



United Nations
Centre for Trade Facilitation and Electronic Business

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**CCTS Version 3.0 Implementation Verification
Second Iteration
18 December 2008**

15 **Abstract**

16 The Core Components Technical Specification defines a meta model and rules
17 necessary for describing the structure and contents of conceptual and logical data
18 models and information exchange models. The CCTS is described using the Unified
19 Modelling Language (UML). It does not require UML in its implementation.

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349 **1 Status of This Document**

350 This UN/CEFACT Technical Specification is being developed in accordance with the
351 UN/CEFACT/TRADE/R.650/Rev.4/Add.1/Rev.1 Open Development Process (ODP)
352 for technical specifications. The CCTS Project Team has approved it for broad
353 implementation verification.

354 This document contains information to guide in interpretation or implementation.

355 The document formatting is based on the Internet Society's Standard RFC format.

356 Distribution of this document is unlimited.

357 This version: UN/CEFACT Core Components Technical Specification Version 3.0
358 Implementation Verification Second Iteration 20081218

359 Previous version: UN/CEFACT Core Components Technical Specification, Version
360 3.0 Implementation Verification 20080207

361 This document may also be available in these non-normative formats: XML, XHTML
362 with visible change markup. See also translations.

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364 document use rules apply.

365 **2 Core Components Technical Specification Project Team** 366 **Participants**

367 We would like to recognize the following for their significant participation to the
368 development of this specification.

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387 **2.1 Disclaimer**

388 The views and specification expressed in this document are those of the authors and
389 are not necessarily those of their employers. The authors and their employers
390 specifically disclaim responsibility for any problems arising from correct or incorrect
391 implementation or use of this technical specification.

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395

396 **3 Introduction**

397 This specification describes and specifies a semantic-based approach to the well-
398 understood problem of the lack of information interoperability within and between
399 applications and data bases in the e-business arena. Traditionally, data has been
400 designed for specific applications and databases without regard to interoperability.
401 Standards for the exchange of that business data between applications and
402 databases have been focused on static message definitions that have not enabled a
403 sufficient degree of interoperability or flexibility. A more flexible and interoperable
404 way of standardizing business semantics has long been required.

405 The UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic
406 Business) core component solution described in this technical specification presents
407 just such a methodology. This *Core Component Technical Specification (CCTS)*
408 describes a revolutionary approach for developing a common set of semantic
409 building blocks that represent the general types of business data in use today. This
410 approach provides for the creation of new business vocabularies as well as
411 restructuring of existing business vocabularies to achieve semantic interoperability of
412 data.

413 **3.1 Summary of Contents of Document**

414 This specification consists of the following Sections.

- 415 • [Abstract](#)
- 416 • Table of Contents
- 417 • [Section 1: Status](#)
- 418 • [Section 2: Project Team](#)
- 419 • [Section 3: Introduction](#)
- 420 • [Section 4: Objectives](#)
- 421 • [Section 5: Overview](#)
- 422 • [Section 6: Core Component Model](#)
- 423 • [Section 7: Business Information Entity Model](#)
- 424 • [Section 8: Data Types](#)
- 425 • [Section 9: Context](#)
- 426 • [Section 10: Definition of Terms](#)

427 The [Abstract](#), Table of Contents, and Sections [1](#), [2](#), [3](#), [4](#) and [5](#) are informative – with
428 the exception of [Section 4.2.1 Conformance](#) which is normative. Sections [6](#), [7](#), [8](#) and
429 [9](#) are normative, complementary and interdependent. Section [10](#) is normative.

430 In addition, the UN/CEFACT Forum will prepare supplemental documents that may
431 be used in conjunction with this specification. These supplemental documents will
432 include:

- 433 • Core Component Message Assembly (CCMA) – expands on the
434 assembly principles contained in the CCTS and provides specific

- 435 methodology for assembling higher level business information entities
436 (BIEs) for electronic messages.
- 437 • UN/CEFACT Context Methodology (UCM) –The context methodology
438 provides a mechanism for business driven customization of BIEs.
 - 439 • Data Type Catalogue – The collection of UN/CEFACT Permissible
440 Representation Terms, Core Data Types, and Business Data Types.
 - 441 • UML Profile for Core Components – Defines a UML profile for
442 expressing core components in UML models.
 - 443 • Core Components Library (CCL) – represents the work of various
444 organizations working in a joint endeavour to develop and publish core
445 component artefacts.

446 3.1.1 Notation

447 The keywords MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD,
448 SHOULD NOT, RECOMMENDED, MAY, and OPTIONAL, when they appear in this
449 document, are to be interpreted as described in [Internet Engineering Task Force
450 \(IETF\) Request For Comments \(RFC\) 2119.1](#).

451 **[Definition]** – A formal definition of a term. Definitions are normative.

452 **[Example]** – A representation of a definition or a rule. Examples are informative.

453 **[Note]** – Explanatory information. Notes are informative.

454 **[Rn]** – Identification of a rule that requires conformance to ensure discovered core
455 components (CCs) are properly defined, named and stored. The value R is a prefix
456 to categorize the type of rule where R=A for Conformance rule, R=B for BIE rule,
457 R=C for CC rule, R=X for Context rule, or R=D for Data Type (DT) rule. The value n
458 (1..n) indicates the sequential number of the rule]. Rules are normative.

459 ***Italics*** – All words appearing in italics, when not titles or used for emphasis, are the
460 first occurrences of special terms defined in Section 10.

461 ***courier*** – All words appearing in bolded 10 point *courier font* are values or
462 objects.

463 3.2 Audience

464 The CCTS can be employed wherever data is being defined, stored, used, shared or
465 exchanged. It is especially well suited for defining data models and for creating data
466 exchange standards for information flows amongst and between enterprises,
467 governmental agencies, and/or other organizations in an open, global environment.

468 This specification forms the basis for international cross-industry standards
469 development work of business analysts, business users and information technology
470 specialists. The user community is drawn from both business and government, to
471 include: data modellers, business document modellers, business process modellers,

Key words for use in RFCs to Indicate Requirement Levels - Internet Engineering Task Force, Request For
Comments 2119, March 1997, <http://www.ietf.org/rfc/rfc2119.txt?number=2119>

472 and application developers of different organizations that require common
473 understanding and interoperability of information.

474 **3.3 Related Documents**

475 The following documents provided significant levels of influence in the development
476 of this document:

- 477 • [Information Technology – Specification and standardization of data](#)
478 [elements – Part 1: Framework for the specification and](#)
479 [standardization of data elements, International Standardization](#)
480 [Organization, ISO 11179-1:1999](#)
- 481 • [Information Technology – Metadata registries \(MDR\) – Part 2:](#)
482 [Classification, ISO 11179-2:Second Edition 2005-11-15](#)
- 483 • [Information Technology – Metadata registries \(MDR\) – Part 3: Registry](#)
484 [Metamodel and Basic Attributes, ISO 11179-3\(e\):Second Edition](#)
485 [2003/Cor 1:2004](#)
- 486 • [Information Technology – Metadata registries \(MDR\) – Part 4:](#)
487 [Formulation of Data Definitions, ISO 11179-4:Second Edition 2004-07-](#)
488 [15](#)
- 489 • [Information Technology – Metadata registries \(MDR\) – Part 5: Naming](#)
490 [and Identification Principles, ISO 11179-5:Second Edition 2005-09-01](#)
- 491 • [Information Technology - Metadata registries: Registration, ISO](#)
492 [11179-6: Second Edition 2005-01-15](#)

493 **4 Objectives**

494 **4.1 Goals of the Technical Specification**

495 The CCTS has been developed to provide for standards based semantic modelling
496 of business information. CCTS complements traditional data modelling techniques.
497 The component models produced using CCTS may form the basis for syntax specific
498 business information exchanges, but are independent of any specific technology
499 platform or implementation language.

500 **4.2 Requirements**

501 Users of this specification should have an understanding of basic data modelling
502 concepts and basic business information exchange concepts.

503 **4.2.1 Conformance**

504 Applications will be considered to be in full conformance with this technical
505 specification if they comply with the content of normative sections, rules and
506 definitions.

507 [A1] Conformance shall be determined through adherence to the content of
508 normative sections, rules and definitions.

509 **4.3 Caveats and Assumptions**

510 The components created as a result of employing this specification should be
511 maintained in a universally freely accessible Core Component Library (CCL).
512 UN/CEFACT will maintain their CCL in a UN/CEFACT specified registry and make its
513 contents available to the entire core component community. It is recommended that
514 all users of this specification submit their components for inclusion in the
515 UN/CEFACT CCL.

516 **5 Overview**

517 This Core Components Technical Specification (CCTS) provides a way to identify,
 518 capture and maximize the re-use of business information to support and enhance
 519 information interoperability. The specification focuses both on human-readable and
 520 machine-processable representations of this information.

