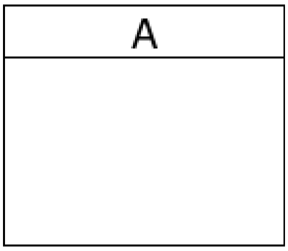
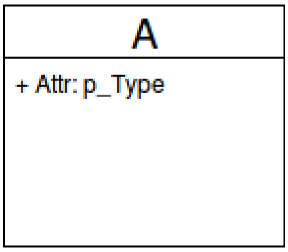
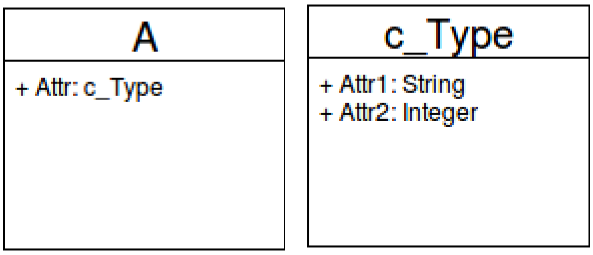
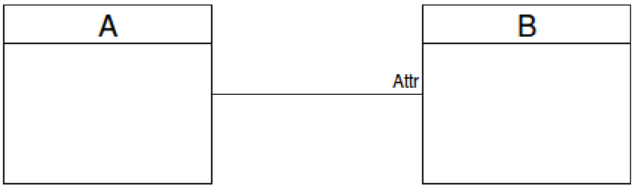
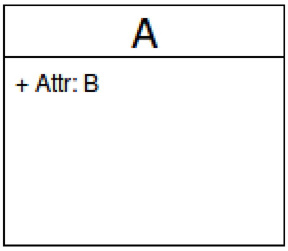
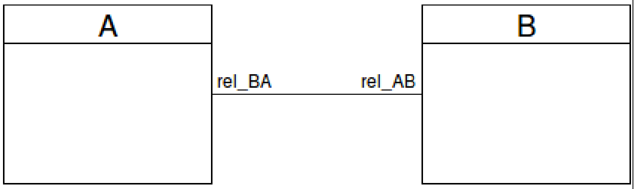
Conversion rules UML to OWL

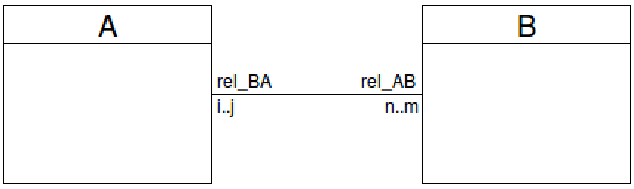
Simple Class  	Declaration (Class(:A))

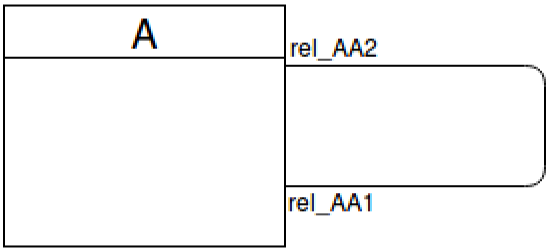
Class with primitive Type Attribute

 	
Examples for p_Type:
• String
• Integer
• Float
• Double
	If p_Type is a String:
	
	Declaration(DataProperty (: Attr))
	DataPropertyDomain(:Attr :A)
	DataPropertyRange(:Attr xsd:String)
	
	Use native OWL Datatypes for the DataPropertyRange

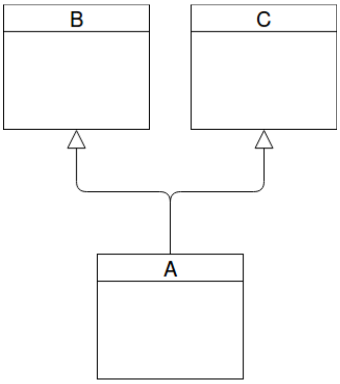
Class with Custom Type Attribute

 A
+ Attr: c_Type
c_Type
+ Attr1: String
+ Attr2: Integer
	Declaration (Class(:A))
	Declaration (Class(:c_Type))
	
	Declaration (DataProperty(:Attr1))
	DataPropertyDomain(:Attr1 :c_Type)
	DataPropertyRande(:Attr1 xsd:String)
	
	Declaration (DataProperty(:Attr2))
	DataPropertyDomain(:Attr2 :c_Type)
	DataPropertyRande(:Attr2 xsd:String)
	
	Declaration (ObjectProperty(:Attr))
	ObjectPropertyDomain(:Attr :A)
	ObjectPropertyRange(:Attr :c_Type)

Associations  equivalent to 	Declaration (Class(:A)) Declaration (Class(:B)) Declaration (ObjectProperty(:Attr)) ObjectPropertyDomain(:Attr :A) ObjectPropertyRange(:Attr :B)

	Declaration (Class(:A))
	Declaration (Class(:B))
	
	Declaration (ObjectProperty(:rel_AB))
	ObjectPropertyDomain(:Attr :A)
	ObjectPropertyRange(:Attr :B)
	
	Declaration (ObjectProperty(:rel_BA))
	ObjectPropertyDomain(:Attr :B)
	ObjectPropertyRange(:Attr :A)
	
	If the navigability is given in both directions add:
	InverseObjectProperties(:rel_AB :rel_BA)

Multiplicities example

	Declaration (Class(:A))
	Declaration (Class(:B))
	
	Declaration (ObjectProperty(:rel_AB))
	ObjectPropertyDomain(:Attr :A)
	ObjectPropertyRange(:Attr :B)
	
	Declaration (ObjectProperty(:rel_BA))
	ObjectPropertyDomain(:Attr :B)
	ObjectPropertyRange(:Attr :A)
	
	ObjectMinCardinality(n :rel_AB :A)
	ObjectMaxCardinality(m :rel_AB :A)
	
	ObjectMinCardinality(i :rel_BA :B)
	ObjectMaxCardinality(j :rel_BA :B)

Reflexive Relation

 	
	Declaration (Class(:A))
	
	Declaration (ObjectProperty(:rel_AA1))
	ObjectPropertyDomain(:Attr :A)
	ObjectPropertyRange(:Attr :A)
	
	Declaration (ObjectProperty(:rel_AA2))
	ObjectPropertyDomain(:Attr :A)
	ObjectPropertyRange(:Attr :A)
	
	ReflexiveObjectProperty(:rel_AA1)
	ReflexiveObjectProperty(:rel_AA2)

Generalization  	Declaration (Class(:A)) Declaration (Class(:B)) Declaration (Class(:C)) SubClassOf(:A IntersectionOf(:B :C)) DisjointClasses(:B :C)
General rules for Multiplicities on ObjectProperties and DataProperties • 0..1 • 1..1 • 0..* • 1..*	If a restriction is used on an ObjectProperty use: • ObjectMaxCardinality(1 :A_B) • ObjectExactCardinality(1 :A_B) • No Restriction • ObjectMinCardinality(1 :A_B) If a restriction is used on a DataProperty use: • DataMaxCardinality(1 :A_B) • DataExactCardinality(1 :A_B) • No Restriction • DataMinCardinality(1 :A_B)