CWL Conversion Framework

(Version 0.1 beta)

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1. Introduction

In this document the draft version of CWL Conversion Framework is illustrated. This Framework serves as a tool for conversions among CWL.unl, CWL.cdl and CWL.rdf. It is implemented as a web application written using Java/JSP, DHTML/Ajax and VML.

2. Application Flow

The basic flow of the conversion considers:
1. Parsing of input document
2. Building of object graph, where nodes correspond to entities and arches correspond to relations/predicates.
3. Generation of various views (UNL, CDL, RDF, Graphical)

All basic functionality is implemented as a Java library which can be reused for various applications.

3. View Rendering

Object graphs can be rendered in different ways but in general they reflect the same relational network from the input document.

Graph View

The default is a graphical view where the sentence from natural language is presented as a graph (see Picture 1). Nodes of the graph contain Universal Words from UNL KB corresponding to the entities building the natural language sentence.

Picture 1: Graph View
Arches of the graph correspond to the relations among the entities. The direction of the relation can be seen by clicking on any node. In that case you will see incoming relations colored as red lines and outgoing relations will remain black. Full versions of Universal Words can be seen by double-clicking on the nodes, otherwise only headwords are shown by default. The rendering is done using VML (Vector Markup Language). Nodes of the graph are draggable, thus each user can customize the look for his convenience. After dragging the nodes, the overall positions of the nodes can be saved by clicking corresponding link in upper right corner of rendering area.

Sub sentences of the sentence are rendered using different colors for nodes. All sub sentences have root entry marked with `"@entry"` string after headword. Same refers to the root entry of the sentence itself.

**UNL View**

The UNL View renders the graph as a sequence of UNL relations (see Picture 2). The code is highlighted accordingly. The sequence of the relations considers main sentence relations first and sub sentence relations afterwards.

![UNL View](attachment:UNL_View.png)

**CDL View**

The CDL View renders the graph as sequences of entries and relations (see Picture 3). At first the entity sequences appear where UWs from UNL KB are being used. After which there relations among listed entities are rendered. Similar structure is being used for sub sentences. The code is highlighted accordingly.
RDF View

The RDF View renders the graph as an RDF document where Sentences(subsentences), Relations and Entities (Universal Words) are defined as objects using "<rdf:description>" tags (see Picture 4). Corresponding namespaces and unique URIs are being generated and referenced. The code is highlighted accordingly.