



*Says Who!!!
What and who
can I trust?*

SezHoo:

Using Reputation Systems to Increase the Trustworthiness of Information

Part 2: Wikis and Collaborative Works

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MITRE Sponsored Research

Problem



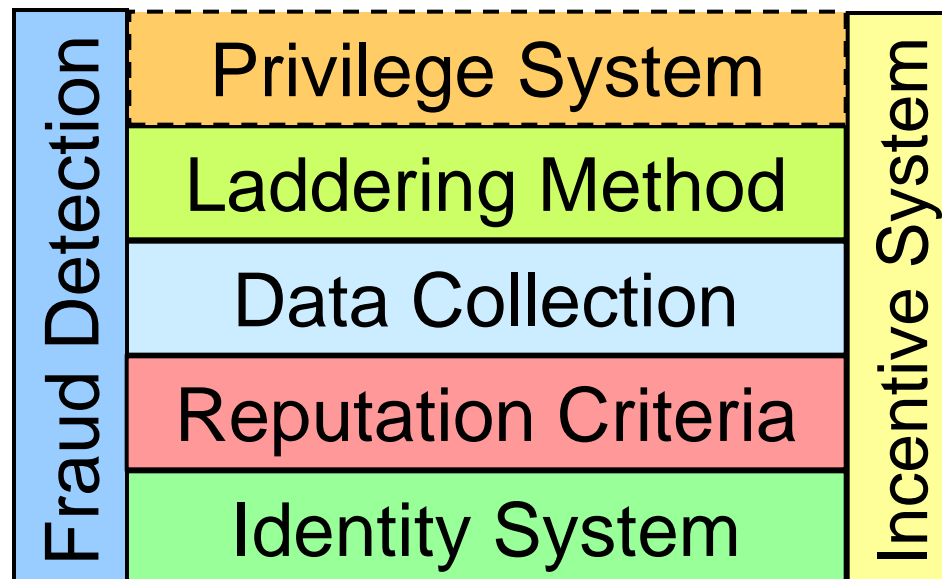
Improve the usability of wikis:

- Encourage authors to make high-quality contributions
- Give readers indications of the trustworthiness of articles
- Give information stewards useful information about the status of articles and authors
- Find experts in a given domain



Background

- Reputation systems collect data that help decision makers weigh evidence
- They are useful when there are many providers of information, but little information about providers
- We want to create reputation systems to improve the trustworthiness of Wikis



Objective

- **Provide metrics of trustworthiness at two levels:**
- **Article**
 - Manual flags (citation needed, accuracy disputed, does not meet standards, etc.)
 - **Life expectancy of text**
 - **Overall article progress (visualization)**
 - **Reader-awarded “star” ratings (Joint w/ WIQI MOIE)**
- **Author**
 - Number of contributions
 - Who edits who (Univ. California Santa Cruz)
 - **Longevity of contributions**
 - **Reputation derived from user “star” ratings**

