Starter kit COINS 2.0

Version 0.4

On the basis of:

- Cbim-2.0-RC19.rdf
- Cbim-2.0-Units-RC3.rdf
- Cbim-2.0-WOA-RC2.rdf

MySample.rdf
MyLibrary.rdf

Content

1. Introduction

This series of examples are drafted by the working group COINS 2.0 Refine. These examples are intended to provide the ICT specialist in the construction sector have insight into the data model of COINS. As an example, two views are used, the RDF/XML view and N-triple view. It is up to the reader to decide which he is comfortable. From chapter 3, only the RDF/XML representation is shown. Chapter 2 contains so-called mini-examples. In addition, we want to show how classes are defined. Chapter 3 and further provide detailed examples.

1.1. Starting points / reading guide

This document does not deal with procedures, but aims to illustrate how the COINS 2.0 in ICT terms works.

In the preparation of the examples are the IDs are made readable so that it can be monitored how a it works. These will be replaced by GUIDs in practice.

<rdf:Description rdf:about="#**Organisation_COINS**">

Becomes for example

<rdf:Description rdf:about="#**9168deaa-c81a-4739-80d3-549863096a9e.0**">

Examples with very limited data are created so it's easy to follow what happens. The examples are not stacked on top of each other.

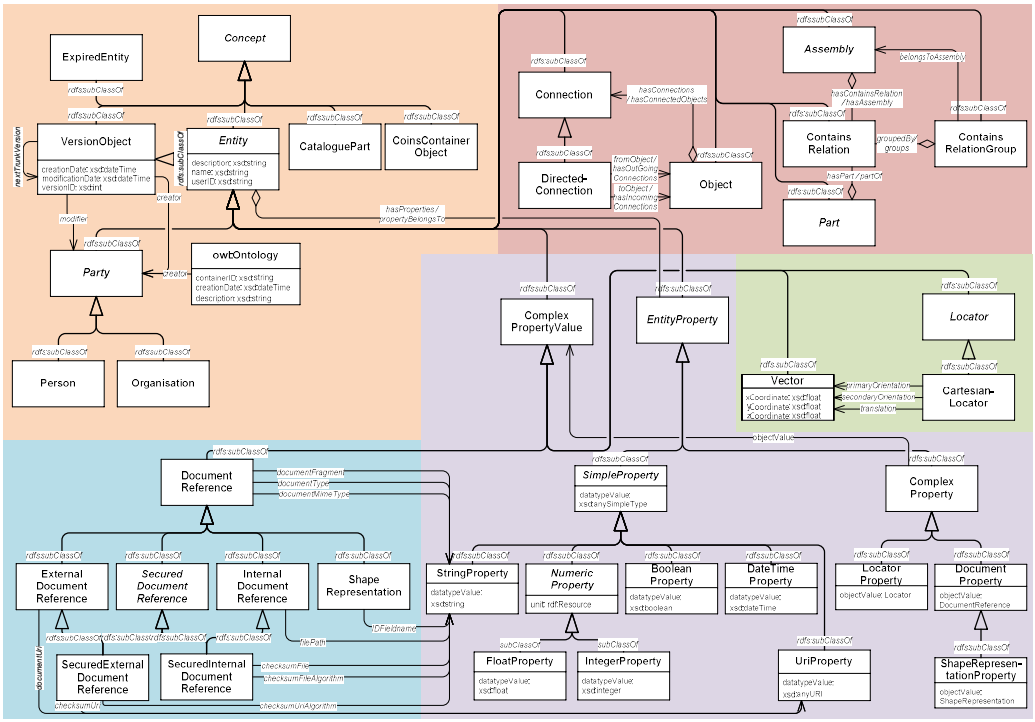
1.2. What can I do with COINS 2.0?

With COINS 2.0, instances of objects can be created and relationships established. On the basis of the following examples, they shall be discussed per item:

1. Create an item (eg organization/person/object)
2. Create a property (eg string/float/boolean)
3. Define properties assign them to objects
4. Defining a document reference
5. Relationship between objects
6. Define/modeling of decomposition relationship with Objects
7. Versions of objects and relationships (versioning)
8. Linking documents to a CBIM object
9. "deep linking" of a CBIM object to an object in a document
10. Linking of libraries. A library is a deepening of knowledge about objects in a given domain.
11. Assigning geometry (location and shape information) to an object

1.3. UML representation of the core model COINS

The following UML model is a schematic representation of the data-model of COINS 2.0.



2. Mini-examples

In the mini-examples very small examples are provided to show how the data-model looks like and how it is applied.

Within COINS 2.0 each object belongs to the CataloguePart, or CoinsContainerObject or both. In the examples of chapter 2, they are all assigned to CoinsContainerObject.

2.1. Create Organization (instance)

Relevant topics

1. Create item (eg organisation/person)

Related classes from core model: Organisation
Location in core model: Entity \ Party \ Organisation

Properties and values	
name	COINS

Result in RDF/XML
<rdf:Description rdf:about="#Organisation_COINS"> <rdf:type rdf:resource="cbim-2.0.rdf#Organisation"/> <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">COINS</cbim-2.0:name> <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/> </rdf:Description>

Result in N-Triple		
<http://www.coinsweb.nl/sample#Organisation_COINS>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#Organisation>
<http://www.coinsweb.nl/sample#Organisation_COINS>	<http://www.coinsweb.nl/cbim-2.0.rdf#name>	"COINS"^^<http://www.w3.org/2001/XMLSchema#string>
<http://www.coinsweb.nl/sample#Organisation_COINS>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.2. Create Person (instance)

Relevant topics

1. Create item (eg organisation/person)

Related classes from core model: Person
Location in core model: Entity \ Party \ Person

Properties and values	
name	MijnNaam

Result in RDF/XML
<rdf:Description rdf:about="#Person_Ik"> <rdf:type rdf:resource="cbim-2.0.rdf#Person"/> <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">MijnNaam</cbim-2.0:name> <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/> </rdf:Description>

Result in N-Triple		
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#Person>
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.coinsweb.nl/cbim-2.0.rdf#name>	"MijnNaam"^^<http://www.w3.org/2001/XMLSchema#string>
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.3. Increment version (instance)

A new version can arise from each item in COINS. This example creates a new version for Person_Ik, namely Person_Ik2. Please note that the first version is expired by making it a member of the ExpiredEntity class. Optionally fill in the VersionID (integer).

Relevant topics

7. Versions of objects (versioning)

Related classes from core model: ExpiredEntity
Location in core model: CbimEntity \ ExpiredEntity

Properties and values	
name (Person_Ik)	MijnNaam
versionID (Person_Ik) (optioneel)	1
Type	ExpiredEntity
nextTrunkVersion (Person_Ik)	Person_Ik2
name (Person_Ik2)	MijnVolledigeNaam
versionID (Person_Ik2) (optioneel)	2

Result in RDF/XML

```
<rdf:Description rdf:about="#Person_Ik">
  <rdf:type rdf:resource="cbim-2.0.rdf#Person"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">MijnNaam</cbim-2.0:name>
  <cbim-2.0:nextTrunkVersion rdf:resource="#Person_Ik2"/>
  <cbim-2.0:versionID rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">1</cbim-2.0:versionID>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#ExpiredEntity"/>
</rdf:Description>

<rdf:Description rdf:about="#Person_Ik2">
  <rdf:type rdf:resource="cbim-2.0.rdf#Person"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">MijnVolledigeNaam</cbim-
2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <cbim-2.0:versionID rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">2</cbim-2.0:versionID>
</rdf:Description>
```

Result in N-Triple		
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#Person>
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.coinsweb.nl/cbim-2.0.rdf#name>	"MijnNaam"^^<http://www.w3.org/2001/XMLSchema#string>
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.coinsweb.nl/cbim-2.0.rdf#versionID>	"1"^^<http://www.w3.org/2001/XMLSchema#integer>
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.coinsweb.nl/cbim-2.0.rdf#nextTrunkVersion>	<http://www.coinsweb.nl/sample#Person_Ik2>
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#ExpiredEntity>
<http://www.coinsweb.nl/sample#Person_Ik>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>
<http://www.coinsweb.nl/sample#Person_Ik2>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#Person>
<http://www.coinsweb.nl/sample#Person_Ik2>	<http://www.coinsweb.nl/cbim-2.0.rdf#name>	"MijnVolledigeNaam"^^<http://www.w3.org/2001/XMLSchema#string>

<http://www.coinsweb.nl/sample#Person_Ik2>	<http://www.coinsweb.nl/cbim-2.0.rdf#versionID>	"2"^^<http://www.w3.org/2001/XMLSchema#integer>
<http://www.coinsweb.nl/sample#Person_Ik2>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.4. Create StringProperty (instance)

A String Property is a property with a text value. This String Property can be reused later with other instances such as a local document (see next page).

