

1. Network Isolation

(Repository)

[1]. 가 (Platform)

가 (Social Interaction)

(Knowledge Sharing)

(Collaboration) 가 (Virtual Space)

[2]. 가 (Centrality), (Cliques) [15]. (Social Inclusion) (Agreement)

[16]. 가

가 1 Blog A B Blogosphere (Dimension)

가 가

Blog A Blog C (Pivot)

Feeds RSS (Web Syndication)[17] (Mailing List)

(Exploitation) Cohen and Levinthal (Absorptive Capacity) -- "an ability to recognize the value of new information, assimilate it, and apply it to commercial ends" [14].

(Bulletin Board) Contextual Heterogeneity[19] Tag

Network) (Social
 (Post) (Hyperlink)
 BlogRoll
 가
 (Social Network Analysis)
 (Hub), (Authoritative)
 (Centrality) (Social
 Features) [5],[6].
 (Centrality)
 (BON) Blog Overlay Network
 Overlay
 Contextual Matching
 Context Community
 Community
 II Blog
 Overlay Network Tag Contextual Matching
 Community III Blog
 Overlay Network 가 IV
 V

Blogroll
 $R_K^{Roll} B_K \times B_{K'}$
 $P_K \times T_K$
 ,
 Trackback
 $R^{Comment}$ $R^{Trackback}$
 Comment
 Blogroll Graph
 Barabasi
 (Degree of Centrality)가
 가
 (SPD:
 Shortest Path Distance) 가
 • Closeness:
 가

$$Closeness(B_K) = \frac{N-1}{\sum_{K'=1, K'}^N SPD(B_K, B_{K'})}$$
 N 가
 Closeness 가 가
 가
 가
 • Betweenness:

II. Blog Overlay Network

(Multi-layered social network)

1.

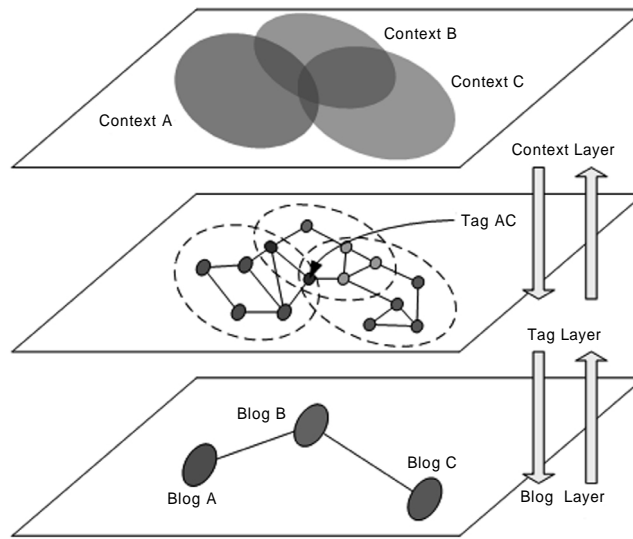
B_K

(Pivot)

$$B_K = \{P_K, T_K, R_K^{Roll}, R_K^{Comment}, R_K^{Trackback}, R_K^{Tag}\}$$

• Hub and Authoritative: Hub
 Authority 가
 Authority
 Hub Kleinberg[6]
 Iteration Blogosphere

$$P_K = \{p_1, p_2, \dots, p_N\} \quad T_K = \{t_1, t_2, \dots, t_M\}$$



2. Blog Overlay Network

Hub Authority

Mental Model

$$Hub_{t+1}(B_K) = \sum_{B_{K'}} R_K^{Roll} Auth_t(B_{K'})$$

• Context Layer: Matching (Similarity)

$$Huth_{t+1}(B_K) = \sum_{B_{K'}} R_K^{Roll} Hub_t(B_{K'})$$

가

Authority 가 Betweenness 가

Hub Authority가

Social feature Blog layer Network Isolation Tag Layer Mapping Tag (Potential)

2.

