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CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,  
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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,  
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TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
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Declarations under Rule 4.17:

[Continued on next page]

(54) Title: IDENTIFYING OBJECT USING GENERATIVE MODEL

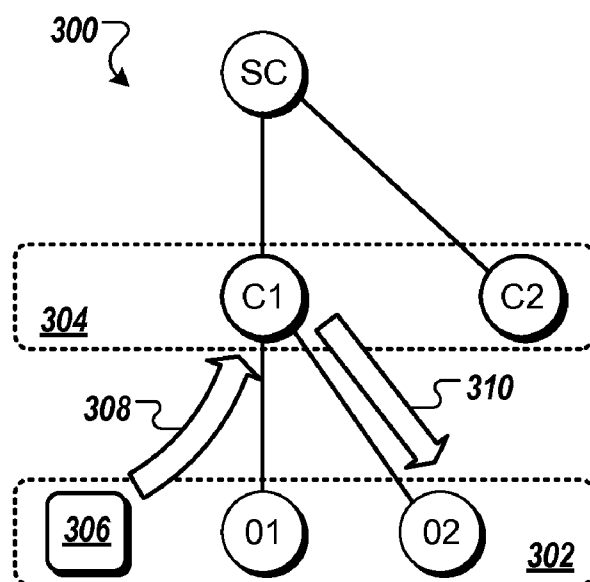


FIG. 3

(57) Abstract: Among other disclosed subject matter, a computer-implemented method includes identifying a first object that belongs to a first domain. The method includes identifying, using the first object, at least a first cluster node in a generative model that includes a plurality of first cluster nodes having weighted relationships to respective ones of a plurality of second objects. The method includes identifying, in response to identifying the first object, at least one of the second objects, the second object belonging to the first domain and being identified using the first cluster node and its respective weighted relationship.



- *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))*

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**A. CLASSIFICATION OF SUBJECT MATTER****G06F 17/00(2006.01)i, 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 17/00; G06F 17/10; G06F 17/30; G06F 9/45

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: , ,

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2008-0147654 A1 (CAO YUNBO et al.) 19 June 2008 See paragraph 19 - paragraph 53; claims 1-8 and figures 2,4-6.	1-17
A	US 7275024 B2 (ADAM YEH et al.) 25 September 2007 see column 7, line 6 - column 9, line 30; and figures 4A,4C,5,6A.	1-17
A	US 6714939 B2 (SALDANHA; ALEXANDER et al.) 30 March 2004 See column 27, line 64 - column 29, line 53; column 33, line 65 - column 36, line 21; and figures 1,6-8.	1-17
A	US 6883164 B2 (XIAOYAN ZHANG et al.) 19 April 2005 See column 5, line 39 - column 6, line 20; column 7, line 4 - line 47; and figures 4,5,8.	1-17



Further documents are listed in the continuation of Box C.



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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

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**PCT/US2010/024524**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008-0147654 A1	19.06.2008	None	
US 7275024 B2	25.09.2007	EP 1473640 A2 EP 1473640 A3 JP 2004-280823 A US 2004-0181440 A1 US 2004-0181538 A1 US 7313561 B2	03.11.2004 10.11.2004 07.10.2004 16.09.2004 16.09.2004 25.12.2007
US 6714939 B2	30.03.2004	AT 334449 T AU 2002-246981 A8 DE 60213409 D1 DE 60213409 T2 EP 1399842 A2 EP 1399842 B1 US 2003-0167266 A1 US 2004-0172237 A1 US 2008-0126080 A1 US 7324936 B2 WO 02-056196 A2 WO 02-056196 A3	15.08.2006 24.07.2002 07.09.2006 19.07.2007 24.03.2004 26.07.2006 04.09.2003 02.09.2004 29.05.2008 29.01.2008 18.07.2002 18.07.2002
US 6883164 B2	19.04.2005	CN 1278231 C0 CN 1359065 A0 JP 2002-236586 A KR 10-2002-0048282 A SG 104952A1 TW 262439 B US 2002-0129331 A1	04.10.2006 17.07.2002 23.08.2002 22.06.2002 30.07.2004 21.09.2006 12.09.2002