periodunit=0&amp;sectype=0&amp;submit=Submit FROM: STATE0 TO: STATE2 ### END TRANSITION2 ### END TRANSITIONS STATES: STATE0: URL: http://quotes.galt.com/ OUT: TRANSITION1 TRANSITION2 ### END STATE0 STATE1: URL: http://quotes.galt.com/cgi-bin/stockInt OUT: none REGULAR EXPRESSIONS: networkh.Company  \&lt;FONT'sSIZE=)d)&gt;{.*?}s+\Ww+;W# networkh.Ticker    s\{(.*)\&lt;FONT&gt;A# networkh.Last      Last(&lt;/A&gt;s+{.*?}s+&lt;A# networkh.Last_Trade  \{last'strade;s{.*?}sESTW# networkh.Low       Day'sRange(&lt;/A&gt;s(&lt;ID&gt;s*{.*&amp;}s*s*)d# networkh.High      Day'sRange(&lt;/A&gt;s(&lt;TD&gt;s*{.*?}s*{.*?}S)s+# networkh.Change     Change(&lt;/A&gt;s+{.*?}n# networkh.Previous_Close  Prev;sClose(&lt;A&gt;s{.*?}n# networkh.Tick-Trend  Tick'sTrend(&lt;/A&gt;s+;W+TD&gt;{.*?}(&lt;TD&gt;# networkh.Volume     Volume(&lt;/A&gt;s+{.*?}s+&lt;A# networkh.Market     Market(&lt;A&gt;s+{.*?}s+&amp;# networkh.Open       Open'(&lt;A&gt;s+{.*?}s+&lt;A# networkh.Year_Low   52;sweek'sRange(&lt;/A&gt;s+{.*?}s-# networkh.Year_High  52;sweek'sRange(&lt;/A&gt;s+{.*?}s+{.*?}n# networkh.PE_Ratio   P/E'sRatio(&lt;/A&gt;s+{.*?}s+&lt;A# networkh.Latest_Div Latest'sDiv(&lt;/A&gt;s+{.*?}s*)&lt;A# networkh.Annual_Div Annual'sDiv(&lt;/A&gt;s+{.*?}s*)&lt;PRE&gt;# ### END STATE1 STATE2 URL: http://quotes.galt.com/cgi-bin/stockInt OUT: NONE REGULAR EXPRESSIONS: networkh.Company   &amp;stock=,.*'\&gt;.*'s-s{.*?}(&lt;/A&gt;# networkh.Ticker     &amp;stock=,.*'\&gt;{.*?}s-# ### END STATE2 ### END STATES </pre> <p>Table 2 above uses various PERL operators in order to specify the commands which must be issued. For example, in the above table "\s" means a single white space</p> |

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character, "\s+" means one or more spaces, "\s\*" means zero or more spaces, "\W" means a non-word character, "\n" means new line, and "\d" means a single digit. The meaning of PERL regular expressions are well known in the art.

FIG. 7, 13:61-14:56:



Referring to FIG. 7, a user who has invoked a wizard to aid creation of a specification file 706 for the Network site may use an input device to point to the PE-- Ratio value as the value desired by the user. The wizard could convert that action by the user into the appropriate line in the specification file 706, i.e. "network.PE-- Ratio P/E\sRatio\</A>\s+(.\*?\s+\<A#)."

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Referring again to Table 2, the specification file for a Web page or any other semi-structured data source can be divided into three main sections: general information, a list of transitions, and a list of outputs.</p> <p>General information is any information related to the data source that does not correspond to states or transitions. For example, the specification file 706 depicted in FIG. 7 and Table 2 includes the name of the site, its Uniform Resource Locator Address, and the capabilities possessed by the site. A specification file 706 may indicate that a particular data source is a database having all of the capabilities a user would expect a relational database to have, i.e. Max, Min, etc. The specification file 706 may indicate that a data source, for example a Web page has more, or very few, of the expected capabilities. In these embodiments the capability information can be used by either the request translator 300 or the wrapper generator 614 to optimize the query. For example, the wrapper generator 614 may break traditional SQL queries down into more basic commands for sites that are "web"-type sites instead of passing the SQL query directly to the site, as it may do for a "database"-type site. Other general information may be included, for example, mean response time, availability, or cost to access the site may be included.</p> <p>Transition definitions represent changes from one data source state to another. For example, following a link from one Web page to another is a transition. Each transition definition contains the name of the HTTP server that publishes the document for the upcoming state, a retrieval method, a path to the actual document on that server (including CGI query variables) and any conditions that must be specified. For example, referring to Table 2, TRANSITION1 in the network specification file shows that the server that publishes the document for the upcoming state is "quotes.galt.com", the retrieval method is by issuing a HTTP Post command, the path to the actual document on that server is "//cgi-bin/stockInt?stock=##network.Company## &amp;action=0 &amp;period=15 &amp;periodunit=0 &amp;sectype=0 &amp;submit=submit", and that "network.ticker" is a variable that must be specified before the transition to STATE1 from STATE0 can be made. Each state enumerates all outgoing transitions, for example, STATE0 shows that</p> |

**'796 Patent****Madnick**

TRANSITION1 or TRANSITION2 may be used to leave it. The transition actually taken when leaving STATE0 is determined by the input query in a deterministic way.

In some embodiments, the condition information may be used to determine if a query or sub-query may be issued to a semi-structured data source. For example, referring to Table 2, the network specification file shows that in order to transition to STATE1 from STATE0, "networth.ticker" must be specified by the query. Thus, if a query or sub-query attempts to access the network semi-structured data source for a data value which must be extracted from STATE1, and that query or sub-query does not provide "networth.ticker", the requested data value cannot be extracted from the data source because the transition to STATE1 cannot be made.