Blog Overlay Network

Blog A Blog C 가 2 Blog B Mediation Context 가 Tag Layer "Tag AC" Mapping

• Blog Layer:

R^{Roll}

Blogroll

Blog Layer

Blog B

3. Contextual matching

가

Blog A C

Tag layer

Matching

• Tag Layer:

R^{Tag}

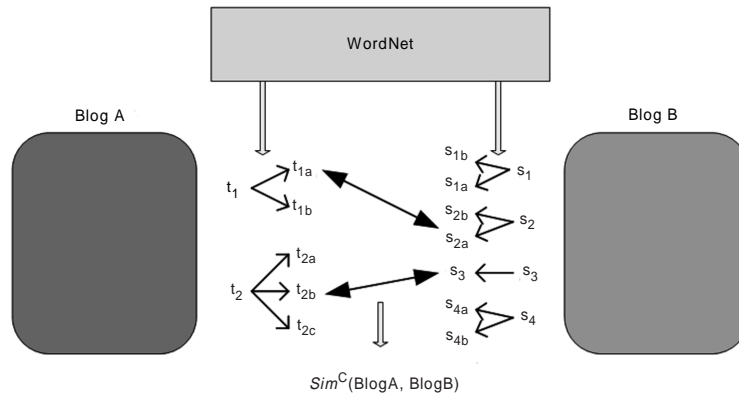
Labeling

가 Blog Contextualuzation Context

가

Context

가



3. Ontology Tag Matching

(network substance)'

tion

WordNet Contextualiza-
Context Matching
(Similarity) Sim^C
 B_i, B_j Context Matching
Semantic Enrichment Tag
Matching
가

가

3.1. Contextualization

$$Sim^C(B_i, B_j) = \max \sum_{T_i, t'} T_i Sim^T(t, t')$$

Semiotic context Tag
Lexical Form Heterogeneity ("apple" "apples")
Contextual Mismatching
"Apple" Tag 가
"Computer"
"Fruit"

$$\max \sum_{T_i, t'} T_i \left(1 - \frac{Dist(t, t')}{\max(|t|, |t'|)} \right)$$

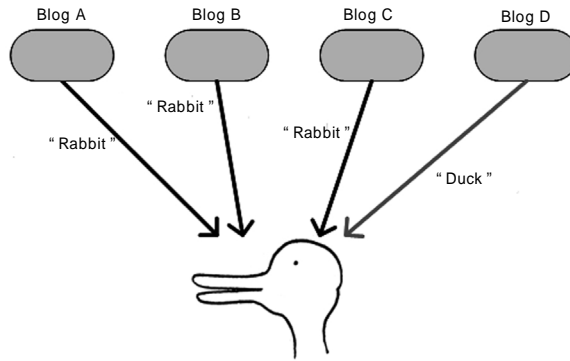
$Dist$ Edit
Distance (Substring Distance)
Similarity 2 Context Layer
Community Identification
Weighting

(Ontology) Semantic
Contextualization

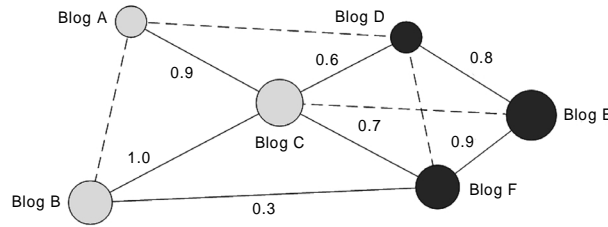
3.2. Consensus Contextualization

B_K Tag (T_K)
WordNet[8] Lexical
3 WordNet
Tag
Semantic
Enrichment "Computer"
Tag가 "Computing Machine," "Computing
Device," "Data Processor," "Electronic Computer,"
"Information Processing System," "Calculator"

Contextualization
Consensus context
Tag Tag
Reliable Trustworthy
4
Tagging
(Blog A, B, C) "Rabbit" Tag
Blog D "Duck" Tag



4. Consensus Tag Contextualization



5.

