

# Reconciling Knowledge in Social Tagging Web Services

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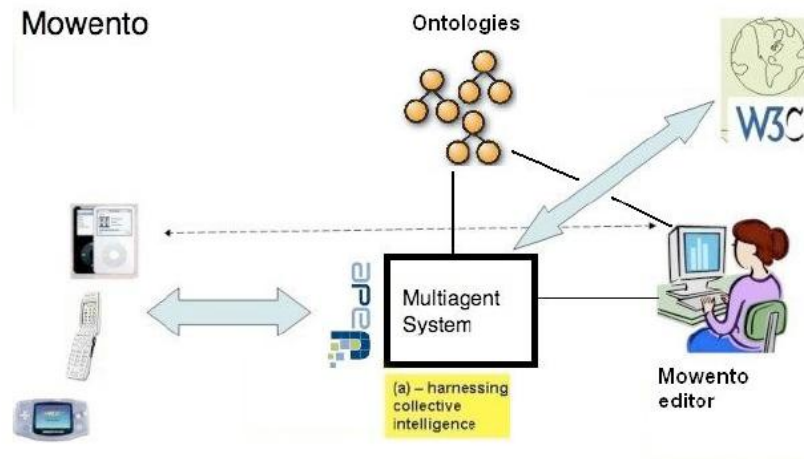
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# Outline

- **Motivation**
    - Mowento
    - Challenge: Knowledge conciliation
  - **Our Proposal**
    - Multiagent system
    - Reusable solution
  - **Reconciling process**
  - Example: Delicious
  - **Results**
  - Conclusions and future work
-

# Mowento

- An experimental **Mobile Social Network**
- It's **NOT** based on Internet Mobile
- Collective intelligence must be implemented by a MAS
- MAS manage the user-generated content semantically



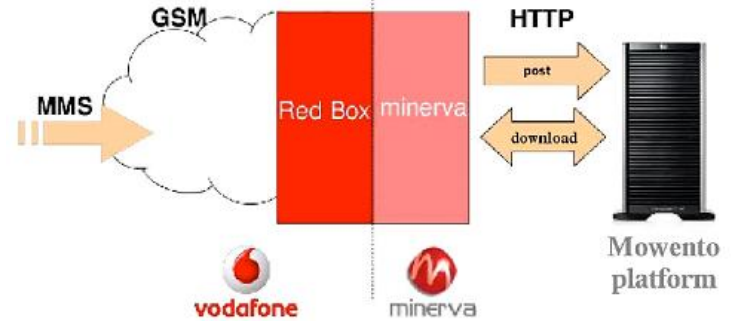
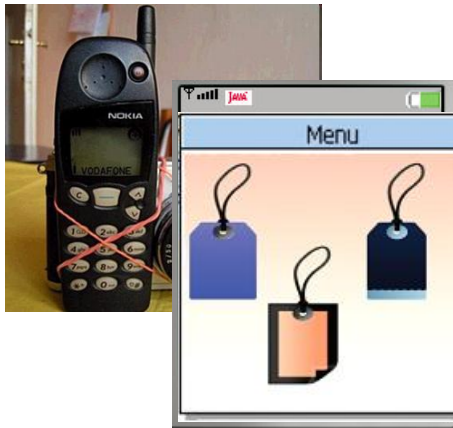
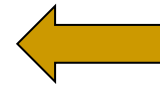
Proyecto Weteve (Proyecto Minerva, Vodafone, Junta de Andalucía, AICIA)