FIG. 8, 14:57-16:3:

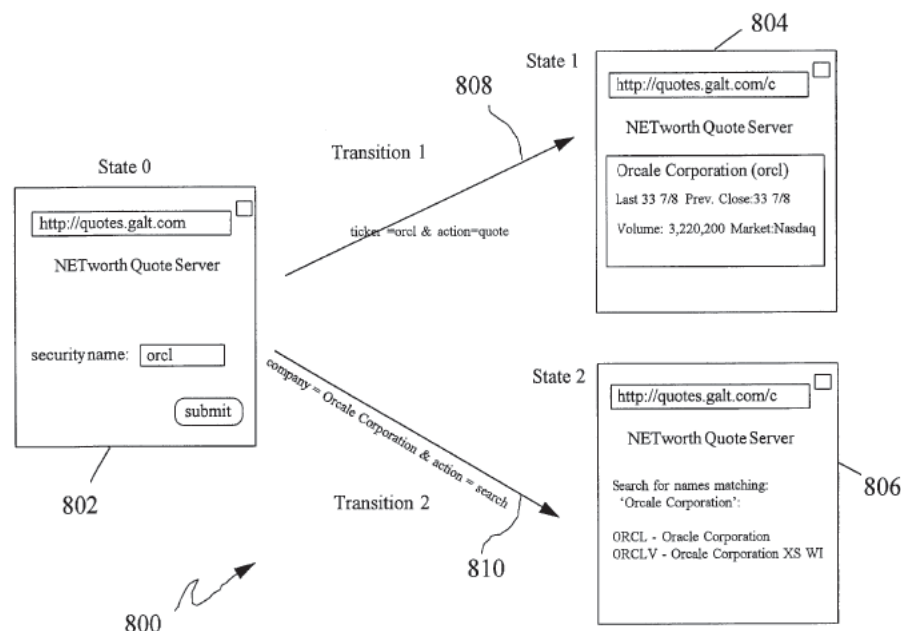


Fig. 8

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Referring to FIG. 8, a state diagram 800 for a site called "networth" might correspond to the specification file shown in FIG. 7 and Table 2. The two transitions out of STATE0 correspond to the two possible ways in which the networth server can be queried. The data receiver 102 can specify a ticker symbol to be used during the search or a company name to be used during the search. If the ticker symbol is used during the search, then TRANSITION1 808 is taken from STATE0 802 to STATE1 804. If the company name is used for the search, then TRANSITION2 810 is taken from STATE0 802 to STATE2 806.</p> <p>For each variable to be retrieved in a given state, the state description contains a pattern to be matched against the document or semi-structured data source 104. For example, TRANSITION1 808 requests a quote from STATE1 804. Referring to Table 2, the specification file indicates that networth.last has a regular expression equal to "Last&lt;/A&gt;\s+(.*?)\s+&lt;A#". This indicates that the Web page corresponding to STATE1 804 should be searched for the word "Last" and the quote for the appropriate ticker symbol will follow that word. Any text searching method known in the art can be used in place of regular expressions.</p> <p>Data retrieval from a semi-structured data source 104 proceeds in the manner described above until the data request is satisfied. For example, a data receiver 102 may request the closing stock price for a list of stocks identified by ticker symbol. The series of steps described above would be executed for each ticker symbol and a table of the stocks by ticker symbol and their closing share price would be generated. This table could be generated by the wrapper generator 614 and then passed to the request translator 300 via the data translator 400 to be joined with data from other sources such as relational data bases, or the table could be generated by the request translator 300 itself.</p> <p>Queries may access multiple data sources 104 in order to generate the answer for a user query. For example, a query may be broken down into multiple sub-queries, some of which access traditional databases, some of which access relational databases distributed over a network, and some of which access semi-structured data sources such as a Web page or a menu-driven database system. These sites are all accessed as described respectively above and the separate results are returned. The results from</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>the semi-structured data sources distributed over the network are returned to the wrapper generator 614. The separate responses may be joined by the wrapper generator 614 or by the request translator 102 to provide the user with a complete response to the query. Alternatively, different responses to the query may be joined in different locations, e.g. in both the wrapper generator 614 and the request translator 300.</p> <p>A Web site may also be registered, that is, an export schema 704 and a specification file 706 may be generated for a collection of Web pages that form a site. Alternatively, an export schema 704 and specification file 706 may be generated for a collection of Web pages that provide useful data but are not arranged into a Web site. For example, a user may have knowledge of various disparate Web pages which contain information the user needs to satisfy queries. The user may create a specification file which registers this collection of pages. By registering the collection of Web pages, the user is able to seamlessly access the semi-structured Web pages which directly satisfy all of part of the requests commonly made by the user, even though the user phrases the request in a structured query language.</p> <p>In some embodiments, the specification file 706 for a Web page is an HTML document having embedded tags that indicate directly to the wrapper generator 614 the states, transitions, and outputs of the data source. For example, a specification file 706 for the network data source may be a HTML document having additional tags embedded therein which provide the wrapper generator 614 with information about the site. Thus, the wrapper generator 614 could determine directly from a HTML link that the link represents a transition to another state and all of the information described above would be conveyed by the additional tags embedded in the HTML link. This mechanism may also be used for data sources which are nearly unstructured. That is, a file containing text that is only delimited, or only tagged, may provide commentary to the wrapper generator 614 which the wrapper generator 614 uses to access the data source properly.</p> |

