

The partonomic lists

Anatomists at large prefers the presentation of anatomical entities under the guidance of the *part of* relation: a selected entity one want to document is selected as well as all its composing parts. This schema is derived from the concept of the atlas of anatomy with multiple figures illustrating the human body. This is quite a natural approach. But it is formally complicated and easily subject to errors and ambiguities. This section will illustrate the formal aspects of the partonomy.

Consider at first the Terminologia Anatomica, version 1998. It is essentially presented as partonomy lists. But it has a few sections call *Nomina generalia* that are definitely not a partonomy, but belongs to the taxonomy. In addition, a few taxonomic links are present by accident. There is also the presence of *contained in* relations, that cannot be assimilated to a *part of* relations. Finally, TA98 presents a few hundreds of cross references from one section to another, repeating an entity where a pertinent relation to the local context is an evidence; but such an interspersed entity is not in a *part of* relation in the actual context; this is hardly visible, only by the broken sequence of identifiers.

The *part of* relation must be precisely defined for the domain of anatomy. This relation must be specialized in order to account for numerous situation. The following cases have to be defined:

- what is a material sub part, using the developmental concepts of embryology; exclude the contained in relation;
- how an immaterial entity is a part of a material entity;
- what is an immaterial sub part of an immaterial entity;
- what is a composite entity, and what are its parts with which relations;
- what is a mixed composite entity and how it articulates with other entities.

For the new terminology, a taxonomy of *part of* relations has been designed under the form of *non physical* entities. Any anatomical entity being situated somewhere in the partonomy, it must necessarily have a *part of* relation to its partonomic ancestor. Such a relation must be explicitly documented. Of course, a casual user of the terminology may not be interested by this formal aspect, but if for any reason there is a need to clarify the situation, the information is available.

There is an undefined number of partonomies in the domain of anatomy. Each partonomy is usually defined by its top entity. One particular entity is named the global partonomy and has as its top entity *corpus humanum*. Other partial partonomies are necessary when we encounter a composite entity like *rod cells*; it is desirable to examine the partonomy of a single anonym *rod cell*, what can be done by opening a partial partonomy, marked by the number sign, giving # *rod cell* and followed by the indented partonomic hierarchy. A partial partonomy is not a part of the global partonomy: it is distinct and if it is presented there, it's only a presentation convenience.

The option of mentioning any entity position elsewhere outside of the actual section of the partonomy is clearly a didactic advantage. The true meaning of such a reference is "see also" and nothing more. The user is warned not to over

interpret such a relation. For example, the *sinus venosus sclerae* is not *part of* the *sclera*, but a part of the *systema cardiovasculare*; however, it is appropriate to mention it in the partonomy of the *sclera*. In the terminology, such a situation is marked with an eye icon.