Approach: Analysis of Phrases over Revision History

Reputation Applications

Revision history of Intellipedia

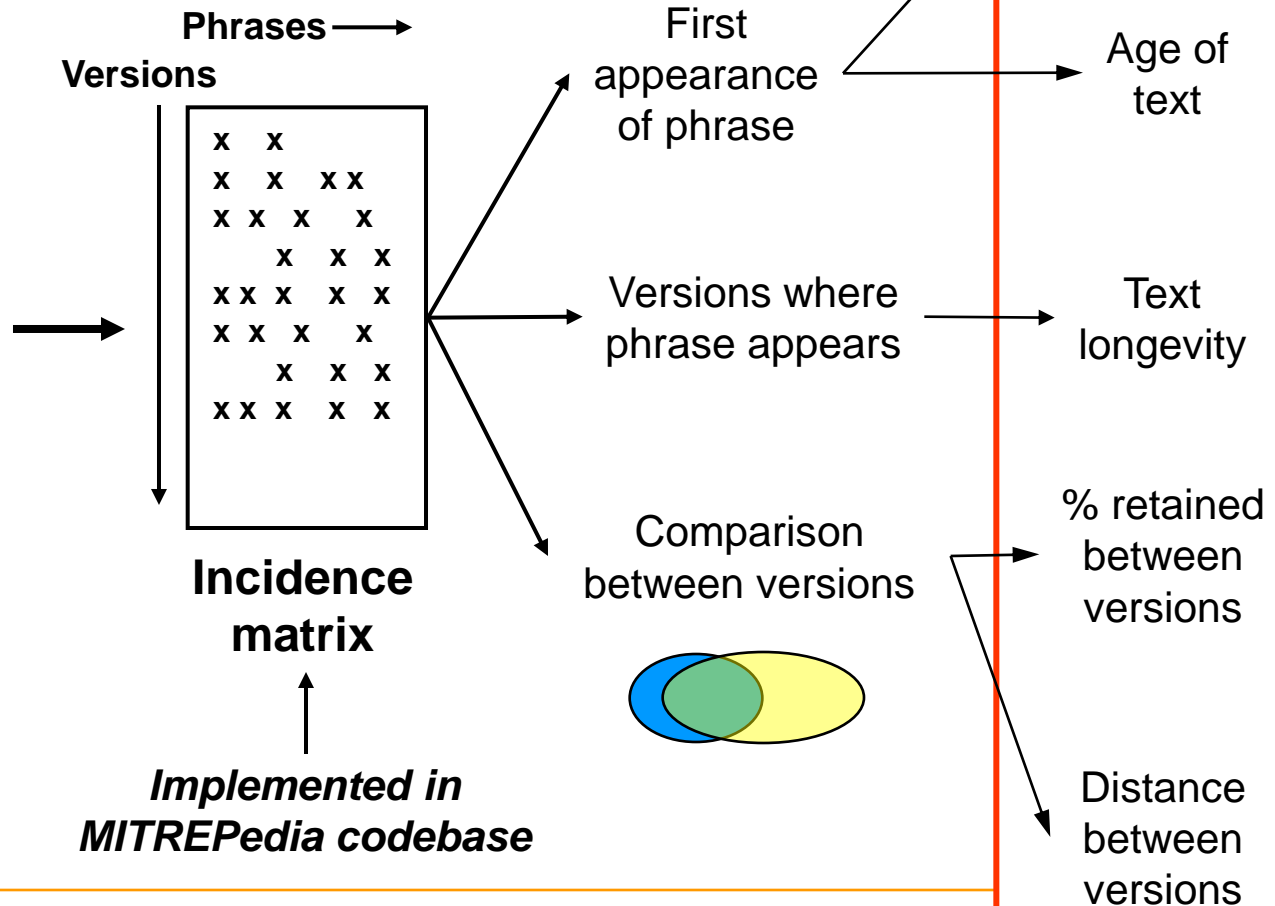
From Wikipedia, the free encyclopedia

Revision history
View logs for this page

(Latest | Earliest) View (previous 50) (next 50) (20 | 50 | 100 |
For any version listed below, click on its date to view it. For r
(cur) = difference from current version, (last) = difference from

Compare selected versions

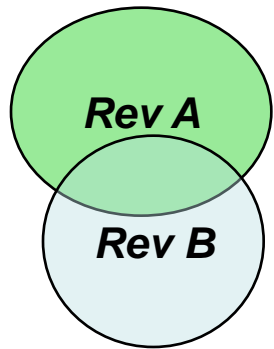
- (cur) (last) 17:57, 4 October 2007 63.125.4.210 (
- (cur) (last) 17:51, 29 September 2007 72.219.217
- (cur) (last) 17:50, 29 September 2007 72.219.217
- (cur) (last) 17:50, 29 September 2007 72.219.217
- (cur) (last) 07:23, 27 September 2007 76.83.147.
- (cur) (last) 07:16, 27 September 2007 76.83.147.
- (cur) (last) 05:29, 13 September 2007 MLWilson mentioningIntellipedia) (undo)



Highlight: Visualization of Article Progress

- Can we visualize whether an article is making progress or stuck in an edit war?
- Can potentially be used to determine author reputation