# Crowd publishing

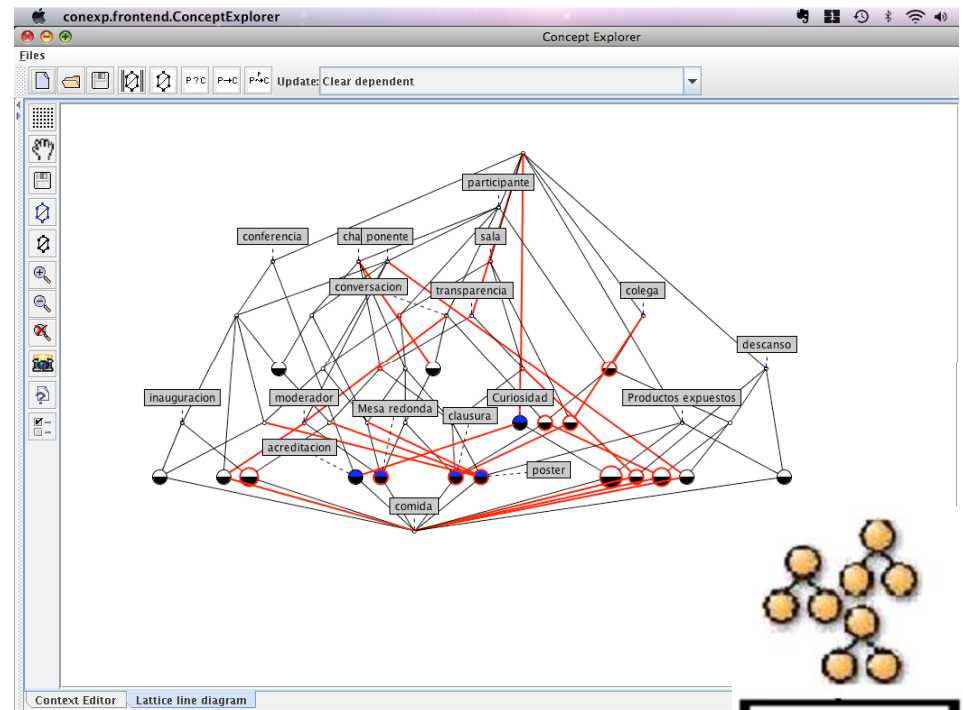


Beta Blog Notes  
Blogger CSS  
d2b Categories  
Del.icio.us Firefox  
Freedom Google  
Greasemonkey Humor  
Images Internet  
Explorer Javascript  
Safari Technorati



# Initial Ontology

- Obtained from FCA techniques
  - Aprox 200 documents related to “conferences”
- Written in OWL
  - Expandable by tagging ontologies
- Dynamic reviews



# Agents activities

- The MAS manage ALL processes into Mowento:
  - Document management activities
    - Formats conversion, ...
  - *Intelligent* activities
    - Extract the concept's lattice
    - Complete the user's tagging
    - Calculate the minimal paging
    - Microdiffusion (FOAF)
    - **Knowledge Conciliation**



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# Knowledge Heterogeneity

- Different users & different ontologies
  - There exist several limitations to collaborative tagging
    - The first one is that a tag can be used to refer to different concepts;
    - Users can create its own labels
  - Important: **Solution must be reusable for other tagging-based WWW services.**
-

# Delicious

# Momentum

Hi, **jborrego** | [Inbox](#) | [Settings](#) | [Help](#) | [Sign Out](#)

delicious [Home](#) | [Bookmarks](#) | [People](#) | [Tags](#)

**jborrego's Bookmarks**  
[Bookmarks](#) | [Network](#) | [Tags](#) | [Subscriptions](#) | [Inbox](#)  
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**jborrego** Type a tag | [Bookmarks](#) 443 | [Display options](#)

- 19 JUN 10 **different waters: Cornelius Cardew - Treatise**  
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EDIT | DELETE | [media](#) [music](#) **3**
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- 16 JUN 10 **OPEN Forum Mobile :: Idea Hub : Topics**  
EDIT | DELETE | [QR](#) [augmentedreality](#) **1**

