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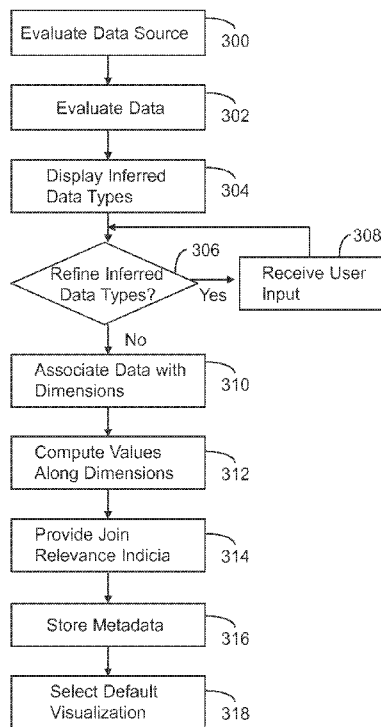
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[Continued on next page]

(54) **Title:** COLLABORATIVELY ANALYZING DATA FROM DISPARATE DATA SOURCES

FIG. 3



(57) **Abstract:** Collaborative analysis of data from disparate data sources includes data ingestion, data harmonization, data join relevance, in-memory iterative analytic data processing, multiuser data aware collaboration, visual transition and state management across visual transitions and/or web client and collaborative data-aware stores. Data is augmented with inferred data types and harmonized hierarchically. Queries are returned to the user with inferred data types and a calculated relevance and confidence indicia of the inferred data type.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/40334

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

Group I: Claims 1-10; Group II: Claims 11-15; Group III: Claims 16-20

-Please see Supplemental Page-

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 additional fees, this Authority did not invite payment of additional fees.
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.:
1-10

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/40334

| A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G06F 17/30 (2014.01) CPC - G06F 17/30643 According to International Patent Classification (IPC) or to both national classification and IPC | | |
|--|--|--|
| B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC(8) Classification(s): G06F 17/00, 17/30, 19/00 (2014.01) CPC Classification(s): G06F 17/00, 17/30, 17/30412, 17/30643 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); ProQuest; IEEE/IEEExplore; Google/Google Scholar, Espacenet; Keywords: data, disparate, augment harmonize, atomize, aggregate, normalize, mining, extract, category, classification, ontology, analyze | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | |
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X ----- Y | US 2012/0284259 A1, (JEHUDA, J.), 08 November 2012; figure 8; paragraphs [0068], [0118], [0124]. | 1-2, 6-7, 9-10 ----- 3-5, 8 |
| Y | US 2003/0023593 A1, (SCHMIDT, R.), 30 January 2003; paragraphs [0052], [0099]. | 3-5 |
| Y | US 2007/0226039 A1, (CHU, C. et al.), 27 September 2007; paragraphs [0030], [0032], [0035]. | 4-5 |
| Y | US 2007/0011183 A1, (LANGSETH, J. et al.), 11 January 2007; paragraphs [0154], [0169]. | 8 |
| <input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> | | |
| * Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "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 "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 "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 "&" document member of the same patent family | | |
| Date of the actual completion of the international search 10 November 2014 (10.11.2014) | | Date of mailing of the international search report 24 NOV 2014 |
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/40334

-Continued from Box No. III - Observations where unity of invention is lacking-

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fee must be paid.

Group I: Claims 1-10 are directed toward servers for harmonizing first and second hierarchical dimensions to a lowest common unit value.

Group II: Claims 11-15 are directed toward a server for maintaining a collection of discussion threads.

Group III: Claims 16-20 are directed toward a server for maintaining and linking annotations.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I include producing a first inferred data type from received data and a second inferred data type; utilizing the first inferred data type to augment first received data with computed values that aggregate the first received data along a first hierarchical dimension; utilizing the second inferred data type to augment the second received data with computed values that aggregate the second received data along a second hierarchical dimension; and harmonizing the first hierarchical dimension and the second hierarchical dimension to a lowest common unit value, which are not present in Groups II-III.

The special technical features of Group II include maintaining a collection of discussion threads, wherein each discussion thread is associated with a data unit and each discussion uniquely identifies different users and comments made by the different users, which are not present in Groups I and III.

The special technical features of Group III include maintaining an annotation of a first visualization of data, wherein the first visualization of data has visualization configuration parameters; and linking the annotation to a second visualization of the data that utilizes the visualization configuration parameters, which are not present in Groups I-II.

The common technical feature shared by Groups I-III is a server, comprising: a data processing module with executable instructions executed by a processor to: provide a first visualization; and provide a second visualization. However, this common feature is previously disclosed by US 2005/0075966 A1 (DUKA). Duka discloses a server (server 4; Figure 1), comprising: a data processing module with executable instructions executed by a processor to: provide a first visualization (first graphical element (visualization); Abstract); and provide a second visualization (second graphical element (visualization); Abstract).

Since the common technical features are previously disclosed by the Duka reference, these common features are not special and so Groups I-III lack unity.