UN/CEFACT

# The UMM Profile for the UML

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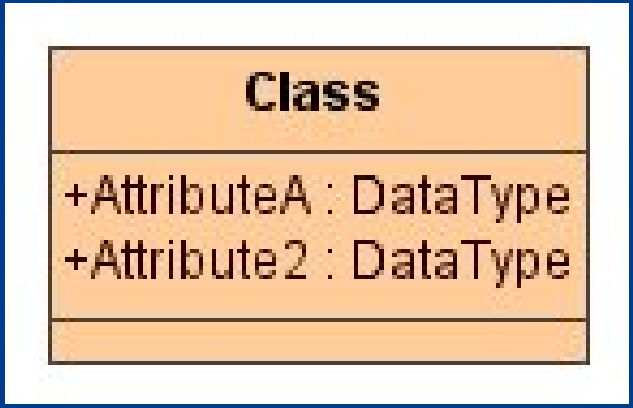
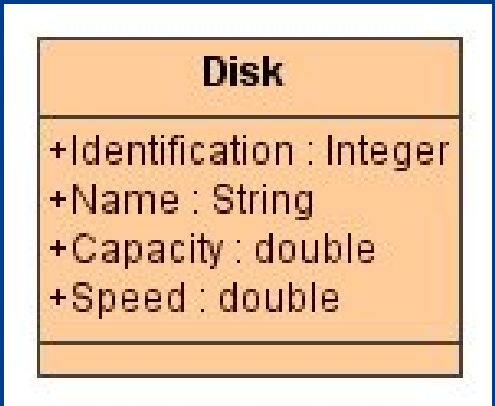
# The UML Class

**Definition:** A description of a set of objects that share the same attributes, ~~operations~~, ~~methods~~, relationships, and semantics

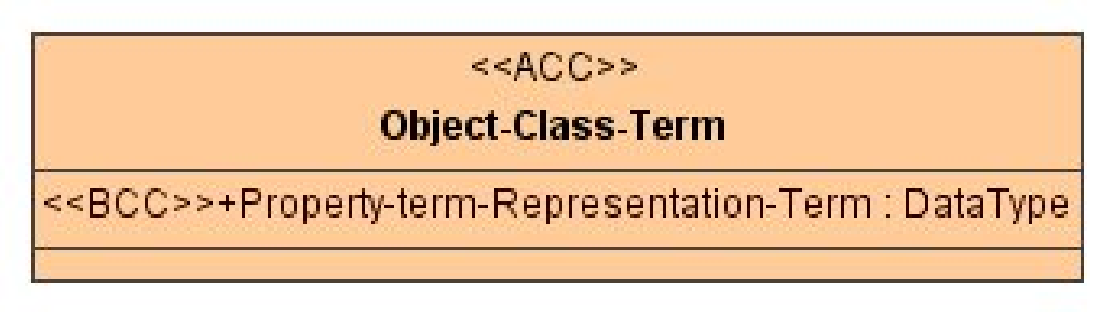



***Rules for construction of a class***

1. All attributes shall represent a single piece of information
2. An attribute shall appear only once (I.e. it cannot be repeated)
3. An attribute shall have a distinct name
4. Each instance of a class shall be uniquely identifiable
5. All attributes contribute to the definition of a class

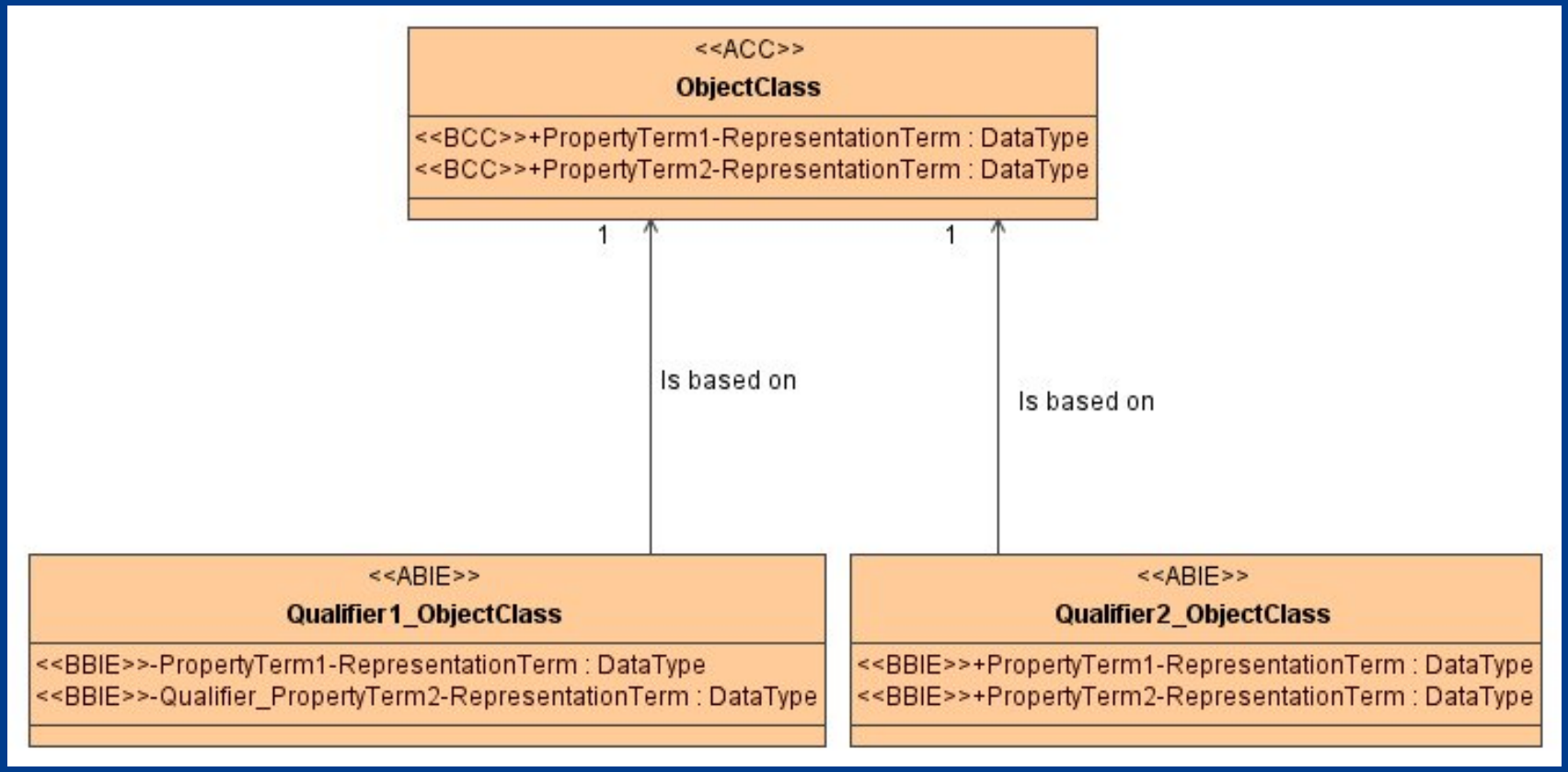
# The UML Class and the CCTS




- The class itself represents an Aggragate Core Component (ACC) or an Aggregate Business Information Entity (ABIE)
- The attributes within the class represent a Basic Core Component (BCC) or a Basic Business Information Entity (BBIE).