**Tags** | [Options](#)

**Top 10 Tags**

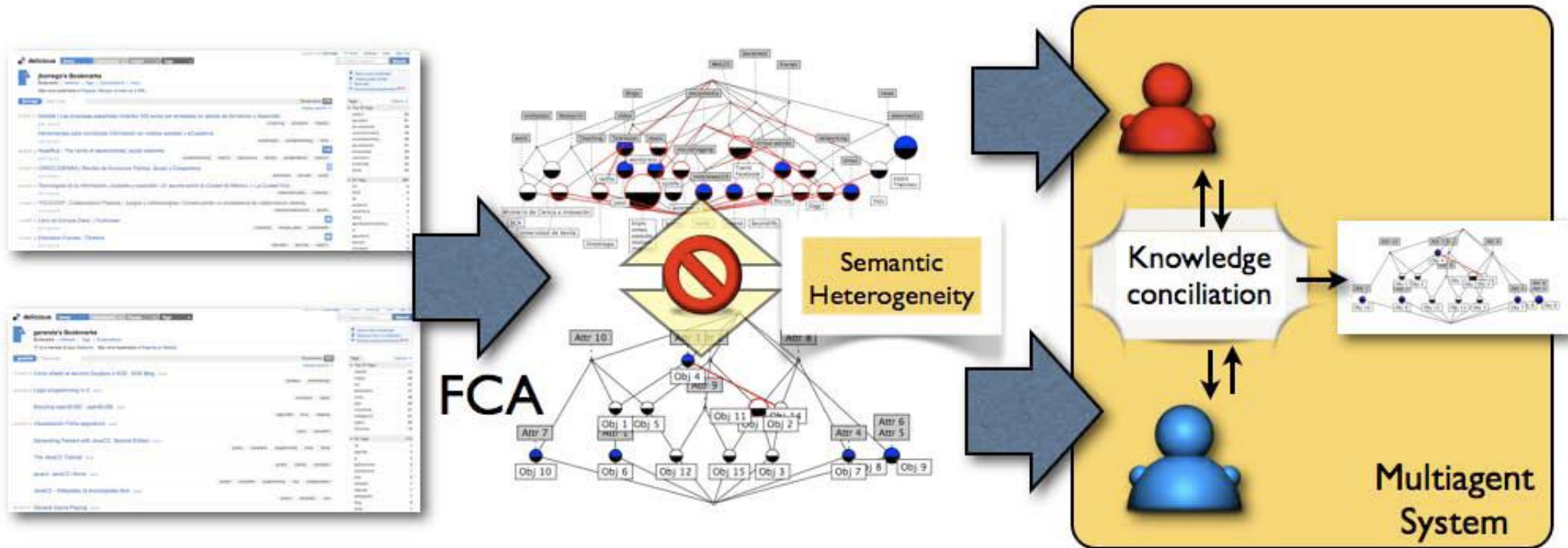
|                  |    |
|------------------|----|
| web2.0           | 76 |
| education        | 66 |
| pfo-catastrofe   | 48 |
| urbaninformatics | 42 |
| socialnetworking | 33 |
| semanticweb      | 30 |
| socialmedia      | 27 |
| urbanismo        | 26 |
| e-learning       | 23 |
| social           | 23 |

**All Tags** 409

|                     |   |
|---------------------|---|
| 2.0                 | 6 |
| 2009                | 2 |
| 3d                  | 5 |
| academic            | 2 |
| advertising         | 2 |
| Africa              | 1 |
| agentbasedmodelling | 1 |
| ai                  | 1 |
| algorithms          | 2 |
| Antena              | 1 |