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <p>Although the above examples have been given an emphasis on World Wide Web pages, the techniques described above may be used for any semi-structured data source, such as a flat file containing data.</p> <p>The data contexts 108-118 of a data source 104 and a data receiver 102, or two data sources 104, may be compared using the present invention. Independent from actual data retrieval, this comparison can be used to provide information on the differences, if any, between two contexts and what translations, if any, are necessary to exchange data between the data contexts. The differences or translations may be provided to a user as a file.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
|                    | <hr/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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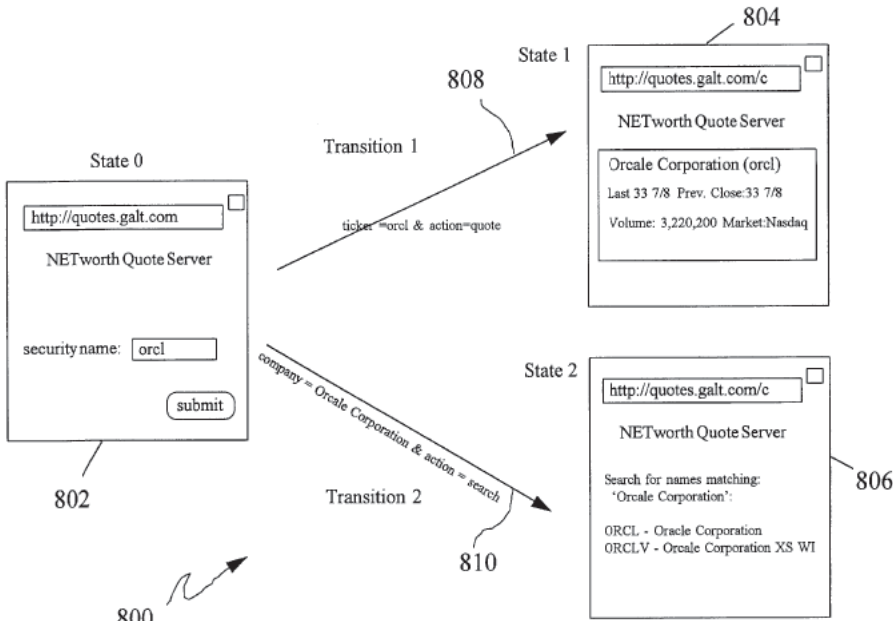
| <b>'796 Patent</b> | <b><u>Madnick</u></b> |
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EXHIBIT A-Madnick 214

| '796 Patent                                                                                                 | <u>Madnick</u>                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                             |                                                                                                                                                                                                                   |
| [7] The method of claim 1, wherein the extracted portion of information is used to take a specified action. | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.</p> <p>FIG. 8, 14:57-15:10:</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|             |  <p style="text-align: center;">Fig. 8</p> <p>In some embodiments, the condition information may be used to determine if a query or sub-query may be issued to a semi-structured data source. For example, referring to Table 2, the network specification file shows that in order to transition to STATE1 from STATE0, "networth.ticker" must be specified by the query. Thus, if a query or sub-query attempts to access the network semi-structured data source for a data value which must be extracted from STATE1, and that query or sub-query does not provide "networth.ticker", the requested data value cannot be extracted from the data source because the transition to STATE1 cannot be made.</p> <p>Referring to FIG. 8, a state diagram 800 for a site called "networth" might correspond to the specification file shown in FIG. 7 and Table 2. The two transitions out of STATE0 correspond to the two possible ways in which the network server can be queried. The data receiver 102 can specify a ticker symbol to be used during the</p> |

## EXHIBIT A-Madnick 214

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                    | <p>search or a company name to be used during the search. If the ticker symbol is used during the search, then TRANSITION1 808 is taken from STATE0 802 to STATE1 804. If the company name is used for the search, then TRANSITION2 810 is taken from STATE0 802 to STATE2 806.</p> <p>For each variable to be retrieved in a given state, the state description contains a pattern to be matched against the document or semi-structured data source 104. For example, TRANSITION1 808 requests a quote from STATE1 804. Referring to Table 2, the specification file indicates that network.last has a regular expression equal to "Last&lt;/A&gt;\s+(.*?)\s+&lt;A#". This indicates that the Web page corresponding to STATE1 804 should be searched for the word "Last" and the quote for the appropriate ticker symbol will follow that word. Any text searching method known in the art can be used in place of regular expressions.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
|                    | <hr/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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| '796 Patent                                                                                                                                                                                                                                                                                         | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <p>[10] The method of claim 1, wherein the input sequence of data symbols is representative of at least one of text data, transcribed spoken data, deoxyribonucleic acid sequence data, ribonucleic acid sequence data, amino-acid sequence data, audio sequence data, and video sequence data.</p> | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.</p> <p>Abstract</p> <p>A system for querying disparate, heterogeneous data sources over a network, where at least some of the data sources are World Wide Web pages or other semi-structured data sources, includes a query converter, a command transmitter, and a data retriever. The query converter produces, from at least a portion of a query, a set of commands which can be used to interact with a semi-structured data source. The query converter may accept a request in the same form as normally used to access a relational data base, therefore increasing the number of data bases available to a user in a transparent manner. The command transmitter issues the produced commands to the semi-structured data source. The data retriever then retrieves the desired data from the data source. In this manner, structured queries may be used to access both traditional, relational data bases as well as non-traditional, semi-structured data bases such as web sites and flat files. The system may also include a request translator and a data translator for providing data context interchange. The request translator translates a request for data having a first data context into a query having a second data context which the query converter described above. The data translator translates data retrieved from the data context of the data source into the data context associated with the request. A related method for querying disparate data sources over a network is also described.</p> <p>2:26-3:26:</p> <p>SUMMARY OF THE INVENTION</p> |

