Linked Opinions: Describing Sentiments on the Structured Web of Data

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Use Case: Idea Management Systems

[research motivation]

- Online tool for collecting innovation from customers
- Users submit ideas, comment on them and rank
- Reviewers select best ideas based on “social metrics” (# comments, community rank etc.)
- **Idea:** new metric - opinion mined rating
Use Case: Idea Management Systems

[research motivation]

Non-shiny Laptop Displays

Tue, 02/23/2010 - 00:00 — Anonymous
I wish there were Laptop Displays that do not become shiny sparkling mirrors when sun is around.

Opinion Analyzer:

75% Positive
(4 comments)

Result: 2.130
Positive: 3 (75.00%)
Neutral: 1 (25.00%)
Negative: 0 (0.00%)

Add new comment

Comments

This idea needs support.
This idea needs support. Better screens for outside usage would be awesome.

Opinion Analyzer:

Positive
Result: 0.950789

reply
Use Case: Idea Management Systems
[research motivation]

- My primary line of research: knowledge modelling for Idea Management Systems
- **Task:** model opinions and connect them to the existing model for Idea Management Systems
Why not use Review models?

[research process]

- current schemas do not cover data from opinion mining process (polarity, polarity value...)
- do not point to what precisely the opinion is about
- opinions are not the same as reviews
Why not use Review models?

[research process]

idea management with reviews and opinions
Why not use Review models?

[research process]

idea management with reviews and opinions
Marl Ontology
[research process]

opinion context

Opinion
marl:Opinion, marl:AggregatedOpinion

- marl:extractedFrom
- marl:aggregatesOpinion
- marl:opinionCount
- marl:opinionText
- marl:minPolarityValue
- marl:maxPolarityValue
- marl:polarityValue
- marl:hasPolarity
- marl:algorithmConfidence

Aggregated Opinion Count
integer

Source Text
sioc:Comment, g2mo:idea or URL

Described Object
literal, URL or ontology concept

Described Object Part
literal, URL or ontology concept

Described Object Feature
literal, URL or ontology concept

Polarity Min Value
real number

Polarity Max Value
real number

Polarity Min Value
real number

Polarity Max Value
real number

Polarity Value
real number (0..1)

Algorithm Confidence
real number (0..1)
Modelling opinions
[research process]

**Step I:** Analysis of various opinions types from various web systems

- Movie opinions
- Product opinions
- Idea Management opinions (ideas about products, services, processes... )
Modelling opinions

[research process]

Examples of opinion diagrams
Modelling opinions

[evaluation process]

Step II: Evaluating coverage/ completeness of the ontology by mapping different datasets & services to RDF/XML.

- 5 research datasets from Opinion Mining area
- 8 web services/ software toolkits for Opinion Mining
Modelling opinions

[evaluation process]

Average Coverage: 76%

- Congressional speech data
- Movie Review Data
- Customer Review Data
- French Newspaper Articles
- Multi-Domain Dataset
- Swotti
- TweetSentiments
- Mombo
- Opinion Crawl
- OPAL
- Opine
- Evri
- Opendover

Coverage (%)

Research Datasets

Services
Marl in work

[results]
More info

• detailed results of experiments with Marl: http://marl.gi2mo.org

• tools used: http://gi2mo.org/apps