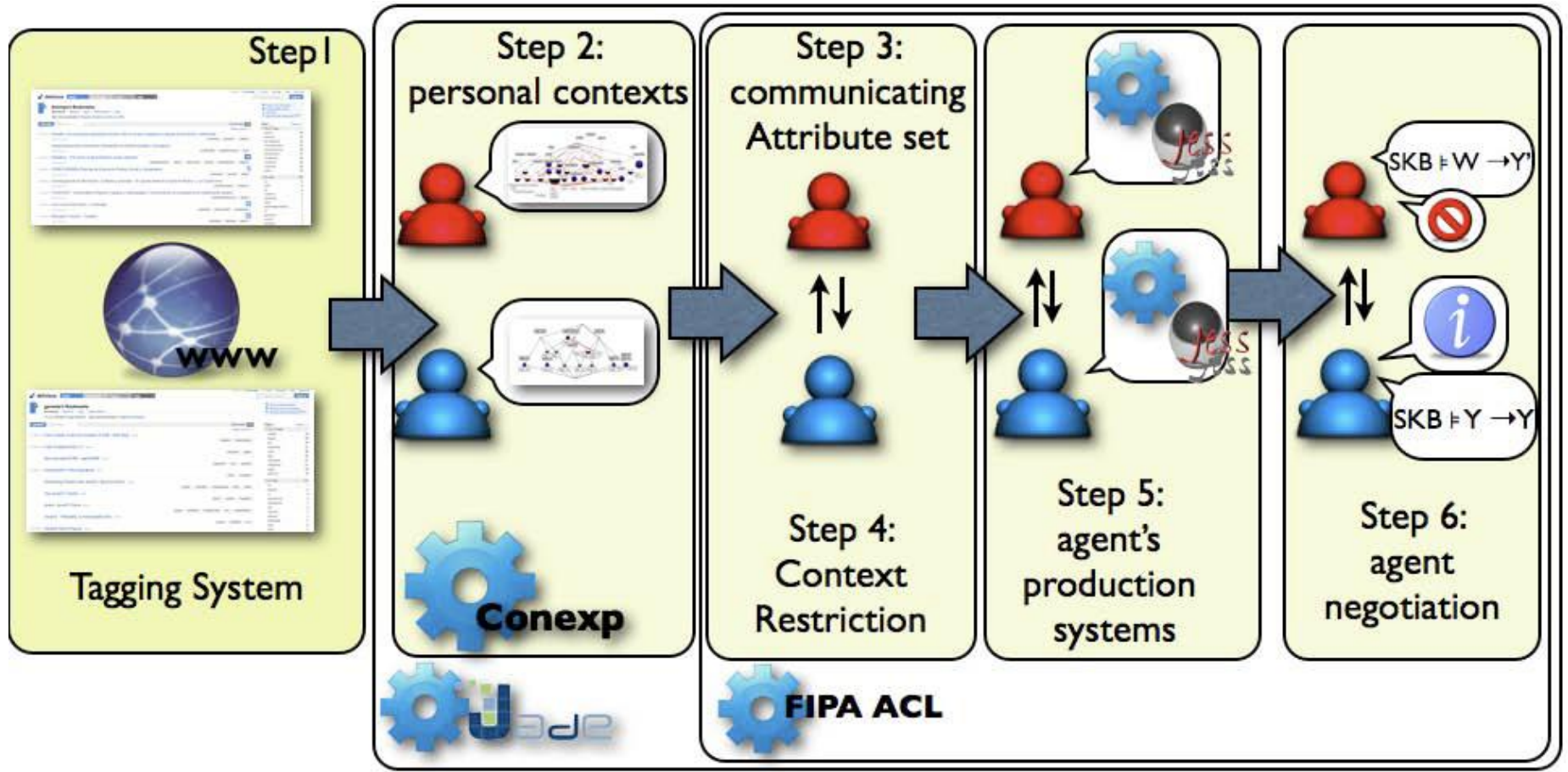


# Agent-based solution



Not Users

# Technology



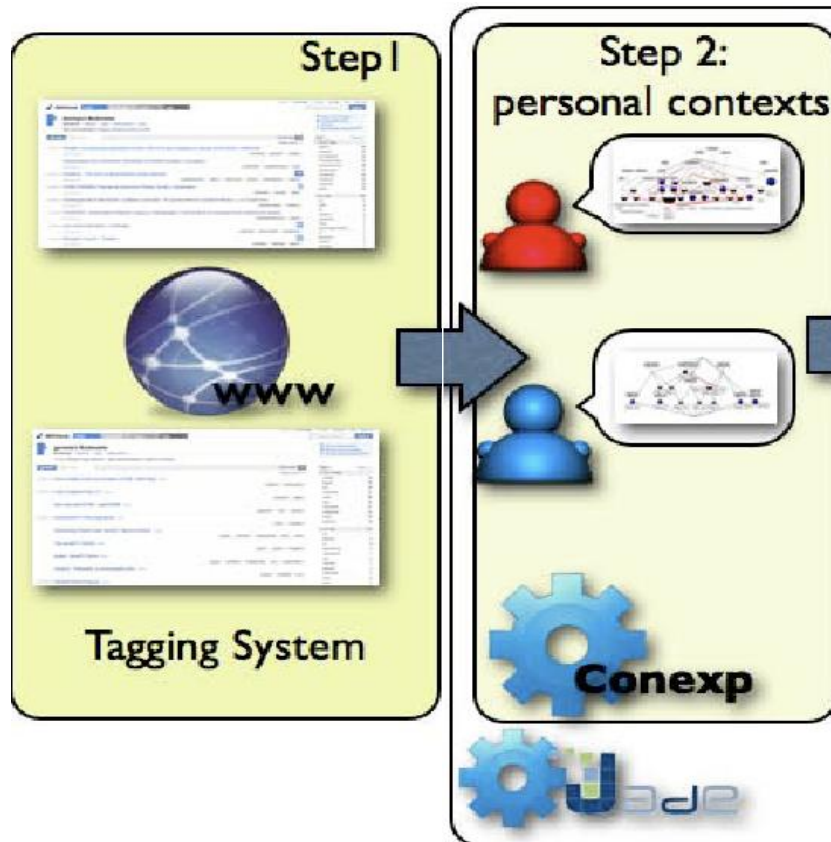
# Methodology

- Connect to Delicious (or Mowento)
  - Delicious Yahoo API



# Methodology

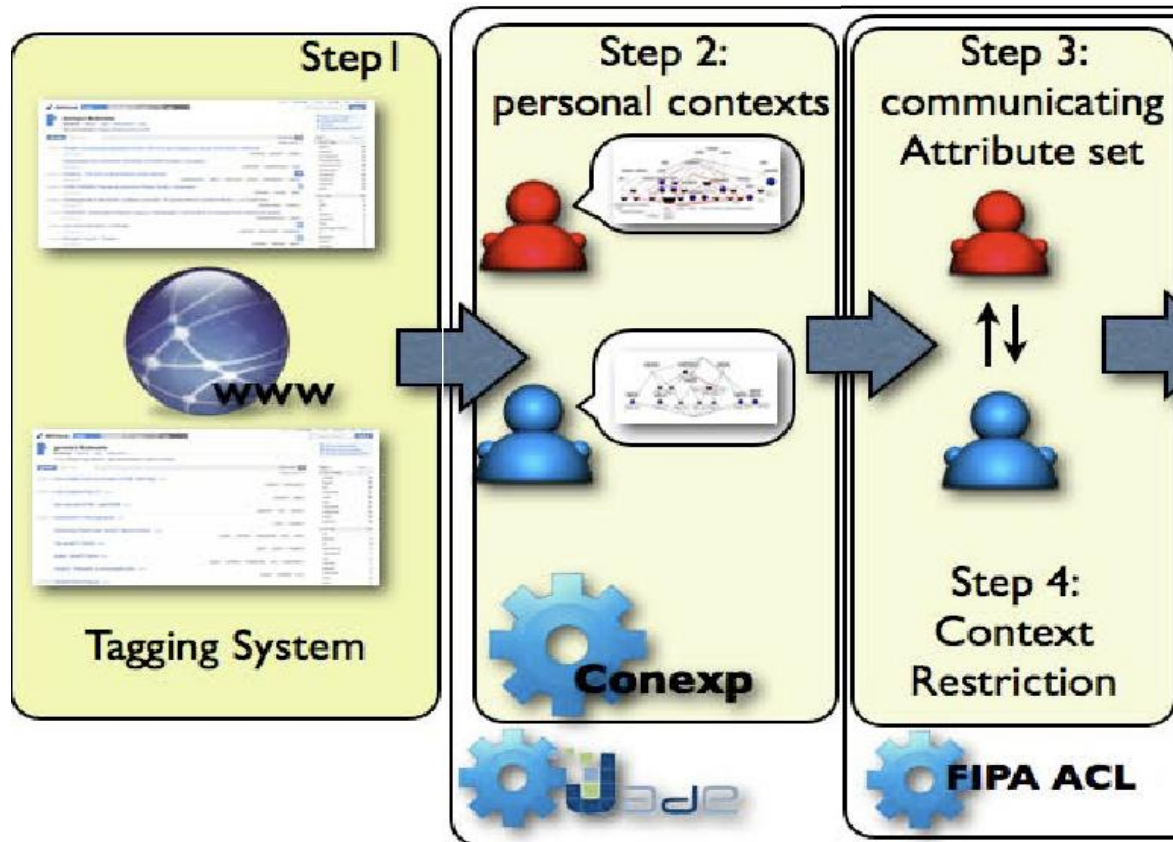
- Extract data and create the knowledge



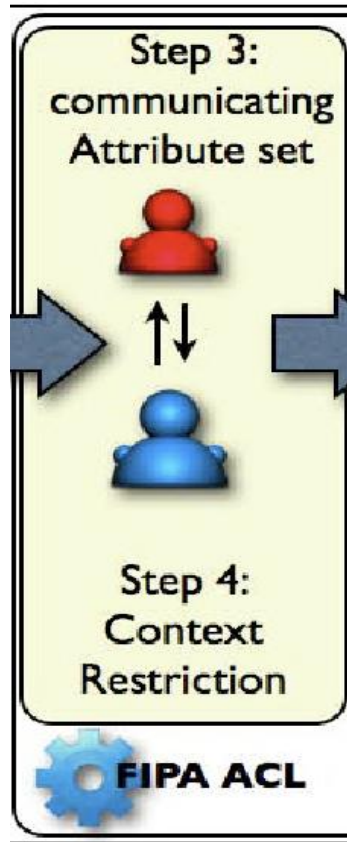
| User      | jborrego | garanda |
|-----------|----------|---------|
| Language  | 381      | 137     |
| Bookmarks | 358      | 536     |