Analysis of Shared Phrases



$$\text{Distance}(A,B) = A + B - 2 * A \cap B$$



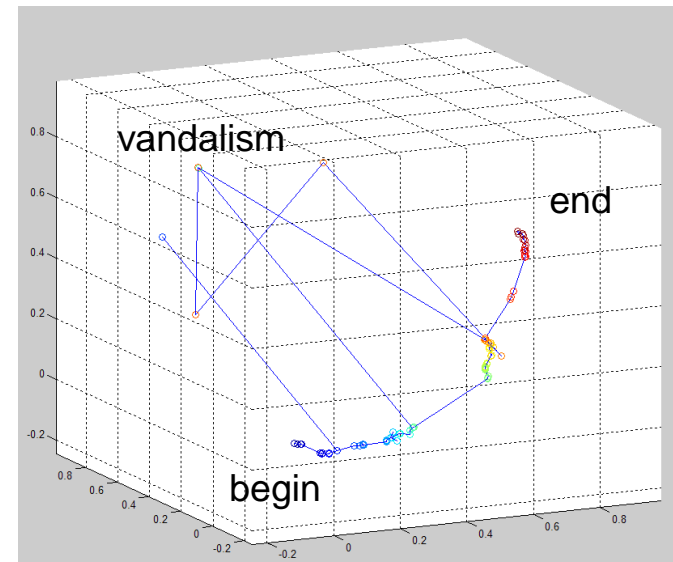
Distance Matrix

	1	2	3	4	5	6	7	8	9	10
1										
2	25									
3	43	29								
4	57	34	52							
5	43	43	72	45						
6	61	68	96	71	27					
7	29	49	72	71	36	40				
8	41	66	81	95	65	66	31			
9	48	72	89	99	65	62	31	11		
10	71	91	114	108	65	46	43	46	36	

Multi-dimensional scaling



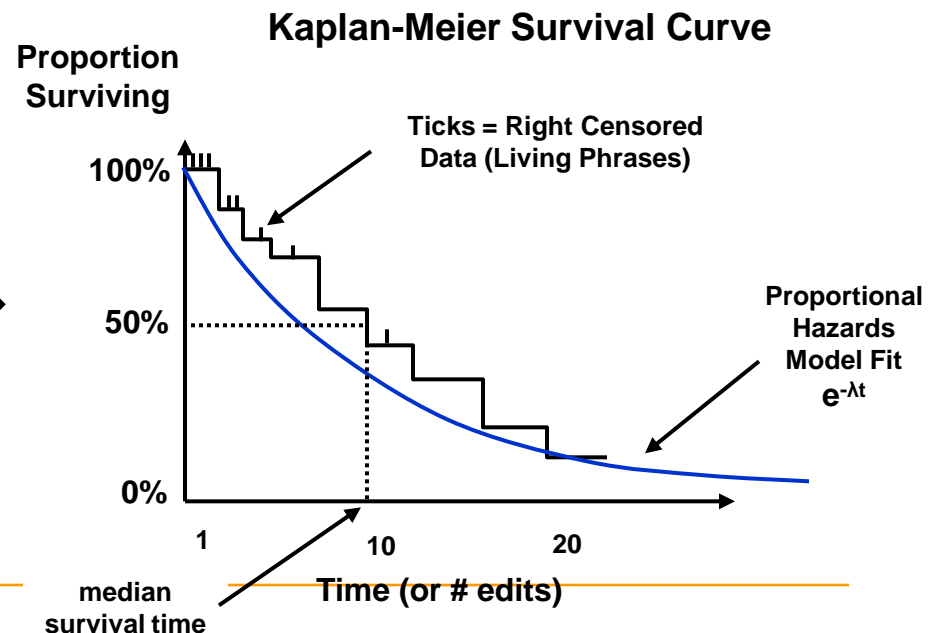
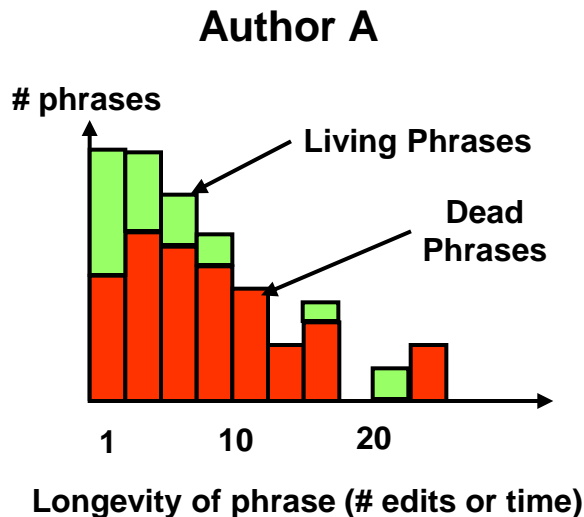
Visualization



Article: Hillary Clinton 2008 Campaign

Author Reputation Based on Text Survival

- Longevity of phrases by an author is a good proxy for quality
 - Measured in terms of survival after edits by other authors
 - Can be computed over entire wiki, a category, or single article
- Data is converted to standard Kaplan-Meier Survival Curve
- Reputation is measured by median survival time or parameters of fitted curve (e.g. exponential decay rate)
 - Also calculate certainty limits for authors with few contributions
- *Future work: Does an author's past performance predict future results?*



Impacts

- **This work will improve the quality and usability of public and enterprise wikis with a set of new reputation-based trustworthiness tools**
- **Currently implemented in test version of MITREpedia**
- **Some techniques are migrating to Intellipedia via the WIQI MOIE**
- ***See our paper submitted to WikiSym 2008***

Future Plans: Wiki Expert Finder

- Can you find the top authors in a given subject area?