Relevant topics

2. Create a property (eg string/float/boolean)

Related classes from core model: StringProperty
Location in core model: Entity \ EntityProperty \ SimpleProperty \ StringProperty

Properties and values	
datatypeValue	NEN-normen.docx

Result in RDF/XML

```
<rdf:Description rdf:about="#StringProperty_filepathNEN-norm">
  <rdf:type rdf:resource="cbim-2.0.rdf#StringProperty"/>
  <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#string">NEN-normen.docx</cbim-2.0:datatypeValue>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>
```

Result in N-Triple

<http://www.coinsweb.nl/sample#StringProperty_filepathNEN-normen>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#StringProperty>
<http://www.coinsweb.nl/sample#StringProperty_filepathNEN-normen>	<http://www.coinsweb.nl/cbim-2.0.rdf#datatypeValue>	"NEN-normen.docx"^^<http://www.w3.org/2001/XMLSchema#string>
<http://www.coinsweb.nl/sample#StringProperty_filepathNEN-normen>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.5. Create BooleanProperty (instance)

A Boolean Property is a property whose value is TRUE or FALSE.

Relevant topics

2. Create a property (eg string/float/boolean)

Related classes from core model: BooleanProperty
Location in core model: Entity \ EntityProperty \ SimpleProperty \ BooleanProperty

Properties and values	
datatypeValue	False

Result in RDF/XML
<rdf:Description rdf:about="#BooleanProperty_Aanwezig"> <rdf:type rdf:resource="cbim-2.0.rdf#BooleanProperty"/> <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#anySimpleType">false</cbim-2.0:datatypeValue> <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/> </rdf:Description>

Result in N-Triple		
<http://www.coinsweb.nl/sample#BooleanProperty_Aanwezig>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#BooleanProperty>
<http://www.coinsweb.nl/sample#BooleanProperty_Aanwezig>	<http://www.coinsweb.nl/cbim-2.0.rdf#datatypeValue>	"false"^^<http://www.w3.org/2001/XMLSchema#boolean>
<http://www.coinsweb.nl/sample#BooleanProperty_Aanwezig>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.6. Create DateTimeProperty (instance)

Relevant topics

2. Create a property (eg string/float/boolean)

Related classes from core model: DateTimeProperty
Location in core model: Entity \ EntityProperty \ SimpleProperty \ DateTimeProperty

Properties and values	
datetypeValue	2015-09-03T15:18:00

Result in RDF/XML
<rdf:Description rdf:about="#DateTimeProperty_Vandaag"> <rdf:type rdf:resource="cbim-2.0.rdf#DateTimeProperty"/> <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2015-09-03T15:18:00</cbim-2.0:datatypeValue> <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/> </rdf:Description>

Result in N-Triple		
<http://www.coinsweb.nl/sample#DateTimeProperty_Vandaag>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#DateTimeProperty>
<http://www.coinsweb.nl/sample#DateTimeProperty_Vandaag>	<http://www.coinsweb.nl/cbim-2.0.rdf#datatypeValue>	"2015-09-03T15:18:00"^^<http://www.w3.org/2001/XMLSchema#dateTime>
<http://www.coinsweb.nl/sample#DateTimeProperty_Vandaag>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.7. Create IntegerProperty (instance)

Relevant topics

2. Create a property (eg string/float/boolean)

Related classes from core model: IntegerProperty
Location in core model: Entity \ EntityProperty \ SimpleProperty \ NumericProperty\ IntegerProperty

Properties and values	
datetypeValue	554

Result in RDF/XML
<rdf:Description rdf:about="#IntegerProperty_Geheel"> <rdf:type rdf:resource="cbim-2.0.rdf#IntegerProperty"/> <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">554</cbim-2.0:datatypeValue> <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/> </rdf:Description>

Result in N-Triple		
<http://www.coinsweb.nl/sample#IntegerProperty_Geheel>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#IntegerProperty>
<http://www.coinsweb.nl/sample#IntegerProperty_Geheel>	<http://www.coinsweb.nl/cbim-2.0.rdf#datatypeValue>	"554"^^<http://www.w3.org/2001/XMLSchema#integer>
<http://www.coinsweb.nl/sample#IntegerProperty_Geheel>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.8. Create FloatProperty (instance)

Relevant topics

2. Create a property (eg string/float/boolean)

Related classes from core model: FloatProperty
Location in core model: Entity \ EntityProperty \ SimpleProperty \ NumericProperty \ FloatProperty

Properties and values	
datatypeValue	0.25

Result in RDF/XML

```
<rdf:Description rdf:about="#FloatProperty_Eenkwart">
  <rdf:type rdf:resource="cbim-2.0.rdf#FloatProperty"/>
  <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#float">0.25</cbim-
2.0:datatypeValue>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>
```

Result in N-Triple		
<http://www.coinsweb.nl/sample#FloatProperty_Eenkwart>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#FloatProperty>
<http://www.coinsweb.nl/sample#FloatProperty_Eenkwart>	<http://www.coinsweb.nl/cbim-2.0.rdf#datatypeValue >	"0.25"^^<http://www.w3.org/2001/XMLSchema#float>
<http://www.coinsweb.nl/sample#FloatProperty_Eenkwart>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.9. Assigning property unit (Unit)

When a ontology for units is supplied, it can be used in COINS via Coins:unit at every NumericProperty. This example uses the qudt:ontology.

Relevant topics

2. Create a property (eg string/float/boolean)

Related classes from core model: FloatProperty
Location in core model: Entity \ EntityProperty \ SimpleProperty \ FloatProperty

Properties and values	
unit	Meter

Result in RDF/XML

```
<rdf:Description rdf:about="#FloatProperty_Eenkwart">
  <rdf:type rdf:resource="cbim-2.0.rdf#FloatProperty"/>
  <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#float">0.25</cbim-
2.0:datatypeValue>
  <cbim-2.0:unit rdf:resource="http://qudt.org/vocab/unit#Meter"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>
```

Result in N-Triple		
<http://www.coinsweb.nl/sample#FloatProperty_Eenkwart>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#FloatProperty>
<http://www.coinsweb.nl/sample#FloatProperty_Eenkwart>	<http://www.coinsweb.nl/cbim-2.0.rdf#datatypeValue>	"0.25"^^<http://www.w3.org/2001/XMLSchema#float>
<http://www.coinsweb.nl/sample#FloatP	<http://www.coinsweb.nl/cbim-	<http://qudt.org/vocab/unit#Meter>

roperty_Eenkwart>	2.0.rdf#unit>	
<http://www.coinsweb.nl/sample#FloatProperty_Eenkwart>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.10. Create InternalDocumentReference (instance)

This is a document that has been sent in the COINS container. It is then necessary (required) to specify the path to the document (file path).