| <b>'796 Patent</b> | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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|                    | <p>The present invention allows semi-structured data sources to be queried using a structured query language. This allows semi-structured data sources, such as World Wide Web pages (HTML documents), flat files containing data (data files containing collections of data that are not arranged as a relational database), or menu-driven database systems (sometimes referred to as "legacy" systems) to augment traditional, structured databases without requiring the requester to learn a new, separate query language. Structured queries directed to semi-structured sources are identified, converted into commands the semi-structured data sources understand, and the commands are issued to the data source. Data is extracted from the semi-structured data source and returned to the requester. Thus, semi-structured data sources can be accessed using a structured query language in a way that is transparent to the requester.</p> <p>A system according to the invention queries both structured and semi-structured data sources. The system includes a request translator, a query converter, a command transmitter, a data retriever, and a data translator. The request translator receives a data request which has an associated data context and translates that data request into a query which has an associated data context which is appropriate for the data source to be queried. The query converter converts at least a portion of the query into a command or series of commands that can be used to interact with a semi-structured data source such as a Web page or a flat file containing data. The command transmitter issues those commands to the semi-structured data sources, and a data retriever extracts data from the data sources. Extracted data is translated by the data translator from the data context of the data source into the data context associated with the initial request.</p> <p>A method according to the invention queries both structured and semi-structured data sources. The method includes translating a data request into a query, converting at least a portion of the query into a stream of commands, issuing the commands to the semi-structured data sources, extracting data from the data sources, and translating the retrieved data. The data request, which has an associated data context, is translated into the query which has a data context that matches the data source to be queried. At least a portion of that query is converted into one or more commands which can be</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|             | <p>used to interact with a semi-structured data source. Those commands are issued and data is extracted from the data source. Extracted data is then translated from the data context associated with the data source into the data context associated with the initial request.</p> <p>In other aspects of the invention, a method and system for querying semi-structured data sources in response to a structured data request comprise the steps of, and means for, converting the data request into one or more commands, issuing the commands to a semi-structured data source, and extracting data from the semi-structured data source. The semi-structured data source can be a World Wide Web page, a flat file containing data, or a menu-driven database system. In some embodiments, the conversion of the data request into one or more commands also includes determining if the requested data is provided by a Web page and then determining, for each requested datum provided by the Web page, one or more commands to issue to the Web page in order to retrieve the data. These determinations are made by accessing a file which is stored in a memory element of a computer and which includes information on the data elements provided by the data source as well as the commands necessary to access the data.</p> <p>4:15-25:</p> <p>The data sources 104 can be structured databases, semi-structured Web pages, or other types of structured or semi-structured sources of data such as files containing delimited data, tagged data or menu-driven database systems. The network 106 to which the nodes 102, 104 are connected may be, for example, a local area network within a building, a wide-area network distributed throughout a geographic region, a corporate Intranet, or the Internet. In general, any protocol may be used by the nodes 102, 104 to communicate over the network 106, such as Ethernet or HTTP (Hypertext Transfer Protocol).</p> <p>9:24-10:5:</p> <p>In some embodiments, one or more of the target data sources 104 is a semi-structured data source, that is, the data source 104 is of a type that cannot or does not respond</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|             | <p>to traditional, structured queries as do relational databases. For example, referring to FIG. 6, the data receiver 102 issues a request that, as described above, is translated by the request translator 300 into three sub-queries 602, 604, and 606. The data receiver 102 may specify the target data sources 104 for the request or the request translator 300 may determine which sources 104 to query as described above. Sub-queries 604 and 606 may be issued directly to relational databases 608 and 610 by the request translator 300 without further processing because they comply with the relational database model and respond to structured queries. Sub-query 602, however, cannot be issued directly to World Wide Web pages 612, 612' and 612" because Web pages do not respond to structured queries. Therefore, some additional processing of the sub-query 602 is necessary before data can be retrieved from the World Wide Web pages 612, 612' and 612".</p> <p>In these cases, additional processing is provided by the wrapper generator 614. In brief overview, the wrapper generator 614 is composed of three sub-units: a query converter 616; a command transmitter 618; and a data retriever 620. These sub-units may be provided as one unitary, special-purpose machine, or they may be separate, special-purpose machines distributed over a network. Alternatively, the wrapper generator 614 may be implemented as one or more programs running on a single general purpose computer. In another alternative, the wrapper generator 614 may be implemented as one or more programs running on multiple, networked machines.</p> <p>The query converter 616 receives the SQL sub-query 602 and translates it into one or more commands which can be used to interact with the data sources 612, 612', and 612". For cases in which the target semi-structured data source is a Web page or Web site, the command transmitter 618 opens a HTTP (Hypertext Transfer Protocol) connection to the Web pages and sends the converted query, i.e. the commands generated by the query converter 616, to the node 104 on which the requested Web pages 612, 612' and 612" reside. The node 104 returns the Web pages 612, 612' and 612" to the wrapper generator 614 in response to the transmitted commands. The data retriever 620 receives the Web pages 612, 612' and 612" and extracts the requested data from those pages, arranges it in a table, and returns the data to the data translator 400 which, in turn, returns the data to the data receiver 102.</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|             | <p>13:8-33:</p> <p>Data requests are processed in a fashion similar to those described above, except that the query or sub-query directed to a semi-structured data source is provided to the wrapper generator 614. If the data source 104 to be queried is a semi-structured data source such as a Web page or a flat file containing data, the wrapper generator 614 generates the commands necessary to interact with the data source. If a relational database is accessed over the Web, the wrapper generator 614 passes the request unaltered to a WWW-database gateway. Data requests that either specify multiple data sources 104, or that are directed to multiple data sources 104 by the request translator based on the data requested, may be broken up into sub-queries and optimized in any manner described above.</p> <p>The wrapper generator 614 uses the specification file declared by each the semi-structured data source 104 in order to access it. The data retriever 620 then extracts the data requested by the data receiver 102 from the semi-structured data source 104 using the specification file. For example, the wrapper generator 614 may issue HTTP commands directly to Web pages, thus mimicking the interaction that would normally take place between a human user and a World Wide Web page. The series of steps required to translate the SQL query of a data receiver 102 into queries to which the data source 104 can respond is declared by each source in its specification file 706.</p> <p>14:1-45:</p> <p>Referring again to Table 2, the specification file for a Web page or any other semi-structured data source can be divided into three main sections: general information, a list of transitions, and a list of outputs.</p> <p>General information is any information related to the data source that does not correspond to states or transitions. For example, the specification file 706 depicted in FIG. 7 and Table 2 includes the name of the site, its Uniform Resource Locator Address, and the capabilities possessed by the site. A specification file 706 may indicate that a particular data source is a database having all of the capabilities a user would expect a relational database to have, i.e. Max, Min, etc. The specification file</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|             | <p>706 may indicate that a data source, for example a Web page has more, or very few, of the expected capabilities. In these embodiments the capability information can be used by either the request translator 300 or the wrapper generator 614 to optimize the query. For example, the wrapper generator 614 may break traditional SQL queries down into more basic commands for sites that are "web"-type sites instead of passing the SQL query directly to the site, as it may do for a "database"-type site. Other general information may be included, for example, mean response time, availability, or cost to access the site may be included.</p> <p>Transition definitions represent changes from one data source state to another. For example, following a link from one Web page to another is a transition. Each transition definition contains the name of the HTTP server that publishes the document for the upcoming state, a retrieval method, a path to the actual document on that server (including CGI query variables) and any conditions that must be specified. For example, referring to Table 2, TRANSITION1 in the network specification file shows that the server that publishes the document for the upcoming state is "quotes.galt.com", the retrieval method is by issuing a HTTP Post command, the path to the actual document on that server is "//cgi-bin/stockInt?stock=##network.Company## &amp;action=0 &amp;period=15&amp;periodunit=0 &amp;sectype=0 &amp;submit=submit", and that "network.ticker" is a variable that must be specified before the transition to STATE1 from STATE0 can be made. Each state enumerates all outgoing transitions, for example, STATE0 shows that TRANSITION1 or TRANSITION2 may be used to leave it. The transition actually taken when leaving STATE0 is determined by the input query in a deterministic way.</p> <p>15:24-16:7:</p> <p>Queries may access multiple data sources 104 in order to generate the answer for a user query. For example, a query may be broken down into multiple sub-queries, some of which access traditional databases, some of which access relational databases distributed over a network, and some of which access semi-structured data sources such as a Web page or a menu-driven database system. These sites are all accessed as described respectively above and the separate results are returned. The results from</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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|             | <p>the semi-structured data sources distributed over the network are returned to the wrapper generator 614. The separate responses may be joined by the wrapper generator 614 or by the request translator 102 to provide the user with a complete response to the query. Alternatively, different responses to the query may be joined in different locations, e.g. in both the wrapper generator 614 and the request translator 300.</p> <p>A Web site may also be registered, that is, an export schema 704 and a specification file 706 may be generated for a collection of Web pages that form a site. Alternatively, an export schema 704 and specification file 706 may be generated for a collection of Web pages that provide useful data but are not arranged into a Web site. For example, a user may have knowledge of various disparate Web pages which contain information the user needs to satisfy queries. The user may create a specification file which registers this collection of pages. By registering the collection of Web pages, the user is able to seamlessly access the semi-structured Web pages which directly satisfy all of part of the requests commonly made by the user, even though the user phrases the request in a structured query language.</p> <p>In some embodiments, the specification file 706 for a Web page is an HTML document having embedded tags that indicate directly to the wrapper generator 614 the states, transitions, and outputs of the data source. For example, a specification file 706 for the network data source may be a HTML document having additional tags embedded therein which provide the wrapper generator 614 with information about the site. Thus, the wrapper generator 614 could determine directly from a HTML link that the link represents a transition to another state and all of the information described above would be conveyed by the additional tags embedded in the HTML link. This mechanism may also be used for data sources which are nearly unstructured. That is, a file containing text that is only delimited, or only tagged, may provide commentary to the wrapper generator 614 which the wrapper generator 614 uses to access the data source properly.</p> |

