Business Interoperability Interfaces for Public Procurement in Europe — Syntax Implementations Guideline Methodology

ICS:

Descriptors:

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Foreword

This document is a working document.

CWA <mark>1234</mark> part 112, **Syntax Implementation Guideline** was developed in accordance with CEN-CENELEC Guide 29 "CEN/CENELEC Workshop Agreements – The way to rapid agreement" and with the relevant provisions of CEN/CENELEC Internal Regulations - Part 2. It was agreed on <mark>YYYY-MM-DD</mark> in a Workshop by representatives of interested parties, approved and supported by CEN following a public call for participation made on <mark>YYYY-MM-DD</mark>. It does not necessarily reflect the views of all stakeholders that might have an interest in its subject matter.

The final text of CWA <mark>1234</mark> was submitted to CEN for publication on <mark>YYYY-MM-DD</mark>. It was developed and approved by:

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This CEN Workshop Agreement (CWA) has been drafted and approved by the Workshop on **Business Interoperability Interfaces for Public procurement in Europe (BII)**, phase 3.

CWA 1234 is part of a set of CWAs prepared by CEN/WS BII3[1]:

    CWA 1234:2016 BII Architecture
    CWA 2345:2016 BII Notification profiles and transactions
    CWA 3456:2016 BII Tendering profiles and transactions
    CWA 4567:2016 BII Catalogue profiles and transactions
    CWA 5678:2016 BII Post-award profiles and transactions

CWA 1234 part 112 replaces CWA 16558 – Annex K Guideline Syntax Binding Methodology.

CWA 1234 consists of:

— CWA1234 Part 1 Architecture Overview
— CWA1234 Part 101 Conformance and Customisation methodology
— CWA1234 Part 102 Code list and identifier management
— CWA1234 Part 103 Business Document Header and Envelope
— CWA1234 Part 203 BDE Syntax Binding
— CWA1234 Part 104 Profile Architecture
— CWA1234 Part 105 Conformance registry
— CWA1234 Part 106 Open Procurement Data
— CWA1234 Part 107 Use of Message level Response
— CWA1234 Part 108 Use of Digital Signature
— CWA1234 Part 109 The concept of "core"
— CWA1234 Part 110 Profile Maintenance process
— CWA1234 Part 111 Gathering of business requirements
— CWA1234 Part 112 Syntax Implementation Guidelines methodology
— CWA1234 Part 113 Business Rules Description Mechanism
— CWA1234 Part 114 Guideline on attachments
— CWA1234 Part 115 Semantic Data Type Guideline
— CWA1234 Part 116 BII Glossary

A detailed overview of all CWA 1234 parts can be found in CWA 1234 part 1.

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[1] In order to ease the reading and review the CWAs provided by BII, they are also made available on http://www.cenbii.eu together with explanatory notes and supporting material. The official version is however the version as published by CEN.

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Introduction

The CEN BII Workshop was established in May 2007 with the objective of harmonising electronic public procurement in Europe. The BII Workshop is a standardisation initiative within CEN (European Committee for Standardisation). It provides a framework for interoperability in pan-European electronic transactions expressed as a set of technical specifications such as Profiles[2], guidelines and reports. These are designed to facilitate effective public e-procurement based on a modular approach for implementation, with a focus on global interoperability.

In this specification, a methodology (Section 3) and template (Section 6) for the development of syntax implementation guidelines is presented. The methodology describes the requirements of the implementers, the artefacts they need and how these requirements are met in the deliverable. On the other hand, the template provides the outline of the implementation guide and how the artefacts are presented to the implementers.

1   Scope

This document is basically an introduction document for the syntax implementation guidelines developed in Phase 3 of CEN WS/BII. It is therefore an informative document. It provides the methodology used for developing the syntax implementations guidelines. The quality is maintained through internal and external reviews as usual.

2   Goal

The goal of this document is to describe the methodology and the template for the CEN BII Phase 3 syntax implementation guidelines that will provide technical support for adopters and implementers of CEN WS/BII deliverables. In other words, syntax implementation guidelines are technical specifications providing guidance on how a given syntax message should be used and implemented in order to meet the requirements defined for a given BII transaction used in a profile. The implementation guidelines will be developed for UBL 2.1 and UN/CEFACT XML). The methodology can be used for other syntax solutions.

Furthermore, a syntax binding methodology is also provided for future possible syntax bindings (mappings).

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[2] Profiles are described in more detail in the architecture deliverables of WS/BII3, including this guideline, which have been published as CWA 1234

3   Syntax Binding Methodology e.g. UBL 2.1, UN/CEFACT XML

CEN BII Phase 2 deliverable "CWA 16558 – Annex K Guideline Syntax Binding Methodology[3]" describes general experience on how the mapping with UBL 2.1 and UN/CEFACT XML has been achieved and the issues (see section 5) encountered during these mapping tasks. The mapping (or binding) is basically performed by binding each BII requirement to the corresponding element in the syntax implementation. The mappings are expressed through XPath expressions. For each BII transaction and target syntax there is a single document showing the mappings.

In this section the methodology used for binding a syntax (specification) to the CEN BII Core data model is presented step by step. First of all, the mapping from CEN BII core (SOURCE) to the specification of interest (TARGET) may not be a straightforward task. In such a mapping task the users may have the following challenges (It should be noted that each CEN BII requirement corresponds to one (or more) elements in the BII Core data model; therefore, the binding methodology described in this section is for mapping the BII Core data model elements to the specific syntax implementation):

  a. <u>No corresponding element on the TARGET</u>: It may be possible that the element in the SOURCE may not exist in the TARGET specification.

  b. <u>Different data types</u>: The data types of the elements may be different.

  c. <u>Different cardinalities</u>: The elements may have different cardinalities. The element on the SOURCE may have multiple cardinality (1..n or 0..n) whereas the element on the TARGET may have single cardinality (1..1 or 0..1).

  d. <u>Mandatory field in the TARGET</u>: Although there is no mapping on the SOURCE side, the element on the TARGET must exist.