Relevant topics

3. Define properties and assign them to objects
4. Create a document

Related classes from core model: InternalDocumentReference
Location in core model: Entity \ ComplexPropertyValue \ DocumentReference \ InternalDocumentReference

Properties and values	
filePath	StringProperty_filepathNEN-norm

Result in RDF/XML

```
<rdf:Description rdf:about="#InternalDocument_NEN-normen">
  <rdf:type rdf:resource="cbim-2.0.rdf#InternalDocumentReference"/>
  <cbim-2.0:filePath rdf:resource="#StringProperty_filepathNEN-norm"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>

<rdf:Description rdf:about="#StringProperty_filepathNEN-norm">
  <rdf:type rdf:resource="cbim-2.0.rdf#StringProperty"/>
  <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#string">NEN-
normen.docx</cbim-2.0:datatypeValue>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>
```

Result in N-Triple

<http://www.coinsweb.nl/sample#InternalDocument_NEN-normen>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#InternalDocumentReference>
<http://www.coinsweb.nl/sample#InternalDocument_NEN-normen>	<http://www.coinsweb.nl/cbim-2.0.rdf#filePath>	<http://www.coinsweb.nl/sample#StringProperty_filepathNEN-norm>
<http://www.coinsweb.nl/sample#InternalDocument_NEN-normen>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>
<http://www.coinsweb.nl/sample#StringProperty_filepathNEN-norm>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#StringProperty>
<http://www.coinsweb.nl/sample#StringProperty_filepathNEN-norm>	<http://www.coinsweb.nl/cbim-2.0.rdf#datatypeValue>	"NEN-normen.docx"^^<http://www.w3.org/2001/XMLSchema#string>
<http://www.coinsweb.nl/sample#StringProperty_filepathNEN-norm>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.11. Relate Person to InternalDocumentReference (instance)

A person can get a releation to a document, for example as the creator of this document. As an extra addition we also added the creationDate to this example.

Relevant topics

8. Linking documents to a CBIM object

Related classes from core model: InternalDocumentReference
Location in core model: Entity \ EntityProperty \ DocumentReference \ InternalDocumentReference

Properties and values	
creator	Person_Ik
creationDate	2015-09-03T15:00:00

Result in RDF/XML

```
<rdf:Description rdf:about="#InternalDocument_NEN-normen">
  <rdf:type rdf:resource="cbim-2.0.rdf#InternalDocumentReference"/>
  <cbim-2.0:filePath rdf:resource="#StringProperty_filepathNEN-norm"/>
  <cbim-2.0:creator rdf:resource="#Person_Ik"/>
  <cbim-2.0:creationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2015-09-
03T15:00:00</cbim-2.0:creationDate>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>
```

Result in N-Triple

<http://www.coinsweb.nl/sample#InternalDocument_NEN-normen>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#InternalDocument>
<http://www.coinsweb.nl/sample#InternalDocument_NEN-normen>	<http://www.coinsweb.nl/cbim-2.0.rdf#filePath>	<http://www.coinsweb.nl/sample#StringProperty_filepathNEN-norm>
<http://www.coinsweb.nl/sample#InternalDocument_NEN-normen>	<http://www.coinsweb.nl/cbim-2.0.rdf#creator>	<http://www.coinsweb.nl/sample#Person_Ik>
<http://www.coinsweb.nl/sample#InternalDocument_NEN-normen>	<http://www.coinsweb.nl/cbim-2.0.rdf#creationDate>	"2015-09-03T15:00:00"^^<http://www.w3.org/2001/XMLSchema#dateTime>
<http://www.coinsweb.nl/sample#InternalDocument_NEN-normen>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

2.12. Relate to CataloguePart

First, one must create CataloguePart. This is a subtype of CataloguePart. This is created in a separate RDF file (MyLibrary). Next, it can be indicated that, for example, it is an object instance of this type. In our example, we first create a library item Column (CataloguePart). And then we create an object Column1, which is types as a Column.

The typing relation from object to Column1 is called Static.

The typing relation from CataloguePart to Column1 is called Dynamic.

Relevant topics

10. Linking of libraries

Related classes from core model: CataloguePart & Object
Location in core model: CataloguePart
Entity \ Object

Properties and values	
Type	Column
Name	Column1

The first part of the RDF/XML shows the instance of the library item (the relation to CataloguePart Column). While this also is of type Object.

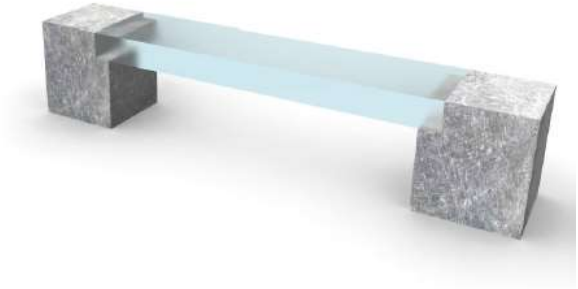
The first part of the RDF/XML shows the creation of the CataloguePart. The second part of the instance.

Result in RDF/XML (bibliotheek: MyLibrary)
<rdf:Description rdf:about="#Column"> <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/> <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/> <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/> </rdf:Description>
Result in RDF/XML
<rdf:Description rdf:about="#Object_Column_1"> <rdf:type rdf:resource="MyLibrary#Column"/> <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Column1</cbim-2.0:name> <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/> </rdf:Description>

Result in N-Triple		
<http://www.coinsweb.nl/sample#Object_Column1>	<http://www.coinsweb.nl/cbim-2.0.rdf#name>	"Column1"^^<http://www.w3.org/2001/XMLSchema#string>
<http://www.coinsweb.nl/sample#Object_Column1>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/MyLibrary#Column>
<http://www.coinsweb.nl/MyLibrary#Column>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.w3.org/2002/07/owl#Class>
<http://www.coinsweb.nl/MyLibrary#Column>	<http://www.w3.org/2000/01/rdf-schema#subClassOf>	<http://www.coinsweb.nl/cbim-2.0.rdf#CataloguePart>
<http://www.coinsweb.nl/MyLibrary#Column>	<http://www.w3.org/2000/01/rdf-schema#subClassOf>	<http://www.coinsweb.nl/cbim-2.0.rdf#Object>
<http://www.coinsweb.nl/MyLibrary#Column>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.coinsweb.nl/cbim-2.0.rdf#CoinsContainerObject>

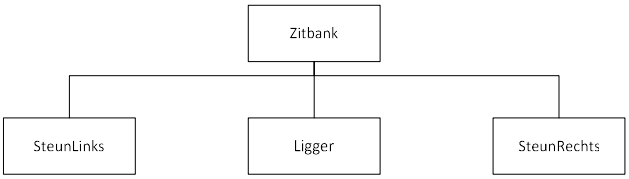
3. Example: A very simple case

The very simple case of COINS 1.x has been processed into an example to be applied to the core model of COINS 2.0. This means that a number of elements from COINS 1.x (such as functions, layers, requirements) are not included in this example



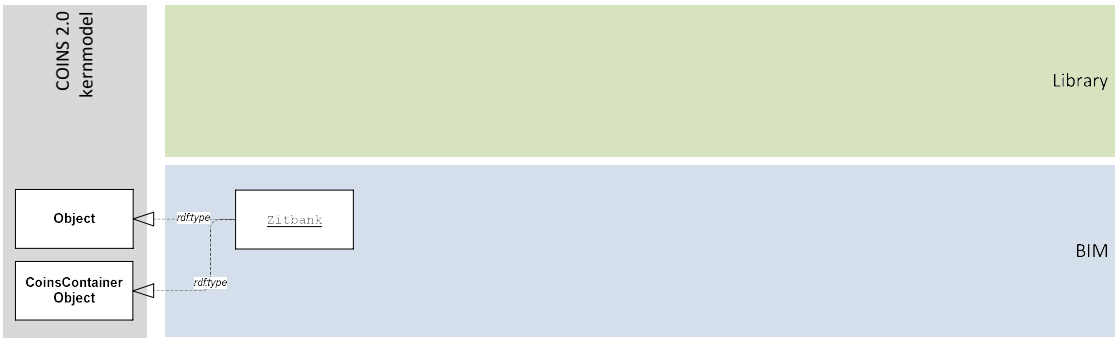
However, this example gives the possibility to show how objects, properties, and relationships are defined in COINS 2.0.