# Methodology

- Communicating languages and
- Context reduction



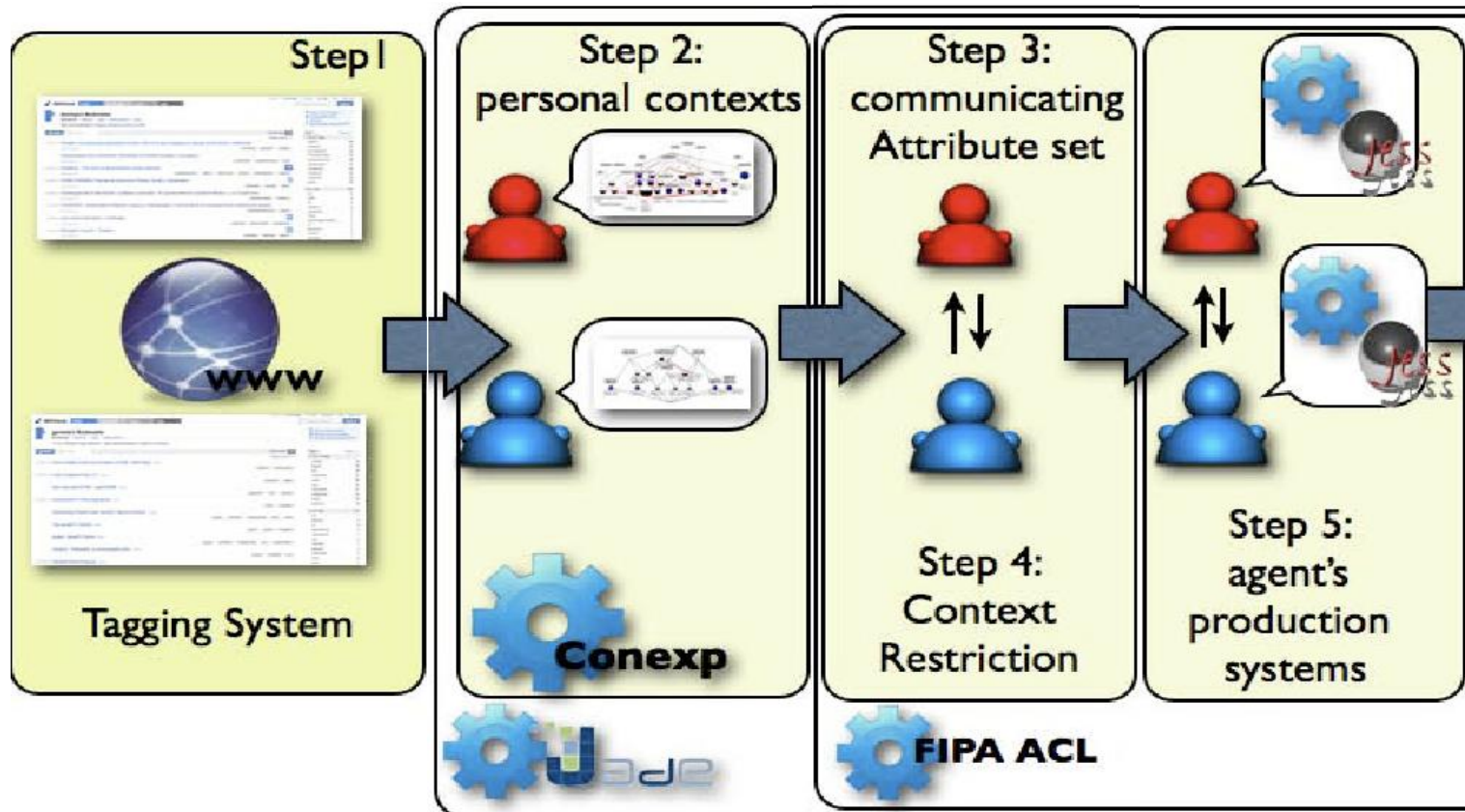
# Methodology



| User         | jborrego | garanda |
|--------------|----------|---------|
| Common Tags  |          | 19      |
| Bookmarks    | 131      | 114     |
| Implications | 11       | 11      |