This section explains how these difficulties have been handled by the CEN BII experts.

The methodology used for creating the syntax binding is based on a top-down approach and has the following steps:

  1. Select the transaction document (SOURCE document) in the CEN BII Core data model (e.g. BiiTrns010 Invoice).

  2. Identify the corresponding document in the TARGET specification. (e.g. UBL 2.1 Invoice, UN/CEFACT XML Cross Industry Invoice)

       a. If there is none, this requirement should be issued to the SDO (Standards Development Organisation) responsible for the syntax implementation. The mapping for this SOURCE document is not possible until the document format is created by the specific syntax implementation.

  3. For each element on the SOURCE (start from the basic elements first and then continue with aggregate elements), identify the element on the TARGET.

       a. If there is an exact match (same data type, same cardinality), create the mapping.

       b. If there is a partial match:

            i. <u>Different cardinality</u>: This situation causes a problem when the SOURCE element has multiple cardinality (1..n or 0..n) whereas the TARGET element has single cardinality (1..1 or 0..1). In such cases, a change request should be issued to the SDO responsible for the syntax implementation. As a temporary solution, the mapping can be created.

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[3] ftp://ftp.cen.eu/public/CWAs/BII2/CWA16558/CWA16558-Annex-K-BII-Guideline-SyntaxBindingMethodology-V1_0_0.pdf

ii. Different data type: The situation causes a problem when the SOURCE element has a string data type and TARGET has a numeric data type. Also when the SOURCE element data type contains more details than the TARGET element data type (e.g. DateTime on the SOURCE and Date on the TARGET). Likewise, in such cases, a change request should be issued to the SDO responsible for the syntax implementation. As a temporary solution, the mapping can be created.

Comment [??1]: shouldn't we be more generic here?

c. If there is no corresponding element on the TARGET, this requirement should be issued to the SDO responsible for the syntax implementation.

i. As a temporary solution, a TARGET element with wider semantic definition or a general text field can be used to create the mapping. For example, assume that "Invoice/Invoice line/Item attributes" (0..n) SOURCE element does not have a corresponding element on the TARGET model. This element can be mapped to "Invoice/cac:InvoiceLine/cac:Item/cbc:Description" element of UBL 2.1.

4. If there is a mandatory element on the TARGET, which is not mapped to any element on the SOURCE, this field should be populated as appropriate using a fixed value (e.g. UBLVersion field of UBL 2.1).

5. If the syntax implementation (specification) allows it, restrict the cardinalities of unused elements on the TARGET data model. It may be a best practice to see the final mapped data model on the TARGET side.

4   GAP Analysis Methodology

The aim of this analysis is to identify the gaps between the CEN BII data models and target specifications UBL 2.1 and UN/CEFACT XML. In this way, it will be possible to inform the corresponding standard development organizations and issue change requests for the subsequent version of their specifications. It should be noted that this methodology can be applied to other syntax standards with which future possible CEN BII binding is realized.

As the basis for the gap analysis the following spreadsheet has been developed. This spreadsheet will be populated for both pre-award and post-award transactions and corresponding data models. (Basically the mapping issues will be collected)

Transaction ID	Information Requirement ID	Business Term	Binding (Target Spec.)	Issue	Target Spec. Element XPath	Impact	Resolution	Action	Note

Table 1 — GAP Analysis Spreadsheet

The possible values for the columns of the table are as follows:

- **Transaction ID:**   CEN BII Transaction identifier.
- **Information Requirement ID:** CEN BII Information Requirement ID.
- **Business Term:** CEN BII business term.
- **Binding (Target Spec.):** For this version of the gap analysis, the values can be either UBL 2.1 or UN/CEFACT XML.
- **Issue:** The possible values for this column are as follows:
  - o No Mapping - No Corresponding Element in the Target Spec.
  - o Mapping to an Element having Wider Semantics in the Target Spec.
  - o Mapping to an Element having Narrower Semantics in the Target Spec.

- o Mandatory Element in the Target Spec.
- o Other (Any other issue not listed above. Details should be provided in the Note column.)
- **Target Spec. Element XPath:** The XPath of the corresponding XML element in the target specification (It will be empty in case of "No Mapping" issue).
- **Impact:** The values can be Low, Medium and High.
- **Resolution:** The values for this column are as follows:
  - o No Resolution
  - o Map to Wider Semantic Element
  - o Use Extension Area for the Mapping
  - o Other Temporary Fix (Any other fix not listed above. Details should be provided in the Note column.)
- **Action:** The values for this column are as follows:
  - o Ignore
  - o Inform SDO - Change Request
- **Note:** Any detailed description about the issue or its resolution.

Basically the steps of the methodology to carry out the gap analysis will be as follows:

1. First the spreadsheet will be populated for the corresponding CEN BII transactions.
2. CEN BII technical experts will review the table.
3. The teams will review the table.
4. After the team reviews the contents of the table will be loaded to Mantis Issue Tracking System to perform workshop review.

5   Syntax Implementation Guideline Methodology

This methodology starts with discussing the previous issues/challenges in the CEN BII deliverables from an implementer's point of view. After that it presents the artefacts that implementers need to start their implementation of CEN BII specifications directly.