This Zitbank (Bench) is composed of the following components: a SteunLinks (SupportLeft), a SteunRechts (SupportRight), and a Ligger (Beam).



We also make use of schematisation below. We want to clarify how from the BIM (instance) -World (blue) the connection it has with the core model (gray) and the library (green).

In COINS 2.0 each object is a subtype of CataloguePart, or CoinsContainerObject of both. Hence, in



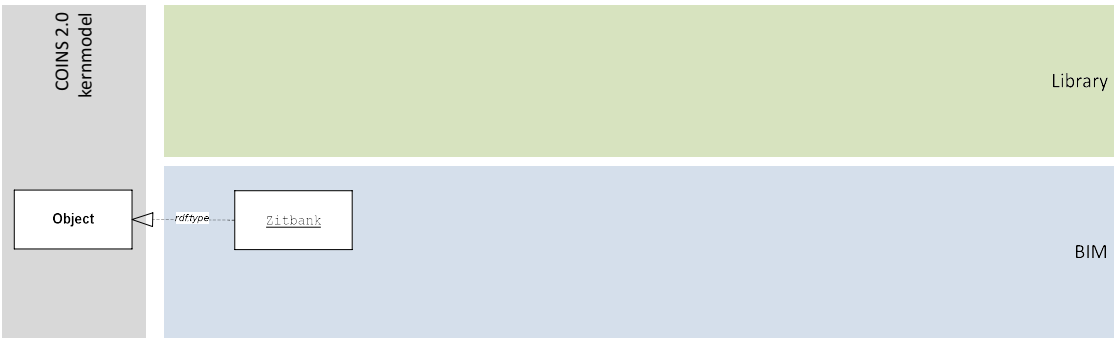
the example above, the Zitbank is also member of the type CoinsContainerObject. Pay attention! On behalf of the legibility of the schemes, the CoinsContainerObject is not shown in the following pictures. However, it is defined in the RDF / XML.

3.1. Create Object (instance)

Relevant topics

1. Create an item (eg organisation/person/object)

Related classes from core model: Object
Location in core model: Entity \ Object



Properties and values	
name	Zitbank

Result in RDF/XML

```
<rdf:Description rdf:about="#Object_Zitbank">
  <rdf:type rdf:resource="cbim-2.0.rdf#Object"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Zitbank</cbim-2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>
```

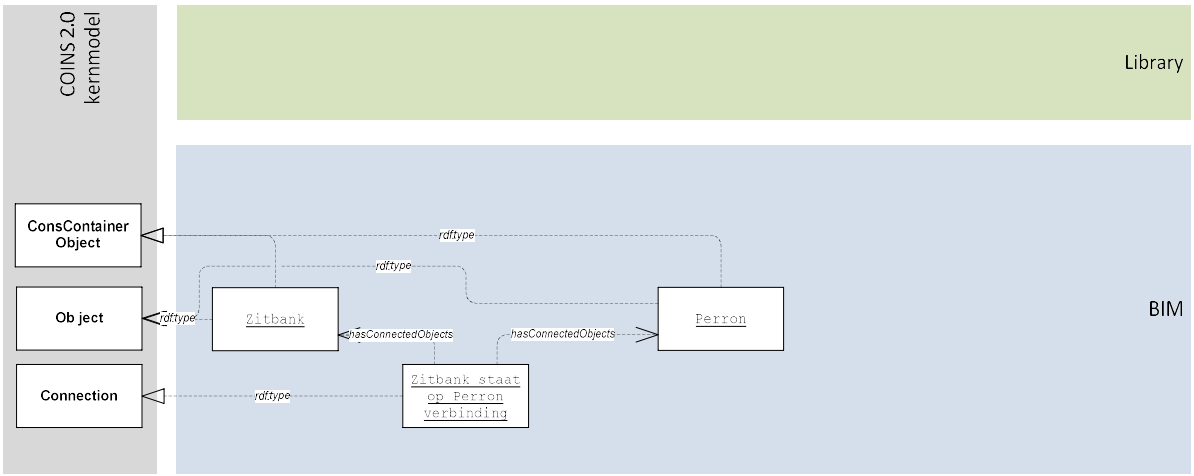
3.2. Create a connection between Objects

A connection between objects is created with Connection. By default, the connection has no direction. In COINS2.0 it is possible to give a direction to the connection. This is done with DirectedConnection which is a subtype of class Connection

Relevant topics

5. Relationship between objects

Related classes from core model: Object & Connection
Location in core model: Entity \ Object
Entity \ Connection



Properties and values	
hasConnectedObjects (naar Object Zitbank)	Zitbank_staat_op_Perron_verbinding
hasConnectedObjects (naar Object Perron)	Zitbank_staat_op_Perron_verbinding

Result in RDF/XML

```
<rdf:Description rdf:about="#Object_Perron">
  <rdf:type rdf:resource="cbim-2.0.rdf#Object"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Perron</cbim-2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>

<rdf:Description rdf:about="#Object_Zitbank">
  <rdf:type rdf:resource="cbim-2.0.rdf#Object"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Zitbank</cbim-2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>

<rdf:Description rdf:about="#Zitbank_staat_op_Perron_verbinding">
  <rdf:type rdf:resource="cbim-2.0.rdf#Connection"/>
  <cbim-2.0:hasConnectedObjects rdf:resource="#Object_Zitbank"/>
  <cbim-2.0:hasConnectedObjects rdf:resource="#Object_Perron"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>
```

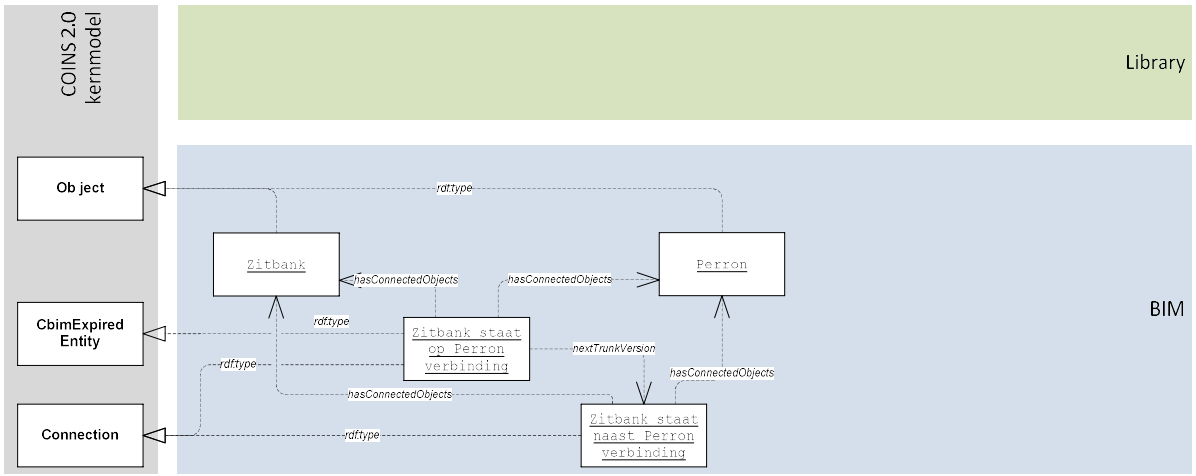
3.3. Create new version connection between Objects

The Connection is an objectified relation which enables versioning on Connection.

