# *exelixis* (Ontology-enabled data integration engine)

Overview

exelixis is an ontology-enabled data integration engine that allows query answering over systems that may use different ontology version as global schema. It enables explanations about the production of the ontologies and rewrites queries among ontology versions, so that they can be correctly submitted to the sources. Eventually, it enables data integration for XMLs, RDFs, Relational Databases, CSV data sources under a single SPARQL endpoint.

Answering queries over multiple data integration systems
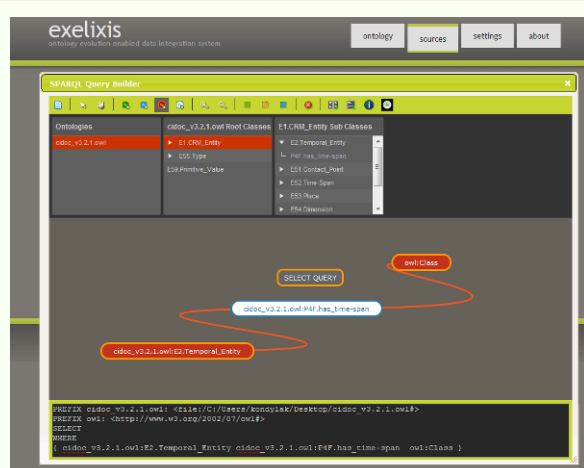
Creating Visually SPARQL queries
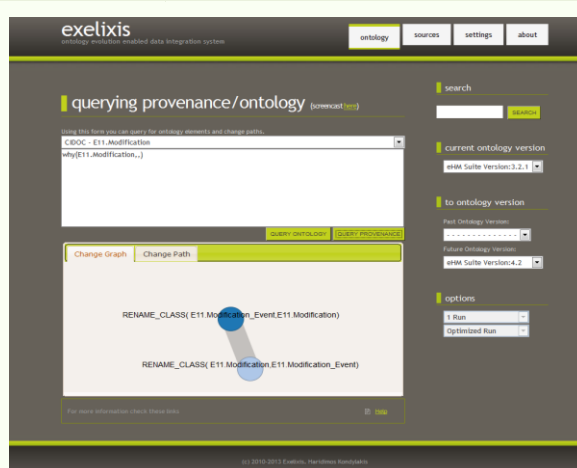
Querying ontology Provenance

Target Domains

❖ Providing access to disparate heterogeneous data sources using one or more ontology versions as global schema.

❖ Ontology Engineering

❖ Linking eHealth systems to external knowledge sources such as clinical guidelines, protocols, genetic information and environmental resources.

Pilot Installations in the following EU research projects

❖ iManageCancer - Empowering patients and strengthening self-management in cancer diseases (H2020).

❖ MyHealhAvatar - A Demonstration of 4D Digital Avatar Infrastructure for Access of Complete Patient Information (FP7-ICT-2011-9)

❖ eHealthMonitor - Intelligent Knowledge Platform for Personal Health Monitoring Services (FP7-ICT-2011-7)

❖ EURECA - Enabling information re-Use by linking clinical REsearch and CAre (FP7-ICT-2011-7)

Description

exelixis is a web-based system that enables query answering over evolving ontologies without mapping redefinition. This is achieved by rewriting queries among ontology versions. Changes between ontologies are automatically detected and described using a high-level language of changes, interpreted then as sound global-as-view (GAV) mappings. Query expansion is applied in order to consider constraints from the ontology and unfolding in order to apply the GAV mappings. *exelixis* comprises the following modules:

❖ *Ontology Viewer*: *exelixis* uses jOWL API, OWLSight ontology browser and the Starlion tool to visualize ontology.

❖ *Visual SPARQL generator*: Besides ontology viewing users may graphically formulate SPARQL queries by the design of the graph patterns for the corresponding SPARQL query.

❖ *Change Path Generator & Visualizer*: This component allows a user to explore the evolution of the ontology for a specific part of the ontology under consideration.

❖ *Expander & Rewriter*: This module rewrites queries among ontology versions by identifying the changes among the ontologies. Whenever equivalent rewritings cannot be produced exelixis a) guides query redefinition and/or b) provides the best "over-approximations".

exelixis Modules

Query rewriting approach
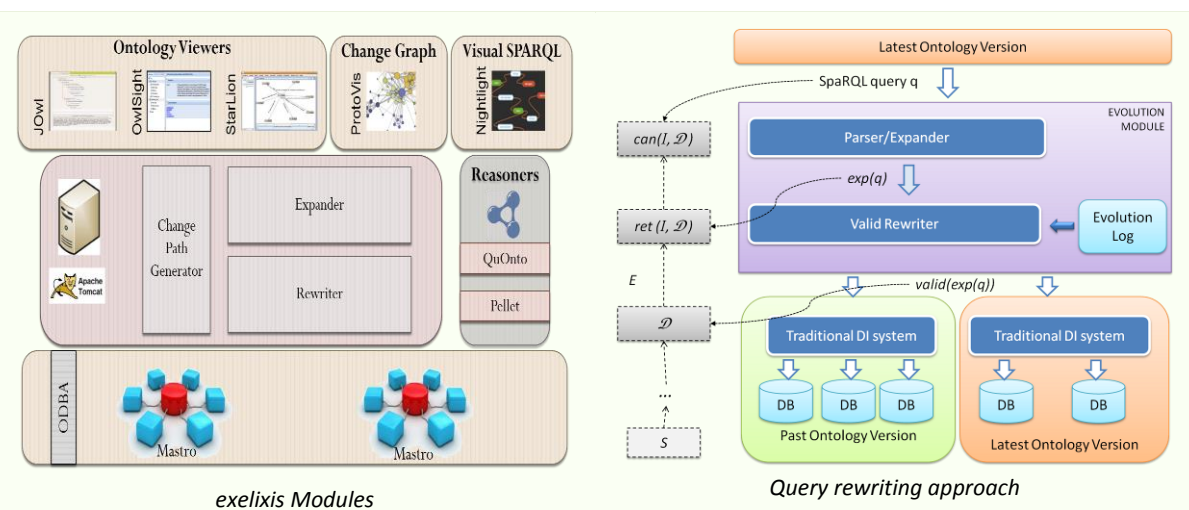
Additional Information

Video Tutorials

❖ Querying Ontology Provenance: *http://goo.gl/xQxrU3*

❖ Querying Multiple Data sources: *http://goo.gl/BzdCCg*

exelixis online

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