Some of the issues in CEN BII deliverables for implementers are:

1. Difficulty of creating CEN BII conformant syntax (UBL 2.1 or UN/CEFACT) instances from scratch: In the current version of the deliverables (syntax bindings), all of the documents contain XPath links from CENBII to UBL or UN/CEFACT, but not vice versa. However, implementers prefer to start with UBL or UN/CEFACT syntax messages because they are more familiar with them.

2. Element descriptions/definitions are in different documents: Currently, the implementers have to deal with a number of documents to start their implementation. For example, the syntax binding documents do not contain the description of elements. The implementers should examine another document to better understand the aim of the elements.

3. Relation with the architecture documents: In the current structuring of the deliverables, for example, the "Guideline on Code List Management and BII Code Lists" are in different parts of the web sites and may not be easily found.

These issues are solved by means of providing the used code list, the mappings from the specific syntax elements to CEN BII Business Terms along with their descriptions. The aim is primarily to provide one-stop-shop documentation for the implementers. In other words, the guidelines aim to contain almost all information or guidance for the implementers to start their implementation directly.

The syntax implementation guidelines are generated based on the CEN BII transaction. For each transaction there are two guidelines, one for UBL 2.1 and one for UN/CEFACT. In this way, the implementers are able to choose their syntax of interest without the need to read guidelines they are not concerned with.

The Schematron files for validating the document instances of CEN BII transactions are separated into two groups: (1) Syntax Schematron files for the existence/cardinality constraints and (2) Semantics Schematron files for the relations among the elements and their code list value constraints. The Semantics Schematron files are further divided into four:

- Schematron/Genericode Files for Code Lists

- Schematron Files for Identification Schemes

- Schematron Files for Calculation Models

- Schematron Files for Concurrence Constraints

In this way, it becomes easy to maintain single purpose documents, rather than one Schematron document containing all constraints. Last but not the least, the sample XML files are presented to provide the implementers with a template.

6   Syntax Implementation Guideline Template

In this section the document template is defined showing how the syntax implementation guidelines shall conform. As mentioned above, there are two syntax implementation guideline documents for each CENBII transactions: Currently, both UBL 2.1 and UN/CEFACT XML are supported. Syntax implementation for other specifications may also be provided with the same template.

The template of these documents is presented as subsections below.

6.1 Profile and Transaction Introduction

In this section, in addition to the reference to the profile document (e.g. Profile BII04 Invoice Only[4]), the profile and the corresponding transaction for which the syntax implementation guideline is developed are presented briefly to achieve a self-contained document for implementers.

Having introduced the profile and the transaction briefly, the common code lists for the coded elements and identification schemes used in the transaction document are presented.

Then, the corresponding syntax implementation is presented by first presenting the whole implemented information model in the specified syntax (e.g. UBL 2.1). Here the main aim is to establish the mapping from the specified syntax to CENBII business terms.

After that the selected key elements of the transaction document are presented along with the examples. Finally the implementable syntax implementation package, which contains Schematron files, Genericode documents and sample files are provided.

6.2 Common Code Lists

In this section the code lists and identification schemes common to all documents in the profile are presented.

6.2.1   Code Lists for Common Coded Elements

The following table is used for listing the code lists.

Business Term[5]	Source[6]	Subset[7]	Xpath[8]	listID[9]
Country Code	ISO 3166-1 alpha2	-	cac:Country/cbc:IdentificationCode	ISO3166-1:Alpha2

<div align="center">**Table 2 — Code Lists**</div>

ISO 3166-1 alpha2:

http://www.iso.org/iso/home/standards/country_codes.htm

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[4] ftp://ftp.cen.eu/public/CWAs/BII2/CWA16562/CWA16562-Annex-B-BII-Profile-04-InvoiceOnly-V2_0_0.pdf

[5] Corresponding CEN BII Business Term should be inserted to the cell

[6] The source of the code list is specified here

[7] If the code list, which is specified in "Source" part, is subsetted, related reference is given

[8] The XPath expression to the corresponding element(s) in the specification is given

[9] The value of the listID attribute of the element specified in the Xpath part is given

6.2.2   Code Lists for Identifier Schemes

The following table is used to list identification schemes used in the documents.

Business Term[10]	SchemeID[11]	Xpath[12]	Note[13]
Party Identifier	Tax Identifier	cac:PartyIdentification/cbc:ID/@schemeID	

Table 3 — Identification schemes

6.3 Description of selected parts of the document

In this section, the description and usages of important parts (like supplier and customer party information, allowance and charges, or monetary total) of the document is provided in detail. The descriptions are accompanied with sample XML fragments. In these descriptions, the restrictions (such as code lists, identifications schemes, calculation models like in monetary total and concurrence constraints) should be elaborated. Furthermore, the information model of these selected parts is also depicted. As an example for UBL 2.1 syntax binding of "Document totals" business term is presented below. It should be noted that the manner of description is from the specified syntax perspective with which the reader (the implementer) is more familiar.

Document totals element contains the calculated totals of the document. It is represented in UBL 2.1 with the cac:LegalMonetaryTotal ABIE and the following **Error! Reference source not found.** shows the CENBII implementation of this element.

