D2V: A Tool for Defining, Detecting and Visualizing Changes on the Data Web

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MOTIVATION

- The dynamic nature of Web data gives rise to the need of understanding and analyzing the dynamics of individual datasets. As a matter of fact, the value of a dynamic dataset lies not only in its content, but also in its evolution history, which in some applications (e.g., trend analysis and identification), is more important than the data itself.
- Taking into account these considerations we have implemented the D2V, a tool that assists users in analyzing and visualizing the **evolution history of dynamic RDF datasets**.

KEY IDEAS

Definition: identify changes appropriate for the application at hand, and their semantics
Representation: definition of an ontology of changes and representation of detected changes as instances of this ontology
Detection: algorithmic identification of the deltas (based on the change definitions) as well as the storage of the detection results in the ontology
Visualization: presentation through appropriate interactive interfaces and visualization paradigms

CHANGE MANAGEMENT

- Two modes of **creation**: based on templates or advanced UI enable change definition
- **Edit** change definition
- **Delete** change definition
- **Manage** changes per **user**

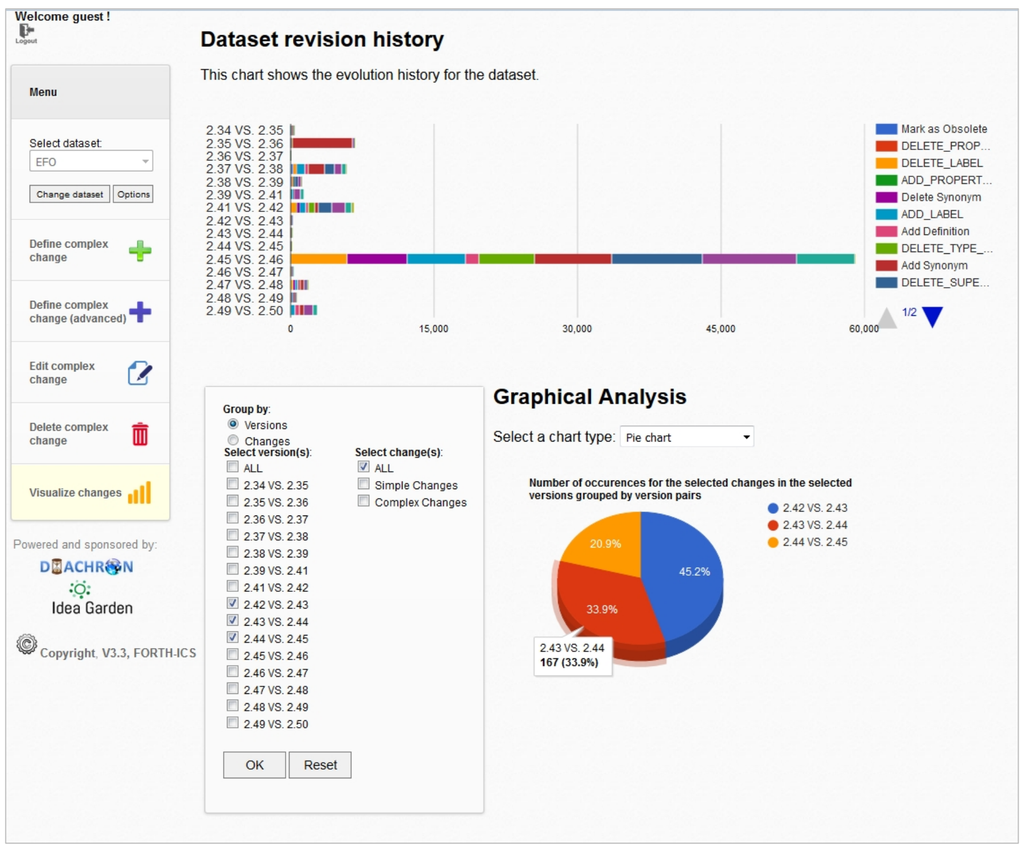
VISUALIZATION VIEWS

- **Dataset centric**: entire evolution history along all ingested versions of the chosen dataset
- **Version centric**: changes are grouped by version pair
- **Change centric**: changes are grouped by change type
- **Term centric**: change instantiations involving this term