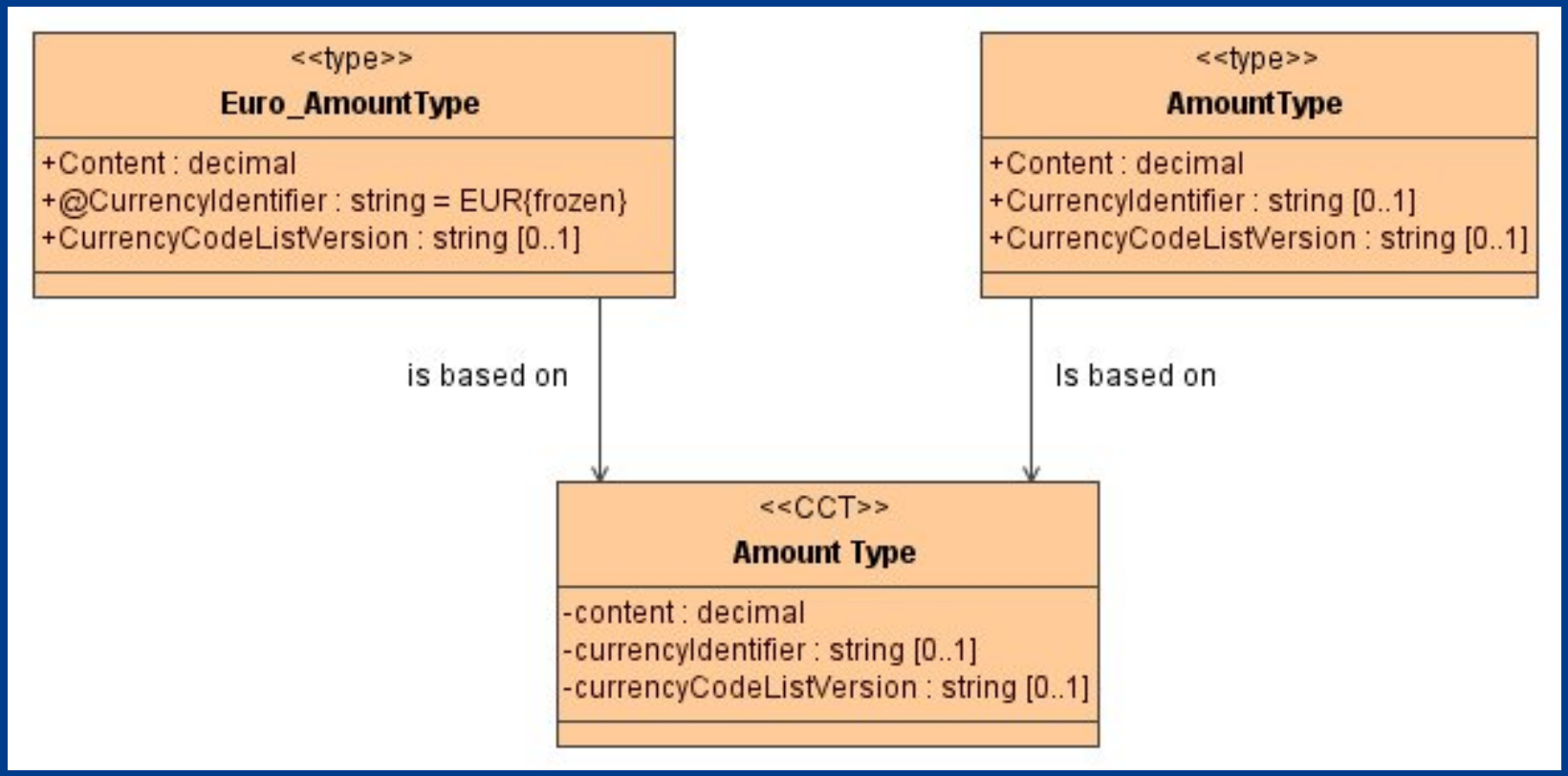
- Each BCC or BBIE is typed by a specific Datatype.