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[10] Corresponding CEN BII Business Term should be inserted to the cell

[11] The value of the schemeID attribute of the element specified in the Xpath part is given

[12] The XPath expression to the corresponding element(s) in the specification is given

[13] Any other necessary notes are given
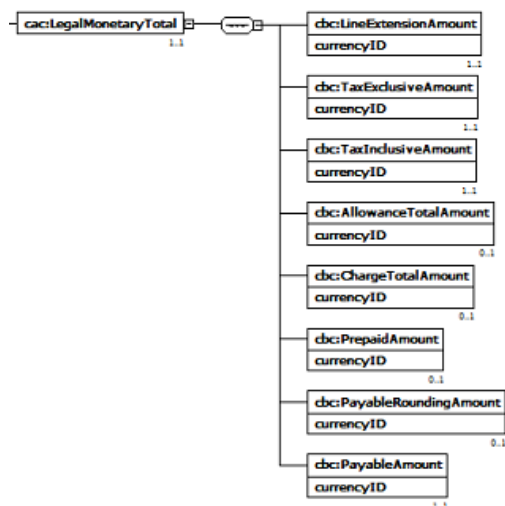
Figure 1 — LegalMonetaryTotal's CENBII Implementation

A sample XML is as follows:

```
<cac:LegalMonetaryTotal>
  <cbc:LineExtensionAmount currencyID="EUR">100.80</cbc:LineExtensionAmount>
  <cbc:TaxExclusiveAmount currencyID="EUR">100.80</cbc:TaxExclusiveAmount>
  <cbc:TaxInclusiveAmount currencyID="EUR">119.00</cbc:TaxInclusiveAmount>
  <cbc:AllowanceTotalAmount currencyID="EUR">10.00</cbc:AllowanceTotalAmount>
  <cbc:ChargeTotalAmount currencyID="EUR">10.00</cbc:ChargeTotalAmount>
  <cbc:PrepaidAmount currencyID="EUR">10.00</cbc:PrepaidAmount>
  <cbc:PayableRoundingAmount currencyID="EUR">0.06</cbc:PayableRoundingAmount>
  <cbc:PayableAmount currencyID="EUR">109.00</cbc:PayableAmount>
</cac:LegalMonetaryTotal>
```

Table 4 — sample XML

The following table shows the mapping from the above UBL Elements to the CEN BII Business Terms.

UBL Element	CEN BII Business Term	Description
cbc:LineExtensionAmount	Sum of line amounts	An invoice must contain the sum of all line amounts. The amount must be exclusive of VAT but inclusive of allowances or charges applied to the lines as well as taxes, other than VAT.
cbc:TaxExclusiveAmount	Document total without VAT	The "Sum of line amounts" plus "sum of allowances on document level" plus "sum of charges on document level". An invoice must contain the total amount of the invoice, including document level allowances and charges but

		exclusive of VAT.
`cbc:TaxInclusiveAmount`	Document total including VAT	An invoice must contain the total amount of the invoice inclusive VAT. I.e. the total value of the purchase irrespective of payment status.
`cbc:AllowanceTotalAmount`	Sum of allowances on document level	Sum of all allowances on header level in the document. Allowances on line level are included in the line amount and summed up into the "sum of line amounts" An invoice may contain the total amount of all allowances given on document level. Line allowances are included in the net line amount.
`cbc:ChargeTotalAmount`	Sum of charges on document level	Sum of all charge on header level in the document. Charges on line level are included in the line amount and summed up into the "sum of line amounts" An invoice may contain the total amount of all charges given on document level. Line charges are included in the net line amount.
`cbc:PrepaidAmount`	Paid amounts	Any amounts that have been paid a-priory. An invoice may contain the sum of all prepaid amounts that must be deducted from the payment of this invoice. For fully paid invoices (cash or card) this amount equals the invoice total.
`cbc:PayableRoundingAmount`	Rounding of document total	Any rounding of the "Document total including VAT" An invoice may contain the rounding amount (positive or negative) added to the invoice to produce a rounded invoice total.
`cbc:PayableAmount`	Amount for payment	The amount that is expected to be paid based on the document. This amount is the "Document total including VAT" less the "paid amounts" that have been paid a-priori. An invoice must contain the total amount to be paid that is due. If the invoice is fully paid i.e. cash or card, the due amount for the invoice is zero.

Table 5 — Mapping to Requirements

According to the descriptions stated above the following formulas apply among the elements.

UBL Element	XPath Formula
cbc:LineExtensionAmount	sum(//cac:InvoiceLine/cbc:LineExtensionAmount)
cbc:TaxExclusiveAmount	cbc:LineExtensionAmount + cbc:ChargeTotalAmount - cbc:AllowanceTotalAmount
cbc:TaxInclusiveAmount	cbc:TaxExclusiveAmount + cbc:PayableRoundingAmount + /Invoice/cac:TaxTotal/cac:TaxSubTotal[cac:TaxCategory/cac:TaxScheme/cbc:ID = 'VAT']/cbc:TaxAmount
cbc:AllowanceTotalAmount	sum(/Invoice/cac:AllowanceCharge[cbc:ChargeIndicator='false']/cbc:Amount)
cbc:ChargeTotalAmount	sum(/Invoice/cac:AllowanceCharge[cbc:ChargeIndicator='true']/cbc:Amount)
cbc:PayableAmount	cbc:TaxInclusiveAmount – cbc:PrepaidAmount

Table 6 — Business rules mapping

6.4 Document structure and information content

In this section the whole information content is presented in tabular format in the specified syntax. The tabular format contains mapping from the elements in specified syntax to the CEN BII Business Terms. In other words, the table is presented from the specified syntax perspective. As an example, **Error! Reference source not found.** shows the BiiTrns10 Invoice document and its immediate children. The mapping of the elements in tabular format is provided in the following template.