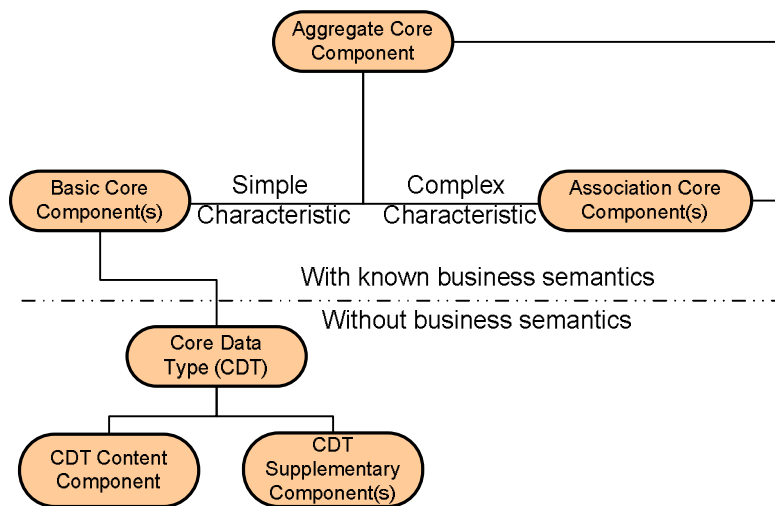
521 The CCTS approach is more flexible than current data and information exchange
 522 standards because the semantic standardization is done in a syntax-neutral
 523 fashion. This syntax-neutral semantic based methodology allows for the richness
 524 inherent in natural language to be used to create data and information exchange
 525 models that are devoid of computer-driven syntax limitations and requirements.

526 UN/CEFACT business process and core component solutions capture a wealth of
 527 information about the business reasons for variation in data model and message
 528 semantics and structure. In the past, these variations have led to incompatible
 529 models and a subsequent lack of interoperability. The core components
 530 mechanism will allow identification of similarities and differences between these
 531 models.

532 The CCTS key concepts are based on two levels of abstraction — core
 533 components and business information entities.

534 **5.1 Core Components**

535 The foundational concept of this specification is the core component. Core
 536 components are semantic building blocks that can be used for all aspects of data
 537 and information modelling and exchange. Core components are the linchpin for
 538 creating interoperable business process models and business documents. Core
 539 components are conceptual in nature, they are used for creating context specific
 540 BIEs as defined in [Section 5.6.2](#). Figure 5-1 shows three different categories of
 541 CCs – aggregate core component (ACC), basic core component (BCC), and
 542 association core component (ASCC) that are discussed in the following
 543 subsections.



544

545 **Figure 5-1. Core Component Overview**

546

[Note] – Generic Terms

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The term core component is used as a generic term that encompasses ACCs, BCCs, and ASCCs and their properties. Equally, the term business information entity is used as a generic term encompassing ABIEs, BBIEs, and ASBIEs and their properties.

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5.1.1 Aggregate Core Component

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An Aggregate Core Component (ACC) is a collection of related pieces of information that together convey a distinct meaning, independent of any business context. In data modelling terms, an ACC is the representation of an entity/object class, contains attributes/properties, and may participate in associations with other ACCs.

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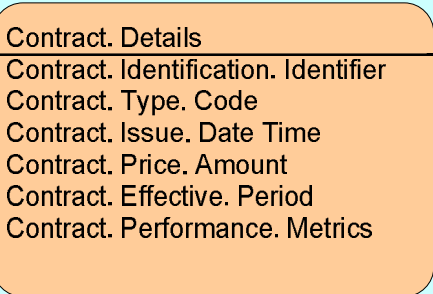
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[Example] – Aggregate Core Component with Basic Core Component and Association Core Component Properties

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Contract. Details ACC

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A contract is an agreement between two or more parties, especially one that is written or spoken and enforceable by law.

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Contract. Identification. Identifier BCC

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A unique identification for this contract.

565

Contract. Type. Code BCC

566

A code specifying a type of contract such as a fixed price contract or a time and materials based contract.

567

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Contract. Issue. Date Time BCC

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A date or date time or other date time value of the issuance of this contract

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Contract. Price. Amount BCC

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Monetary value of a price of this contract

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Contract. Effective. Period ASCC

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A period within which the provisions of this contract are, or will be, in force or effective.

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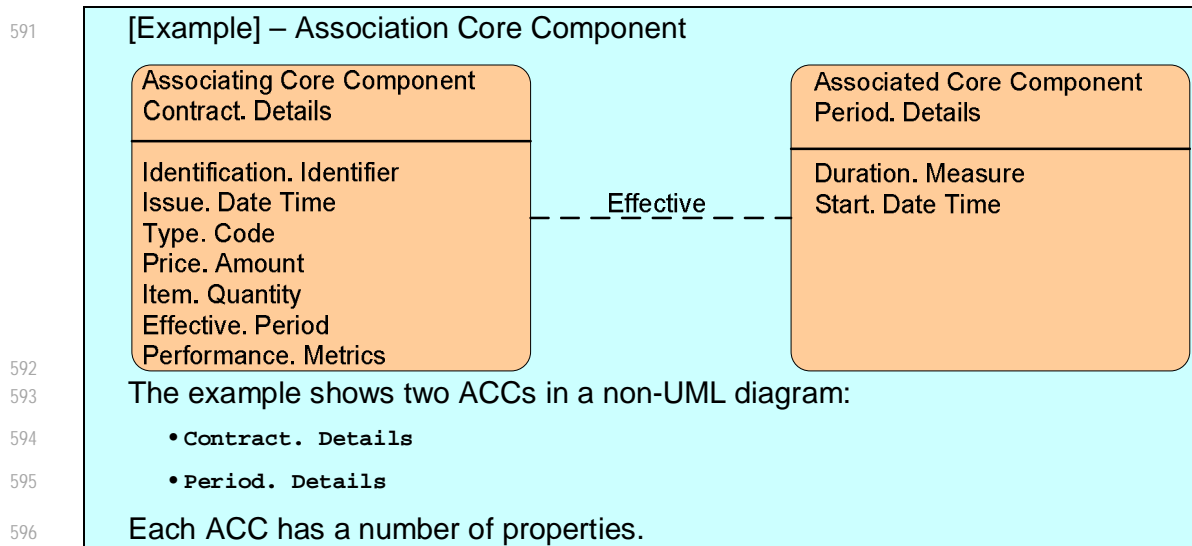
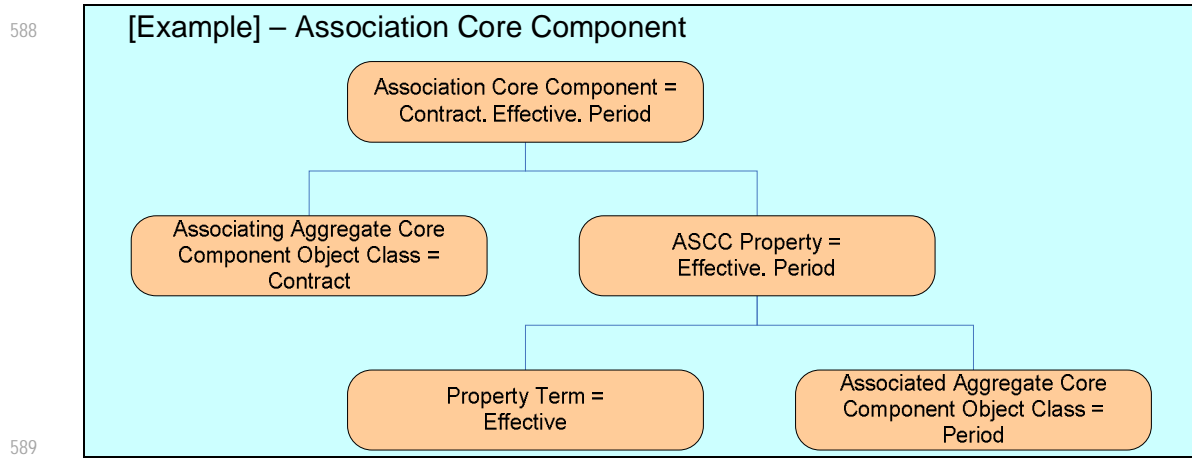
Contract. Performance. Metrics ASCC

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Performance metrics for this contract.

577 **5.1.2 Association Core Component**

578 An Association Core Component (ASCC) defines a role in an association between
 579 one ACC (known as the associating ACC) and another ACC (known as the
 580 associated ACC). An ASCC consists of an ASCC property plus the object class of
 581 the parent ACC. The ASCC property consists of a property term that expresses the
 582 nature of an association between object classes, and the name of the object class
 583 being associated. The associated object class is a complex data type that
 584 expresses the value domain of the ASCC. The ASCC property is reusable across
 585 object classes, but once it has been given the object class of a parent ACC, it
 586 creates an ASCC that is unique to the object class to which it is assigned. In CCTS
 587 constructs, ASCCs are equivalent to UML associations of `AggregationKind=shared`.^{2,3}



² UML Association – A UML association defines a relationship between classes of objects. UML associations include `AggregationKind=shared` and `AggregationKind=composite`.

³ UML Aggregation – An aggregation is a special form of UML association that specifies a whole-part relationship between the aggregate (whole) and a component part.

