

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
9 September 2011 (09.09.2011)

(10) International Publication Number  
**WO 2011/109251 A3**

(51) International Patent Classification:  
**G06F 17/30** (2006.01)

(21) International Application Number:  
PCT/US2011/026358

(22) International Filing Date:  
25 February 2011 (25.02.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
12/715,174 1 March 2010 (01.03.2010) US

(71) Applicant (for all designated States except US): **MICROSOFT CORPORATION** [US/US]; One Microsoft Way, Redmond, Washington 98052-6399 (US).

(72) Inventors: **UDUPA, Uppinakuduru Raghavendra**; c/o Microsoft Corporation, LCA - International Patents, One Microsoft Way, Redmond, Washington 98052-6399 (US). **KUMAR, Shaishav**; c/o Microsoft Corporation, LCA - International Patents, One Microsoft Way, Redmond, Washington 98052-6399 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

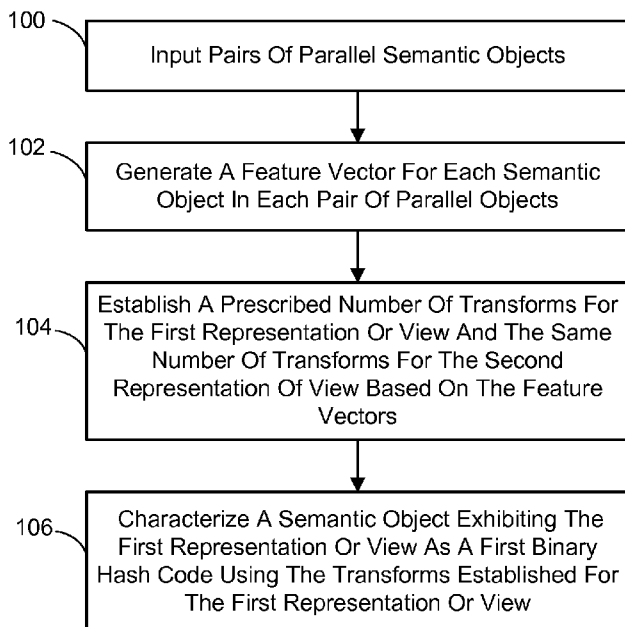
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: SEMANTIC OBJECT CHARACTERIZATION AND SEARCH



**FIG. 1**

(57) Abstract: Semantic object characterization and its use in indexing and searching a database directory is presented. In general, a first binary hash code is generated to represent a first representation or view of a semantic object which when compared to a characterized version of a second representation or view of the same semantic object in the form of a second binary hash code, the first and second binary hash codes exhibit a degree of similarity indicative of the objects being the same object. In one implementation the semantic objects correspond to peoples' names and the first and second representations or views correspond to two different languages. Thus, a user can search a database of information in one language with a search query in another language.

WO 2011/109251 A3

**Published:**

**(88) Date of publication of the international search report:**  
29 December 2011

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

**A. CLASSIFICATION OF SUBJECT MATTER****G06F 17/30(2006.01)i**

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)

G06F 17/30; G06F 7/10; G06F 17/20; G06F 17/28

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; Keywords: "semantic, ontology, search, query, hash, mapping, 언어, 검색, 서치"

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009-0193003 A1 (HEYMANS MAUREEN et al.) 30 July 2009 See the abstract, paragraphs 19, 26-33 and figures 1A-10.	1-15
A	US 2009-0222437 A1 (NIU CHENG et al.) 03 September 2009 See the abstract, paragraphs 57-62, figures 3 and 4.	1-15
A	KR 10-2010-0003178 A (HAANSOFT, INC.) 07 January 2010 See the abstract, paragraphs 88-157.	1-15
A	KR 10-2009-0024460 A (LG ELECTRONICS INC.) 09 March 2009 See the abstract, paragraphs 8-48.	1-15

 Further documents are listed in the continuation of Box C. See patent family annex.

\* 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 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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

21 OCTOBER 2011 (21.10.2011)

Date of mailing of the international search report

**21 OCTOBER 2011 (21.10.2011)**

Name and mailing address of the ISA/KR

Korean Intellectual Property Office  
Government Complex-Daejeon, 189 Cheongsa-ro,  
Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Soak, Sang Moon

Telephone No. 82-42-481-8470



**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/026358**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009-0193003 A1	30.07.2009	CN 101868797 A EP 2201484 A1 EP 2201484 A4 US 2009-0083243 A1 WO 2009-039524 A1	20.10.2010 30.06.2010 22.09.2010 26.03.2009 26.03.2009
US 2009-0222437 A1	03.09.2009	US 7917488 B2	29.03.2011
KR 10-2010-0003178 A	07.01.2010	None	
KR 10-2009-0024460 A	09.03.2009	None	