UBL 2.1 Element	CEN BII Business Term	Description and/or Sample Value
cbc:UBLVersionID	N/A	This element shows the version of UBL and it will be "2.1" in all instances.
cbc:CustomizationID	Customization Identifier	Identifies the specification of content and rules that apply to the transaction. Identifying the customization/implementation guide/contextualization of the syntax message and its extension that applies to the invoice transaction, enables the receiver to apply the correct validation to the received document as well as to route the document to an appropriate service for processing. This element is filled according to the lates BII CWA on Customization and Conformance
cbc:ProfileID	Profile Identifier	Identifies the BII profile or business process context in which the transaction appears. Identifying the profile or business process context in …

Table 7 — Mapping to Business Terms

Invoice
1..1

- cbc:UBLVersionID — 0..1
- cbc:CustomizationID — 1..1
- cbc:ProfileID / schemeID — 1..1
- cbc:ID — 1..1
- cbc:IssueDate — 1..1
- cbc:InvoiceTypeCode / listID — 0..1
- cbc:Note — 0..1
- cbc:TaxPointDate — 0..1
- cbc:DocumentCurrencyCode / listID — 1..1
- cbc:TaxCurrencyCode / listID — 0..1
- cbc:PaymentCurrencyCode — 0..1
- cbc:AccountingCost — 0..1
- cac:InvoicePeriod — 0..1
- cac:OrderReference — 0..1
- cac:BillingReference — 0..*
- cac:ContractDocumentReference — 0..1
- cac:AdditionalDocumentReference — 0..*
- cac:AccountingSupplierParty — 1..1
- cac:AccountingCustomerParty — 1..1
- cac:PayeeParty — 0..1
- cac:BuyerCustomerParty — 0..1
- cac:SellerSupplierParty — 0..1
- cac:TaxRepresentativeParty — 0..1
- cac:Delivery — 0..1
- cac:PaymentMeans — 0..*
- cac:PaymentTerms — 0..*
- cac:AllowanceCharge — 0..*
- cac:TaxExchangeRate — 0..1
- cac:TaxTotal — 0..*
- cac:LegalMonetaryTotal — 1..1
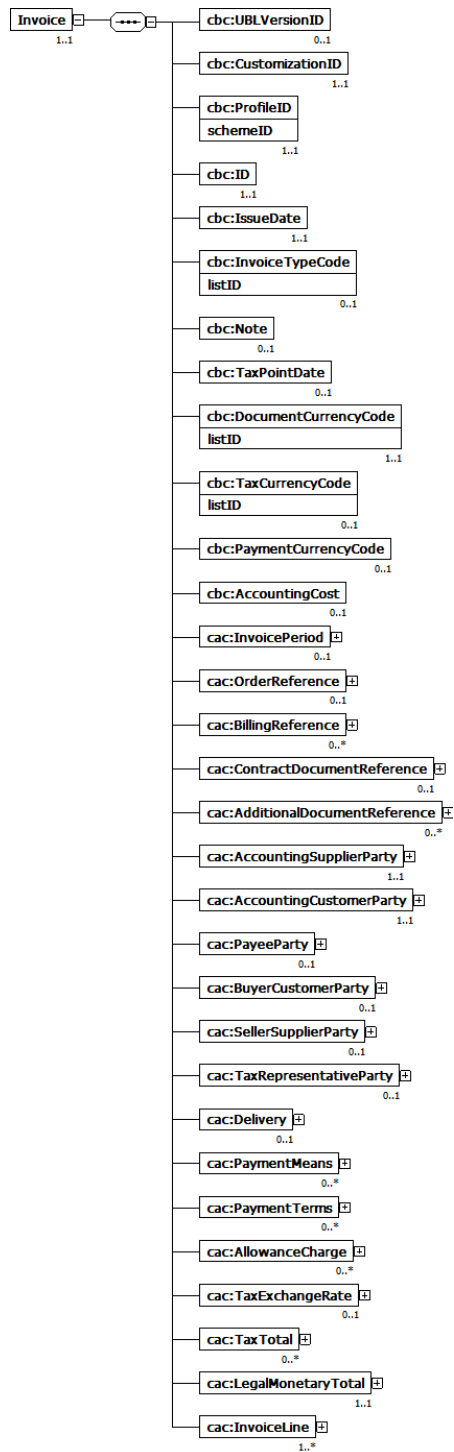- cac:InvoiceLine — 1..*

Figure 2 — BiiTrns10 Invoice document

6.5 Schematron Files

6.5.1   Syntax Schematron Files

In this section the Schematron files for syntax is presented. As mentioned before, in this context the syntax means the existence/cardinality constraints of the elements to check the conformance of an instance document to CENBII Business Terms.

6.5.2   Semantic Schematron Files

In this section the Schematron files for semantics is presented. Semantics in this context mainly means the relation of the elements among themselves and the value constraints concerning the code lists.

6.5.2.1   Schematron/Genericode Files for Code Lists

In this section the Genericode and the corresponding Schematron files are presented for the coded elements in the document.

6.5.2.2   Schematron Files for Identification Schemes

In this section the Schematron files are presented for the identification schemes used in the document.

6.5.2.3   Schematron Files for Calculation Models

This section contains the Schematron files for the calculation models to be used in the document. The calculation models (e.g. Document totals business term) specify the mathematical relations among the elements of the document.

6.5.2.4   Schematron Files for Concurrence Constraints

In this section the Schematron files for the concurrence constraints among the elements of the document are presented.

6.6 Use Case and sample XML Files

In this section the use case and related sample XML files are presented (see below).

