

CORRESPONDENCE BETWEEN UML SYMBOLS AND ONTOLOGY ELEMENTS

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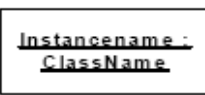


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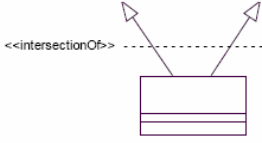
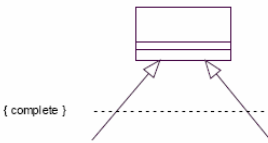
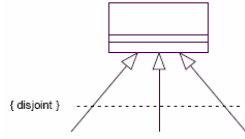
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The objective of this study is to define graphic symbols to represent elements of an ontology written in OWL language. These graphic symbols could be used in interfaces for editing, viewing and navigation of ontologies.

The ontology elements were taken from the ontology specification defined by the W3C organization and available online through the link <http://www.w3.org/TR/owl-guide>. The graphic symbols were taken from the specification ODM (Ontology Definition Metamodel) launched in 2007 by the OMG (Object Management Group). This mapping is summarized in the table below.

OWL Element	UML Concept	ODM Graphical Representation	Observations
owl:Class	Class		
class rdf:ID="Individual"	Instance		
rdfs:subClassOf	Generalization		
owl:ObjectProperty	Association		
owl:TransitiveProperty	Association		It doesnt have a specific graphic symbol for this element
owl:FunctionalProperty	Association		It doesnt have a specific graphic symbol for this element
owl:SymmetricProperty	Association		It doesnt have a specific graphic symbol for this

			element			
owl:inverseOf owl:InverseFunctional	Association	<u>+relationOf +inverseOf</u>	The element is represented in a literal and graphic form			
owl:equivalentProperty	Constraint		It doesnt have a specific graphic symbol for this element			
owl:DatatypeProperty rdf:datatype	Atribute	<table border="1"> <tr><td>Name</td></tr> <tr><td>Attribute: type</td></tr> <tr><td>Method</td></tr> </table>	Name	Attribute: type	Method	
Name						
Attribute: type						
Method						
owl:Restriction			It doesnt have a specific graphic symbol for this element			
owl:allValuesFrom	Property redefinition	{redefines property} ←	The element is represented in a literal and graphic form			
owl:someValuesFrom	Property	<table border="1"> <tr><td>class</td></tr> <tr><td>{someValuesFrom= }</td></tr> </table>	class	{someValuesFrom= }	The element is represented in a literal and graphic form	
class						
{someValuesFrom= }						
owl:hasValue	Property	<table border="1"> <tr><td>class</td></tr> <tr><td>{hasValue = }</td></tr> </table>	class	{hasValue = }	The element is represented in a literal and graphic form	
class						
{hasValue = }						
owl:cardinality	Multiplicities	N..M ←	Não há um símbolo gráfico específico para representar esse elemento			
owl:maxCardinality	Multiplicities	N..M ←	Não há um símbolo gráfico específico para representar esse elemento			
owl:minCardinality	Multiplicities	N..M ←	Não há um símbolo gráfico específico para representar esse elemento			
owl:equivalentClass	Constraint	<<equivalentClass>> - - - - ->	The element is represented in a literal and graphic form			
owl:sameAs	Constraint	<u><<sameAs>></u>	The element is represented in a literal and graphic form			
owl:differentFrom	Constraint	<u><<differentFrom>></u>	The element is represented in a literal and graphic			

			form
owl:AllDifferent	Constraint	<u><<allDifferent>></u>	The element is represented in a literal and graphic form
owl:intersectionOf	Constraint		The element is represented in a literal and graphic form
owl:unionOf	Generalization Set with isCovering = true		The element is represented in a literal and graphic form
owl:complementOf	Constraint	<u><<complementOf>></u> →	The element is represented in a literal and graphic form
owl:oneOf	Constraint	«enumeration»	The element is represented in a literal and graphic form
owl:disjointWith	Constraint		The element is represented in a literal and graphic form

Conclusions

Most of ontology elements do not have a specific graphic symbol for their representation or the element is represented in a literal and graphic form. So, the ODM representation form (based in UML) is not fully suitable for interfaces information visualization, because the literal representation needs much bigger area than a graphic symbol. In some cases, it is not clear what property is being represented. And some UML symbols like composition and aggregation aren't used until now.