EXHIBIT A-Madnick 214

| '796 Patent                                                                                                                                           | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                       | <p>Although the above examples have been given an emphasis on World Wide Web pages, the techniques described above may be used for any semi-structured data source, such as a flat file containing data.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| '796 Patent                                                                                                                                           | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p>[12P] Apparatus for automatically processing an input sequence of data symbols, the apparatus comprising: at least one processor operative to:</p> | <p>To the extent the preamble of claim 12 is found to be limiting, <u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. <i>See Claim Element [1P]</i>, above; in particular, <i>see, e.g.</i>,</p> <p>FIGS. 1A-1B, 3:60-4:14:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

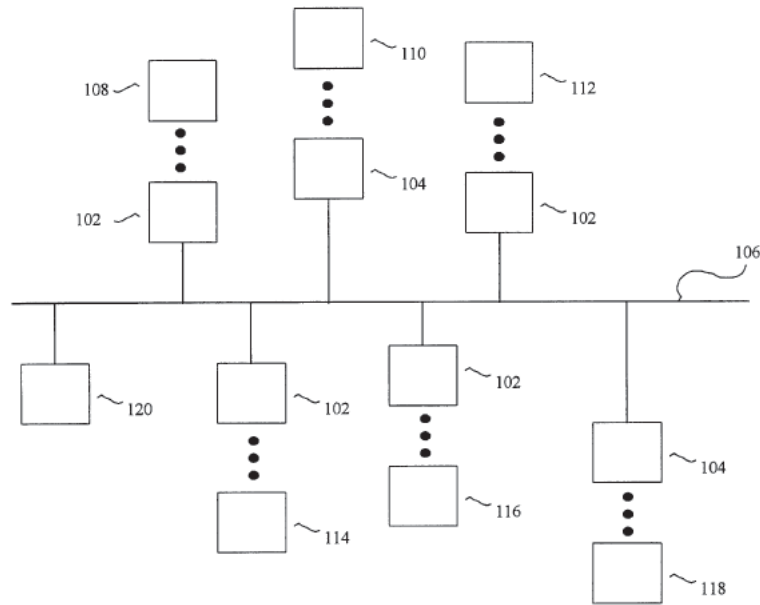


FIG. 1A

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|             | <div> <pre> graph TD     CPU[220] --- Bus     MEM[222] --- Bus     OUT[224] --- Bus     Bus --- IN[230]     Bus --- FDD[228]     Bus --- HD[226]     </pre> </div> <p><b>FIG. 1B</b></p> <p>102, 104</p> <p>Referring to FIGS. 1A and 1B, data receivers 102 and data sources 104 are interconnected via a network 106. Although data receivers 102 are shown separate from data sources 104, any node connected to the network 106 may include the functionality of both a data receiver 102 and a data source 104.</p> <p>Each of the nodes 102, 104 may be, for example, a personal computer, a workstation, a minicomputer, a mainframe, a supercomputer, or a Web Server. Each of the nodes 102, 104 typically has at least a central processing unit 220, a main memory unit 222 for storing programs or data, and a fixed or hard disk drive unit 226 which are all coupled by a data bus 232. In some embodiments, nodes 102, 104 include one or more output devices 224, such as a display or a printer, one or more input devices 230, such as a keyboard, mouse or trackball, and a floppy disk drive 228. In a preferred embodiment, software programs running on one or more of the system nodes define the functionality of the system according to the invention and enable the</p> |