Use Case Description	In this scenario after the ordering process, the Supplier sends an invoice to the Customer (which is a supermarket). After that the invoice is paid by the head party (Debtor – head of the supermarket chain) of the Customer. The aim of this use case is to show the elements of the Invoice as much as possible.
Parties involved	Supplier (in AccountingSupplierParty) Customer (In BuyerCustomerParty) Debtor (In AccountingCustomerParty)
Assumptions	Invoice contains: a. Two VAT rates b. Allowance on the document level c. Charge on the document level d. Allowance on the line level e. Payment terms and payment means f. One invoice line for 10 kilogram of flour with VAT 18%

	g. One invoice line for 5 kilogram of sugar with VAT 18%
	h. One invoice line for 10 bottles of vinegar with VAT 8%
	i. Explicit delivery address
	j. References to order
	k. Product identifiers
The flow	- The Customer places an order to the Supplier
	- The Supplier confirms the order and sends an Invoice to Debtor
	- The Debtor processes the Invoice

Table 8 — Example Use Case

```
<Invoice
    <cbc:ID>A12345</cbc:ID>
    <cbc:IssueDate>2014-07-01</cbc:IssueDate>
    <cbc:InvoiceTypeCode listID="UNCL1001">380</cbc:InvoiceTypeCode>
    <cbc:TaxPointDate>2014-07-01</cbc:TaxPointDate>
    <cbc:DocumentCurrencyCode listID="ISO4217">EUR</cbc:DocumentCurrencyCode>
    <cac:OrderReference>
        <cbc:ID>ORD387</cbc:ID>
    </cac:OrderReference>
    <cac:AccountingSupplierParty>
        <cac:Party>
            <cbc:EndpointID schemeID="GLN">1234567890123</cbc:EndpointID>
            <cac:PartyIdentification>
                <cbc:ID schemeID="NATIONALCOMPANYID">14920263490</cbc:ID>
            </cac:PartyIdentification>
            <cac:PartyName>
                <cbc:Name>ABC Supplier Ltd.</cbc:Name>
            </cac:PartyName>
            <cac:PostalAddress>
                <cbc:StreetName>Elm Street No:1</cbc:StreetName>
                <cbc:CityName>Gotham</cbc:CityName>
                <cbc:PostalZone>06800</cbc:PostalZone>
                <cac:Country>
                    <cbc:IdentificationCode listID="ISO3166-
1:Alpha2">DE</cbc:IdentificationCode>
                </cac:Country>
            </cac:PostalAddress>
            <cac:PartyTaxScheme>
                <cbc:CompanyID schemeID="NATIONALVATTAXSCHEMEID">1234567890</cbc:CompanyID>
                <cac:TaxScheme>
                    <cbc:ID>VAT</cbc:ID>
                </cac:TaxScheme>
            </cac:PartyTaxScheme>
            <cac:PartyLegalEntity>
                <cbc:RegistrationName>ABC Supplier Ltd.</cbc:RegistrationName>
                <cbc:CompanyID schemeID="NATIONALCOMPANYREGISTRAR">NCR12345</cbc:CompanyID>
            </cac:PartyLegalEntity>
            <cac:Contact>
                <cbc:ElectronicMail>contact@abcsupplier.com</cbc:ElectronicMail>
            </cac:Contact>
        </cac:Party>
    </cac:AccountingSupplierParty>
    <cac:AccountingCustomerParty>
        <cac:Party>
            <cbc:EndpointID schemeID="GLN">1234567890114</cbc:EndpointID>
            <cac:PartyIdentification>
                <cbc:ID schemeID="NATIONALCOMPANYID">14920263499</cbc:ID>
            </cac:PartyIdentification>
            <cac:PartyName>
                <cbc:Name>Head DEF Customer Ltd.</cbc:Name>
            </cac:PartyName>
```

```
            <cac:PostalAddress>
                <cbc:StreetName>Sesame Street No:2</cbc:StreetName>
                <cbc:CityName>Gotham</cbc:CityName>
                <cbc:PostalZone>06801</cbc:PostalZone>
                <cac:Country>
                    <cbc:IdentificationCode                          listID="ISO3166-
1:Alpha2">DE</cbc:IdentificationCode>
                </cac:Country>
            </cac:PostalAddress>
            <cac:PartyTaxScheme>
                <cbc:CompanyID schemeID="NATIONALVATTAXSCHEMEID">1234567801</cbc:CompanyID>
                <cac:TaxScheme>
                    <cbc:ID>VAT</cbc:ID>
                </cac:TaxScheme>
            </cac:PartyTaxScheme>
            <cac:PartyLegalEntity>
                <cbc:RegistrationName>Head DEF Customer Ltd.</cbc:RegistrationName>
                <cbc:CompanyID schemeID="NATIONALCOMPANYREGISTRAR">NCR12348</cbc:CompanyID>
            </cac:PartyLegalEntity>
            <cac:Contact>
                <cbc:ElectronicMail>contact@defcustomer.com</cbc:ElectronicMail>
            </cac:Contact>
        </cac:Party>
    </cac:AccountingCustomerParty>
    <cac:BuyerCustomerParty>
        <cac:Party>
            <cac:PartyIdentification>
                <cbc:ID schemeID="NATIONALCOMPANYID">14920263491</cbc:ID>
            </cac:PartyIdentification>
            <cac:PartyName>
                <cbc:Name>DEF Customer Ltd.</cbc:Name>
            </cac:PartyName>
            <cac:PostalAddress>
                <cbc:StreetName>Sesame Street No:1</cbc:StreetName>
                <cbc:CityName>Gotham</cbc:CityName>
                <cbc:PostalZone>06801</cbc:PostalZone>
                <cac:Country>
                    <cbc:IdentificationCode>DE</cbc:IdentificationCode>
                </cac:Country>
            </cac:PostalAddress>
            <cac:PartyTaxScheme>
                <cbc:CompanyID>1234567891</cbc:CompanyID>
                <cac:TaxScheme>
                    <cbc:ID>VAT</cbc:ID>
                </cac:TaxScheme>
            </cac:PartyTaxScheme>
        </cac:Party>
    </cac:BuyerCustomerParty>
    <cac:Delivery>
        <cbc:ActualDeliveryDate>2014-08-10</cbc:ActualDeliveryDate>
        <cac:DeliveryLocation>
            <cbc:ID schemeID="GLN">1234567890123</cbc:ID>
            <cac:Address>
                <cbc:StreetName>Sesame Street No:1</cbc:StreetName>
                <cbc:CityName>Gotham</cbc:CityName>
                <cbc:PostalZone>06801</cbc:PostalZone>
                <cac:Country>
                    <cbc:IdentificationCode                          listID="ISO3166-
1:Alpha2">DE</cbc:IdentificationCode>
                </cac:Country>
            </cac:Address>
        </cac:DeliveryLocation>
    </cac:Delivery>
    <cac:PaymentMeans>
        <cbc:PaymentMeansCode listID="UNCL4461">42</cbc:PaymentMeansCode>
        <cbc:PaymentDueDate>2014-08-10</cbc:PaymentDueDate>
        <cbc:PaymentID>1387256</cbc:PaymentID>
```

