Universal Terminology

CHAPTER 4: ATOMS OF THE TERMINOLOGY

This chapter defines the 4 kind of atoms relevant for the representation of the domain of anatomy. The atoms in this context are the units of knowledge we are dealing with, when building the $\mathbf{T}_{logy}$. The atoms represent different levels of knowledge, where each lower level is a constituent of the next upper level.

The atoms are: the words of the language call lexemes at the lower level, the anatomical entities where the terms denoting them are made of words, the units that are collections of one to five entities, and the lists grouping the units. Each atom is in fact more than the sum of its constituents: an atom has its own personnality.

Warning: This chapter is a preliminary version, to be extended at some later stage.

This document is the chapter 4 of the book Universal Terminology which presents a global documentation on the $\mathbf{T}_{logy}$.

Contents

4.1   About the atoms

This is a foundamental question: about what the terminology is speaking of? What are the units of knowledge manipulated by the terminology. A number of clear statements about these atoms is necessary, as well as their interrelations. It is not sufficient to say that the terminology presents an ordered collection of body parts: this is not a basis for building the services we are expecting from a modern terminology.

In our present context, we want to emphasize the main objects of our $\mathbf{T}_{logy}$, the ones at the center of our presentaion and around which are articulated the different discussions. We have already defined in *chapter 02* one of our atoms: the **entity**. This atom is commonly accepted by most ontologies, but it has different importance depending on the authors. We will below introduce three different atoms: the **vocabulary** which is below the entity and is a constituant part of it, the **unit** which is an aggregation of a few entities strictly interrelated, and the **list** which is made of units.

The figure xxx shows the different levels of the atoms: how they are hierarchised. Lists are made of units, which are made entities, which are made of words from the vocabulary. Each atom must be well defined in order that the atom at the next level is well understood: a poor vocabulary will make difficult the creation of significant terms for the entities; and what is the quality of lists built from badly formed units?

As a complementary comment, let distinguish the atoms here presented from the concept of granularity of the $\mathbf{T}_{logy}$. In anatomy, the granularity refers to the levels of details of the objects of the domain, from a macroscopic point of view to the molecular point of view. The subject has been developed by [**?**].

4.1.1   Vocabulary

In a terminology, we aim at communicating about anatomical objects.To do that we need to name them using a language that is shared by the speaker and the auditor. Such a language exists in different forms but the written form is mainly our concern. In this form we dispose of words issued from vocabulary objects and a syntactic grammar governing the arrangement of words and their modified forms. The words are simply vehicles for the communication of some knowledge. Consequently, the closer is our knowledge of words, the better will be our built terms.

The vocabulary is a particular entity which contains up to three words, collected together with a common meaning: they are the nouns, the adjectives and the prefixes. Usually - and this is valid for all languages - with each noun is associated an adjective strictly related to this noun, and with each adjective is associated a prefix strictly related to this adjective. Such an association is strong.

Vocabulary
```
A vocabulary (definition) is a collection of vocabulary entities
which are the containers of the relevant words active in the
construction of the terms.
```

Examples are: cor, cardiacus, cardio in Latin, heart, cardiac, cardio in English, coeur, cardiaque, cardio in French, corazón, cardiaco, cardio in Spanish.

4.1.2   Entity

4.1.3   Unit

A unit is a basic object of the $\mathbf{T}_{logy}$ that has already be defined in *chapter 02*. This definition is repeated here:

> **Unit**
> A unit (definition) is an assembly of entities counting one to
> five items related to a generic entity and its corresponding
> specific entities.

4.1.4   List

> **List**
> A list (definition) is an ordered and indented sequence of units
> under a top unit in conformity to a specific hierarchy.

A list is identified by its top unit, which identifier is part of the identifier of the list. The second identifying feature of a list is evidently the type of hierarchy used for its construction. The third item is the date of creation of the list, because the $\mathbf{T}_{logy}$ is continually updated and the content of the list may have been changed.

The indentation of a list is created in accordance to the levels of the specified hierarchy. Any change in the indentation is to be considered as a change of the list.

The sequencing order of the list is also considered as a changing factor: a new order means a new list different from the former list. This means that we consider that the siblings in a hierarchy have a meaninful order. This is not a necessary feature of the taxonomy or the partonomy, but we make it mandatory in our implementation. This means that an explicit numbering of the siblings anywhere in these hierarchies has been created and is maintained inthe database. The significance of such an order is discussed in the chaters about these hierarchies.

The best example of lists are the Published lists available on the website. These lists are frozen versions of the terminology at some relevant points in time. Whatever the evolution of the content, the past versions remains available, allowing any user to define his own time scale and to evoluate to new versions only when he feels ready for that step.

4.2   Log of updates

26 Dec 2023 Partial extension of the file and first delivery on the website.

05 Apr 2022 Creation of the file.

4.3   Credentials

This document is part of the book "Universal Terminology" accompanying the website on Terminologia Anatomica. It expresses the vision of the authors of

the $\mathbf{T}_{logy}$about the foundations of the science of ontology, supporting the here presented terminology. Despite it is as exact as possible, close to the reality of the database of the terminology and the surrounding software, approximations, errors and ambiguities are possible and should be considered as independent of their willingness and intents.

Identified comments about the content of the website and its presentation are welcome. An appropriate answer will be given when pertinent.

Authentic URL of this file: https://ifaa.unifr.ch/Public/TNAEntryPage/help/Chap04.pdf