EXHIBIT A-Madnick 214

| '796 Patent                                                                                                                                                                                                                                                                                                         | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                                                                                                                                                                                                                                                                                                     | <p>system to perform as described. The software can reside on or in a hard disk 226 or the memory 222 of one or more of the system nodes.</p> <p>The data sources 104 can be structured databases, semi-structured Web pages, or other types of structured or semi-structured sources of data such as files containing delimited data, tagged data or menu-driven database systems. The network 106 to which the nodes 102, 104 are connected may be, for example, a local area network within a building, a wide-area network distributed throughout a geographic region, a corporate Intranet, or the Internet. In general, any protocol may be used by the nodes 102, 104 to communicate over the network 106, such as Ethernet or HTTP (Hypertext Transfer Protocol).</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| <p>[12A] (i) identify at least one regularly identifiable expression in the input sequence of data symbols, wherein the at least one regularly identifiable expression represents a pattern that is matchable in accordance with a programming language that supports such a regularly identifiable expression;</p> | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [1A]. <b>See Claim Element [1A]</b>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| '796 Patent                                                                                                                   | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                                                                                               | sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| [12B] (ii) identify at least a portion of information associated with the at least one regularly identifiable expression; and | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [1B]. <i>See Claim Element [1B]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| [12C] (iii) extract the portion of information; and                                                                           | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [1C]. <i>See Claim Element [1C]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other</p>                                                                                                                                                                                      |

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| <b>'796 Patent</b>                                                                                                                                                    | <b><u>Madnick</u></b>                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                       | prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.                      |
| [12D] memory, operatively coupled to the at least one processor, for storing at least a portion of results associated with the identifying and extracting operations. | <u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.<br>FIGS. 1A-1B, 3:60-4:14: |

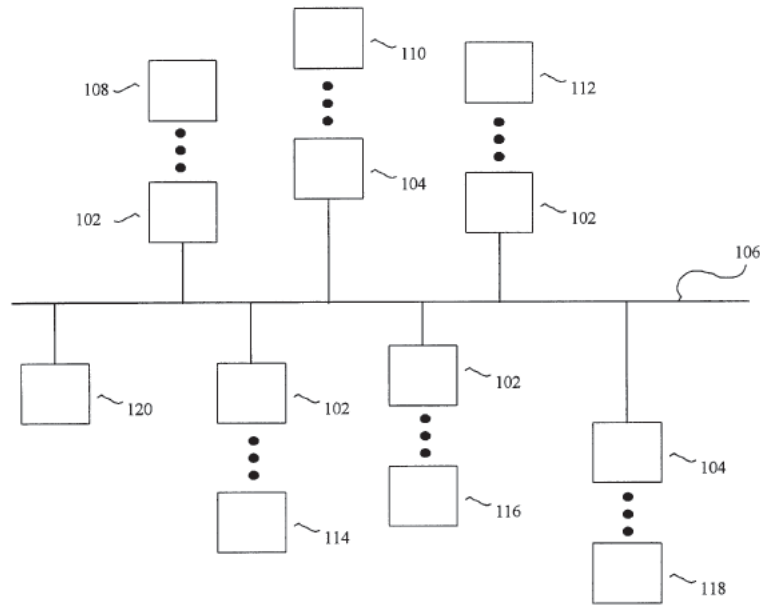
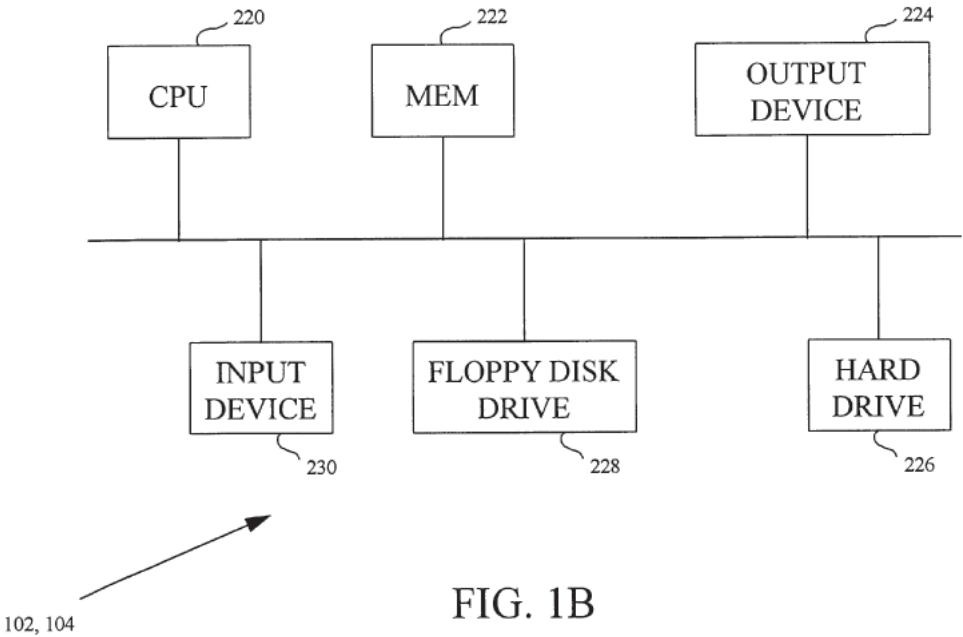


FIG. 1A

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |  <p style="text-align: center;"><b>FIG. 1B</b></p> <p>Referring to FIGS. 1A and 1B, data receivers 102 and data sources 104 are interconnected via a network 106. Although data receivers 102 are shown separate from data sources 104, any node connected to the network 106 may include the functionality of both a data receiver 102 and a data source 104.</p> <p>Each of the nodes 102, 104 may be, for example, a personal computer, a workstation, a minicomputer, a mainframe, a supercomputer, or a Web Server. Each of the nodes 102, 104 typically has at least a central processing unit 220, a main memory unit 222 for storing programs or data, and a fixed or hard disk drive unit 226 which are all coupled by a data bus 232. In some embodiments, nodes 102, 104 include one or more output devices 224, such as a display or a printer, one or more input devices 230, such as a keyboard, mouse or trackball, and a floppy disk drive 228. In a preferred embodiment, software programs running on one or more of the system nodes define the functionality of the system according to the invention and enable the</p> |