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```
        <cac:PayeeFinancialAccount>
            <cbc:ID schemeID="IBAN">TR620006400000143700033579</cbc:ID>
            <cac:FinancialInstitutionBranch>
                <cac:FinancialInstitution>
                    <cbc:ID schemeID="BIC">TRISBKTR</cbc:ID>
                </cac:FinancialInstitution>
            </cac:FinancialInstitutionBranch>
        </cac:PayeeFinancialAccount>
    </cac:PaymentMeans>
    <cac:PaymentTerms>
        <cbc:Note>Please make the payment in time.</cbc:Note>
    </cac:PaymentTerms>
    <cac:AllowanceCharge>
        <cbc:ChargeIndicator>true</cbc:ChargeIndicator>
        <cbc:AllowanceChargeReasonCode
listID="UNCL4465">94</cbc:AllowanceChargeReasonCode>
        <cbc:AllowanceChargeReason>Freight charge</cbc:AllowanceChargeReason>
        <cbc:Amount currencyID="EUR">2.00</cbc:Amount>
        <cac:TaxCategory>
            <cbc:ID schemeID="UNCL5305">S</cbc:ID>
            <cbc:Percent>18</cbc:Percent>
            <cac:TaxScheme>
                <cbc:ID>VAT</cbc:ID>
            </cac:TaxScheme>
        </cac:TaxCategory>
    </cac:AllowanceCharge>
    <cac:AllowanceCharge>
        <cbc:ChargeIndicator>false</cbc:ChargeIndicator>
        <cbc:AllowanceChargeReasonCode
listID="UNCL4465">75</cbc:AllowanceChargeReasonCode>
        <cbc:AllowanceChargeReason>Promotion discount</cbc:AllowanceChargeReason>
        <cbc:Amount currencyID="EUR">5.00</cbc:Amount>
        <cac:TaxCategory>
            <cbc:ID schemeID="UNCL5305">S</cbc:ID>
            <cbc:Percent>18</cbc:Percent>
            <cac:TaxScheme>
                <cbc:ID>VAT</cbc:ID>
            </cac:TaxScheme>
        </cac:TaxCategory>
    </cac:AllowanceCharge>
    <cac:TaxTotal>
        <cbc:TaxAmount currencyID="EUR">4.26</cbc:TaxAmount>
        <cac:TaxSubtotal>
            <cbc:TaxableAmount currencyID="EUR">17.00</cbc:TaxableAmount>
            <cbc:TaxAmount currencyID="EUR">3.06</cbc:TaxAmount>
            <cac:TaxCategory>
                <cbc:ID schemeID="UNCL5305">S</cbc:ID>
                <cbc:Percent>18</cbc:Percent>
                <cac:TaxScheme>
                    <cbc:ID>VAT</cbc:ID>
                </cac:TaxScheme>
            </cac:TaxCategory>
        </cac:TaxSubtotal>
        <cac:TaxSubtotal>
            <cbc:TaxableAmount currencyID="EUR">15.00</cbc:TaxableAmount>
            <cbc:TaxAmount currencyID="EUR">1.20</cbc:TaxAmount>
            <cac:TaxCategory>
                <cbc:ID schemeID="UNCL5305">AA</cbc:ID>
                <cbc:Percent>8</cbc:Percent>
                <cac:TaxScheme>
                    <cbc:ID>VAT</cbc:ID>
                </cac:TaxScheme>
            </cac:TaxCategory>
        </cac:TaxSubtotal>
    </cac:TaxTotal>
    <cac:LegalMonetaryTotal>
        <cbc:LineExtensionAmount currencyID="EUR">35.00</cbc:LineExtensionAmount>
```