# Methodology

- Create its own production system
  - Common language, not common objects

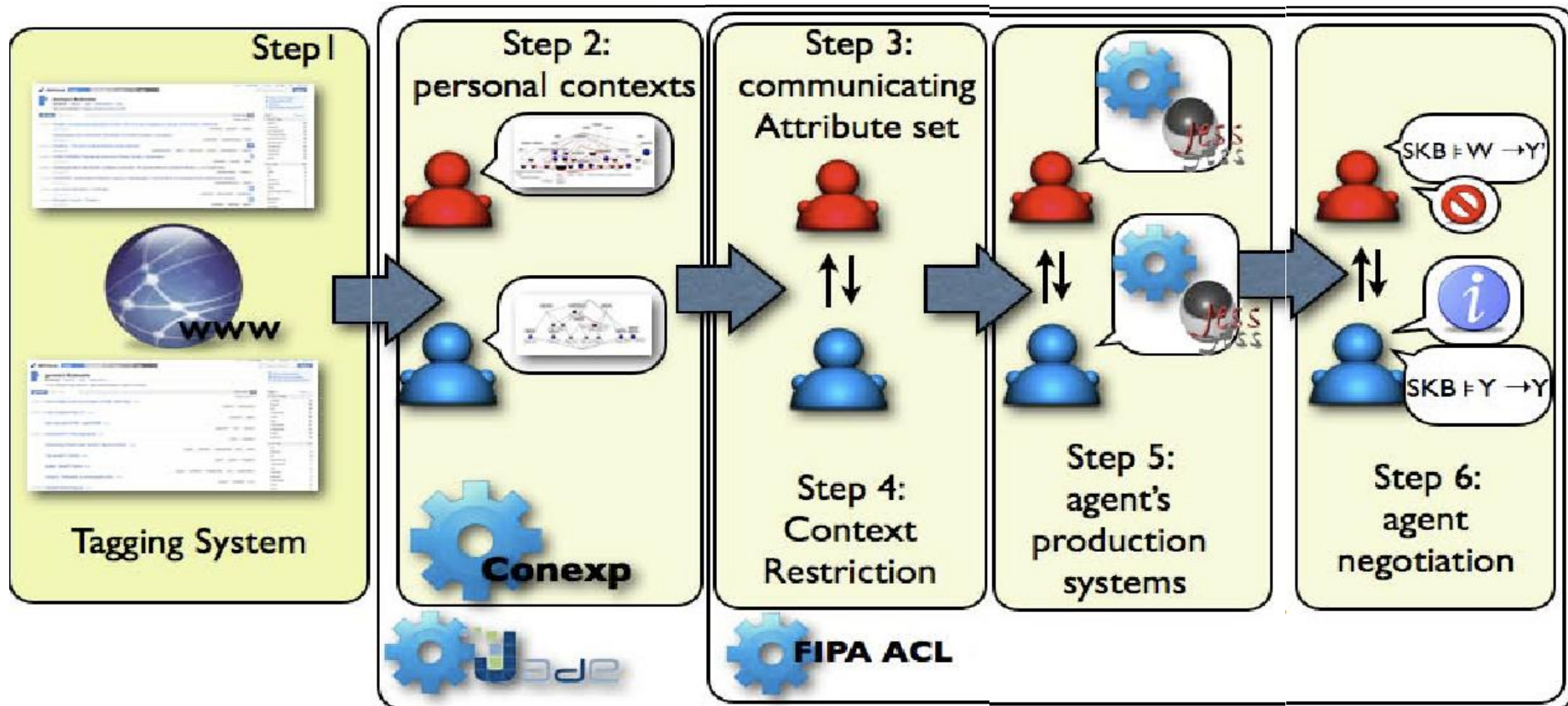






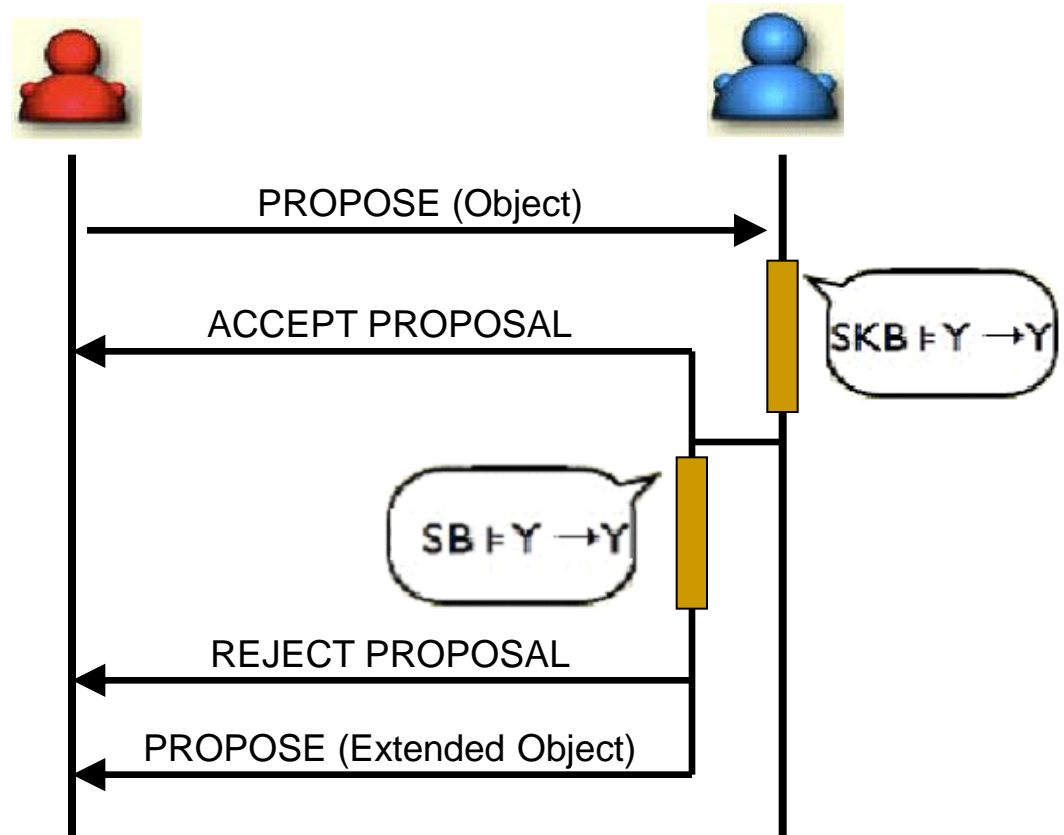
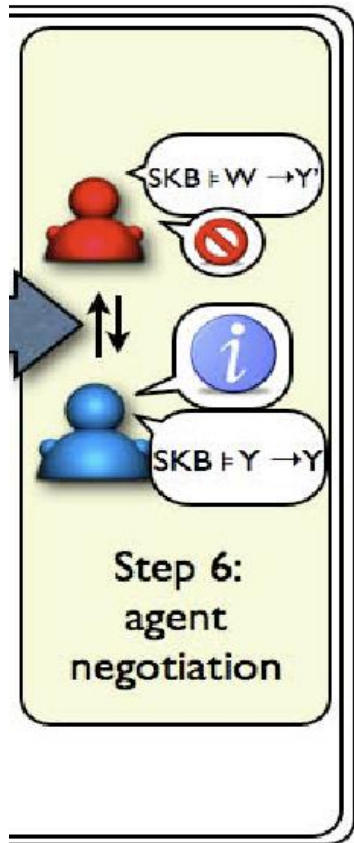
# Methodology

