THE VOCABULARY

Basic Model
THE VOCABULARY – THE MODEL

- The vocabulary is composed of two partially ordered sets:
  1. a set of concepts
  2. a set of relations of any arity (the arity is the number of arguments of the relation)
  3. a set of individual markers ("*") the generic marker

- The three sets are pairwise disjoint.
The partial order represents a specialization relation: $t \leq t'$ is read: $t$ is a **specialization** of $t$

- **If** $t$ and $t'$ are **concepts**, $t \leq t'$ means:
  
  *every instance of the concept $t$ is also an instance of the concept $t'$*

- **If** $t$ and $t'$ are **relations**, then
  
  - **these relations have the same arity** $k$, and
  
  - $t \leq t'$ means:
    
    *if $t$ holds between $k$ entities, then $t'$ also holds between these $k$ entities*
THE VOCABULARY – THE MODEL

- Set of concept types: hierarchy of concept types
- Set of relation types: hierarchy of relation types

The hierarchies can be visualized by their Hasse diagrams (t ≤ t’ if there is a path up from t to t’)

- A hierarchy is not necessarily a tree!
HIERARCHY EXAMPLE FOR CONCEPTS AND RELATIONS
THE VOCABULARY

Extensions to the Basic Model
EXTENDING THE VOCABULARY (1)

- Banned concept types: the concept types cannot have a common subtype (disjointness)
  - Example: Something cannot be a *Man* and a *Woman* at the same time.
EXTENDING THE VOCABULARY (2)

- **Relation symbol signatures**: a signature will specify:
  - The *arity* of the relation
  - The *maximal concept type* of each of its arguments
    - Example: `parentOf(Adult, Human)` means that the relation `parentOf` is a binary relation and that the first argument is of maximal type `Adult` and the second argument is of maximal type `Human`

- The partial order defined on relations has to conform to the partial order defined on the concept types of the relations’ signatures.
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Editing Vocabulary with Cogui
COGUI
COGUI – OPEN COGXML FILE: EITHER LOCAL FILE OR BY URL
COGUI – OPEN AN EXISTING PROJECT: THE
PROJECT WINDOW ON THE LEFT HAND SIDE
VOCABULARY
1. Concept Hierarchy
COGUI – CONCEPT HIERARCHY: visualise both the three view on left hand side and graph on right hand side.
COGUI – Concept Hierarchy Display: change the display of the hierarchy (which is not necessarily a tree)
COGUI – CONCEPT HIERARCHY DISPLAY: CHANGE THE DISPLAY IN THE GRAPH VIEW
COGUI – CONCEPT HIERARCHY DISPLAY: ZOOM IN AND OUT OF THE GRAPH FOR BETTER VIEW
COGUI – CONCEPT HIERARCHY DISPLAY: TO ARRANGE GRAPH CORRESPONDING TO SPRING LAYOUT START THE LAYOUT AND **DO NOT FORGET TO STOP IT (THE ACTIVE BUTTON STAYS RED)**
COGUI – CONCEPT HIERARCHY DISPLAY: USING ZOOM AFTER SPRING LAYOUT VIEW
Cogui – Concept Hierarchy edition: When the edition button is on the graph view can be used also for editing graphs
COGUI – CONCEPT HIERARCHY EDITION: WHEN EDITION IS ON A CONCEPT TYPE CAN BE ADDED USING THE GRAPH VIEW
COGUI – CONCEPT HIERARCHY EDITION: WHEN EDITION IS ON RIGHT CLICK ON THE NEWLY INTRODUCED NODE FOR MORE ACTIONS
Cogui – Concept Hierarchy Edition: To add the specialisation relation, when edition is on, put the mouse on the center of the new concept node and drag it to link it to the desired concept.
COGUI – CONCEPT HIERARCHY EDITION: THE NEWLY ADDED CONCEPT NODE AND THE SPECIALISATION RELATION APPEAR IN BOTH VIEWS
COGUI – CONCEPT HIERARCHY EDITION: to delete a node in graph view, when EDITION IS ON, right click on node and select DELETE.
COGUI – CONCEPT HIERARCHY EDITION: THE CONCEPT HIERARCHY CAN BE EQUALLY EDITED IN THE TREE VIEW
COGUI – CONCEPT HIERARCHY EDITION: TO ADD A NEW SUBCONCEPT TYPE FOR A CONCEPT TYPE IN TREE VIEW RIGHT CLICK ON THE NODE AND SELECT INSERT CONCEPT TYPE
COGUI – CONCEPT HIERARCHY EDITION: THE NEWLY ADDED CONCEPT TYPE IN THE HIERARCHY IS ALSO VISIBLE IN GRAPH VIEW
COGUI – CONCEPT HIERARCHY EDITION: TO STOP EDITING GRAPHS IN THE GRAPH EDITOR SELECT EDITION OFF
COGUI – CONCEPT HIERARCHY EDITION: WHEN EDITION IS OFF WE CANNOT ADD A NEW CONCEPT TYPE USING THE GRAPH EDITOR
COGUI – Concept Hierarchy edition: when edition is off we can still edit the graphs using the tree view.
COGUI- CYCLES IN THE HIERARCHY: INTRODUCE A NEW CONCEPT IN HIERARCHY
COGUI - CYCLES IN THE HIERARCHY: INTRODUCE A NEW CONCEPT IN HIERARCHY AND LINK IT IN HIERARCHY
COGUI- CYCLES IN THE HIERARCHY: INTRODUCE A NEW CONCEPT IN HIERARCHY AND LINK IT IN HIERARCHY AND ADD A NEW EDGE TO CREATE A CYCLE
COGUI - CYCLES IN THE HIERARCHY: INTRODUCE A NEW CONCEPT IN HIERARCHY AND LINK IT IN HIERARCHY AND ADD A NEW EDGE TO CREATE A CYCLE
COGUI - CYCLES IN THE HIERARCHY: CAN BE VISUALISED IN THE TREE VIEW AT INFINITY
COGUI- CYCLES IN THE HIERARCHY: THE TREE DISPLAY IN THE GRAPH EDITOR IS NOT AVAILABLE
CoGui- Cycles in the hierarchy: the tree layout in the graph editor is not available so attention when using the spring layout.
EXTENDING THE VOCABULARY