Relevant topics

5. Relationships between objects
7. Versions of objects and relationships (versioning)

Related classes from core model: Object & Connection
Location in core model: Entity \ Object
Entity \ Connection
Entity \ ExpiredEntity



Properties and values	
nextTrunkVersion	Zitbank_staat_naast_Perron_verbinding
Type: ExpiredEntity	Zitbank_staat_op_Perron_verbinding
VersionID (Zitbank_staat_op_Perron_verbinding)	1

Result in RDF/XML

```
<rdf:Description rdf:about="#Zitbank_staat_op_Perron_verbinding">
  <rdf:type rdf:resource="cbim-2.0.rdf#Connection"/>
  <cbim-2.0:hasConnectedObjects rdf:resource="#Object_Zitbank"/>
  <cbim-2.0:hasConnectedObjects rdf:resource="#Object_Perron"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#ExpiredEntity"/>
  <cbim-2.0:nextTrunkVersion rdf:resource="#Zitbank_staat_naast_Perron_verbinding"/>
  <cbim-2.0:versionID rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">1</cbim-2.0:versionID>
</rdf:Description>

<rdf:Description rdf:about="#Zitbank_staat_naast_Perron_verbinding">
  <rdf:type rdf:resource="cbim-2.0.rdf#Connection"/>
  <cbim-2.0:hasConnectedObjects rdf:resource="#Object_Zitbank"/>
  <cbim-2.0:hasConnectedObjects rdf:resource="#Object_Perron"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <cbim-2.0:versionID rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">2</cbim-2.0:versionID>
</rdf:Description>
```

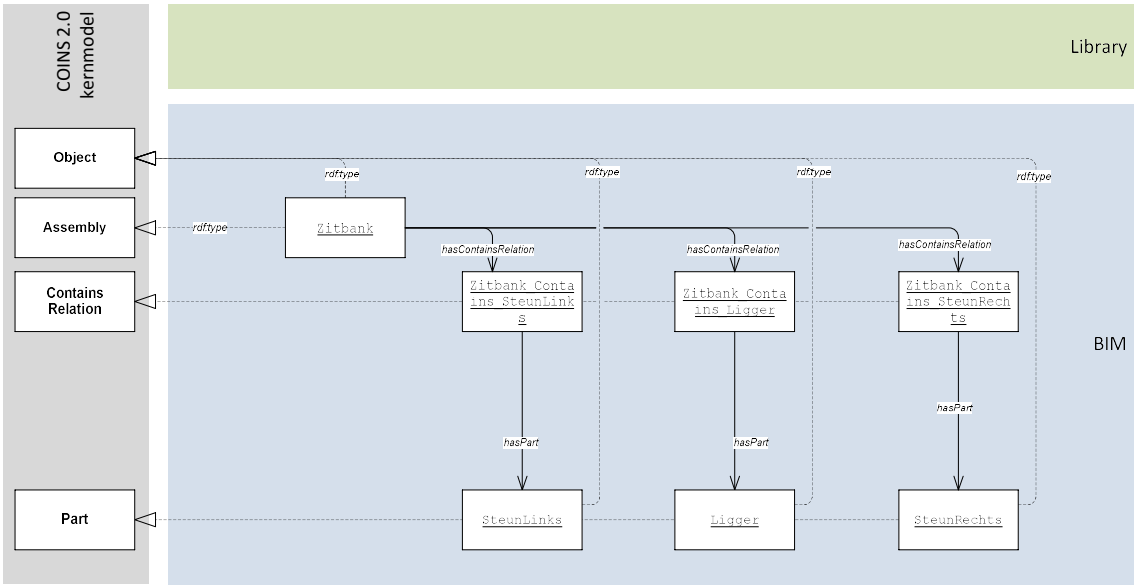
3.4. Create decomposition Object

Decomposition is a separate relationship in COINS 2.0. Objects that a need a decomposition feature, should belong to the Assembly class. This creates the possibility to create the appropriate Decomposition object via hasDecompostion. This object maintains via hasParts the relationship with the child objects

Relevant topics

6. Define/modeling of decomposition relationship with Objects

Related classes from core model: Object & Connection
Location in core model: Entity \ Object



Properties and values	
Assembly	Zitbank
Part	Ligger, SteunLinks, SteunRechts
ContainsRelation	Zitbank_Contains_SteunLinks, Zitbank_Contains_SteunRechts, Zitbank_Contains_Ligger

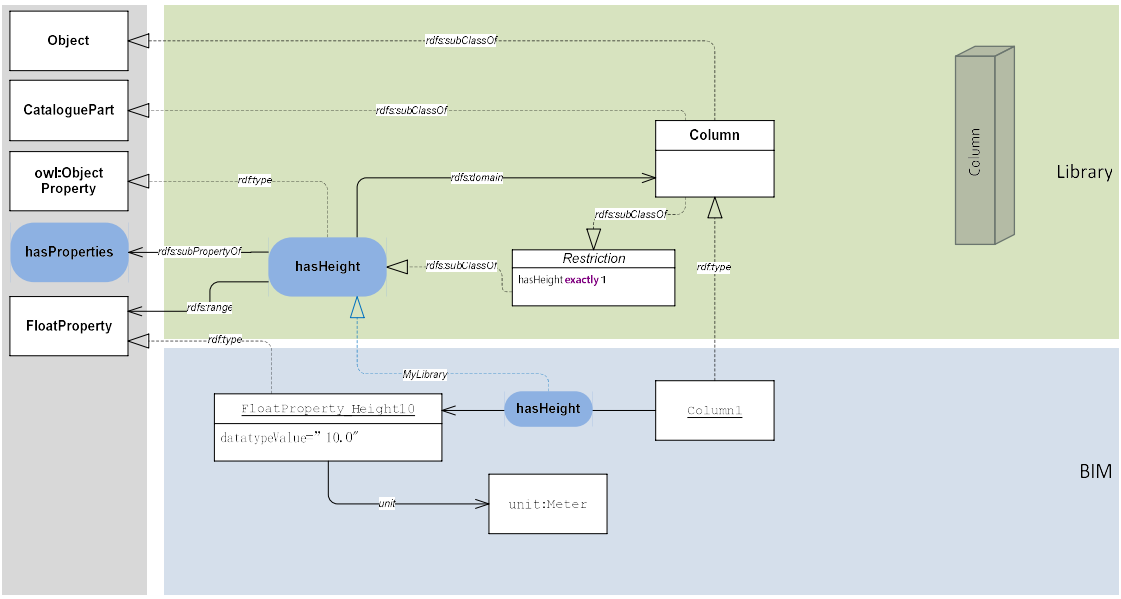
Result in RDF/XML

```
<rdf:Description rdf:about="#Object_Zitbank">
  <rdf:type rdf:resource="cbim-2.0.rdf#Object"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Zitbank</cbim-2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#Assembly"/>
  <cbim-2.0:hasContainsRelation rdf:resource="#Zitbank_Contains_SteunLinks"/>
  <cbim-2.0:hasContainsRelation rdf:resource="#Zitbank_Contains_SteunRechts"/>
  <cbim-2.0:hasContainsRelation rdf:resource="#Zitbank_Contains_Ligger"/>
</rdf:Description>

<rdf:Description rdf:about="#Object_SteunLinks">
  <rdf:type rdf:resource="cbim-2.0.rdf#Object"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">SteunLinks</cbim-2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#Part"/>
</rdf:Description>

<rdf:Description rdf:about="#Object_SteunRechts">
  <rdf:type rdf:resource="cbim-2.0.rdf#Object"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">SteunRechts</cbim-2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#Part"/>
</rdf:Description>

<rdf:Description rdf:about="#Object_Ligger">
  <rdf:type rdf:resource="cbim-2.0.rdf#Object"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Ligger</cbim-2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#Part"/>
</rdf:Description>

<rdf:Description rdf:about="#Zitbank_Contains_Ligger">
  <rdf:type rdf:resource="cbim-2.0.rdf#ContainsRelation"/>
  <cbim-2.0:hasPart rdf:resource="#Object_Ligger"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>

<rdf:Description rdf:about="#Zitbank_Contains_SteunLinks">
  <rdf:type rdf:resource="cbim-2.0.rdf#ContainsRelation"/>
  <cbim-2.0:hasPart rdf:resource="#Object_SteunLinks"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>

<rdf:Description rdf:about="#Zitbank_Contains_SteunRechts">
  <rdf:type rdf:resource="cbim-2.0.rdf#ContainsRelation"/>
  <cbim-2.0:hasPart rdf:resource="#Object_SteunRechts"/>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>
```

4. Example Column with Foundation plate

In this example, the operation of the library will be clarified. It starts easily with one type of object in the library. This is expanded further by example with all sorts of additional object types and relationships between them.

