The Need for Business Vocabulary & Rules Management in Knowledge-Intensive Multinationals

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Agenda

• Business Vocabulary + Rules Use Cases
  1. What are the facts?
  2. What is this document about?
  3. What intelligence can we discover in our information?
  4. How can I maximize the effectiveness of our policies & best practices?
  5. What does our data mean?
  6. How do we keep track of new things easily -- and correlate data about them to other data?
  7. How can I globalize data and document content?

• “Semantics of Business Vocabulary and Business Rules”
• Management of Business Vocabulary + Rules
Use Case 1: What are the Facts?

I need to know all the relevant facts:
- about this subject or relationships among subjects
- regardless of where and in what system the facts reside
- whether they are in structured data or text
- with only having to ask one question in my own business language
Use Case 1: What is needed from a Business Vocabulary + Rules

• The ability to ask unambiguous questions:
  – in terms of the vocabulary used in that part of the business (not in terms of stored data names)
  – in a natural, intuitive way

• A business vocabulary
  – whose terms and facts have an unambiguous meaning (within a specified context)
Use Case 2: What is this document about?

- I need to index each document in a collection to make information in it easy to find
Use Case 2: What is needed from a Business Vocabulary + Rules

• The list of terms that have proven over time to be important in this collection of documents
• Synonyms and Acronyms for these primary terms
• Contexts that each term is meaningful within
• General to specific taxonomy structures for these terms
Use Case 3: What intelligence can we discover in our information?

• It would be very valuable to us if we can find out unknown relationships in are expressed in documents and data we have access to
  
  – e.g. What new uses are our competitors marketing their products for
Use Case 3: What is needed from a Business Vocabulary + Rules

• Same needs as for Keyword Metadata – plus:
  – Names of events and entities particularly relevant to the business in this context
  – The concept that each event and entity is an instance of
  – Types of facts that are relevant to the business
Use Case 4: How can I maximize the effectiveness of our policies & best practices?

- We need our policies and best practices to be:
  - explicit,
  - well-ordered,
  - plainly expressed,
  - not easily misinterpreted
  - easily found
Use Case 4: What is needed from a Business Vocabulary + Rules

• A business-friendly syntax for term, fact type, rule and policy entries
  – Preferably a minimally structured version of natural language

• Definitions wherever needed

• Fact types and rules structured in a way that their relationships can be searched and navigated
Use Case 5: What does our data mean?

• We want to reuse a single source for our data, especially Reference Data. We need to:
  – know what it means in business terms without ambiguity
    • Including what it means in relation to other data
  – be able to assure that the actual data is consistent with its meaning
  – be able to automatically transform it from one form to another without loss of meaning
Use Case 5: What is needed from a Business Vocabulary + Rules

• Ability to specify the business meaning of data
  – in terms of the Business Vocabulary + Rules
  – in a way that data management software can quality assure and transform the data automatically
  – In a way that data can be exchanged between systems and used in messages with integrity
Use Case 6: How do we keep track of new things easily -- and correlate them to other data?

- We have data in several existing systems
  - that we need to have operating together for new purposes
  - along with additional data that needs to be automated for the first time
Use Case 6: What is needed from a Business Vocabulary + Rules

- Ability to define the business meaning of both existing and new data so that both can interoperate with integrity.
  - In a way that can be understood by both people and the computer

- Ability to specify the business rules that governing the permissible business actions / changes in the database
  - In a way that can be understood by both people and the computer
Use Case 7: How can I globalize data and document content?

- We operate in many different countries and need to have all our information that is common across countries available in local languages at the least cost
  - Web content
  - Document content
  - Data content in application systems
Use Case 7: What is needed from a Business Vocabulary + Rules

- The ability to:
  - enter each discrete meaning, event or entity once and only once
  - uniquely name all meanings and identify all events & entities within specified contexts
    - e.g. community, subject area
  - terms for each concept in all the relevant languages
    - including abbreviations & acronyms
  - names each event or entity in all the relevant languages
SBVR Design Objectives:

- Must be business-friendly:
  - no reference to information or information systems concepts
  - conceptualized optimally for the way business people think
  - defined with the most common dictionary definitions applicable
  - expressed using the everyday word most commonly used for that meaning