# The UML Class and the CCTS



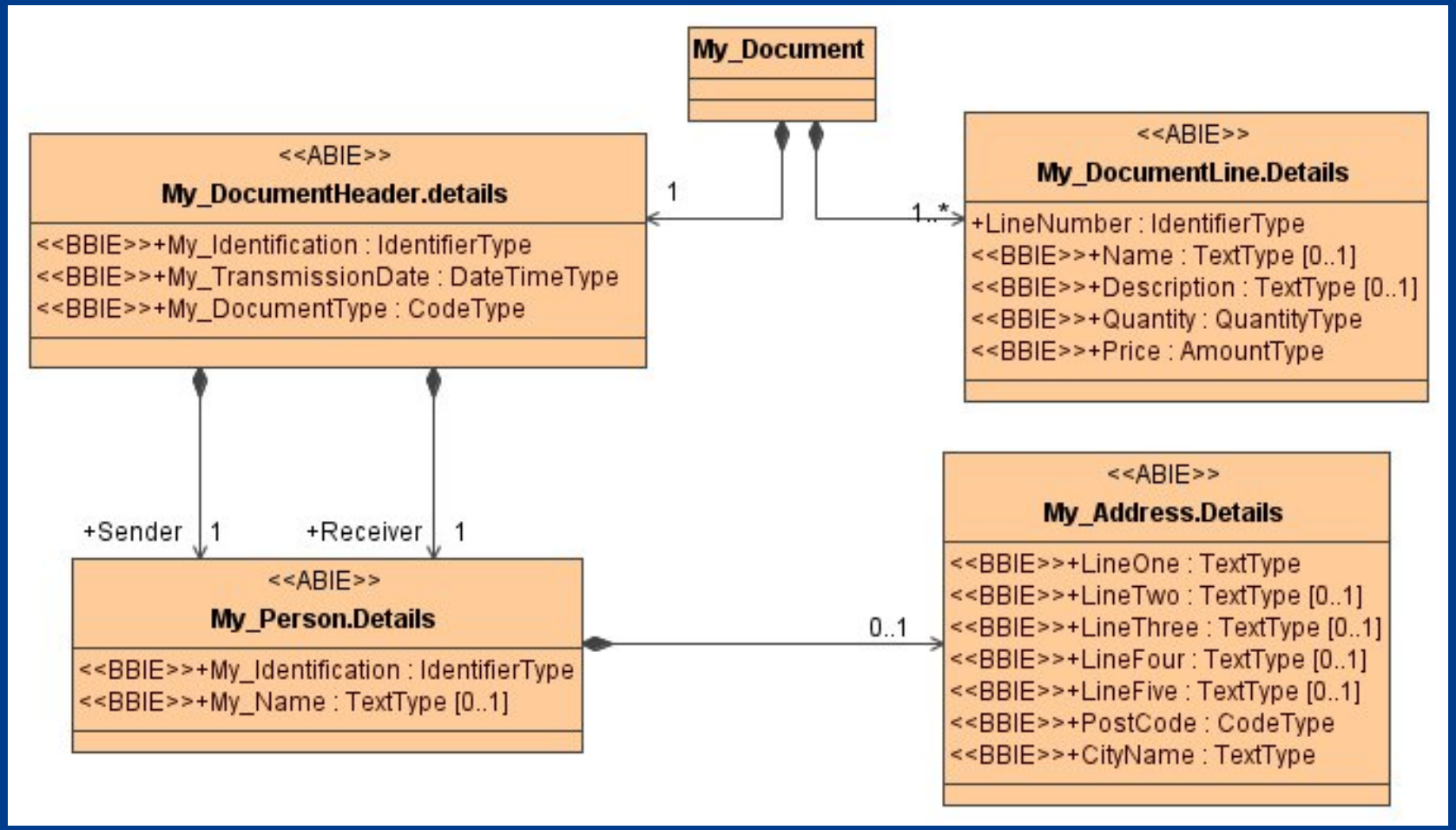
# DataTypes

**A datatype is a complex type defining a set of values that lack identity. It is based on a specific Core Component Type (CCT). If the datatype has specific constraints then it is prefixed by a qualifier term.**



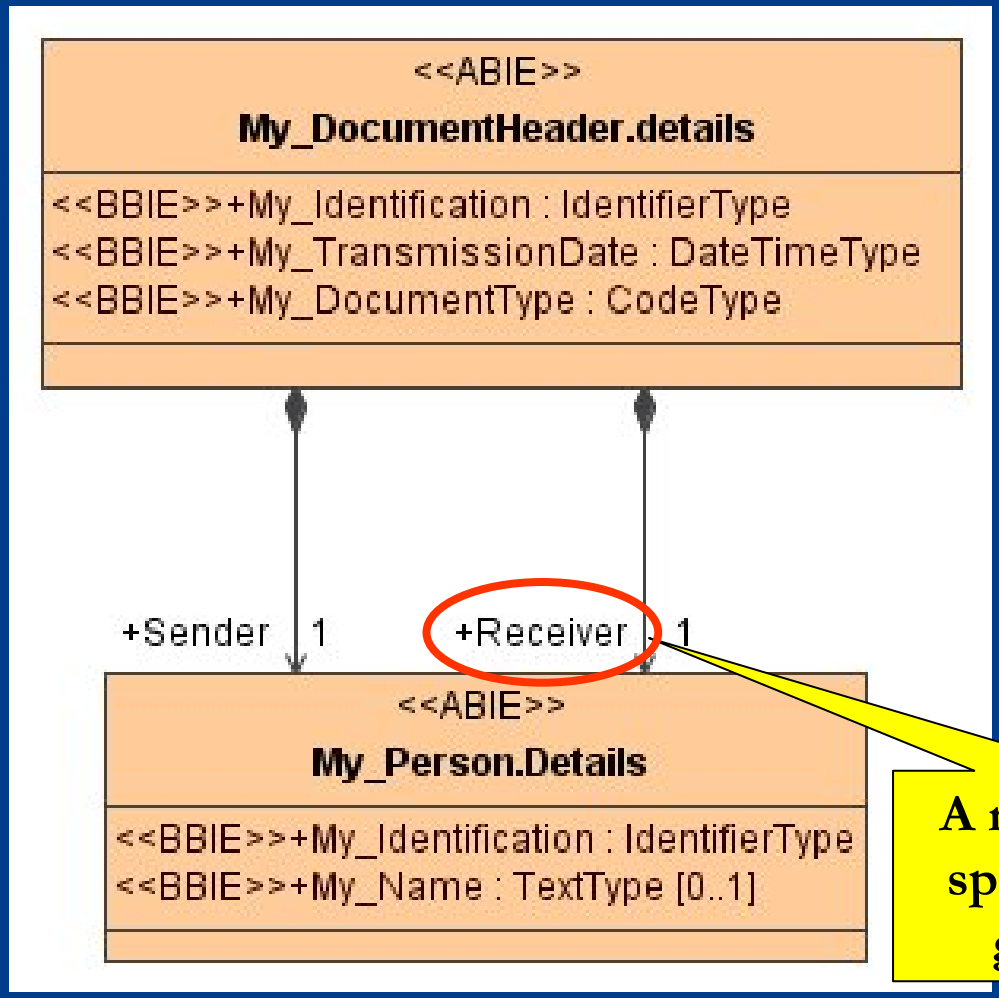
# Document creation

A document is composed of a set of classes and their interrelations



# Associations

An assoication is the semantic relationship between two or more classes that specifics connections among their instances

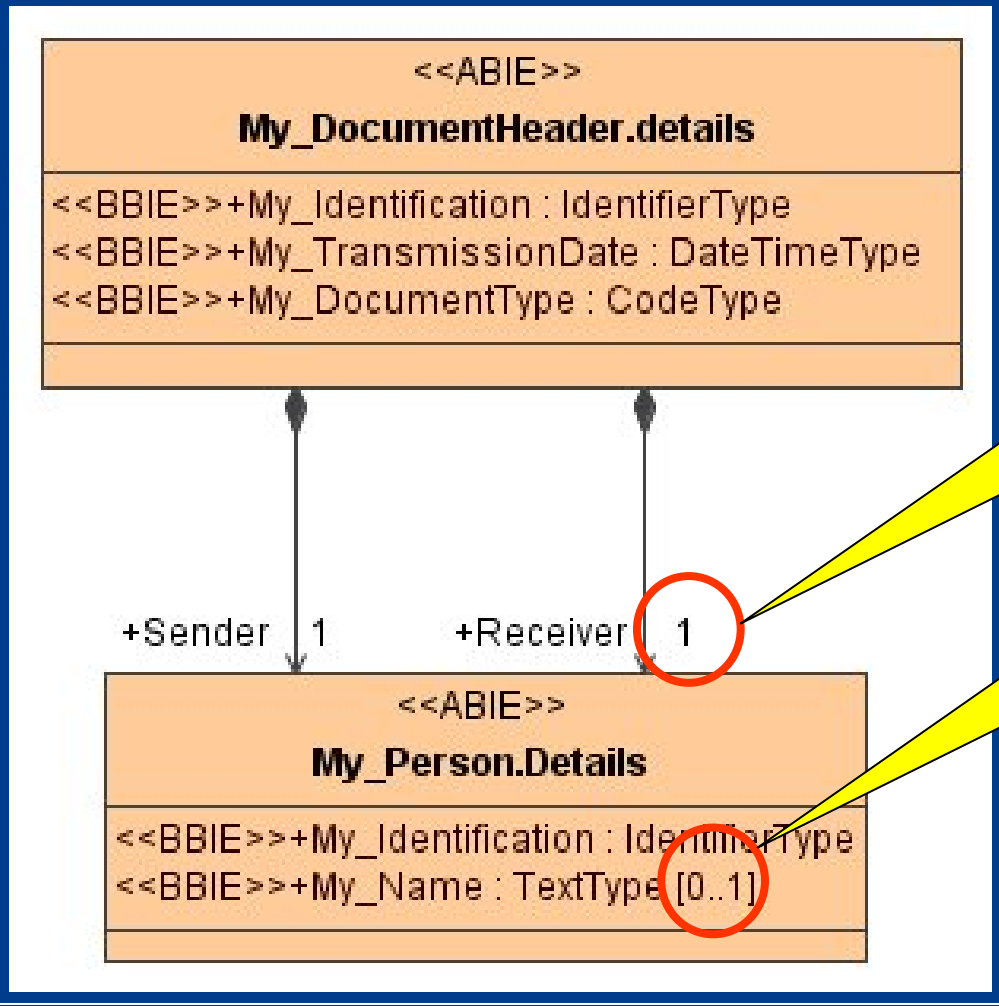



- Only composite aggregation is permitted
- All compositions shall be uni directional
- Within an association only target class rolenames should be used

