

Structuring abstraction to achieve ontology modularisation

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**Abstract**

Large and complex **ontologies** lead to usage difficulties, thereby hampering the ontology developers' tasks. Ontology modules have been proposed as a possible solution, which is supported by some algorithms and tools. However, the majority of types of modules, including those based on abstraction, still rely on manual methods for modularisation. Toward filling this gap in modularisation techniques, the authors systematised abstractions and selected five types of abstractions relevant for modularisation for which they created novel algorithms, implemented them, and wrapped them in a GUI, called NOMSA, to facilitate their use by ontology developers. The algorithms were evaluated quantitatively by assessing the quality of the generated modules. The quality of a module is measured by comparing it to the benchmark metrics from an existing framework for ontology modularisation. The results show that the module's quality ranges between average to good, whilst also eliminating manual intervention.