1. Banned Types
COGUI – CONCEPT HIERARCHY EDITION: BANNED TYPES
COGUI – CONCEPT HIERARCHY EDITION: BANNED TYPES – RIGHT CLICK ON THE AREA BENEATH BANNED TYPES AND CLICK ADD
COGUI – CONCEPT HIERARCHY EDITION: BANNED TYPES – SELECT THE TYPES
COGUI – CONCEPT HIERARCHY EDITION: BANNED TYPES – SELECT THE TYPES
COGUI – CONCEPT HIERARCHY EDITION: BANNED TYPES – THE BANNED TYPES WILL APPEAR IN THE LIST
COGUI – RELATION HIERARCHY
COGUI – Relation hierarchy can be visualised both using the tree view and the graph view.
COGUI – THE GRAPH VIEW FOR THE RELATION HIERARCHY PROPOSES THE SAME DISPLAY FUNCTIONALITIES AS FOR CONCEPTS
COGUI – THE GRAPH VIEW FOR THE RELATION HIERARCHY PROPOSES THE SAME FUNCTIONALITY FOR THE EDITION MODE
EXTENDING THE VOCABULARY

2. Relation signatures
COGUI – THE RELATION TYPES HAVE A SIGNATURE
COGUI – To change the signature of a relation type right click and select edit.
COGUI – TO CHANGE THE SIGNATURE OF A RELATION TYPE RIGHT CLICK AND SELECT EDIT SIGNATURE THEN CHOOSE THE CONCEPT TYPE
COGUI – To change the signature of a relation type right click and select Edit signature then choose the concept type in the proposed hierarchy.
COGUI – TO INSERT A NEW RELATION TYPE RIGHT CLICK IN THE HIERARCHY THEN SELECT INSERT RELATION TYPE
COGUI – TO INSERT A NEW RELATION TYPE RIGHT CLICK IN THE HIERARCHY THEN SELECT INSERT RELATION TYPE THEN EDIT ITS SIGNATURE
Cogui – The relation hierarchy respects the concept hierarchy for its signature
COGUI – THE RELATION HIERARCHY RESPECTS THE CONCEPT HIERARCHY FOR ITS SIGNATURE
Cogui – Choosing an Invalid Signature
COGUI – CHOOSING AN INVALID SIGNATURE
COGUI – VALIDATE THE VOCABULARY
Cogui – **ALWAYS** validate the vocabulary before using it
VOCABULARY

3. Individuals
COGUI – INDIVIDUALS
EXTENDING THE VOCABULARY

3. Individual Typing
COGUI – INDIVIDUAL TYPING
COGUI – MULTILINGUAL CAPABILITIES
FOR TRANSLATIONS RIGHT CLICK AND SELECT LABEL AND DESCRIPTION
CLICK ON NEW TRANSLATION TO ADD A NEW TRANSLATION
SELECT THE LANGUAGE IN WHICH YOU WANT TO TRANSLATE
WRITE THE TRANSLATION THEN CLICK OK
THE DIFFERENT TRANSLATIONS WILL APPEAR ON MOUSE OVER NODE
YOU CAN ALSO TRANSLATE RELATIONS
IF YOU TRANSLATE AN ENTITY IN FRENCH
While the selected language is English, the translation will not appear.
Changing the language to French will highlight the non translated concepts.