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[Example] – Association Core Component (Continued)

The ACC `Period. Details` has:

- two simple BCC Properties:

- `Duration. Measure`
- `Start. Date Time`

- no complex ASCC Properties

The ACC `Contract. Details` has:

- five simple BCC properties:

- `Identification. Identifier`
- `Issue. Date Time`
- `Type. Code`
- `Price. Amount`
- `Item. Quantity`

- two complex ASCC properties:

- `Effective. Period`
- `Performance. Metrics`

The simple properties are BCC properties. They represent a singular characteristic and their set of allowed values is defined by a CDT.

The complex properties are ASCC properties. Their structure is defined by another ACC. For example, the structure of `Contract. Effective. Period` is described by `Period. Details`.

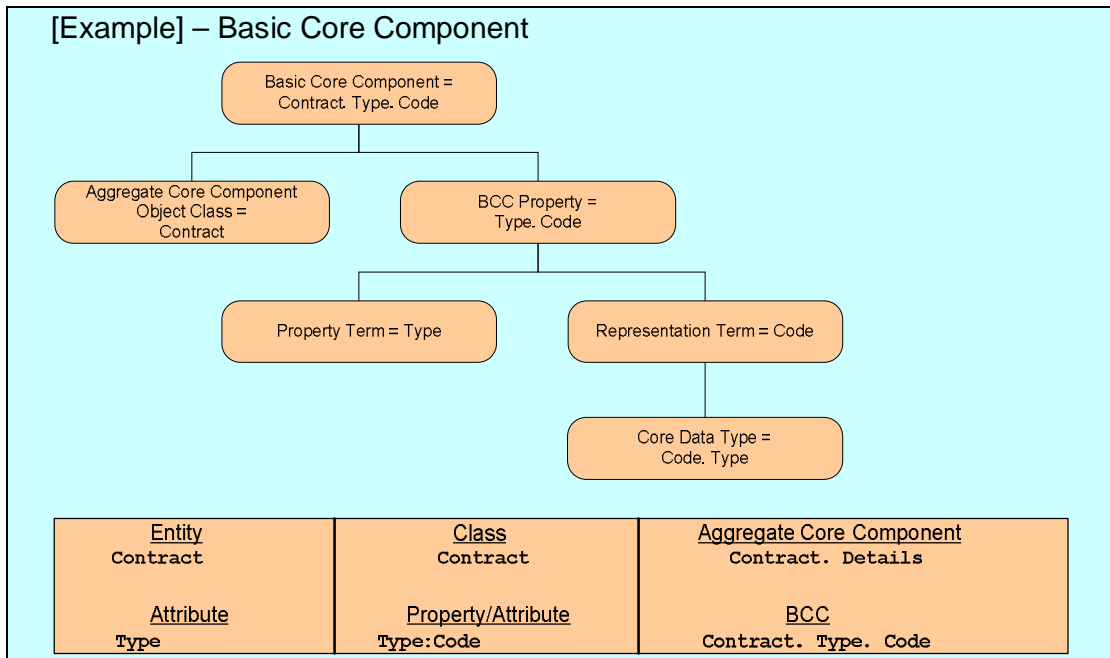
Since CCTS is a semantic model, it is necessary to represent the associations as part of the content of the associating Contract class. Thus, the ASCC as represented by the ASCC property is actually contained in the content model of the associating Contract. Details ACC.

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5.1.3 Basic Core Component

A Basic Core Component (BCC) represents a property of an ACC. A BCC consists of a BCC property plus the object class of the parent ACC. The BCC property is reusable across object classes, but once it has been given the object class of a parent ACC, it becomes a BCC that is unique to the object class to which it is assigned. In data modeling terms, a BCC is the equivalent of an entity attribute or class property (See section 5.6).

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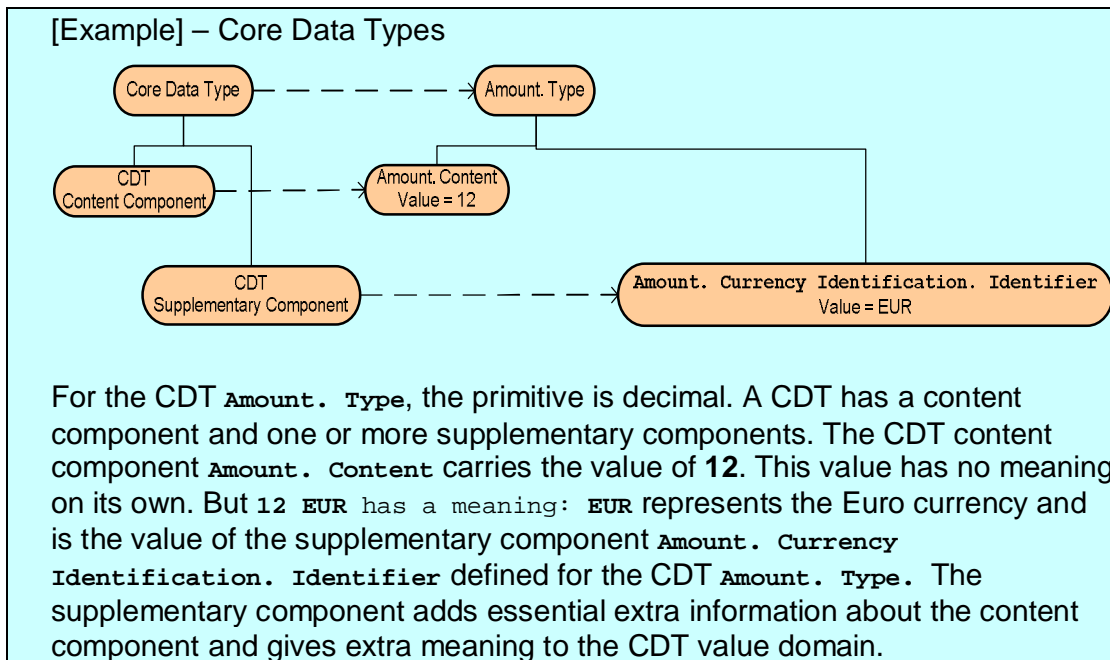
5.2 Core Data Types

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As identified in ISO 11179, a data type constitutes the value domain for the allowed values for a property. For CCs this data type is called a Core Data Type (CDT).

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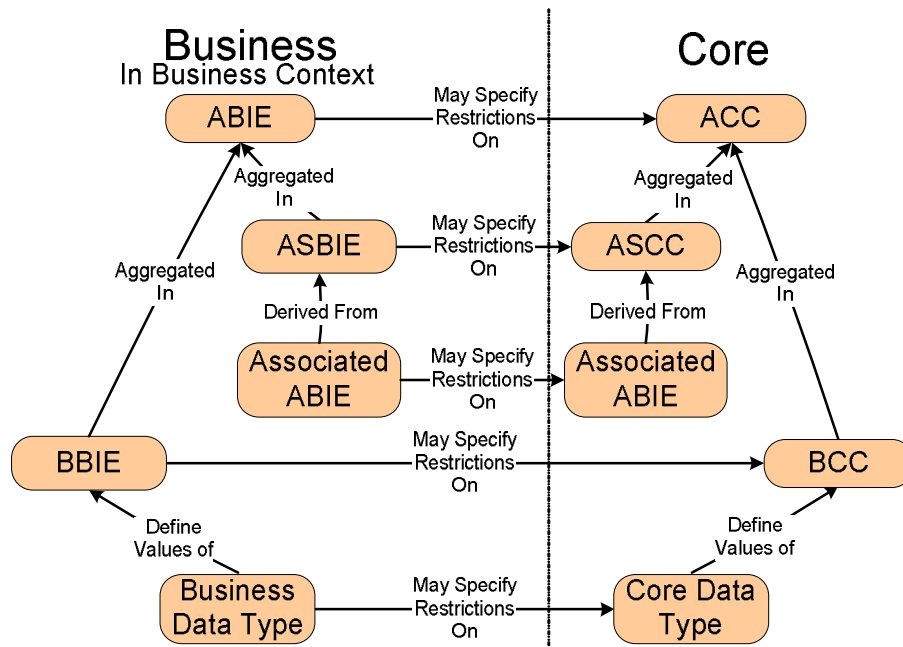
A CDT represents the full range of values that can be used for representing an instance of a BCC. Every CDT has a content component and zero or more supplementary components. Every CDT content and supplementary component has a value domain. These value domains can be expressed by either a primitive type or a scheme or list. The value domain of the CDT is defined by the value domain (set of permissible values) for the CDT content component (the actual value of the data element) and the value domain of the additional constraints

652 expressed by the supplementary components. Supplementary components give
 653 meaning to the value domain by adding essential extra information about the
 654 content component. The number of defined supplementary components varies by
 655 CDT, and is determined by the number of attributes necessary to fully define the
 656 value domain of the CDT.

657 CDTs form the bedrock for interoperability of CC's. UN/CEFACT defines a formal
 658 set of CDTs as part of the overall CCTS standards stack. Other users are
 659 encouraged to adopt the UN/CEFACT DT catalogue to ensure maximum
 660 interoperability across implementations.⁴

661 **5.3 Business Information Entities**

662 Core components act as conceptual models that are used to define Business
 663 Information Entities (BIEs). BIEs are the expression of the conceptual core
 664 components as logical data model objects and information exchanges. BIEs are
 665 created through the application of context and may be qualified to guarantee
 666 unique business semantics. A BIE may specify a restricted form of its underlying
 667 CC. The structure of CCs and BIEs are complementary in many respects.