## ■ Negotiation



# Methodology

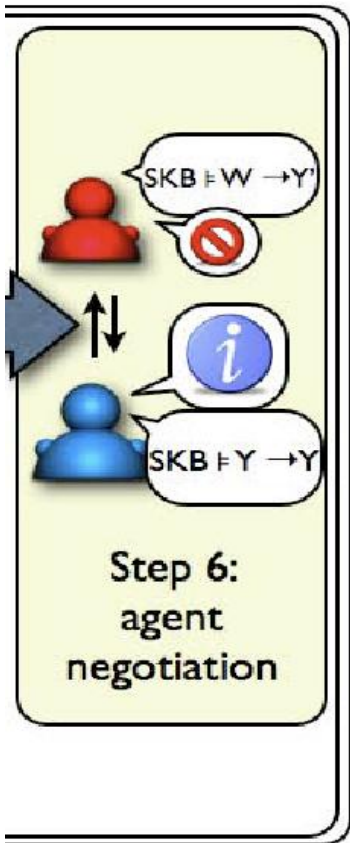
## ■ Negotiation



# Methodology

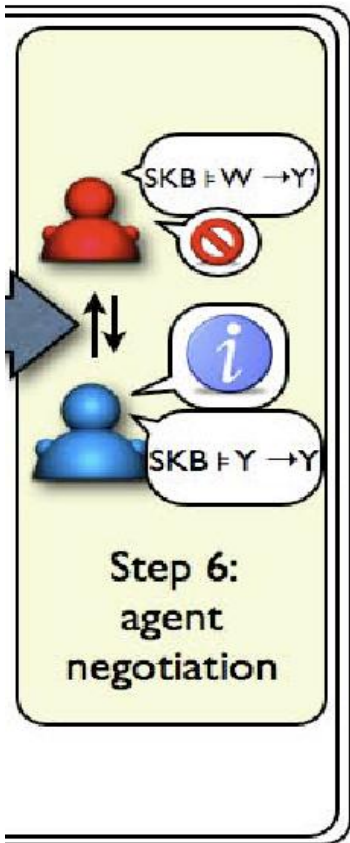
## ■ Negotiation

- Initial massive sending
- Extendable to multiple agents



# Methodology

## ■ Negotiation



|              | Conciliation |
|--------------|--------------|
| Language     | 19           |
| Bookmarks    | 245          |
| Implications | 21           |

```
(tutorial) (robotics) --> (programming) (ai) (haskell) (blog)
(tutorial) (programming) (haskell) (blog) --> (ai)
(twitter) --> (social) (web2.0) (blog) (socialnetworking)
(facebook) --> (social) (twitter) (tutorial) (haskell)
               (web2.0) (blog) (socialnetworking)
```

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# Conclusions and future works

- Knowledge conciliation in FCA-based systems
  - Extension of the method for consensus ontologies (if popular tags for new documents are stable from some instant, as Delicious)
-

# Thanks!

## ¿Any Question?

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