Web-based Ontology Discussion

Vadim Ermolayev¹, Nicola Guarino²

¹ Dept. of Math. Modeling & IT, Zaporozhye State Univ., Ukraine, http://eva.zsu.zp.ua/, eva@zsu.zp.ua

² Laboratory for Applied Ontology, ISTC-CNR
Institute for Cognitive Sciences and Technologies
National Research Council, Trento, Italy,
http://ontology.ip.rm.cnr.it/, Nicola.Guarino@ladseb.pd.cnr.it
What is the message ... 

- Ontology design, harmonization, refinement, evolution is a complex process and requires COMMUNITY DISCUSSION

- Traditional ways of debate (e.g., e-mail) are not effective enough ...

- Web-based collaborative discussion tools have been developed in the past, but we still use e-mail for the debate (Why?)
What is the message …

- If a web-based **DISCUSSION TOOL is essential** (a question to the SIG members), what are **the must-features**?

- Our **work in progress**: **MicroWeb** – a web-based tool for Collaborative Ontology Discussion and Design
Ontologies require Debates ...

- ... By definition

- Google returns **74,000 records** in response to the search phrase "ontology+discussion"

- Ontology discussion was arranged to prepare the agenda for this SIG meeting ("Let’s discuss the notion of ROLE...")

- Is there anybody within the SIG, who never took part in such discussions? Electronically?
Traditional ways are **not Effective**

- An example: ...the notion of ROLE (partial)
  
  Communicated information is extremely redundant

<table>
<thead>
<tr>
<th></th>
<th>21.11</th>
<th>22.11</th>
<th>25.11</th>
<th>26.11</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>5</td>
<td>4(+3)</td>
<td>3(+2)</td>
<td>4(+0)</td>
<td><strong>10</strong></td>
</tr>
<tr>
<td>Messages</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td><strong>23</strong></td>
</tr>
<tr>
<td>Text (brutto)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pages</td>
<td>23</td>
<td>16</td>
<td>17</td>
<td>6</td>
<td><strong>62</strong></td>
</tr>
<tr>
<td>symbols</td>
<td>35,937</td>
<td>23,198</td>
<td>29,393</td>
<td>8,447</td>
<td><strong>96,975</strong></td>
</tr>
</tbody>
</table>
E-mail debates are not Effective

- An example: ...the notion of ROLE

Communicated information is extremely redundant

<table>
<thead>
<tr>
<th>Duplicates (symb.)</th>
<th>21.11</th>
<th>22.11</th>
<th>25.11</th>
<th>26.11</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20,450</td>
<td>14,287</td>
<td>23,194</td>
<td>3,108</td>
<td>61,039</td>
</tr>
<tr>
<td>MAX Times</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Portions dubbed 2+ times (symb.)</td>
<td>10,471</td>
<td>13,594</td>
<td>20,005</td>
<td>3,108</td>
<td>47,178</td>
</tr>
</tbody>
</table>
E-mail debates are not Effective

- An example: ...the notion of ROLE

Communicated information is extremely redundant

<table>
<thead>
<tr>
<th>Useful info (symb.)</th>
<th>21.11</th>
<th>22.11</th>
<th>25.11</th>
<th>26.11</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful duplicates (symb.)</td>
<td>11,863</td>
<td>7,206</td>
<td>3,868</td>
<td>5,677</td>
<td>28,614</td>
</tr>
<tr>
<td></td>
<td>214</td>
<td>2,363</td>
<td>303</td>
<td>3,107</td>
<td>5,987</td>
</tr>
</tbody>
</table>

E-mail debates are not Effective

- Use of Plain Texts (E-mail, or Web Chat) lacks unifying representation framework (…) – leads to Babylonic mess

- Summarizing, recapturing, consolidating views is really TIME CONSUMING and does not necessarily produce correct results (may appear to be erroneous)

- Argumentation and Negotiation patterns and mechanisms are not adjusted (frankly, are not used effectively)
Suppose, there is the THING …

... not in philosophic sense – a discussion tool

- Than there might be a kind of an ONTOLOGY for Debate (formal) representation

- And it should serve as:
  - The **unifying representation framework** for Discussion Tool
  - The **unifying convention** providing patterns for **Argumentation** and **Negotiation**

- Let’s see how a Discussion might look like ...
Suppose, there is the **THING** …

- An example: ...**the notion of ROLE** – marked up and structured from e-mail source

<table>
<thead>
<tr>
<th>Participant</th>
<th>Positive Statements</th>
<th>Negations, Objections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joost Breuker, 21.11.2002, 1</td>
<td>1. Let’s discuss the notion of ROLE</td>
<td>1. Answer (Statement 2, Question): No. It is not entirely exclusive as an IS-A relation should be.</td>
</tr>
<tr>
<td></td>
<td>2. A PERSON may play different ROLEs at a time</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>E.g.</strong>: a &lt;STUDENT&gt;, a &lt;TEACHER&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Question</strong>: Is IS-A instantiation possible?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. ROLE is the SET-OF REQUIREMENTS on BEHAVIOUR of an INDIVIDUAL (AGENT, IS-A)</td>
<td></td>
</tr>
</tbody>
</table>

Suppose, there is the thing...

- An example: ...the notion of ROLE – the same in graphical notation

- Initiated by...
- Class
- Instance
- Relation, doubtful, alternative
- Implies distinct “possible world” of the theory
- Implies alt. branch
- Alternative branch
- Question
- Support, argument
- Objection, argument

Example
Reference (to DOLCE in this very case)
Colleges’ shoulders …

Some of the relevant implementations

- **OU KMI Tadzebao** and **WebOnto** Suites
  - Support for **discussions** on ontologies based on a NotePad paradigm
  - Support for ontology **browsing, creation** and **editing**
  - Based on **OCML**

- **FZI & AIFB KaON** Tool Suite
  - **Storage** of RDF models in **relational databases**
  - A tool for ontology **creation** and **evolution**
  - **RDF** - based
New Features required …

- A Discussion / Debate **Ontology**
- A **Language** for graphical representation of a Debate
- A **Metrics** and a **Polling Mechanism** for the assessment of Ontology parts vitality
- An **Instrument for** incorporating **Ontology Cleaning** Methodology (at least partially)
- **Import/Export** facilities to Semantic Web ontology language(s) – **DAML+OIL, OWL**
Our Progress and Call for Inputs

- Debate **Ontology** – draft conceptualization in progress (inputs appreciated)

- **Language** for graphical representation
  - in progress (inputs appreciated)

- **Metrics** and **Polling Mechanism**
  - in progress (inputs appreciated)

- **Import/Export** facilities (DAML+OIL)
  - close to completion

- **Storage in Relational Database** – implemented (prototype)

- **Graphical Web Interface:**
  - **Browser** – draft prototype implemented
  - **Construction/Discussion/Polling** – in progress