4.1. Type column and property in library



By setting a limitation (restriction) on the Column is defined such that a column has exactly one feature height (hasHeight). This hasHeight is a relationship (subtype of hasProperties) which makes use of the FloatProperty and is valid for the domain Column. When this is instantiated, it creates a Column1 with a hasHeight relationship. This hasHeight uses a Float Property.

The Column as CataloguePart is as follows.

Result in RDF/XML in bibliotheek

```
<rdf:Description rdf:about="#Column">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  <rdfs:subClassOf rdf:nodeID="A0"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
</rdf:Description>

<rdf:Description rdf:nodeID="A0">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
  <owl:cardinality rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:cardinality>
  <owl:onProperty rdf:resource="#hasHeight"/>
</rdf:Description>
```

This hasHeight need also be created in the library.

Result in RDF/XML in bibliotheek

```
<rdf:Description rdf:about="#hasHeight">
  <rdfs:subPropertyOf rdf:resource="cbim-2.0.rdf#hasProperties"/>
  <rdfs:domain rdf:resource="#Column"/>
  <rdfs:range rdf:resource="cbim-2.0.rdf#FloatProperty"/>
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#ObjectProperty"/>
</rdf:Description>
```

The Column Instance has by inheritance now also a column height property. This property has a FloatProperty which the height assigned as a number.

Result in RDF/XML

```
<rdf:Description rdf:about="#Object_Column_1">
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  <rdf:type rdf:resource="MyLibrary#Column"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Column1</cbim-
2.0:name>
  <MyLibrary:hasHeight rdf:resource="#FloatProperty_Height10"/>
</rdf:Description>
```

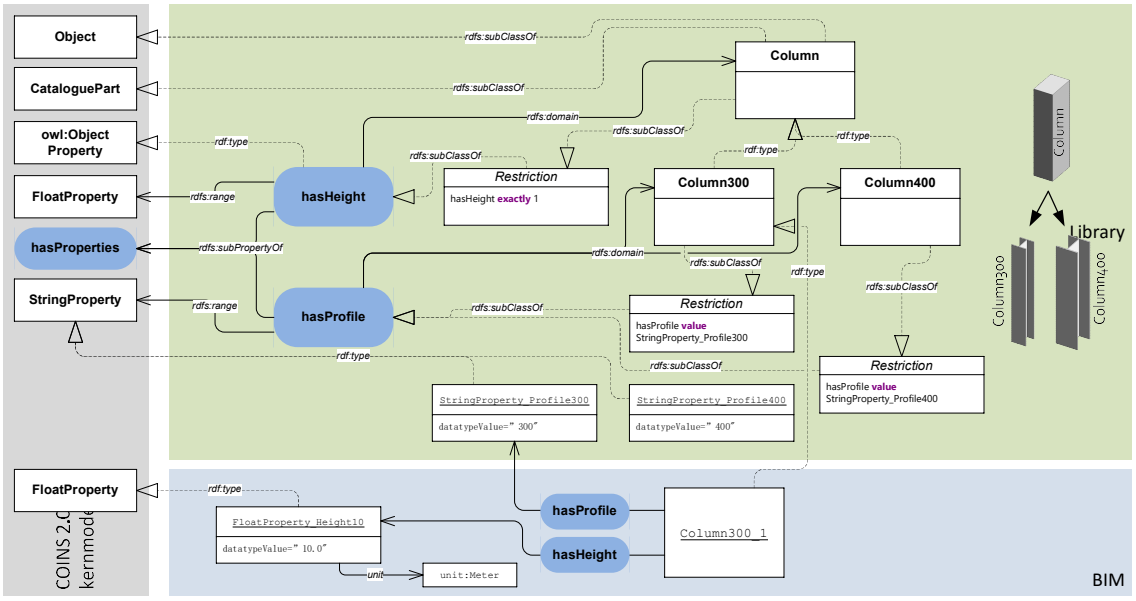
The Float Property with a value of 10 will look as follows. This property we also have a unit (unit) to assign, so we know it's going to be 10 meters and not 10 millimeters.

Result in RDF/XML

```
<rdf:Description rdf:about="#FloatProperty_Height10">
  <cbim-2.0:unit rdf:resource="http://qudt.org/vocab/unit#Meter"/>
  <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#float">10</cbim-
2.0:datatypeValue>
  <rdf:type rdf:resource="cbim-2.0.rdf#FloatProperty"/>
</rdf:Description>
```

4.2. Type column and completed property in library

There are two types of column, namely, the HEA 300 and HEA400 (steel profile). The height of the column continues to be defined in BIM (either an instance, see previous example).



Result in RDF/XML in de bibliotheek

```
<rdf:Description rdf:about="#Column">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  <rdfs:subClassOf rdf:nodeID="A0"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
</rdf:Description>
<rdf:Description rdf:nodeID="A0">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
  <owl:cardinality rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:cardinality>
  <owl:onProperty rdf:resource="#hasHeight"/>
</rdf:Description>

<rdf:Description rdf:about="#hasHeight">
  <rdfs:subPropertyOf rdf:resource="cbim-2.0.rdf#hasProperties"/>
  <rdfs:domain rdf:resource="#Column"/>
  <rdfs:range rdf:resource="cbim-2.0.rdf#FloatProperty"/>
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#ObjectProperty"/>
</rdf:Description>

<rdf:Description rdf:about="#hasProfile">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#ObjectProperty"/>
  <rdfs:subPropertyOf rdf:resource="cbim-2.0.rdf#hasProperties"/>
  <rdfs:range rdf:resource="cbim-2.0.rdf#StringProperty"/>
  <rdfs:domain rdf:resource="#Column300"/>
  <rdfs:domain rdf:resource="#Column400"/>
</rdf:Description>
```