```
            <cbc:TaxExclusiveAmount currencyID="EUR">32.00</cbc:TaxExclusiveAmount>
            <cbc:TaxInclusiveAmount currencyID="EUR">36.26</cbc:TaxInclusiveAmount>
            <cbc:AllowanceTotalAmount currencyID="EUR">5.00</cbc:AllowanceTotalAmount>
            <cbc:ChargeTotalAmount currencyID="EUR">2.00</cbc:ChargeTotalAmount>
            <cbc:PayableRoundingAmount currencyID="EUR">-0.26</cbc:PayableRoundingAmount>
            <cbc:PayableAmount currencyID="EUR">36.00</cbc:PayableAmount>
    </cac:LegalMonetaryTotal>
    <cac:InvoiceLine>
        <cbc:ID>1</cbc:ID>
        <cbc:InvoicedQuantity                                               unitCode="E4"
unitCodeListID="UNECERec20">10</cbc:InvoicedQuantity>
        <cbc:LineExtensionAmount currencyID="EUR">10.00</cbc:LineExtensionAmount>
        <cac:TaxTotal>
            <cbc:TaxAmount currencyID="EUR">1.80</cbc:TaxAmount>
        </cac:TaxTotal>
        <cac:Item>
            <cbc:Description>Flour</cbc:Description>
            <cbc:Name>Flour</cbc:Name>
            <cac:SellersItemIdentification>
                <cbc:ID>FL01</cbc:ID>
            </cac:SellersItemIdentification>
            <cac:StandardItemIdentification>
                <cbc:ID schemeID="GTIN">12345678901231</cbc:ID>
            </cac:StandardItemIdentification>
            <cac:CommodityClassification>
                <cbc:ItemClassificationCode
listID="UNSPSC">50221300</cbc:ItemClassificationCode>
            </cac:CommodityClassification>
            <cac:ClassifiedTaxCategory>
                <cbc:ID schemeID="UNCL5305">S</cbc:ID>
                <cbc:Percent>18</cbc:Percent>
                <cac:TaxScheme>
                    <cbc:ID>VAT</cbc:ID>
                </cac:TaxScheme>
            </cac:ClassifiedTaxCategory>
        </cac:Item>
        <cac:Price>
            <cbc:PriceAmount currencyID="EUR">1.00</cbc:PriceAmount>
        </cac:Price>
    </cac:InvoiceLine>
    <cac:InvoiceLine>
        <cbc:ID>2</cbc:ID>
        <cbc:InvoicedQuantity                                               unitCode="E4"
unitCodeListID="UNECERec20">5</cbc:InvoicedQuantity>
        <cbc:LineExtensionAmount currencyID="EUR">10.00</cbc:LineExtensionAmount>
        <cac:TaxTotal>
            <cbc:TaxAmount currencyID="EUR">1.80</cbc:TaxAmount>
        </cac:TaxTotal>
        <cac:Item>
            <cbc:Description>Sugar</cbc:Description>
            <cbc:Name>Sugar</cbc:Name>
            <cac:SellersItemIdentification>
                <cbc:ID>SG01</cbc:ID>
            </cac:SellersItemIdentification>
            <cac:StandardItemIdentification>
                <cbc:ID schemeID="GTIN">12345678901232</cbc:ID>
            </cac:StandardItemIdentification>
            <cac:CommodityClassification>
                <cbc:ItemClassificationCode
listID="UNSPSC">50161900</cbc:ItemClassificationCode>
            </cac:CommodityClassification>
            <cac:ClassifiedTaxCategory>
                <cbc:ID schemeID="UNCL5305">S</cbc:ID>
                <cbc:Percent>18</cbc:Percent>
                <cac:TaxScheme>
                    <cbc:ID>VAT</cbc:ID>
                </cac:TaxScheme>
```

```
                </cac:ClassifiedTaxCategory>
        </cac:Item>
        <cac:Price>
            <cbc:PriceAmount currencyID="EUR">2.00</cbc:PriceAmount>
        </cac:Price>
    </cac:InvoiceLine>
    <cac:InvoiceLine>
        <cbc:ID>3</cbc:ID>
        <cbc:InvoicedQuantity                                            unitCode="BO"
unitCodeListID="UNECERec20">10</cbc:InvoicedQuantity>
        <cbc:LineExtensionAmount currencyID="EUR">15.00</cbc:LineExtensionAmount>
        <cac:AllowanceCharge>
            <cbc:ChargeIndicator>true</cbc:ChargeIndicator>
            <cbc:AllowanceChargeReason>Promotion Discount</cbc:AllowanceChargeReason>
            <cbc:Amount currencyID="EUR">5.00</cbc:Amount>
        </cac:AllowanceCharge>
        <cac:TaxTotal>
            <cbc:TaxAmount currencyID="EUR">1.20</cbc:TaxAmount>
        </cac:TaxTotal>
        <cac:Item>
            <cbc:Description>Vinegar</cbc:Description>
            <cbc:Name>Vinegar</cbc:Name>
            <cac:SellersItemIdentification>
                <cbc:ID>VN01</cbc:ID>
            </cac:SellersItemIdentification>
            <cac:StandardItemIdentification>
                <cbc:ID schemeID="GTIN">12345678901233</cbc:ID>
            </cac:StandardItemIdentification>
            <cac:CommodityClassification>
                <cbc:ItemClassificationCode
listID="UNSPSC">50171707</cbc:ItemClassificationCode>
            </cac:CommodityClassification>
            <cac:ClassifiedTaxCategory>
                <cbc:ID schemeID="UNCL5305">AA</cbc:ID>
                <cbc:Percent>8</cbc:Percent>
                <cac:TaxScheme>
                    <cbc:ID>VAT</cbc:ID>
                </cac:TaxScheme>
            </cac:ClassifiedTaxCategory>
        </cac:Item>
        <cac:Price>
            <cbc:PriceAmount currencyID="EUR">2.00</cbc:PriceAmount>
        </cac:Price>
    </cac:InvoiceLine>
</Invoice>
```

Table 9 — Example sample XML