

Notes on subontologies and feedback

Background

A subontology of SNOMED CT is a compact representation of the definition of specific concepts of interest to a domain (renal, dental medicine, imaging, medicinal product) or an application (International patient summary). It contains only the information needed to preserve the semantics of these concepts. A subontology can be customised to fit a specific purpose and allow for easy maintenance and sharing.

What are the key features of subontologies?

- Concise - only includes relevant content of SNOMED CT terminology
- Customisable - easy configuration for scope and change over time
- Reusable - convenient for sharing and integration into another ontology

What are potential use cases?

- A subontology browser could make it easier for domain experts to use the terminology
- Users can gather content related to their application regardless of source (Australia, UK, US...), including full definitions and relationships and still retain correct meaning with respect to the source ontology
- Debugging and update of an ontology is easier for users with the capability to examine a concise extract related to a specific set of concepts
- Demonstration of concept model to increase understanding and quality
- Sharing content is possible to be propagated to a target ontology

Concepts in subontologies can be divided into two types:

- The **focus concepts** (classes) of interest in a specific domain or application. They are used as input signatures for generating a subontology. They can be a list of SNOMED CT concepts, e.g., a refset or subset.
- The **supporting concepts** are required to define focus concepts, and are automatically extracted by the software.

Verification of correctness of subontologies and quality assurance

- Preservation of the semantics of *focus concepts*
 - Semantics of focus concepts coincide in subontology and source ontology
- Preservation of the transitive closure (hierarchy) for *all concepts*
 - Transitive closures of all concepts in the subontology are the same as the transitive closures of these concepts in the source ontology
- Thorough testing
 - Definitions against SNOMED International toolkit results (Authoring Form, Necessary Normal Form)
 - Against range of example cases, using different language features
 - Logical difference comparison

Link to the presentation at the January 2021 SNOMED CT Research Webinar:

<https://youtu.be/HC3hriQdZKM>

Feedback form

Link to the questionnaire: <https://forms.gle/xHmXaMMsxt8FTj7s6>

Link to the SNOMED CT browser for subontologies: <https://iaa.snomed.tools/>

The following files are related to subontologies on our Google drive. The link to these files is provided in questionnaire form.

1. Baseline refset (Version of refset)
2. Subontology owl file,
3. Inferred relationship file (NNF from) of subontology

Thank you for taking the time to answer the questionnaire! Your response is key to the success of the IAA Content Extraction and Sharing project.