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(71) Applicant: JARG CORPORATION [US/US]; 332 Second Avenue, Waltham, MA 02451 (US).

(72) Inventor: BACLAWSKI, Kenneth, P.; 35 Fairmont Avenue, Waltham, MA 02453 (US).

(74) Agent: KUDIRKA, Paul, E.; Kudirka & Jobse, LLP, One State Street, Suite 1510, Boston, MA 02109 (US).

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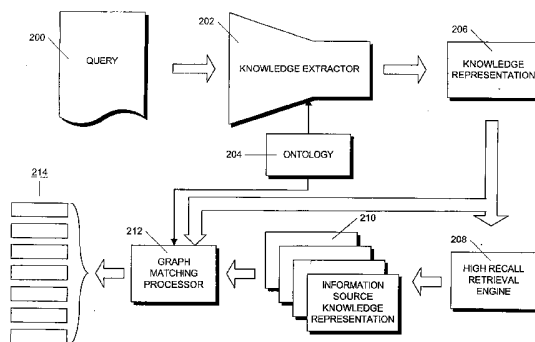
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28 August 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CLASSIFICATION OF INFORMATION SOURCES USING GRAPH STRUCTURES



(57) Abstract: In a knowledge classification system, both the information sources and queries are processed to generate knowledge representation graph structures. The graph structures for both the query and the information sources are then converted to views and displayed to a searcher. By manipulating the graph structure views for each information source, the searcher can examine the source for relevance. A search can be performed by comparing the graph structure of the query to the graph structure of each information source by a graph matching computer algorithm. Information sources are classified by constructing hierarchies of knowledge representations. The simplest construction is obtained by using the knowledge representation of a query as the top of the hierarchy. The structures in the hierarchy are substructures of the query. The hierarchy of structures may also be constructed by using the knowledge representation of the query as the bottom of the hierarchy. Structures in the hierarchy, in this case, are structures that contain the query. The vertices of a graph structure view can be displayed on a computer screen next to the corresponding items, such as words, phrases and visual features, of an information source view. Selecting a vertex in the graph structure causes the selected vertex and vertices adjacent to the selected vertex to be "highlighted." By selecting a succession of vertices in the graph structure, a searcher can perform knowledge navigation of the information source. By successively selecting items of the information source, a searcher can perform knowledge exploration of the information source.

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INTERNATIONAL SEARCH REPORT

International Application No
 PCI/US 01/42479

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06F17/30</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>											
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC 7 G06F</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, INSPEC, WPI Data</p>											
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category^o</th> <th>Citation of document, with indication, where appropriate, of the relevant passages^s</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td> <p>OUNIS' I ET AL: "A promising retrieval algorithm for systems based on the conceptual graphs formalism" DATABASE ENGINEERING AND APPLICATIONS SYMPOSIUM, 1998. PROCEEDINGS: IDEAS'98. INTERNATIONAL CARDIFF, UK 8-10 JULY 1998, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US, 8 July 1998 (1998-07-08), pages 121-130, XP010294628 ISBN: 0-8186-8307-4</p> </td> <td> <p>1-4, 8-11, 17-20, 24-27, 33, 35</p> </td> </tr> <tr> <td>A</td> <td> <p>page 122, left-hand column, paragraph 2 -page 123, right-hand column, paragraph 2; figure 1</p> <p>page 128, left-hand column, paragraph 2 -page 129, right-hand column, paragraph 2</p> <p style="text-align: center;">-/--</p> </td> <td> <p>5-7, 12-16, 21-23, 28-32, 34</p> </td> </tr> </tbody> </table>			Category ^o	Citation of document, with indication, where appropriate, of the relevant passages ^s	Relevant to claim No.	X	<p>OUNIS' I ET AL: "A promising retrieval algorithm for systems based on the conceptual graphs formalism" DATABASE ENGINEERING AND APPLICATIONS SYMPOSIUM, 1998. PROCEEDINGS: IDEAS'98. INTERNATIONAL CARDIFF, UK 8-10 JULY 1998, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US, 8 July 1998 (1998-07-08), pages 121-130, XP010294628 ISBN: 0-8186-8307-4</p>	<p>1-4, 8-11, 17-20, 24-27, 33, 35</p>	A	<p>page 122, left-hand column, paragraph 2 -page 123, right-hand column, paragraph 2; figure 1</p> <p>page 128, left-hand column, paragraph 2 -page 129, right-hand column, paragraph 2</p> <p style="text-align: center;">-/--</p>	<p>5-7, 12-16, 21-23, 28-32, 34</p>
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<p><input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.</p>											
<p>^o Special categories of cited documents :</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"C" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="vertical-align: top;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </td> </tr> </table>			<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"C" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>							
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<p>Date of the actual completion of the international search</p> <p style="text-align: center;">28 January 2003</p>		<p>Date of mailing of the international search report</p> <p style="text-align: center;">05. 07. 2003</p>									
<p>Name and mailing address of the ISA</p> <p>European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tlx. 31 651 epo nl. Fax: (+31-70) 340-3016</p>		<p>Authorized officer</p> <p style="text-align: center;">Correia Martins, F</p>									

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 076 088 A (LIDDY ELIZABETH D ET AL) 13 June 2000 (2000-06-13)	1-4, 8-11, 17-20, 24-27, 33,35
A	column 3, line 49 -column 4, line 19 column 5, line 14-43 column 9, line 16-28 column 21, line 41 -column 24, line 18	5-7, 12-16, 21-23, 28-32,34
X	MECHKOUR M ET AL: "PRIME-GC. A medical information retrieval prototype on the Web" PROCEEDINGS. SEVENTH INTERNATIONAL WORKSHOP ON RESEARCH ISSUES IN DATA, ENGINEERING. HIGH PERFORMANCE DATABASE MANAGEMENT FOR LARGE-SCALE APPLICATIONS (CAT. NO.97TB100122), PROCEEDINGS SEVENTH INTERNATIONAL WORKSHOP ON RESEARCH ISSUES IN DATA ENGINEER, pages 2-9, XP002212272, 1997, Los Alamitos, CA, USA, IEEE Comput. Soc. Press, USA ISBN: 0-8186-7849-6	1-4, 8-11, 17-20, 24-27, 33,35
A	page 6, left-hand column, paragraph 1 -right-hand column, paragraph 6; figure 6 page 8, left-hand column, paragraph 10 -right-hand column, paragraph 2	5-7, 12-16, 21-23, 28-32,34
A	WO 01 29709 A (HUSSAM ALI) 26 April 2001 (2001-04-26) page 35, line 10 -page 36, line 3 page 41, line 15 -page 43, line 25	12-16, 28-32,34
A	US 6 006 217 A (LUMSDEN MARK W) 21 December 1999 (1999-12-21) column 2, line 34 -column 3, line 13 column 6, line 29 -column 7, line 8	12-16, 28-32,34

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 01/42479

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-11,17-27,33,35

Method and Systems for locating and classifying information sources

2. Claims: 12-16, 28-32, 34, 36

Method and Systems for navigating and exploring an information source

INTERNATIONAL SEARCH REPORT

Information on patent family members

In ternational Application No

PCT/US 01/42479

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6076088	A	13-06-2000	US 6263335 B1	17-07-2001
WO 0129709	A	26-04-2001	AU 1338201 A WO 0129709 A1	30-04-2001 26-04-2001
US 6006217	A	21-12-1999	NONE	