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669 **Figure 5-2. Relationships Between Core Components and Business Information**
 670 **Entities**

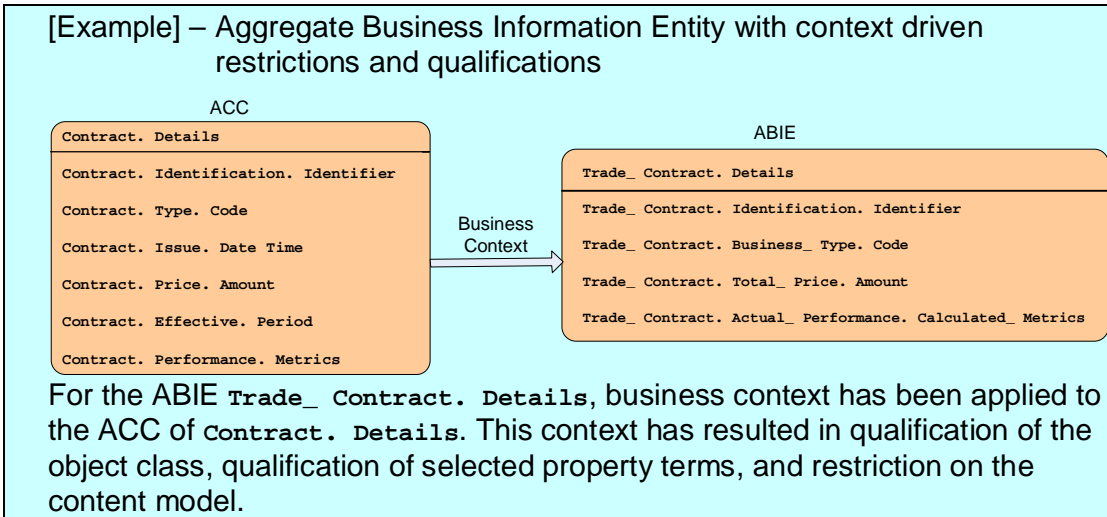
671 The relationships between CCs and BIEs are described in Figure 5-2. The key
 672 differentiator between CCs and BIEs is the concept of business context. Business
 673 context is a mechanism for categorizing and refining CCs according to their use in
 674 a particular data model or business circumstance. In CCTS, business context is
 675 formally described for specific business circumstances for each BIE. This is

⁴ Approved CDTs and their corresponding data type terms, representation terms, allowed restrictions, and supplementary components are published by the UN/CEFACT in the Data Type Catalogue.

676 accomplished by assigning values to a set of context categories (See Section 9).
 677 Once these business contexts are identified, BIEs can be defined to take into
 678 account any necessary qualification and refinement needed to support the use of
 679 the underlying CC in the given business context.⁵

680 **5.3.1 Aggregate Business Information Entity**

681 An Aggregate Business Information Entity (ABIE) is derived from an ACC and
 682 refines the business semantic definition for a specific business context. Just as an
 683 ACC is the representation of an object class, so too are its derived ABIEs. An ABIE
 684 may be qualified at the object class level, and its properties may be qualified at the



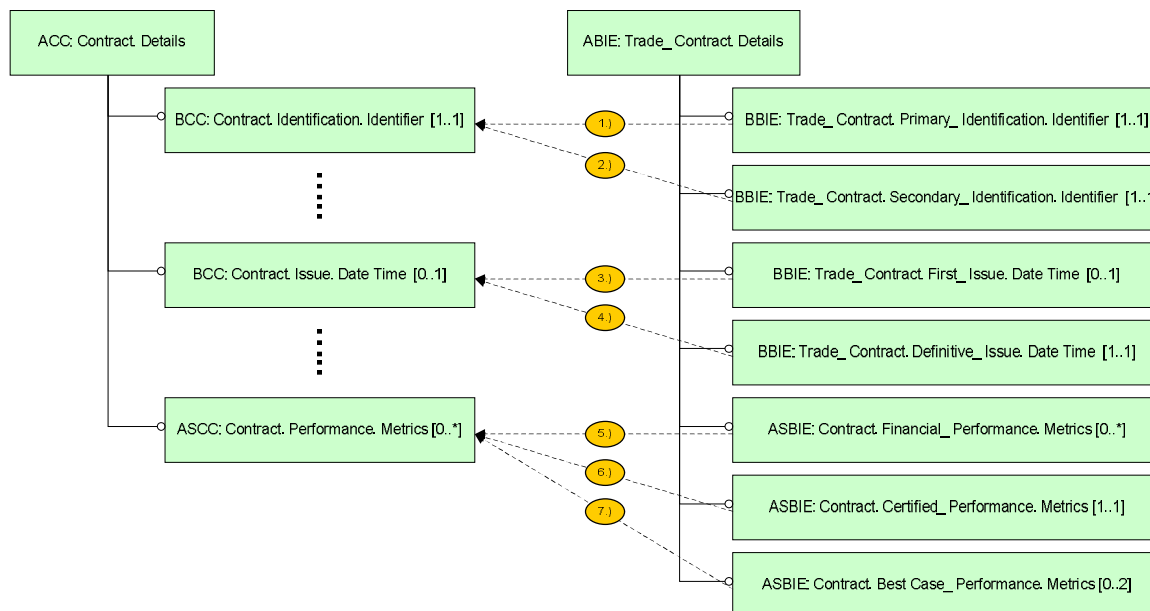
692 property term level. The ABIE can reflect restrictions on the content model of the
 693 ACC through:

- 694 • Restrictions on the cardinality of the BCCs and ASCCs as shown in
 695 Figure 5-3.
- 696 • Use and non-use of individual BCCs and ASCCs
- 697 • Qualification of individual ASCC and BCC properties
- 698 • Restrictions on the content model of an associated ACC for an
 699 ASCC
- 700 • Restrictions on the data type of the BCC
- 701 • Restrictions on the concept or conceptual domain of the ASCC or
 702 BCC property as reflected in the definition and usage rules.

703 BIE cardinality does not define how many BIEs may be derived from a source CC.
 704 Rather it describes the allowed occurrences of a specific BIE. For example, If a
 705 BCC or ASCC has the cardinality [0..1], the derived BBIE or ASBIE may have the
 706 same cardinality [0..1], or it may have a restricted cardinality of [1..1]. If a BCC or
 707 ASCC has the cardinality [0..*], the derived BBIE or ASBIE may have the same

⁵ The *Core Components'* Context mechanism provides the more detailed linkage between specific business data and the exact circumstances of its business use.

708 cardinality [0..*], or it may have a restricted minimum occurrence or maximum
 709 occurrence.



710 **Figure 5-3. BIE Cardinality**
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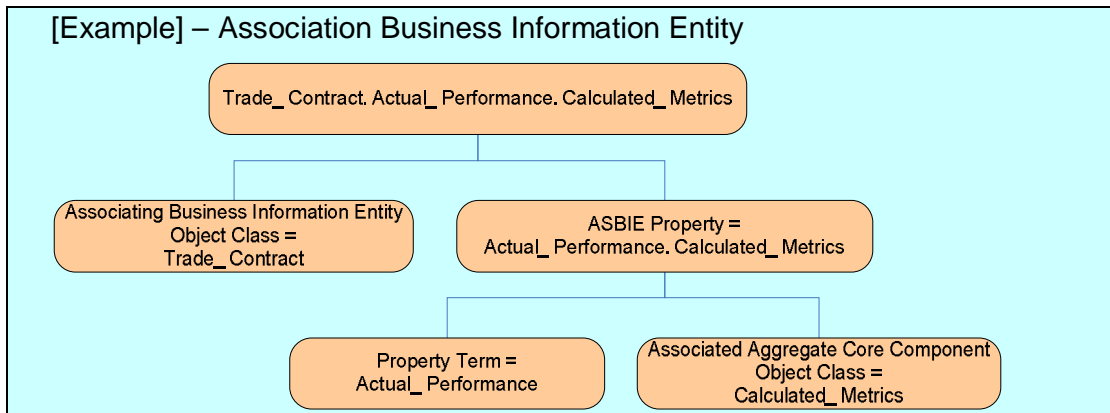
712 ASCC and BCC properties may have different qualifiers applied. This may result in
 713 the ABIE having a greater number of qualified properties than its corresponding
 714 ACCs unqualified properties. This is still considered a restriction since each BIE
 715 property represents a restriction to its corresponding core component property.
 716 ASCC and BCC properties may also have multiple qualifiers applied. Multiple
 717 qualifiers create a qualifier hierarchy, with each additional qualifier reflecting a
 718 further restriction to its less qualified BIE property.