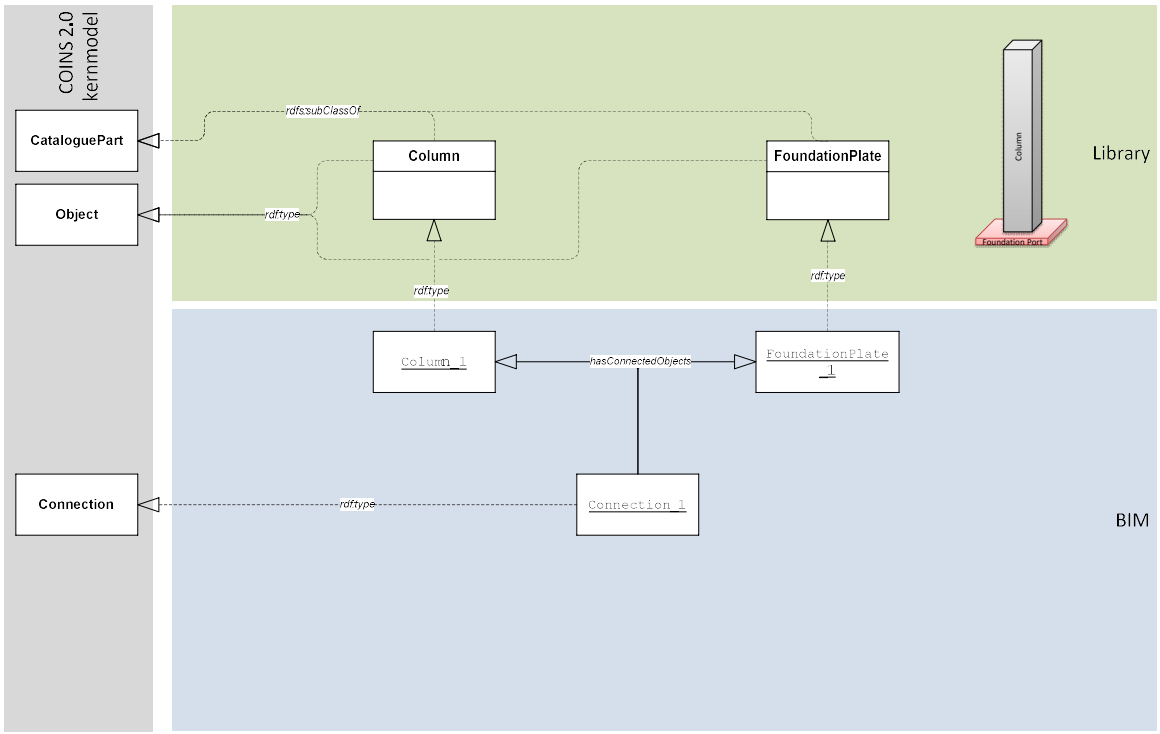
```
<rdf:Description rdf:about="#Column300">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  <rdfs:subClassOf rdf:nodeID="A0"/>
  <rdfs:subClassOf rdf:resource="#Column"/>
 </rdf:Description>
 <rdf:Description rdf:nodeID="A0">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
  <owl:onProperty rdf:resource="#hasProfile"/>
  <owl:hasValue rdf:resource="#StringProperty_Profile300"/>
 </rdf:Description>

 <rdf:Description rdf:about="#Column400">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  <rdfs:subClassOf rdf:resource="#Column"/>
  <rdfs:subClassOf rdf:nodeID="A0"/>
 </rdf:Description>
 <rdf:Description rdf:nodeID="A0">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
  <owl:onProperty rdf:resource="#hasProfile"/>
  <owl:hasValue rdf:resource="#StringProperty_Profile400"/>
 </rdf:Description>

 <rdf:Description rdf:about="#StringProperty_Profile300">
  <rdf:type rdf:resource="cbim-2.0.rdf#StringProperty"/>
  <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#string">300</cbim-
2.0:datatypeValue>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Profile300</cbim-2.0:name>
 </rdf:Description>

 <rdf:Description rdf:about="#StringProperty_Profile400">
  <rdf:type rdf:resource="cbim-2.0.rdf#StringProperty"/>
  <cbim-2.0:datatypeValue rdf:datatype="http://www.w3.org/2001/XMLSchema#string">400</cbim-
2.0:datatypeValue>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Profile400</cbim-2.0:name>
 </rdf:Description>
```

De instance van de Column300_1 looks like this

Result in RDF/XML

```
<rdf:Description rdf:about="#Column300_1">
  <rdf:type rdf:resource="MyLibrary#Column300"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Column300_1</cbim-2.0:name>
  <MyLibrary:hasProfile rdf:resource="MyLibrary#StringProperty_Profile300"/>
  <MyLibrary:hasHeight rdf:resource="#FloatProperty_Height10"/>
 </rdf:Description>
```

4.3. Column type with Foundation plate in library



The FoundationPlate is a subclass of CataloguePart.

Result in RDF/XML in bibliotheek

```
<rdf:Description rdf:about="#FoundationPlate">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
</rdf:Description>

<rdf:Description rdf:about="#Column">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
</rdf:Description>
```

Between Column and FoundationPlate a connection is established from the Connection.

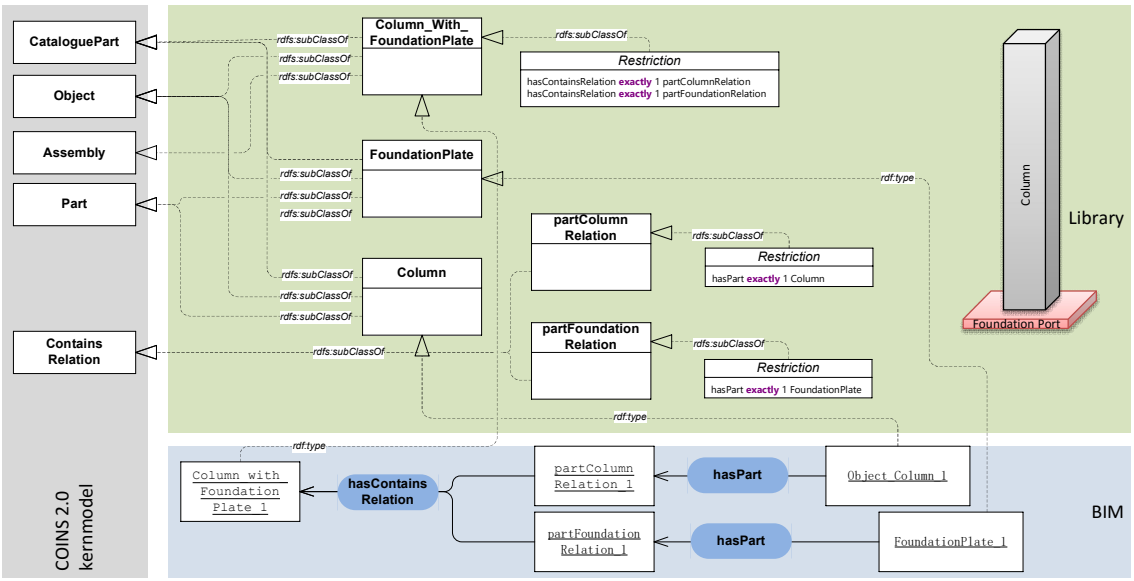
Result in RDF/XML

```
  <rdf:Description rdf:about="#Connection_1">
    <rdf:type rdf:resource="cbim-2.0.rdf#Connection"/>
    <cbim-2.0:hasConnectedObjects rdf:resource="#Object_Column_1"/>
    <cbim-2.0:hasConnectedObjects rdf:resource="#FoundationPlate_1"/>
  </rdf:Description>

  <rdf:Description rdf:about="#FoundationPlate_1">
    <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
    <rdf:type rdf:resource="MyLibrary#FoundationPlate"/>
    <cbim-2.0:name
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">FoundationPlate_1</cbim-2.0:name>
  </rdf:Description>

  <rdf:Description rdf:about="#Object_Column_1">
    <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
    <rdf:type rdf:resource="MyLibrary#Column"/>
    <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Column1</cbim-
2.0:name>
  </rdf:Description>
```

4.4. Column type with Foundation plate in library

This example defines a new column. It consists of two parts, the body (Column) and the Foundation plate (Foundation Plate)

In dit voorbeeld wordt een nieuwe kolom gedefinieerd. Deze bestaat uit 2 onderdelen, het lijf (Column) en de Funderingsplaat (FoundationPlate).



Result in RDF/XML in de bibliotheek

```
  <rdf:Description rdf:about="#Column_with_FoundationPlate">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:nodeID="A0"/>
    <rdfs:subClassOf rdf:nodeID="A1"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Assembly"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
  </rdf:Description>
  <rdf:Description rdf:nodeID="A0">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
    <owl:onClass rdf:resource="#partFoundationRelation"/>
    <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qualifiedCardinality>
    <owl:onProperty rdf:resource="cbim-2.0.rdf#hasContainsRelation"/>
  </rdf:Description>
  <rdf:Description rdf:nodeID="A1">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
    <owl:onClass rdf:resource="#partColumnRelation"/>
    <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qualifiedCardinality>
    <owl:onProperty rdf:resource="cbim-2.0.rdf#hasContainsRelation"/>
  </rdf:Description>

  <rdf:Description rdf:about="#FoundationPlate">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Part"/>
```

```
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
  </rdf:Description>
  <rdf:Description rdf:about="#Column">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Part"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
  </rdf:Description>

  <rdf:Description rdf:about="#partColumnRelation">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:nodeID="A0"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#ContainsRelation"/>
  </rdf:Description>
  <rdf:Description rdf:nodeID="A0">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
    <owl:onClass rdf:resource="#Column"/>
    <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qualifiedCardinality>
    <owl:onProperty rdf:resource="cbim-2.0.rdf#hasPart"/>
  </rdf:Description>

  <rdf:Description rdf:about="#partFoundationRelation">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:nodeID="A0"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#ContainsRelation"/>
  </rdf:Description>
  <rdf:Description rdf:nodeID="A0">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
    <owl:onClass rdf:resource="#FoundationPlate"/>
    <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qualifiedCardinality>
    <owl:onProperty rdf:resource="cbim-2.0.rdf#hasPart"/>
  </rdf:Description>
```