- Business Rules are specified entirely from the Business Vocabulary

- Business people can exchange their Business Vocabulary & Rules in their own language

- Semantic integrity rules of Predicate Logic can be applied to a Business Vocabulary+Rules
  - Predicate Logic is used as a linguist uses it to capture semantics
    - and not in a system execution sense of rule engines or OCL execution
SBVR Contexts, Activity & Audience

**Business Context** (excluding recordkeeping & information system activities)

- **Creating Business Content** in a 'Business Vocabulary+Rules' (e.g. EU-Rent)
  - **Audience:** Business People in General
- **Integrating & Quality Assuring Business Content** in a 'Business Vocabulary+Rules' (e.g. EU-Rent)
  - **Audience:** 'Business Vocabulary+Rules' Integrator/Administrators

**‘Business Vocabulary+Rules’ Technology and Tool Context**

- **Providing the Semantic and Logical Foundation for all ‘Business Vocabulary+Rules’**
  - **Audience:** Linguists, Semanticists and Logicians
- **Designing a ‘Business Vocabulary+Rules’ Tool for Business People to Document Business Content** (e.g. EU-Rent)
  - **Audience:** Designers of BV+R Software Tools for Business People
- **Designing Tool capability to interchange Business Content** in a ‘Business Vocabulary+Rules’ (e.g. EU-Rent) among Business Communities within and between Organizations
  - **Audience:** Infrastructure Designers for BV+R Business Tools

**Information System (Recordkeeping) Context** *(Out of Scope for BRT)*

- **Designing an Information Systems that Talks and Works according to the Business Content** in a ’Business Vocabulary+Rules” (e.g. EU-Rent)
  - **Audience:** Designers of Information Systems that support a BV+R-specified business
Definitions in SBVR Structured English

- **international rental type**
  - Concept Type: **categorization type**
  - Concept that specializes the concept ‘international rental’ and that classifies an international rental based on whether its direction is to or from the country of registration of the rented car

- **international return rental**
  - Concept Type: **international rental type**
  - International rental that has country of the return branch of the rental that is the country of registration of the rented car of the rental
Fact Statements in SBVR Structured English

- rental has drop-off location
- rental has return branch
- branch is located at EU-Rent site
- rental incurs location penalty charge
Rule Statements in SBVR Structured English

- **Structural Rule (Definition)**
  
  It is necessary that each *car model* operates with at least one *fuel type*.

- **Operative Rule**

  It is required that the *drop-off date* of a *rental* precedes the *expiration date* on the *driver's license* of the *customer* reserving the *rental*.

- **Clarification**

  A *customer* reserving a *rental* may provide what *credit card* guarantees the *rental* if the *name* on the *credit card* is the *name* of the *customer* or the *credit card* is for a *corporate account* authorized for use by the *customer*. 
Managing

Business Vocabulary + Rules

• Capabilities Needed:
  – Support for delegating ownership and management to relevant business community
    • e.g. engineering, marketing, project mgt.
  – Central responsibility for tools, training, mentoring, quality assurance, and semantic integration as new communities form
  – Exploit Business Vocabularies + Rules in MS Office documents
    • especially Word
  – Adequate automated support for management and consistency, ambiguity and completeness checking
Resources

- “Business Semantics of Business Rules” OMG Request for Proposal
- “Business Semantics of Business Rules” article on Business Rules Team submission, Business Rules Journal
- For OMG members: latest “Business Semantics of Business Rules” submission documents
- Contact: Donald Chapin, Business Rules Team Governing Board
  - Donald.Chapin@BusinessSemantics.com
Each **rental car** always **has** exactly one **vehicle identification number**.
Overview of SBVR

Sub-communities may use different natural languages and specialized vocabularies

Community

Sub-communities may use different natural languages and specialized vocabularies

Body of Shared Meanings

Concepts (including Fact Types) and Business Rules

Semantic Formulation

Abstract formulation of semantics

Business Expression

Expression of Body of Shared Meanings in Business Vocabulary

Formal Logic

First-Order Predicate Logic with some (limited) extensions

underpins

structured as

shares

uses

expressed as