Factor(CF) Assign Tag Tagging Consensus Similarity Similarity Context Community Newman[9] Modularity function

$$CF(R_K^{Tag}) = \left\{ \langle p_i \times t_j, cf \rangle \mid cf = \frac{|\{B_H | p_i \times t_j, R_H^{Tag}\}|}{|\{B_G | p_i \times t_x, R_G^{Tag}\}|} \right\}$$

, Consensus Factor가 Tag Context

$$Q (CL) = \sum_{i=1}^K \frac{\sum_{B_a, B_b \in Comm_i} Sim^C(B_a, B_b)}{|Comm_i|}$$

4. (Dynamic Community Identification)

K Community Q Community formation 가

Context Layer Community Context layer propagation Posting Notification Context Layer 5 Tag Matching information 가 Context

Similarity 가 가 Community1={A, B, C} Community2={D, E, F} Community identification 가 Aggregation Tag가 Community (Centrality)가

1. Tag Matching (Relevant deliveries/Total deliveries)

Bloggers	Simple Blogrolling	Tag matching			
		Simple String Matching		WordNet	
1	0.27	0.31	114.02%	0.40	146.86%
2	0.26	0.28	107.28%	0.35	134.10%
3	0.28	0.33	116.96%	0.37	129.68%
4	0.27	0.29	110.11%	0.39	145.32%
5	0.32	0.29	90.88%	0.39	121.70%
6	0.35	0.31	89.88%	0.39	113.29%
7	0.29	0.34	113.95%	0.39	130.95%
8	0.35	0.32	90.91%	0.40	113.92%
9	0.23	0.34	150.00%	0.40	176.75%
10	0.32	0.36	112.73%	0.41	128.57%
11	0.36	0.32	89.30%	0.41	116.06%
12	0.31	0.34	109.48%	0.39	126.80%
13	0.34	0.30	87.72%	0.44	129.24%

2. Community (K = Number of communities)

K	Tag matching			
	Simple String Matching		WordNet	
2	0.34	107.13%	0.40	101.42%
3	0.35	110.28%	0.35	114.10%
4	0.41	129.18%	0.37	88.75%

III. Context

Blog Overlay Network
 Tag Matching Community
 ()
 BlogGrid[10] 1)
 Tagging , 206 Post 194
 Tag
 Tag Matching 1 3가
 Tag Matching 가

Tag Context Matching Tag 가
 WordNet
 Tag Matching 가 32% 가
 Simple string matching 6.4%
 가
 Community
 2 13 K=2,
 3, 4 , Community 가
 K=4 , Community

IV.

Context matching Overlay network
 Context Context

1) BlogGrid et al [10]

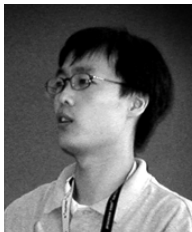
2.0 가 Open API
 Mash-up Application
 SEMKEY[7] Conceptualization
 WorkNet Wikipedia
 Jung and Euzenat[4]
 Peer-to-Peer
 (Personal Ontology) Alignment
 Semantic Social network
 Multi-layered architecture
 Ontology Context
 heterogeneity
 Jung[3] Hyperlin-
 ked Focused Crawling
 Web Information System
 Context
 Tag

V.

Multi-layered Blog Overlay
 Network
 • Tag Context Matching
 • Tag Matching Blog Similarity
 • Context (Mediation)
 Jung[3] Heavy
 Expensive Ontology Alignment
 가 Web 2.0
 Scalability
 Community (Social
 capital) 가
 가
 (Semantic
 blog)
 Personal Ontology
 Tag
 Term Semantic Relationship
 User Friendly
 e-Learning Blog
 BON

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http://www.cvastork.dk/filer/key_note.doc
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- [18] <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
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