719 [Example] – Use of Qualifiers
 720 The Multi-qualified ABIE
 721 `Electronic_Trade_Contract.Details`
 722 qualifies the qualified ABIE
 723 `Trade_Contract.Details`
 724 which qualifies the ACC
 725 `Contract.Details`

726 **5.3.2 Association Business Information Entity**

727 An Association Business Information Entity (ASBIE) is a BIE that represents a
 728 complex property of an ABIE. An ASBIE has the structure of, and represents
 729 another ABIE. An ASBIE is based on an ASCC, but exists in a business context. As
 730 its source ASCC, an ASBIE consists of an ASBIE property plus the object class of
 731 the parent ABIE. The ASBIE property is reusable across object classes, but once it
 732 has been given the object class of a parent ABIE, it creates an ASBIE that is
 733 unique to the object class to which it is assigned.

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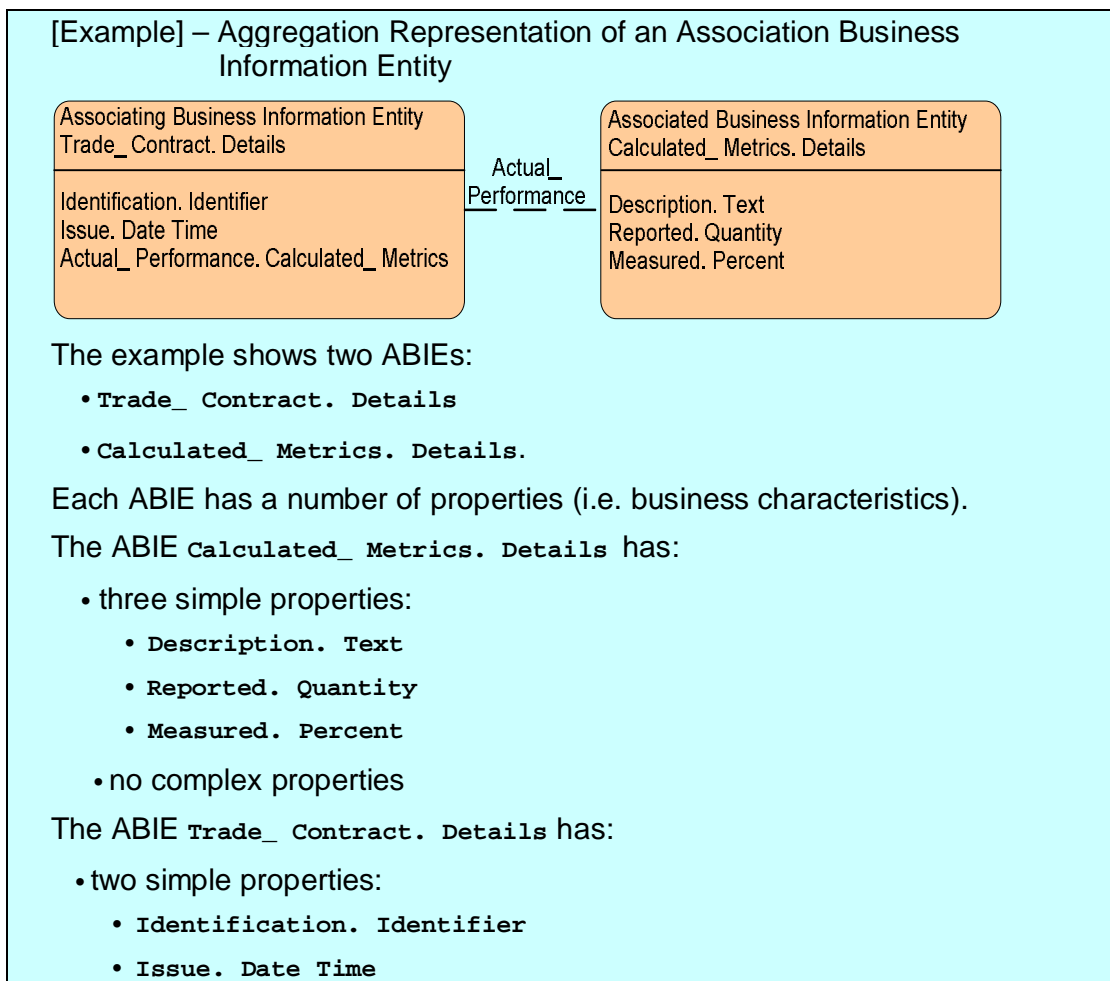
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ASBIEs can be either a UML association of `AggregationKind=shared` OR `AggregationKind=composite`.⁶

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⁶ Composition – A composition is a strong form of aggregation association that requires that the component part only belongs to a single parent object, and only exists as long as that parent object exists.

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[Example] – Aggregation Representation of an Association Business Information Entity (Cont'd)

- one complex property:
 - `Actual_Performance.Calculated_Metrics`

The simple properties are BBIEs. They represent a singular business characteristic and their set of allowed values is defined by a BDT.

The complex property is an ASBIE. It represents a complex business characteristic and its structure is therefore defined by another ABIE. The structure of `Actual_Performance.Calculated_Metrics` is described by `Calculated_Metrics.Details`.

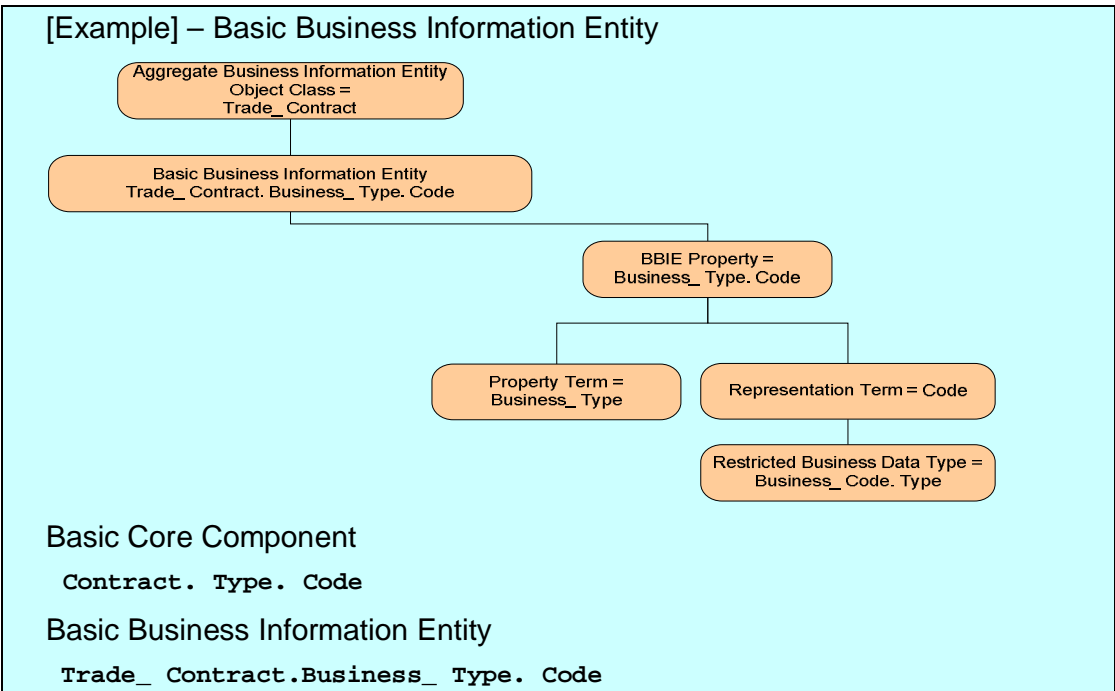
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5.3.3 Basic Business Information Entity

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A Basic Business Information Entity (BBIE) is a BCC used in a specific business context. Multiple BBIEs can be derived from a single BCC. A BBIE has a unique business semantic definition. A BBIE is created from a BBIE property and inherits the object class of the parent ABIE. The BBIE property is reusable across object classes. In data modelling terms, a BBIE is the equivalent of an entity attribute or class property (11179)/attribute (UML) (see [section 5.7](#)).

