Ontologies - Practical Session 1
First steps in building an ontology

During the three practical sessions of the Ontology course, we will go through the process of building a complete ontology. Since ontologies should be shared and consensual, and a big part of the process is about discussing and pondering possible representations of concepts, you will do this in groups of 3.

T1: Organize yourselves in groups of 3, preferably composed of people of different backgrounds. You will have to work with the same people during the three practical sessions.

Note that you will need to submit the final ontology as well as its documentation and a short report on the different steps you went through to build it after the third practical session. Make sure to **keep notes** of everything you do today and during the other sessions.

1 Reminder

An ontology is an explicit specification of a shared conceptualization of a domain. In its final form, it includes formal definitions of concepts (a.k.a. classes, i.e. intentionally defined groups of things), relations (a.k.a. properties, relations that might exist between things belonging to concepts), and individuals (a.k.a. instances, representing specific things).

As seen during the last lecture, the first step in building an ontology is to start a conceptualization of the domain, including the identification of concepts of importance, with informal definitions for them, and of relations that might exist between those concepts.

2 Exploring the domain

You will build an ontology of children stories, that is, of stories written for children. The objective of this ontology will be to provide a domain model for children stories which researchers can use to structure and explore a large corpus of children stories. [1] Those researchers might, for example, want to analyze trends in topics and plots of children stories, select particular stories based on various aspects, focus on the relations between specific themes, groups of authors, locations, time periods, etc.

T2: Discuss examples of children's stories you know, making sure to choose various examples from different times, different origins, different formats and different genres. Try in particular to find examples that are unusual or different from what first comes to mind. Discuss what makes them stories, specifically children stories, and whether those characteristics are common to all (children) stories. Based on this, write down your group's informal definitions of a story and a children story.

T3: Based on those definitions and discussions, make a list of concepts you think will be useful to describe and define the concepts of stories and children stories. Also, include related concepts, that is, concepts that may not appear directly in the definition but that will play a role in the ontology.

1. such as `https://www.sketchengine.eu/oxford-childrens-corpus/` or `https://www.kaggle.com/datasets/edenbd/children-stories-text-corpus`

3 Competency question

As mentioned above, in terms of application, we consider scenarios that include the use of a corpus structured according to your ontology for research in narrative studies. This might include :

1. Selecting a subset of the corpus according to various characteristics of the stories and of their context.
2. Analyzing (temporal, geographic, thematic, etc.) trends in the stories of the corpus.

T4: Considering those two scenarios, write at least 10 competency questions for your ontology. As a reminder, a competency question is a question that you expect to be able to answer by interrogating your ontology once populated (i.e. once the concepts have been instantiated with a significant number of individuals, in this case stories and related things).

T5: Using those competency questions, extend the list of concepts you came up with in **T3**. In addition, indicate which concepts are more general than others and add a list of relations that connect those concepts.

4 Skeleton ontology, OWBO and Protégé

Based on the results of the previous steps, we want to start building the core of the ontology and draw a diagram of the main concepts and their relations. Note that it is possible that in doing so you will need or want to add more concepts, more relations, rename them, or change the way relations connect those concepts.

Note that OWBO and Protégé use the word “class” instead of “concept”, and the word “property” instead of “relation”.

T6: Using the OWBO [2] tool or pen and paper, draw a diagram of the skeleton ontology, i.e. of the core concepts and their relations.

We will now look at how the skeleton ontology can begin to be refined, made more formal, completed, and validated using the Protégé Ontology Editor. [3] To simplify our task, we will use the Web version of Protégé version here (WebProtégé [4]).

T7: Create a new ontolopgy in WebProtégé and, if you have used OWBO, import your saved skeleton ontology into it. If you have used pen and paper, recreate the skeleton ontology by adding classes and properties and setting the domains and ranges of properties.

T8: Picking one of the examples you identified at the beginning, create an instance of a children story with as much information as possible to include according to your initial ontology. Can you identify places where the definitions will need to be more general, to make reference to concepts or relations that are not yet there, etc. ?

2. https://mdaquin.github.io/owbo
3. https://protege.stanford.edu/
4. https://webprotege.stanford.edu/