A role identifies a specific case of a generic class

# Multiplicity (Cardinality)

A specification of the range of allowable cardinalities that a set may assume. Multiplicity specifications may be given for roles within associations, parts within composites, repetitions, and other purposes. Essentially a multiplicity is a (possibly infinite) subset of the non-negative integers.

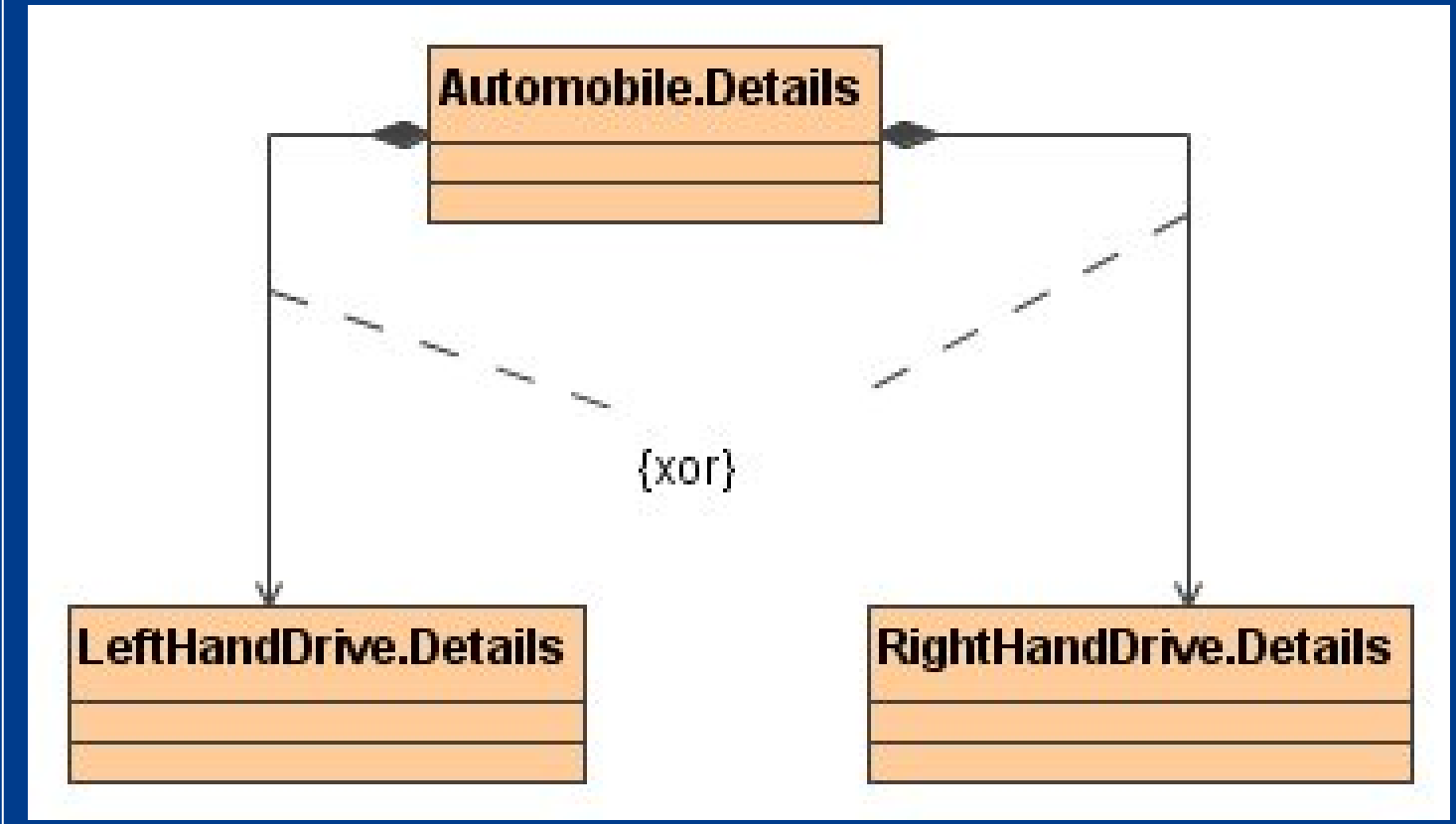



**Multiplicity shall only appear at the target end of an association**

**Multiplicity of [0..1] shall only appear for an attribute to indicate that the attribute is not mandatory**

# Constraints 1

Only “xor” constraints are allowed between associations.



# Constraints 2

Constraints related to classes and attributes should use the Object Constraint Language (OCL ) syntax in the following form:

Constraint "objectClass" inv {"constraintName"}:
Self."attributeName.subAttributeName" CONSTRAINT

Where CONSTRAINT has one of the following forms:

1. minLength="value"
2. maxLength="value"
3. minInclusive="value"
4. maxInclusive="value"
5. minExclusive="value"
6. maxExclusive="value"
7. fractionDigits="value"
8. Pattern="value"
9. Enum{#value, #value…..}

# XMI deliverables 1

**OMG XML MetaData Interchange (XMI) Specification**

The main purpose of XMI is to enable easy interchange of metadata between modeling tools (based on the OMG-UML)… in distributed heterogeneous environments.