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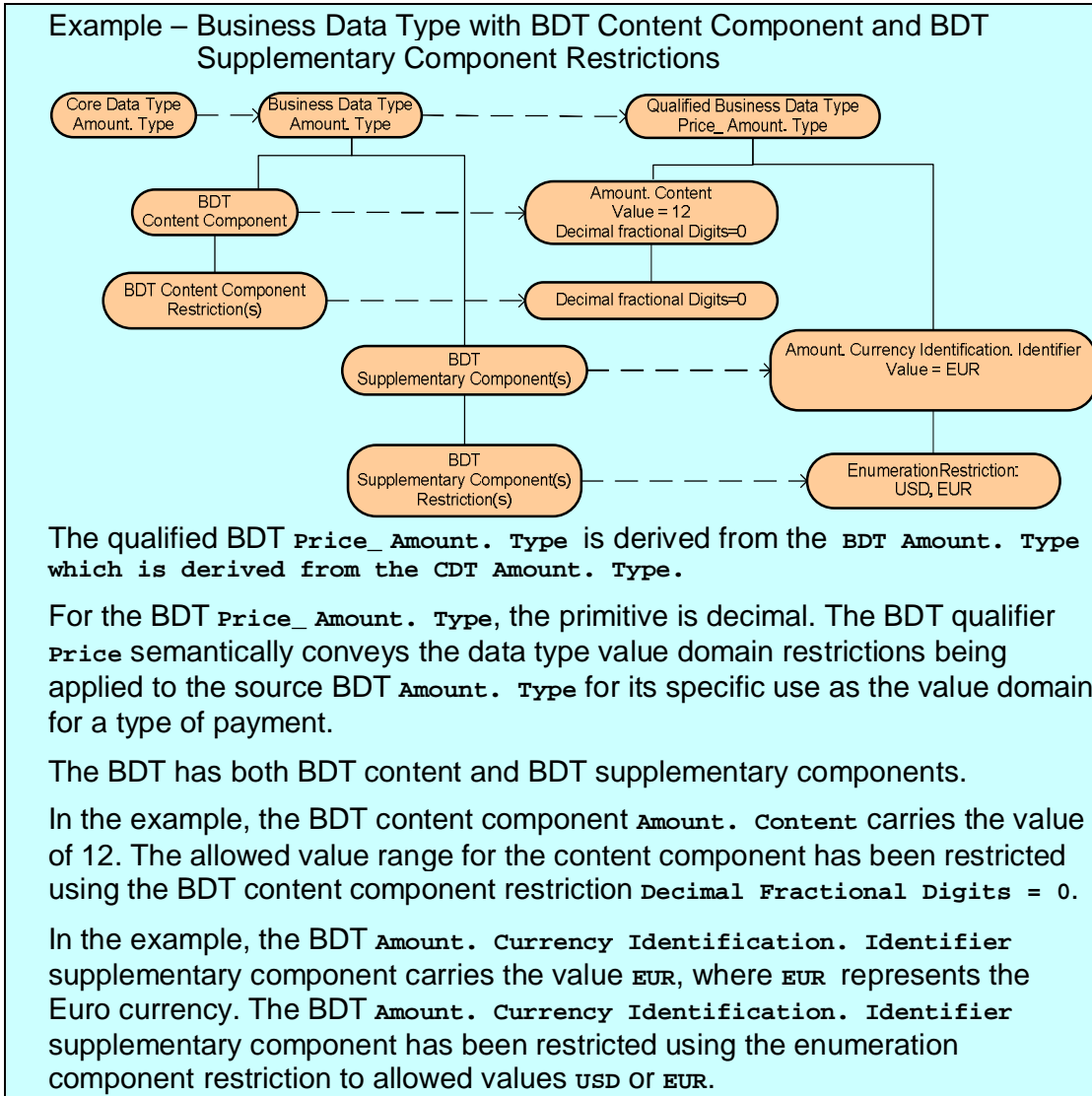
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Every BBIE property is derived from a BCC property. Like their BCC property counterparts, BBIE properties are reusable across object classes, but once it has been given the object class of a parent ABIE, it becomes a BBIE that is unique to the object class to which it is assigned. Each BBIE property has a [Business Data Type \(BDT\)](#) that describes its value domain. BBIE BDTs are derived from the CDT of the BCC.

5.4 Business Data Types

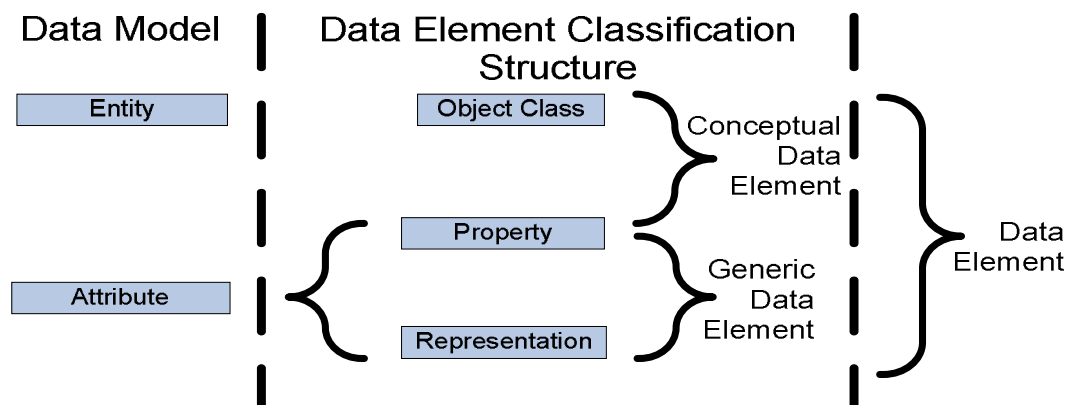
For every approved CDT, a corresponding unrestricted BDT will be created. This BDT will have no restrictions of the set of values of its source CDT's content component or supplementary components. Additional business data types may also be created that include restrictions of the set of values of its source CDT's content component and/or supplementary component(s). The restrictions represent a qualification of the BDT similar to the qualification of BIEs. Both the content component and supplementary component(s) have allowed component restrictions that provide all information necessary to understand the value domain for a specific BBIE.



In addition to allowed component restrictions, BDTs may restrict the content model (only use a subset) of the allowed supplementary components from its source CDT. Restricted BDTs may be further restricted in hierarchical fashion through additional, more restrictive, content and/or supplementary component restrictions.

816 **5.5 Relationship between ISO 11179 Data Element Concepts and**
 817 **Core Components Constructs**

818 There is a direct relationship between the constructs of CCTS and those of ISO
 819 11179. As shown in figure 5-3, the ISO 11179 data element concept consists of
 820 object class, property term, and representation term. The representation term,
 821 combined with a property term, constitutes a generic data element. This generic
 822 data element is the equivalent of BCC properties and BBIE properties. In ISO
 823 11179, these generic data elements are reusable across object classes, and inherit
 824 the name of the object class in which they occur. Similarly, in CCTS, these
 825 properties are reusable to create BCCs or BBIEs in multiple ACCs and ABIEs.
 826 However, once a property is used to create a BCC or BBIE, to include refinements
 827 to the value domain at the BBIE level, the BCC or BBIE creates an unchangeable
 828 part of the ACC or ABIE to which it belongs. This concept has been extended in
 829 CCTS to include ASCC and ASBIE properties as well.



830 **Figure 5-3. ISO 11179 Data Element Model**
 831

832 The ISO 11179 object class and property term constitute a conceptual data
 833 element. These conceptual data elements do not have a specific representation
 834 (value domain), and are reusable by applying different representations that create
 835 conceptually similar but distinct data elements. This concept is not currently
 836 included in the CCTS metamodel, but can be accommodated by implementers who
 837 choose to maintain such constructs in a registry.

838 The ISO 11179 object class, property term, and representation term together
 839 constitute a data element. These data elements are the equivalent of BCCs,
 840 ASCCs, BBIEs and ASBIEs. In ISO 11179 and UML, these data elements (classes)
 841 are unique in their occurrence, but can be associated with other object classes
 842 through UML association. When such UML associations of object classes occur,
 843 they are instantiated as ASCCs and ASBIEs in the CCTS model.

844 **5.6 Relationship between UN/CEFACT Modelling Methodology**
 845 **and Core Components Constructs**

846 UN/CEFACT has developed the *UN/CEFACT Modelling Methodology* (UMM). The
 847 UMM base and foundation modules define a UML profile for modeling
 848 choreographies of business collaborations and their business document

849 exchanges.⁷ The UMM is the recommended business process methodology for
850 developing CCTS artefacts.

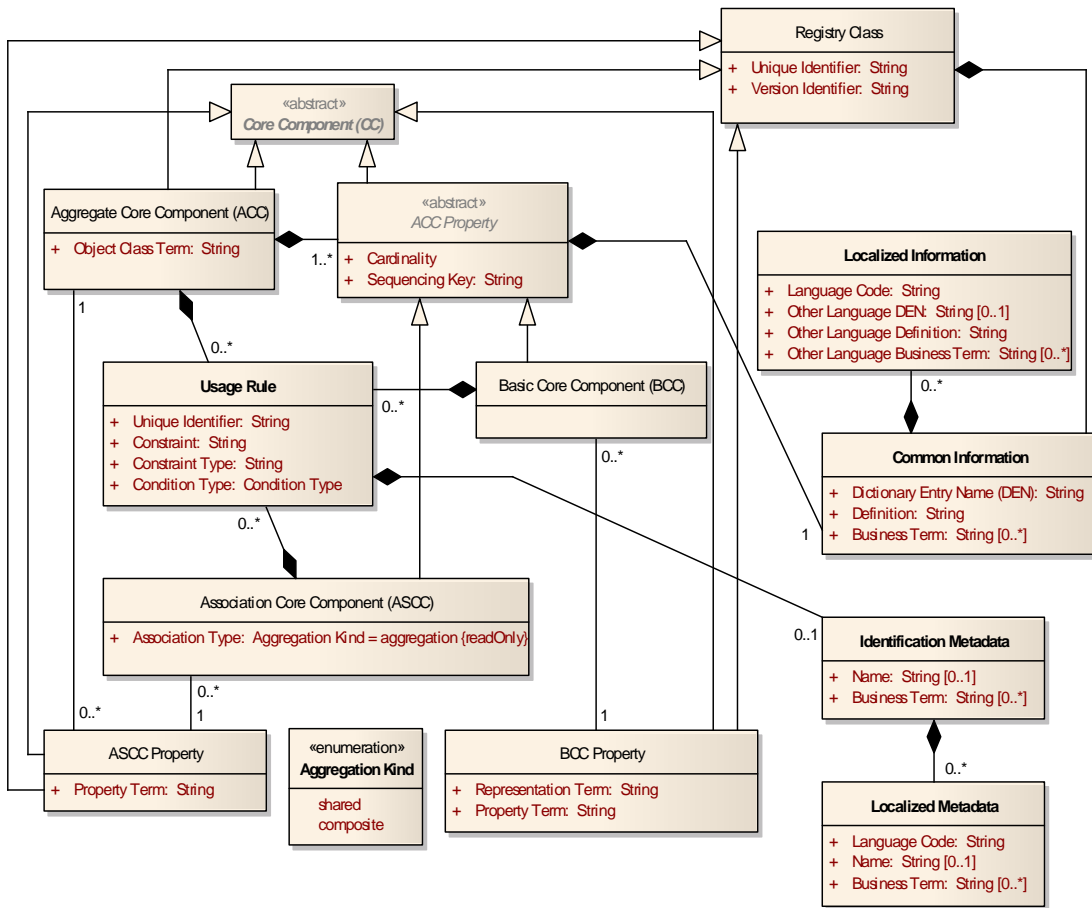
⁷ The UN/CEFACT Modelling Methodology (UMM) is a methodology for modelling collaborative *Business Processes* that is based on the Object Management Group's Unified Modelling Language.