| '796 Patent                                                                                                                                                                                                                                                                                                                                                                                                 | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                             | <p>system to perform as described. The software can reside on or in a hard disk 226 or the memory 222 of one or more of the system nodes.</p> <p>The data sources 104 can be structured databases, semi-structured Web pages, or other types of structured or semi-structured sources of data such as files containing delimited data, tagged data or menu-driven database systems. The network 106 to which the nodes 102, 104 are connected may be, for example, a local area network within a building, a wide-area network distributed throughout a geographic region, a corporate Intranet, or the Internet. In general, any protocol may be used by the nodes 102, 104 to communicate over the network 106, such as Ethernet or HTTP (Hypertext Transfer Protocol).</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| <p>13. The apparatus of claim 12, wherein the regularly identifiable expression identifying operation comprises comparing the input sequence of data symbols to one or more regularly identifiable expressions, previously stored in the memory, to determine if there is a match between a portion of the input sequence and at least one of the previously-stored regularly identifiable expressions.</p> | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [2]. <i>See Claim Element [2]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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| '796 Patent                                                                                                     | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|                                                                                                                 | Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                 | <hr/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 18. The apparatus of claim 12, wherein the extracted portion of information is used to take a specified action. | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [7]. <i>See Claim Element [7]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |

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| '796 Patent                                                                                                                                                                                                                                                                                            | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                                                                                                                                                                                                                                                                        | <hr/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p>21. The apparatus of claim 12, wherein the input sequence of data symbols is representative of at least one of text data, transcribed spoken data, deoxyribonucleic acid sequence data, ribonucleic acid sequence data, amino-acid sequence data, audio sequence data, and video sequence data.</p> | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [10]. <i>See Claim Element [10]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| '796 Patent                                                                                                                                                                                                                                                                                            | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>[23P] An article of manufacture for use in automatically processing an input sequence</p>                                                                                                                                                                                                           | <p>To the extent the preamble of claim 23 is found to be limiting, <u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| <b>'796 Patent</b>                                                                                                                                                                                                                                                                                                 | <b><u>Madnick</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>of data symbols, comprising a machine readable medium containing one or more programs which when executed implement the steps of:</p>                                                                                                                                                                           | <p>obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [10]. <i>See Claim Element [12P]</i>, above. In particular, <i>see, e.g.</i>, 16:16-26:</p> <p style="padding-left: 40px;">The present invention may be provided as one or more computer-readable programs embodied on or in one or more articles of manufacture. The article of manufacture may be a floppy disk, a hard disk, a CD ROM a flash memory card, a PROM, a RAM, a ROM, or a magnetic tape. In general, the computer-readable programs may be implemented in any programming language. It is preferred that the language used have good text-handling capabilities such as, for example, LISP, PERL, C++, or PROLOG. The software programs may be stored on or in one or more articles of manufacture as object code.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| <p>[23A] identifying at least one regularly identifiable expression in the input sequence of data symbols, wherein the at least one regularly identifiable expression represents a pattern that is matchable in accordance with a programming language that supports such a regularly identifiable expression;</p> | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [1A]. <i>See Claim Element [1A]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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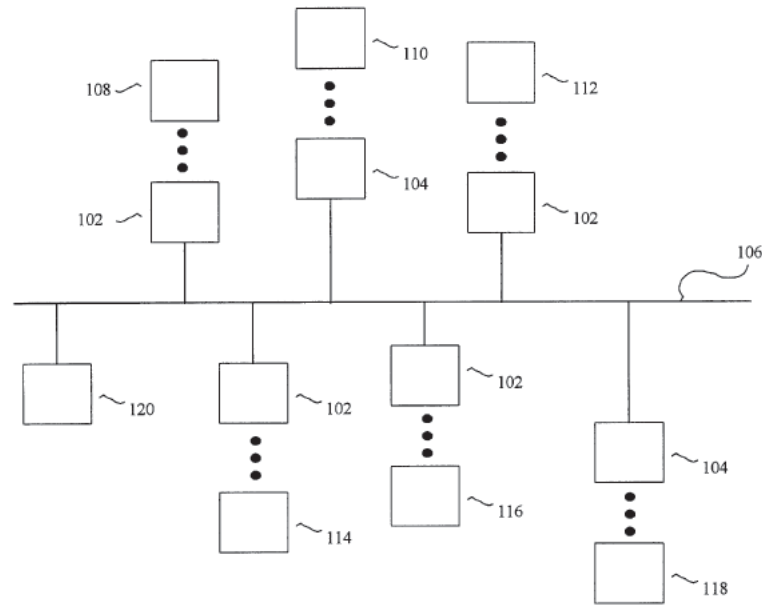
| '796 Patent                                                                                                                 | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                             | reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| [23B] identifying at least a portion of information associated with the at least one regularly identifiable expression; and | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [1B]. <i>See Claim Element [1B]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| [23C] extracting the portion of information.                                                                                | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [1C]. <i>See Claim Element [1C]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art.</p>                                                                                                                                                                                                                                                                                |