XMI integrates the key industry standards:

- XML - eXtensible Markup Language, a W3C standard
- UML - Unified Modeling Language, an OMG modeling standard

# XMI deliverables 2

The proposed XMI deliverables are:

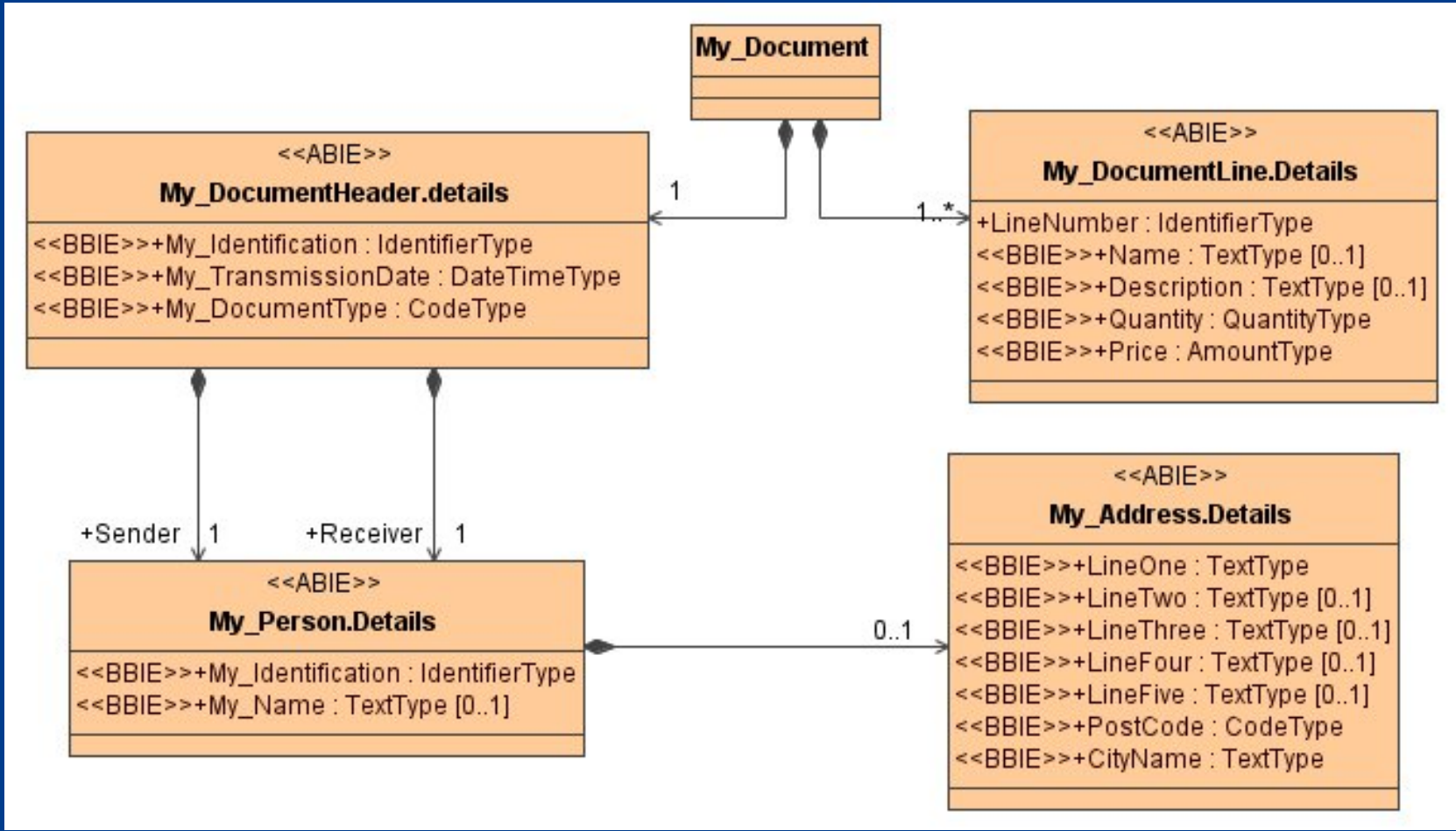
- The basic UN/CEFACT library of core components
- Each individual Business specification

Advantages:

- The basic UN/CEFACT library will enable Business analysts to readily integrate the library into their preferred UML development tool
- The Business specification will enable software developers to integrate the specification information into their software tools.

However, in order to ensure interoperability an XMI profile will be necessary. This will be one of the artifacts that will be integrated into the UMM UML profile.

# Example of the use of XMI output



# The XMI Output

- XMI
  - 1.0
  - Sat Sep 11 08:56:47 CEST 2004
  - XMI.header
    - XMI.documentation
    - XMI.metamodel
  - XMI.content
    - Model_Management.Model
      - eee_1045467100313_135436_1
      - Données
      - XMI.extension
      - Foundation.Core.Namespace.ownedElement
        - Model_Management.Package (3)
        - Foundation.Extension_Mechanisms.Stereotype
        - Foundation.Core.DataType
        - Foundation.Extension_Mechanisms.Stereotype (3)
        - Foundation.Core.DataType
        - Foundation.Core.Class
        - Model_Management.Package
        - Foundation.Core.Class (2)

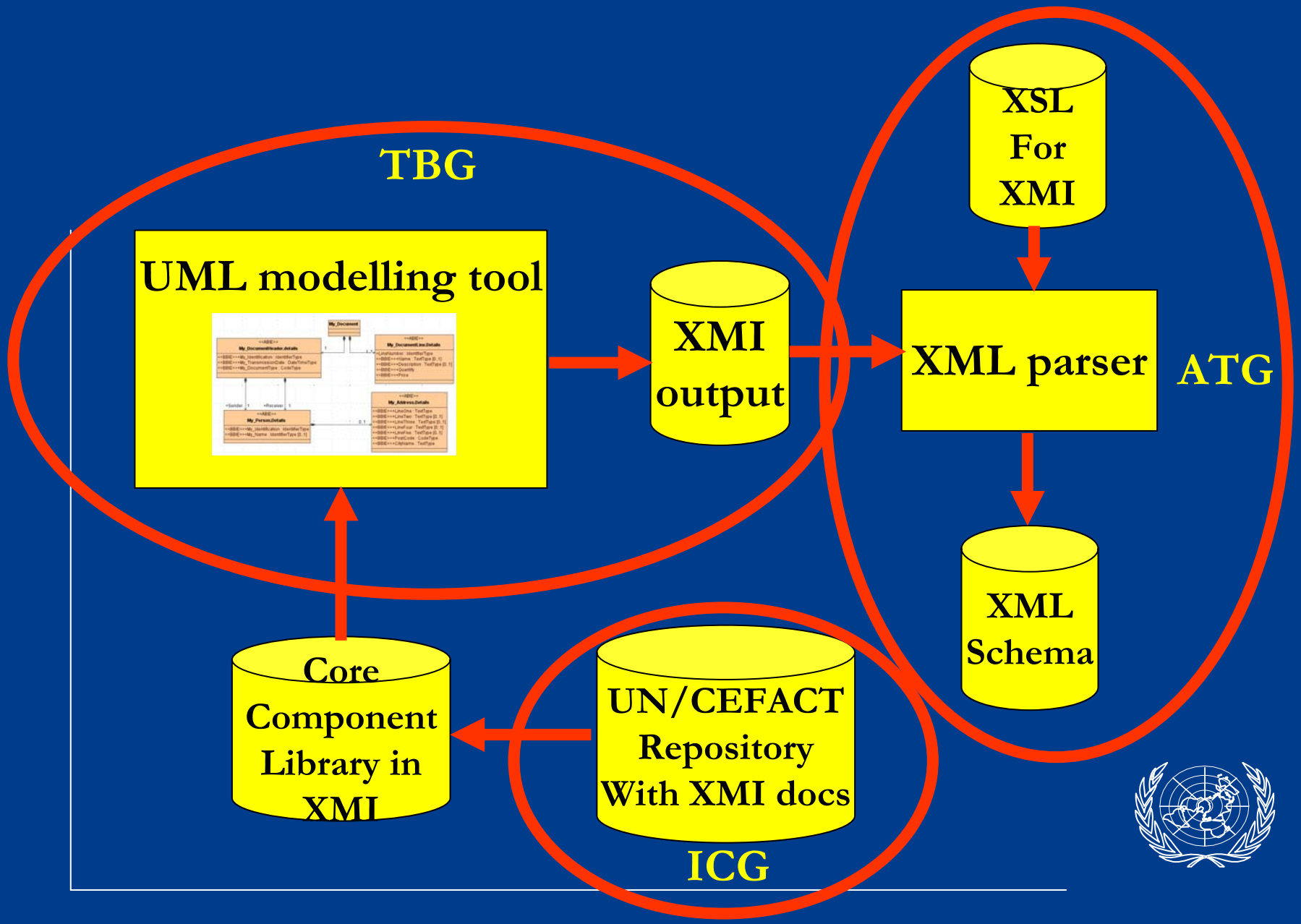
| | xmi.id | Foundation.Core.Mo... | | Foundation.Core.Classifier.feature |
|---|---|---|---|---|
| 1 | _24f004bc_1094880758214_563989_525 | My_Document | | |
| 2 | _24f004bc_1094880773446_197353_541 | My_DocumentHeader.details | | Foundation.Core.Classifier.feature |