851 **6 Core Component Model**

852 This section provides a detailed technical explanation of the core component
853 metamodel as seen in the UML diagram figure 6-1.

854 **Note – Models**

855 Models are UML conformant figures and are normative to the level of detail at which
856 they exist.



857
858 **Figure 6-1. UML Diagram of Core Component Basic Definition Model**

859 **6.1 Overview**

860 A core component is a building block for the development of a semantically correct
861 and meaningful business information exchange ‘parcel’ containing the information
862 pieces needed to describe a specific concept.

863 **[Definition] – Core Component (CC)**

864 A core component is a semantic building block for creating clear and meaningful
865 data models, vocabularies, and information exchange packages. Core components
866 are used as the basis for creating business information entities.

867 There are five categories of Core Components (CCs):

- 868
- Aggregate Core Component (ACC)
 - 869 • Association Core Component (ASCC)
 - 870 • Basic Core Component (BCC), and
 - 871 • ASCC Property
 - 872 • BCC Property

873 1 A CC shall be an ACC, ASCC, BCC, ASCC property, or BCC property.

874 [Note] – ACC Property

875 An ACC property is a generalization of a BCC or an ASCC, and not a property in its
876 own right.

877 ACCs, ASCCs, BCCs, ASCC properties, and BCC properties are collectively called
878 CCs and are typically stored in a registry, database, or other mechanism to
879 maximize their reuse.

880 6.2 Core Component Naming and Definition Conventions

881 A naming convention is necessary to gain consistency in the naming and defining of
882 all CCs. The resulting consistency facilitates comparison during the discovery and
883 analysis process, and precludes ambiguity, such as the development of multiple CCs
884 with different names that have the same semantic meaning.

885 The CC naming and definition conventions are derived from the guidelines and
886 principles described in *ISO 11179 Part 4 – Definitions* and *ISO 11179 Part 5 –*
887 *Naming and Identification Principles*. In certain instances, these guidelines have
888 been adapted to the overall CC environment. In particular, the guidelines have been
889 extended to cover the naming and defining of all CCs defined in this standard.

890 The required language for CCs is English. CC discovery work may very well occur in
891 other languages; however official submissions for inclusion in a component library
892 must be in English. In order to ensure absolute clarity and understanding of the
893 names and definitions it is essential to use terms from the *Oxford English Dictionary*.
894 A supplementary controlled vocabulary should be developed to identify the definition
895 to be used for any terms that are potentially ambiguous. This controlled vocabulary
896 shall also be used to identify the preferred term in cases where more than one term
897 or spelling might be used to cover the same definition. The controlled vocabulary will
898 also contain terms not found in the *Oxford English Dictionary*. This will ensure that
899 each term within any of the names and definitions is used in a consistent and
900 unambiguous way. The resultant semantic integrity will also mean that translation
901 into other languages retains the precise original meaning.⁸

902 [Note] – Oxford English Dictionary

903 The *Oxford English Dictionary* and a controlled vocabulary, if used, will be the
904 authoritative source for conflict resolution between competing spellings of
905 component names or definitions.

⁸ Implementers are encouraged to use the UN/CEFACT controlled vocabulary as the authoritative source for terms and definitions.

6.3 Core Component Registry Class

A core component registry class represents a cohesive set of information associated with a single CC.

[Definition] – Registry Class

A registry class is the formal definition of all the common information necessary to be recorded in the registry by a registry artefact – a core component, a business information entity, or a data type.

Each ACC, ASCC property, and BCC property, are registry classes.

[Note] – Registry Class

Although the term registry class is used, no normative requirement exists to actually use a registry. Other storage mechanisms such as data bases may also be used to uniquely store registry classes and their associated subordinate classes.

[C2] A registry class shall be created for each ACC, ASCC property, and BCC property.

Each CC registry class contains the following information:

- Unique Identifier
- Unique Version Identifier

[Note] – CC Identifier Structure

There are no specific rules for the structure of the CC identifiers; however the preferred identification scheme is the ITU-T Rec. X.667|ISO/IEC9834-8 Universally Unique Identifier (UUID) scheme. Implementers are free to use this scheme, or choose any other structure scheme, providing it guarantees uniqueness within the library to which it belongs.

6.4 Core Component Common Information

The CC common information class provides necessary component information that is applicable to components either directly or through inheritance. The CC common information class contains the following information:

- **DEN** – the unique official name of the CC in the dictionary.
- **Definition** – the unique business semantic meaning of the CC.
- **Business Term(s)** – a synonym term under which the component is commonly known and used in business. A CC may have several business terms.

6.4.1 Core Component Dictionary Entry Name

CC naming rules are based on the following concepts as defined in ISO 11179:

- **Object Class** – represents the logical data grouping or aggregation (in a logical data model) to which a property belongs. The object class is represented by an object class term. Thus, the object class is the part of a CCs DEN that represents an activity or object. Object classes

- 945 have explicit boundaries and meaning and their properties and
946 behaviour follow the same rules.
- 947 • **Object Class Term** – a part of the dictionary entry name of a
948 component which represents the object class to which it belongs
 - 949 • **Property Term** – represents a distinguishing characteristic of the
950 object class and shall occur naturally in the definition.
 - 951 • **Representation Term** – an element of the component name which
952 describes the form in which the component is represented.
- 953 [C3] All terms used in CC DENs shall be in the English language following the
954 latest version of the *Oxford English Dictionary*. Where conflicting spellings
955 exist, the spelling listed as the primary British spelling shall be used.
- 956 [C4] A CC DEN shall be unique amongst all DENs within the library of which it is
957 a part.
- 958 [C5] A CC DEN shall be extracted from the CC definition.
- 959 [C6] A CC DEN shall not include consecutive identical words or terms.
- 960 [C7] A CC DEN and all its components shall be in singular form unless the
961 concept itself is plural.
- 962 [C8] A CC DEN shall only use alphabetic characters plus the dot and space
963 characters.
- 964 [C9] A CC DEN shall only contain verbs, nouns, adverbs and adjectives unless a
965 different part of speech is part of an official title, part of a term listed in the
966 *Oxford English Dictionary*, or part of a controlled vocabulary.
- 967 [Note] – Parts of Speech

968 Articles, prepositions and related parts of speech that are not verbs, nouns, adverbs
969 and adjectives normally add no semantic clarity and should not be used unless as
970 part of an official title or in a controlled vocabulary as part of a common business
971 term that can not otherwise be expressed.
- 973 [Example] – Exception use of Preposition

974 Goods Item. Free On Board Value. Amount

975 Where **Free On Board** is a globally recognized term and integral part of the
976 property term for this BCC.
- 977 [C10] Abbreviations and acronyms that are part of the CC DEN shall be expanded
978 or explained in the definition and should be added to a controlled vocabulary
979 if it exists.
- 980 [C11] CC DEN object class terms, property terms, and representation terms shall
981 be separated by a dot and a space character.
- 982 [C12] The space character shall separate words in multi-worded CC object class,
983 property, and representation terms.
- 984 [C13] Each word in a CC DEN shall start with a capital letter.

985 [C14] The dots after CC object class and property terms shall be followed by a
986 space character.

987 [C15] Each CC DEN shall remain unique when its separators are removed.

988 **6.4.2 Core Component Definitions**

989 CC definitions are based on the requirements for data element definitions defined in
990 ISO 11179-4.

991 [C16] Each CC shall have its own unique semantic definition within the library of
992 which it is a part.

