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Innovation and Knowledge

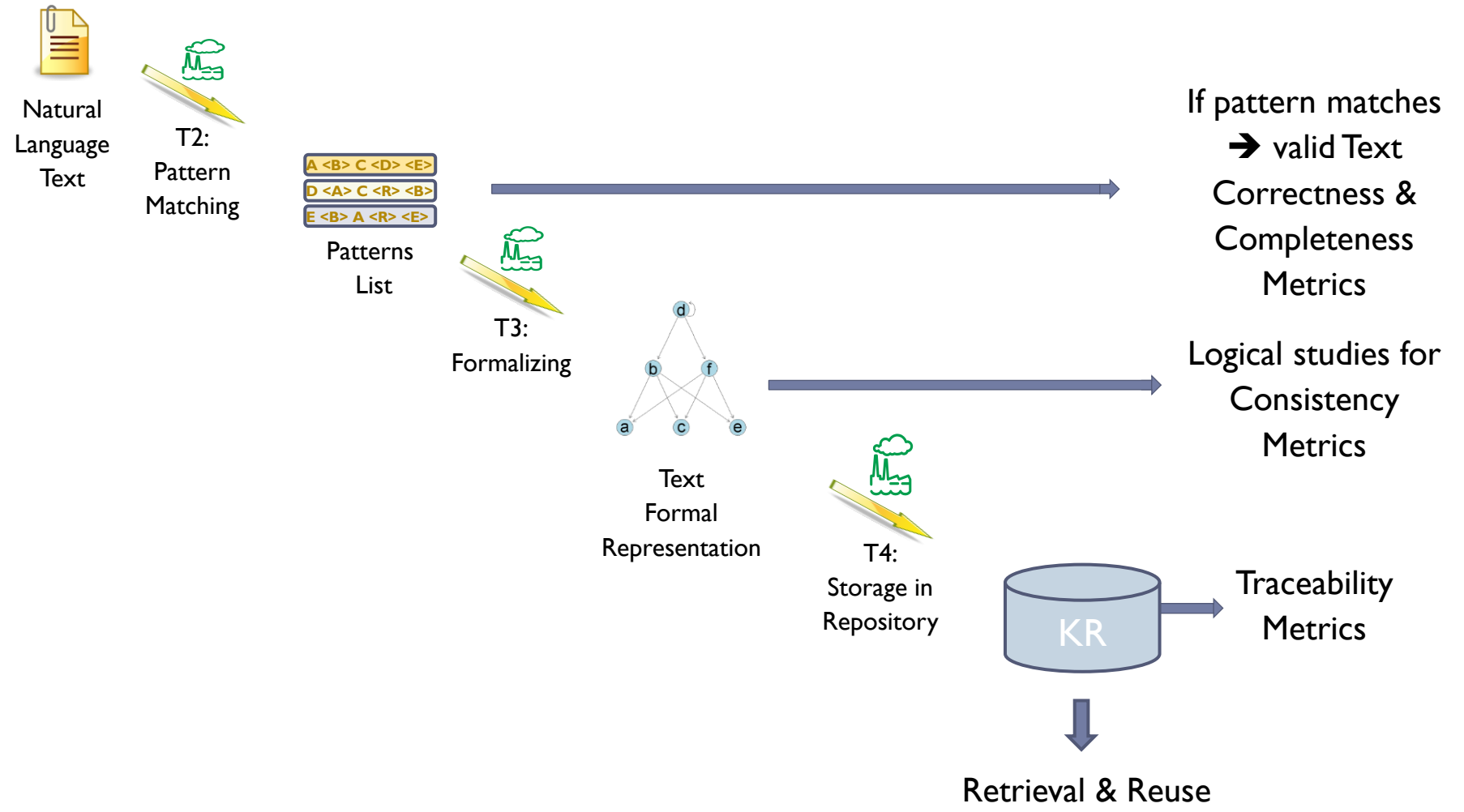
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Ontology construction process

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Knowledge TRC(Q) Process



Construction of Ontologies for The Requirements Quality Process

Process activities

- Project Start-Up
- Corpus creation and management
- Requirements Taxonomy inception
- Terminology creation and management
- Thesaurus creation and management
- Light Ontology creation and management
- Patterns creation and management
- Formal representation definition and management
- Integration of layers and internal Quality Control
- Verification and Validation

Project Start-Up

- The Project Start-up must take care of all the organization and planning activities towards the definition and success of the Ontology creation.

The following activities must be considered:

- Define the project management environment.
- Define the Experts and Architects Team involved in the project.
- Set the Equipment and Tools to be used.
- Define the Schedule that should target equipment, tools and the DM team members involved.
- Understand the Stakeholder needs/necessities for the Ontology to be built.
- Select the database, depending on the purpose of the Ontology to be built, to be used as source database.
- Prepare the database for the project.
- Analyze and define the indexer configuration elements

Corpus creation and Management

- The Corpus creation sub-process is in charge of preparing the electronic information that will serve as input to the rest of sub-processes. The corpus will be indexed with a set of tools, that will produce candidate elements to be members of the ontology.
- The following activities must be considered:
 - Search and get documents that will structure the Corpus
 - Validate the corpus to be used as entry for the process
 - Search for Structured documents/information, Glossaries, Dictionaries and Thesaurus
 - Migration of not-digital formats
 - Study the Corpus

Requirements Types Taxonomy inception: Example

- - SYSTEM FUNCTIONALITY AND OPERATION (F)
- - SYSTEM PROPERTIES (P)
- - SYSTEM ILITIES (NF)
 - PERFORMANCE
 - SAFETY
 - SECURITY
 - RELIABILITY
 - MAINTAINABILITY
- - SYSTEM INTERACTION
 - FUNCTIONAL INTERFACES
 - EXTERNAL SYSTEMS (ENTITIES) CONSTRAINTS
- - SYSTEM CONSTRAINTS
- -TECHNICAL CHARACTERISTICS
- -ENVIRONMENT

Terminology Creation and Management

- The Terminology creation and management sub-process is in charge of producing a list of terms. These terms will form the final structural ground of the ontology, and will create a network of relationships and dependencies that will form the final knowledge base.

The following activities must be considered:

- Verbs Study and Identification
- Adjectives and Adverbs Study and Identification
- Acronyms identification
- Nouns identification
- Simple terms identification
- Simple terms Validation
- Compound terms (phrases) Identification
- Verification and Validation of terms

Thesaurus Creation and Management

- The Thesaurus creation and management sub-process will connect the terms gathered in “Terminology creation and management” to produce a Thesaurus with them.

Light Ontology Creation and Management

- The Light Ontology creation and management sub-process will include semantic tags to terms, as well as produce a fitted set of date elements that help the indexers to perform properly.

Patterns Creation and Management

- The Patterns creation and management sub-process will produce a set of textual patterns that will allow the applications using the ontology to match textual inputs (like requirements, for example) to the predefined set of patterns.

Formal Representation Definition and Management

- The Formal representation definition and management sub-process will produce formal representation to every existing pattern, so that the individual text sentences can be properly represented in the Assets repository in a formal way.



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