Foundation.Core.Attribute (3)

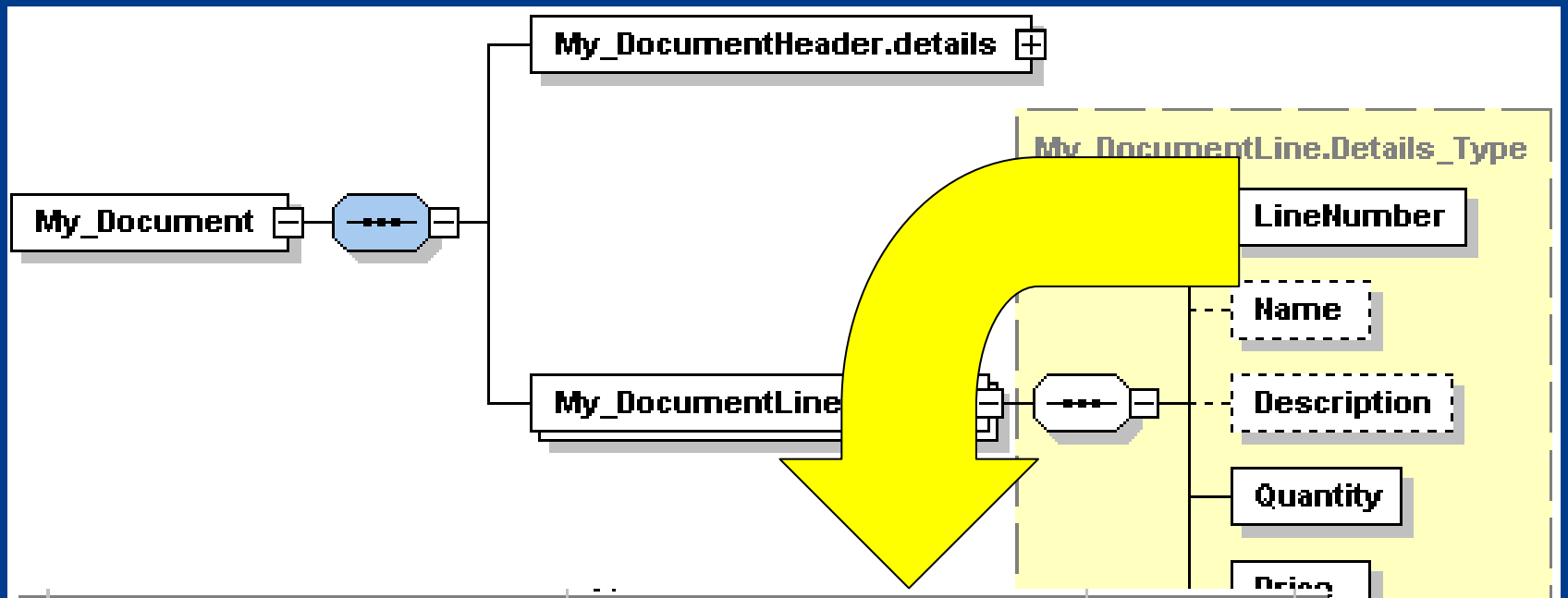
| | xmi.id | Foundation.Cor... |
|---|---|---|
| 1 | _24f004bc_1094881564544_240223_613 | My_Identification |
| 2 | _24f004bc_1094881629878_146749_619 | My_TransmissionDate |
| 3 | _24f004bc_1094881673621_456567_621 | My_DocumentType |

- Foundation.Core.Association

# How XMI can be used



# XMI Generation




| content | xsd:string | required |
|---|---|---|
| identificationSchemeIdentifier | xsd:string | |
| identificationSchemeName | xsd:string | |
| identificationSchemeAgencyIdentif | xsd:string | |
| identificationSchemeAgencyName | xsd:string | |
| identificationSchemeVersionIdentifi | xsd:string | |
| identificationSchemeDataUniformR | xsd:string | |
| identificationSchemeUniformResou | xsd:string | |
| identificationSchemeIdentifier | xsd:string | |