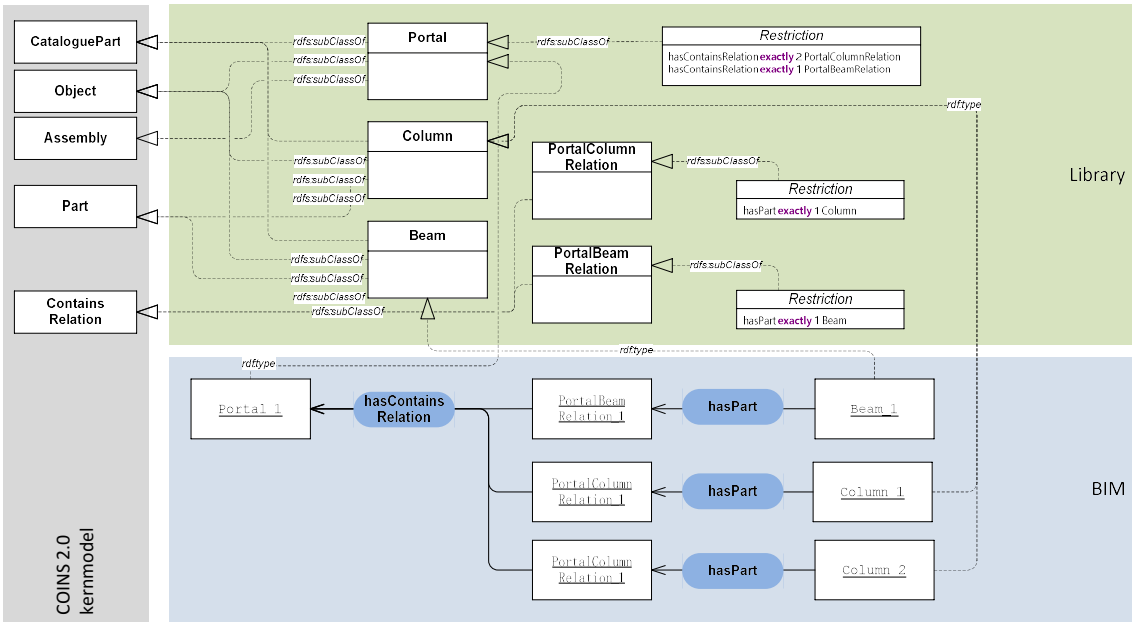
Next it can be instantiated.

Result in RDF/XML in BIM

```
  <rdf:Description rdf:about="#Column_with_FoundationPlate_1">
    <rdf:type rdf:resource="MyLibrary#Column_with_FoundationPlate"/>
    <cbim-2.0:hasContainsRelation rdf:resource="#partFoundationRelation_1"/>
    <cbim-2.0:hasContainsRelation rdf:resource="#partColumnRelation_1"/>
  </rdf:Description>

  <rdf:Description rdf:about="#partColumnRelation_1">
    <rdf:type rdf:resource="MyLibrary#partColumnRelation"/>
    <cbim-2.0:hasPart rdf:resource="#Object_Column_1"/>
  </rdf:Description>

  <rdf:Description rdf:about="#partFoundationRelation_1">
    <rdf:type rdf:resource="MyLibrary#partFoundationRelation"/>
    <cbim-2.0:hasPart rdf:resource="#FoundationPlate_1"/>
  </rdf:Description>

  <rdf:Description rdf:about="#Object_Column_1">
    <rdf:type rdf:resource="MyLibrary#Column"/>
    <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Column1</cbim-2.0:name>
    <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
  </rdf:Description>

  <rdf:Description rdf:about="#FoundationPlate_1">
    <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
    <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">FoundationPlate_1</cbim-
2.0:name>
    <rdf:type rdf:resource="MyLibrary#FoundationPlate"/>
  </rdf:Description>
```

5. Example Portal

5.1. Example Portal decomposition



Result in RDF/XML in bibliotheek

```
<rdf:Description rdf:about="#Portal">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  <rdfs:subClassOf rdf:nodeID="A1"/>
  <rdfs:subClassOf rdf:nodeID="A0"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Assembly"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
  <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
</rdf:Description>
<rdf:Description rdf:nodeID="A0">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
  <owl:onClass rdf:resource="#PortalColumnRelation"/>
  <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">2</owl:qualifiedCardinality>
  <owl:onProperty rdf:resource="cbim-2.0.rdf#hasContainsRelation"/>
</rdf:Description>
<rdf:Description rdf:nodeID="A1">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
  <owl:onClass rdf:resource="#PortalBeamRelation"/>
  <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qualifiedCardinality>
  <owl:onProperty rdf:resource="cbim-2.0.rdf#hasContainsRelation"/>
</rdf:Description>
```

```
  <rdf:Description rdf:about="#Column">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Part"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
    <rdfs:subClassOf rdf:nodeID="A0"/>
  </rdf:Description>

  <rdf:Description rdf:about="#Beam">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Part"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#Object"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#CataloguePart"/>
  </rdf:Description>

  <rdf:Description rdf:about="#PortalColumnRelation">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:nodeID="A0"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#ContainsRelation"/>
  </rdf:Description>
  <rdf:Description rdf:nodeID="A0">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
    <owl:onClass rdf:resource="#Column"/>
    <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qualifiedCardinality>
    <owl:onProperty rdf:resource="cbim-2.0.rdf#hasPart"/>
  </rdf:Description>

  <rdf:Description rdf:about="#PortalBeamRelation">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
    <rdfs:subClassOf rdf:nodeID="A0"/>
    <rdfs:subClassOf rdf:resource="cbim-2.0.rdf#ContainsRelation"/>
  </rdf:Description>
  <rdf:Description rdf:nodeID="A0">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Restriction"/>
    <owl:onClass rdf:resource="#Beam"/>
    <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qualifiedCardinality>
    <owl:onProperty rdf:resource="cbim-2.0.rdf#hasPart"/>
  </rdf:Description>
```

Result in RDF/XML

```
<rdf:Description rdf:about="#Portal_1">
  <rdf:type rdf:resource="MyLibrary#Portal"/>
  <cbim-2.0:hasContainsRelation rdf:resource="#PortalColumnRelation_2"/>
  <cbim-2.0:hasContainsRelation rdf:resource="#PortalColumnRelation_1"/>
  <cbim-2.0:hasContainsRelation rdf:resource="#PortalBeamRelation_1"/>
</rdf:Description>

<rdf:Description rdf:about="#PortalBeamRelation_1">
  <rdf:type rdf:resource="MyLibrary#PortalBeamRelation"/>
  <cbim-2.0:hasPart rdf:resource="#Beam_1"/>
</rdf:Description>

<rdf:Description rdf:about="#PortalColumnRelation_1">
  <rdf:type rdf:resource="MyLibrary#PortalColumnRelation"/>
  <cbim-2.0:hasPart rdf:resource="#Object_Column_1"/>
</rdf:Description>

<rdf:Description rdf:about="#PortalColumnRelation_2">
  <rdf:type rdf:resource="MyLibrary#PortalColumnRelation"/>
  <cbim-2.0:hasPart rdf:resource="#Object_Column_2"/>
</rdf:Description>

<rdf:Description rdf:about="#Beam_1">
  <rdf:type rdf:resource="MyLibrary#Beam"/>
</rdf:Description>

<rdf:Description rdf:about="#Object_Column_1">
  <rdf:type rdf:resource="MyLibrary#Column"/>
  <cbim-2.0:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Column1</cbim-2.0:name>
  <rdf:type rdf:resource="cbim-2.0.rdf#CoinsContainerObject"/>
</rdf:Description>

<rdf:Description rdf:about="#Object_Column_2">
  <rdf:type rdf:resource="MyLibrary#Column"/>
</rdf:Description>
```