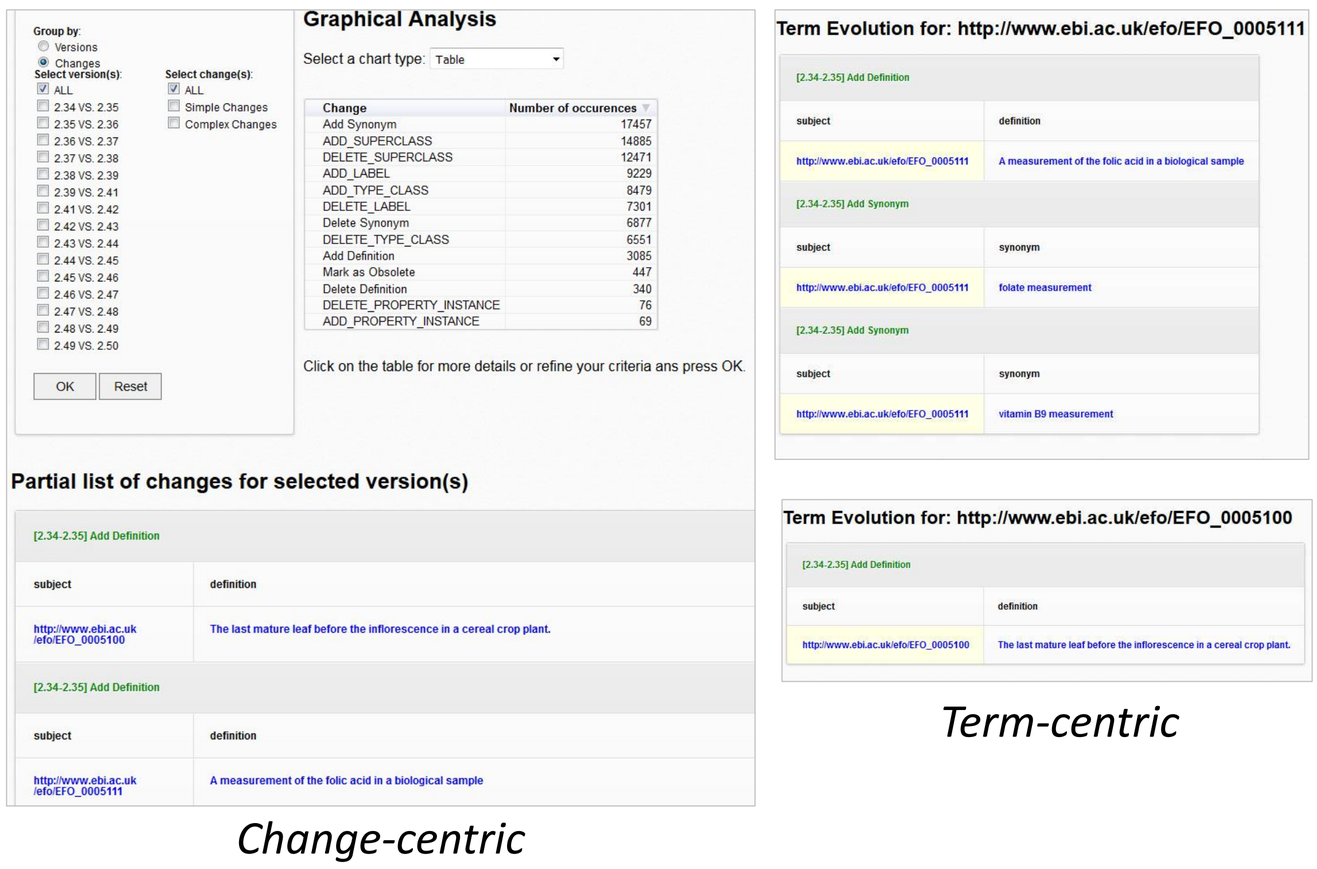
CONTRIBUTION

- We treat changes as first-class citizens, in a way that supports different modes of navigation on the deltas between any pair of versions, as well as the visualization of the evolution history of a given dataset.
- We provide an adequate user interface, allowing the management of high-level coarse-grained changes, according to each curator needs.

THE D2V SYSTEM



Dataset-centric and version centric view



Change-centric

Term-centric

OPEN-SOURCE USED TECHNOLOGIES

SUPPORTED BY THE EU PROJECTS

REFERENCE

Yannis Roussakis, Ioannis Chrysakis, Kostas Stefanidis, Giorgos Flouris and Yannis Stavrakas. A Flexible Framework for Understanding the Dynamics of Evolving RDF Datasets In Proceedings of the 14th ISWC, 2015.

URL: http://www.ics.forth.gr/isl/D2VSystem
VIDEO: https://www.youtube.com/watch?v=oY7qBBfcHYg