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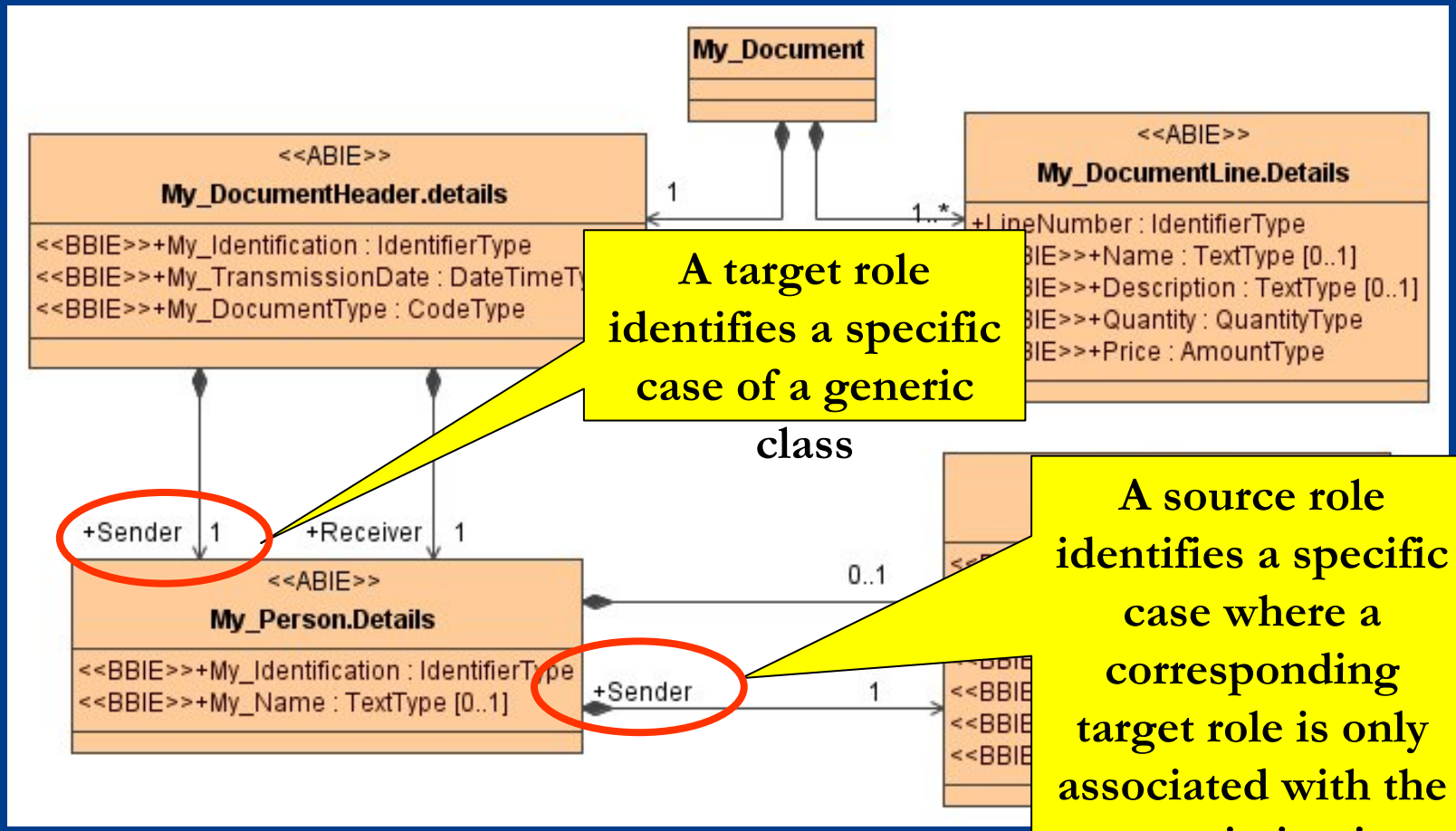
# UN/CEFACT

SIMPLE, TRANSPARENT AND EFFECTIVE PROCESSES
FOR GLOBAL BUSINESS.