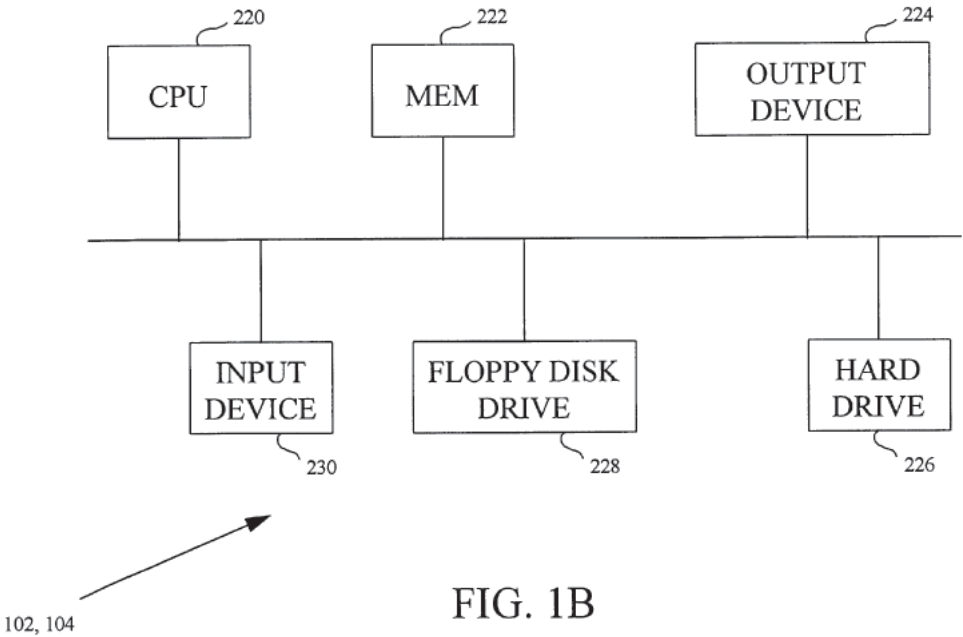
EXHIBIT A-Madnick 214

| '796 Patent                                                                                               | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                           | Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| [24P] Apparatus for automatically processing an input sequence of data symbols, the apparatus comprising: | <p>To the extent the preamble of claim 24 is found to be limiting, <u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [12P]. <i>See Claim Element [12P]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| [24A] a data capture device for obtaining the input sequence of data symbols;                             | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [12A]. <i>See Claim Element [12A]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p>                                                                 |

| '796 Patent                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [24B] at least one processor, operatively coupled to the data capture device, operative to: (i) identify at least one regularly identifiable expression in the input sequence of data symbols. wherein the at least one regularly identifiable expression represents a pattern that is matchable in accordance with a programming language that supports such a regularly identifiable expression; (ii) identify at least a portion of information associated with the at least one regular expression; and (iii) extract the portion of information; | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [12A]. <i>See Claim Element [12A]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| [24C] memory, operatively coupled to the at least one processor, for storing at least a portion of results associated with the identifying and extracting operations; and                                                                                                                                                                                                                                                                                                                                                                             | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [12B]. <i>See Claim Element [12B]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| [24D] a data output device, operatively coupled to the at least one processor, for                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.</p> <p>FIGS. 1A-1B, 3:60-4:14:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

presenting the extracted portion of information to a user.



| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |  <p style="text-align: center;"><b>FIG. 1B</b></p> <p>Referring to FIGS. 1A and 1B, data receivers 102 and data sources 104 are interconnected via a network 106. Although data receivers 102 are shown separate from data sources 104, any node connected to the network 106 may include the functionality of both a data receiver 102 and a data source 104.</p> <p>Each of the nodes 102, 104 may be, for example, a personal computer, a workstation, a minicomputer, a mainframe, a supercomputer, or a Web Server. Each of the nodes 102, 104 typically has at least a central processing unit 220, a main memory unit 222 for storing programs or data, and a fixed or hard disk drive unit 226 which are all coupled by a data bus 232. In some embodiments, nodes 102, 104 include one or more output devices 224, such as a display or a printer, one or more input devices 230, such as a keyboard, mouse or trackball, and a floppy disk drive 228. In a preferred embodiment, software programs running on one or more of the system nodes define the functionality of the system according to the invention and enable the</p> |

| '796 Patent | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>system to perform as described. The software can reside on or in a hard disk 226 or the memory 222 of one or more of the system nodes.</p> <p>The data sources 104 can be structured databases, semi-structured Web pages, or other types of structured or semi-structured sources of data such as files containing delimited data, tagged data or menu-driven database systems. The network 106 to which the nodes 102, 104 are connected may be, for example, a local area network within a building, a wide-area network distributed throughout a geographic region, a corporate Intranet, or the Internet. In general, any protocol may be used by the nodes 102, 104 to communicate over the network 106, such as Ethernet or HTTP (Hypertext Transfer Protocol).</p> <p>16:8-27:</p> <p>The data contexts 108-118 of a data source 104 and a data receiver 102, or two data sources 104, may be compared using the present invention. Independent from actual data retrieval, this comparison can be used to provide information on the differences, if any, between two contexts and what translations, if any, are necessary to exchange data between the data contexts. The differences or translations may be provided to a user as a file.</p> <p>The present invention may be provided as one or more computer-readable programs embodied on or in one or more articles of manufacture. The article of manufacture may be a floppy disk, a hard disk, a CD ROM a flash memory card, a PROM, a RAM, a ROM, or a magnetic tape. In general, the computer-readable programs may be implemented in any programming language. It is preferred that the language used have good text-handling capabilities such as, for example, LISP, PERL, C++, or PROLOG. The software programs may be stored on or in one or more articles of manufacture as object code.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this</p> |

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| '796 Patent                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| [25P] A method of automatically processing an input document, the method comprising the steps of:                                                                                                                                                                                                                                                                                                                                                               | <p>To the extent the preamble of claim 25 is found to be limiting, Madnick discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [1P]. <i>See Claim Element [1P]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |
| [25A] identifying one or more regular expressions in the input document by comparing the input document to one or more previously-stored regular expressions to determine if there is a match between a portion of the input document and at least one of the previously-stored regular expressions, wherein a regular expression represents a pattern that is matchable in accordance with a programming language that supports such a regular expression; and | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim element [1A] and [2]. <i>See Claim Elements [1A] and [2]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art.</p>                                                                                                                                                                                                                                                                                                                        |

## EXHIBIT A-Madnick 214

| '796 Patent                                                                                                             | <u>Madnick</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                         | Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| [25B] identifying at least a portion of information associated with the at least one regular expression for extraction. | <p><u>Madnick</u> discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation for the same reasons as provided above with respect to claim elements [1B] and [1C]. <i>See Claim Elements [1B]-[1C]</i>, above.</p> <p>One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of this reference and its incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention. To the extent this reference is not found to teach this element explicitly, implicitly, or inherently, the element would have been obvious to one of ordinary skill in the art based on this reference, common sense, ordinary creativity of one of ordinary skill in the art, and the state of the art. Additionally, it would have been obvious to combine this reference with one or more other prior art references identified in Defendant's Invalidity Contentions Cover Pleading. Rather than repeat those disclosures here, they are incorporated by reference into this chart.</p> |