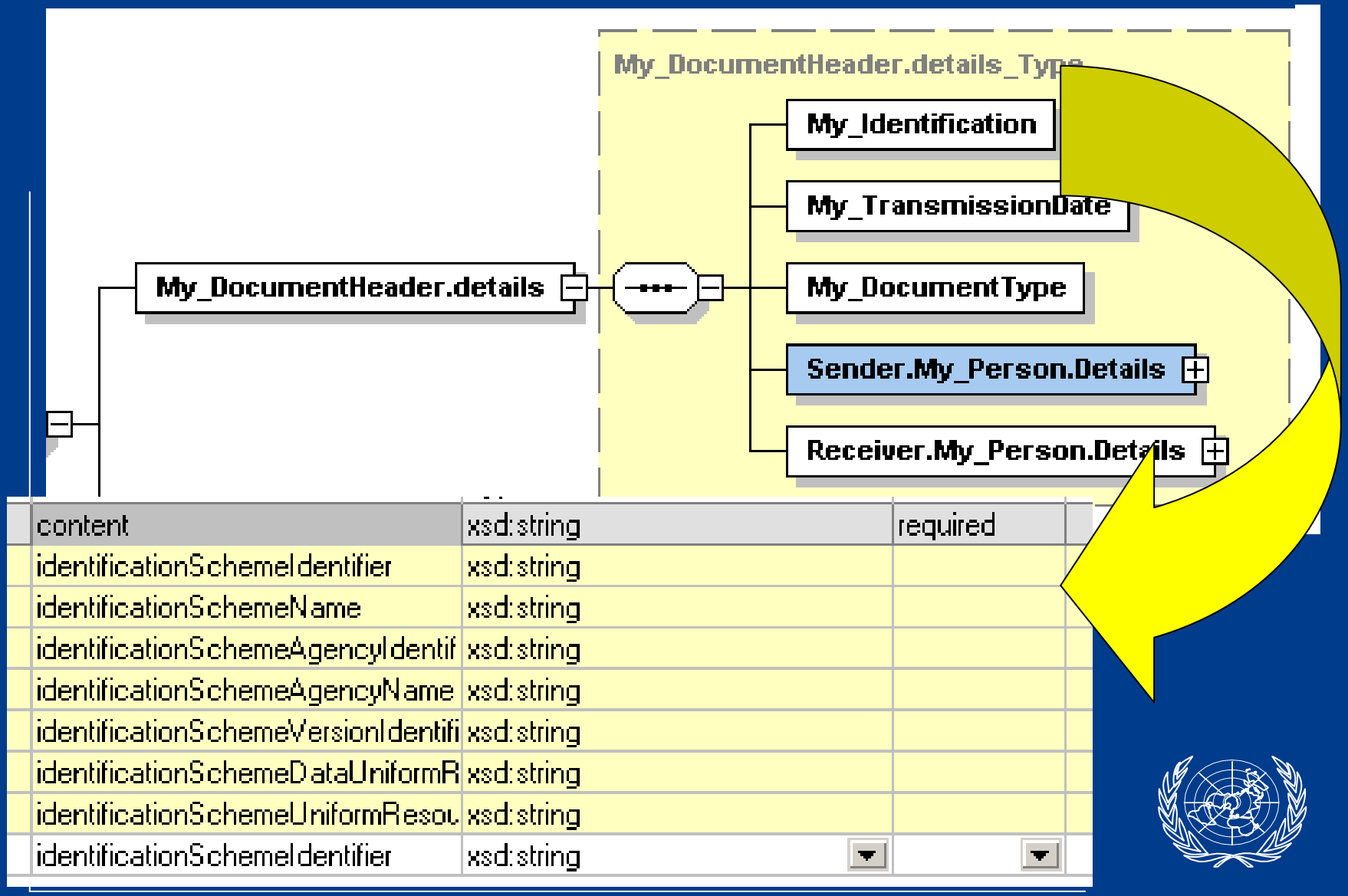
# Associations



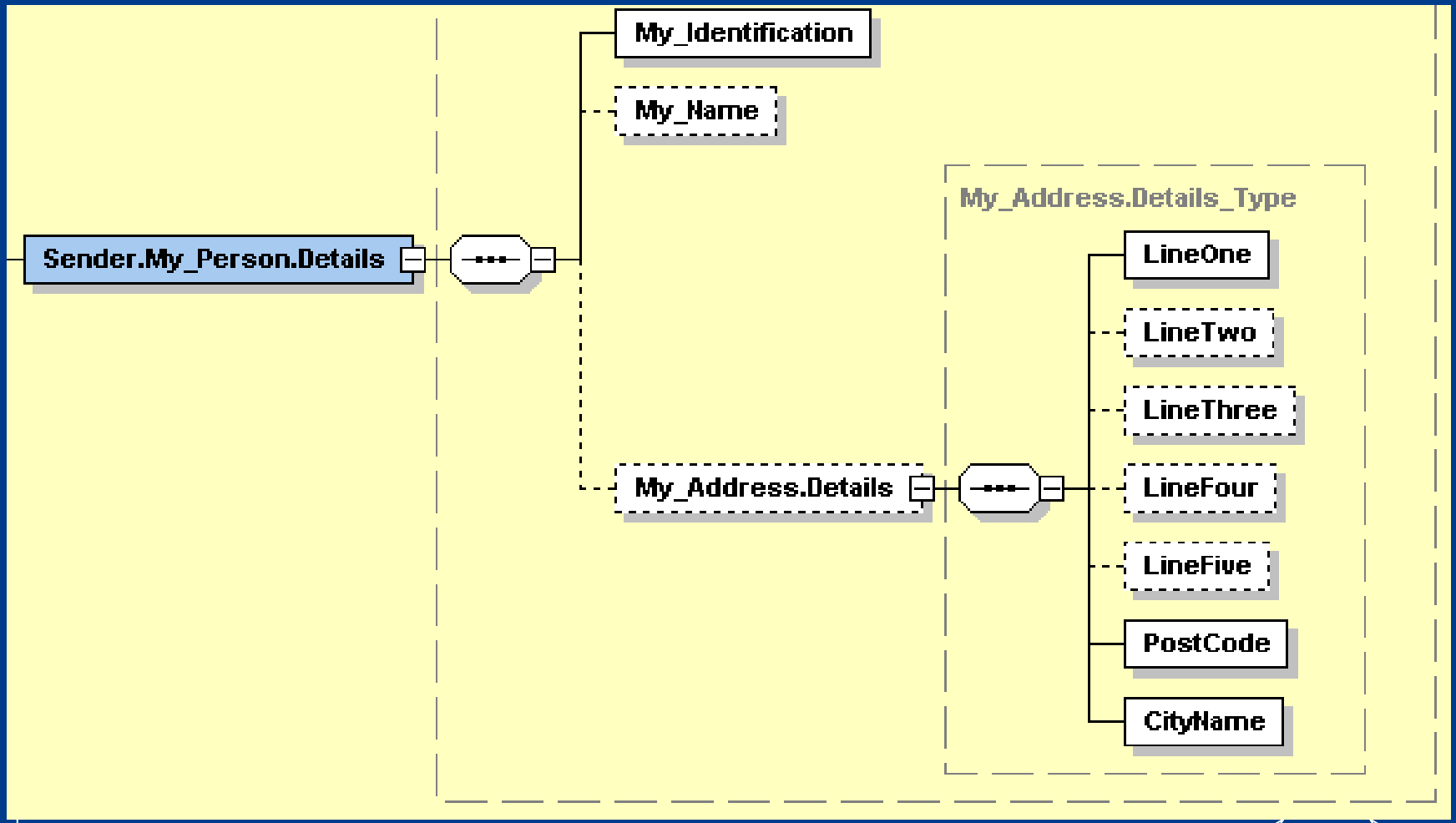
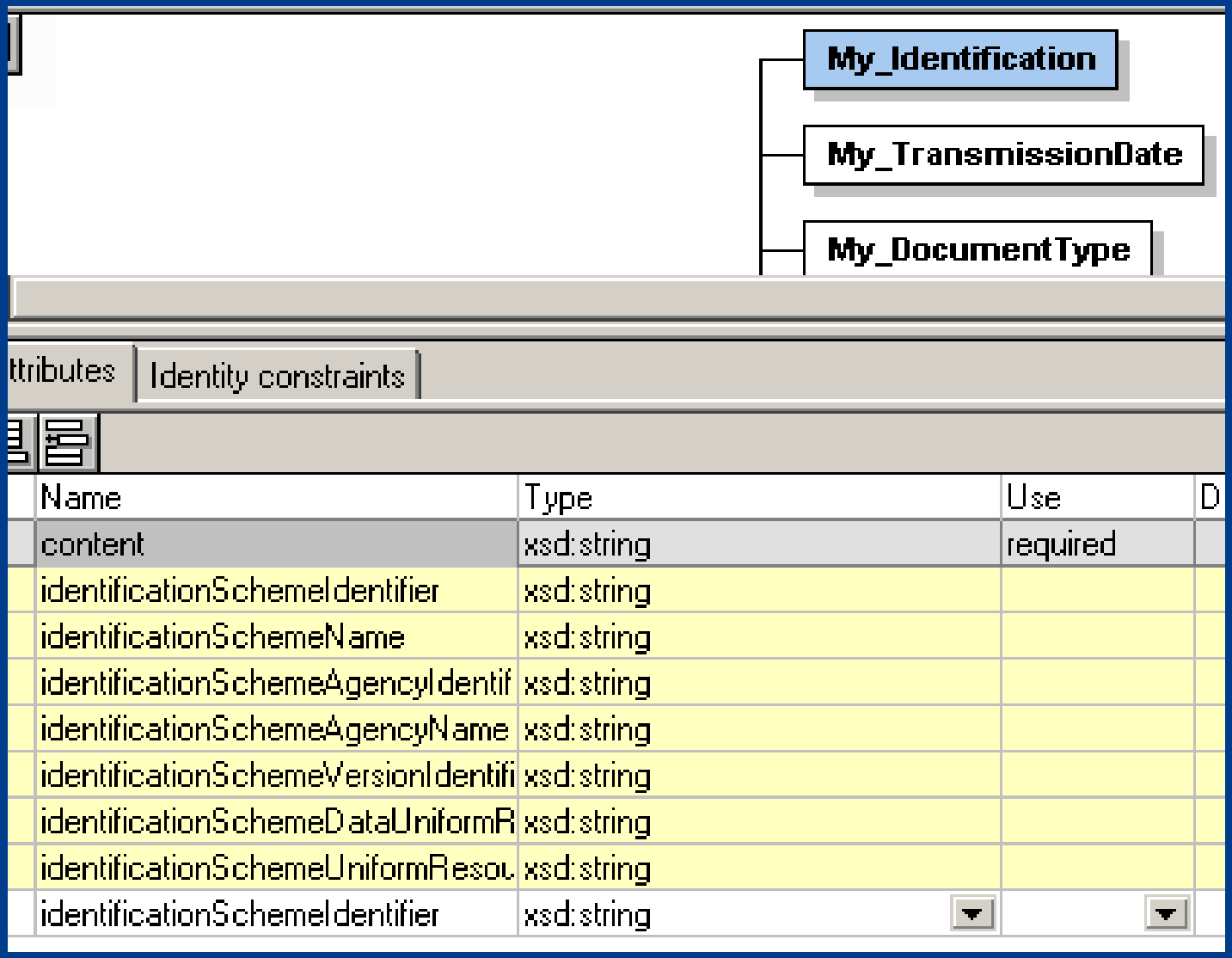

A target role identifies a specific case of a generic class

A source role identifies a specific case where a corresponding target role is only associated with the association in question

# XMI Generation



# XMI Generation 3



# XMI Generation 4