993 [Note] – Order of Development of Definition and DEN

994 In the interest of quality, it is recommended that the CC definition be developed first
995 and the DEN extracted from it.

996 [C17] The CC definition shall be in the English language following the latest
997 version of the *Oxford English Dictionary*. Where conflicting spellings exist,
998 the spelling listed as the primary British spelling shall be used.

999 [C18] The CC definition shall be consistent with the requirements of ISO 11179-4.

1000 [C19] The CC definition shall take into account the fact that the users of the CC
1001 library are not necessarily native English speakers. It shall therefore contain
1002 short sentences, using common terms. Wherever alternative terms exist for
1003 a word in the definition, the definition shall use the preferred term as
1004 identified in the *Oxford English Dictionary* or a controlled vocabulary if one
1005 exists.

1006 [Example] – Use of Synonym Terms

1007 ACC – Contract Line Item. Details

1008 Definition – A **contract line item** is a distinct, separately defined line item
1009 specified in a contract.

1010 Alternative terms for distinct include distinctive and distinguishable. The term
1011 **distinct** is a more easily understood common term for differentiating a contract
1012 line item amongst a group of line items.

1013 [C20] Whenever both the definite (i.e. **the**) and indefinite article (i.e. **a**) are
1014 possible in a definition, preference shall be given to an indefinite
1015 article (i.e. **a**).

1016 [Note] – Definition Quality

1017 To verify the quality of the definition, place the DEN followed by **is** before the
1018 definition to ensure that it is not simply a repetition of the DEN.

1019 **6.4.3 Core Component Business Terms**

1020 CC business terms are those terms commonly used for day-to-day information
1021 exchanges within a given domain. As such, no specific rules apply to business term
1022 structures.

6.5 Core Component Localized Information Class

While the normative expressions of components are in the English language, implementers may choose to create alternative language expressions of definitions and business terms. The CC localized information class contains the relevant information necessary to associate the native language expressions to their normative English language counterparts. Other language CC DENs will only consist of alphabetic, ideographic characters, plus the dot, the underscore and the space characters unless required by language rules. In addition to other language DEN, definition, and business term(s), a mandatory language code identifies the language in which the components are being expressed for storage in the registry. The localized information class contains:

- **Language Code** – A code which identifies the language being used. *Tags For the Identification of Languages*, Internet Engineering Task Force (IETF) RFC 3066 of January 2001 will be used as the authoritative source for code values.
- **DEN** – The official name of the component in a language other than English.
- **Definition** – the semantic meaning of the component in a language other than English.
- **Business Term** – A synonym term in another language under which the component is commonly known and used in a business expression in that language.

The DEN and definition in the localized information class must only be expressed in the language identified by the language and locale code. The business terms must only be expressed in the language identified by the language and locale code, or a recognized dialect of the language.

6.6 Aggregate Core Components

Each ACC represents the logical data grouping or aggregation in a logical data model.

[Definition] – Aggregate Core Component (ACC)

An aggregate core component is a collection of related pieces of business information that together convey a distinct business meaning, independent of any specific business context. Expressed in modelling terms, it is the representation of an object class, independent of any specific business context.

6.6.1 Aggregate Core Component Object Class Term

The ACC object class is represented by an object class term that serves as the basis for the DEN of the ACC and for the DEN of all BCCs and ASCCs that are properties of the ACC.

[C21] The ACC object class term shall be unique amongst the set of object class terms in the library of which it is a part.

Object class terms may consist of more than one word.

1064 [C22] Multi-worded ACC object class terms shall have a unique meaning separate
1065 from the individual words used independently or in any other combination.

1066 [Example] – Single versus Multi-Worded Object Class Terms

1067 **Currency Exchange. Details** does not represent the same thing as **Currency.**
1068 **Details**

1069 **Currency Exchange. Details** does not represent the same thing as **Exchange.**
1070 **Details**

1071
1072 Thus the term **Currency Exchange** represents a different object than either
1073 **Currency Of Exchange.**

1074 6.6.2 Aggregate Core Component Usage Rule

1075 ACCs may have usage rules. Each usage rule defines a constraint that describes
1076 specific conditions that are applicable to the ACC. ACC usage rules constrain the
1077 specific application of an ACC in its role as an object class. ACC usage rules can be
1078 either unstructured – expressed as free form text, or structured – expressed in a
1079 formal language.

1080 [C23] An ACC shall have zero or more usage rules.

1081 Usage rules will be defined at the lowest possible level of the hierarchical structure to
1082 which they apply.

1083 [C24] ACC usage rules shall not replicate BCC, ASCC, or CDT usage rules.

1084 [C25] An ACC usage rule shall have an identifier that is unique amongst all usage
1085 rules for the library of which it is a part.

1086 [Note] – Usage Rule Identifier Structure

1087 There are no specific rules for the structure of usage rule identifiers. Implementers
1088 are free to choose any structure providing it guarantees uniqueness within the group
1089 of usage rules of a library.

1090 The ACC usage rule constraint is the formal expression of the usage rule. The
1091 constraint can be structured or unstructured. An unstructured constraint will be
1092 expressed as free form text.

1093 [C26] An unstructured ACC usage rule constraint shall have a free form text
1094 expression that fully details the usage rule.

1095 A structured constraint is a constraint that is expressed in a formal constraint
1096 language such as the UML Object Constraint Language (OCL) or Object
1097 Management Group (OMG) Semantics of Business Vocabulary and Usage rules
1098 (SBVR).

1099 [C27] A structured ACC usage rule constraint shall have a formal constraint
1100 language expression.

1101 ACC usage rule constraint types must also be specified. The constraint type value is
1102 taken from a constraint type code list.

1103 [C28] Every ACC usage rule shall have a constraint type taken from a constraint
1104 type code list.

1105 [Note] –Constraint Type Code List

1106 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
1107 List for use in support of this rule.

1108 ACC usage rules will also have a condition type that identifies when the constraint
1109 should be applied.

1110 [C29] Every ACC usage rule shall have a condition type.

1111 [C30] Every ACC usage rule condition type shall be one of `pre-condition`, `post-`
1112 `condition`, or `invariant`.

1113 [Example] –Constraint and Condition Type

1114 Constraint Type – OCL

1115 Condition Type – pre-condition

1116 6.6.2.1 Aggregate Core Component Usage Rule Identification Metadata

1117 Although the unique identifier is sufficient to differentiate one usage rule from all
1118 other usage rules for a library, an ACC usage rule may also have a identification
1119 metadata class that provides additional information.

1120 [C31] An ACC usage rule shall have zero or one identification metadata classes.

1121 The usage rule identification metadata class contains a unique name that
1122 semantically differentiates the usage rule from all other named usage rules for the
1123 ACC.

1124 [C32] An ACC usage rule shall have zero or one names that is unique within the
1125 group of usage rules of an ACC.

1126 The ACC usage rule metadata class may contain several business terms. ACC
1127 usage rule business terms are synonym terms under which the ACC usage rule is
1128 commonly known and used in business.

1129 [C33] Each ACC usage rule shall have zero or more business terms.

1130 6.6.2.2 Aggregate Core Component Usage Rule Localized Metadata

1131 ACC usage rules may have localized metadata that is used to provide other
1132 language expressions of its name and business term or terms.

1133 [C34] An ACC usage rule shall have zero or more localized metadata classes.

1134 [C35] Each occurrence of an ACC usage rule localized metadata class shall
1135 contain:

- 1136 • **Language Code (mandatory):** A code which identifies the language
1137 being used. *Internet Engineering Task Force RFC 3066 of January*
1138 *2001* shall be used as the authoritative source for code values.
- 1139 • **Name (optional):** The name of the usage rule in a language other
1140 than English.
- 1141 • **Business Term (optional, repetitive):** A synonym term in another
1142 language under which the usage rule is commonly known and used in
1143 a business expression in that language.

1144 [C36] ACC usage rule localized metadata shall be in the language identified by the
1145 language and locale code.

1146 6.6.3 Aggregate Core Component Identifiers

1147 Every ACC is a registry class. In order to ensure uniqueness, every ACC will have
1148 assigned a:

- 1149 • **Unique Identifier:** The identifier that references an ACC in a unique
1150 and unambiguous way.
- 1151 • **Version Identifier:** An indication of the evolution over time of an ACC.

1152 [C37] Each ACC shall have a unique identifier within the library of which it is a
1153 part.

1154 [C38] Each version of an ACC shall have a unique version identifier within the
1155 library of which it is a part.

1156 6.6.4 Aggregate Core Component Common Information

1157 [C39] Each ACC shall have a common information class.

1158 [C40] The ACC common information class shall conform to all CC common
1159 information rules.

1160 [C41] The ACC common information class shall consist of:

- 1161 • **DEN (mandatory):** The official name of the ACC.
- 1162 • **Definition (mandatory):** The semantic meaning of the ACC.
- 1163 • **Business Term (optional, repetitive):** A synonym term under which
1164 the ACC is commonly known and used in business.

1165 [Example] – ACC Common Information

1166 DEN – *Contract. Details*

1167 Definition – A contract is an agreement between two or more parties, especially
1168 one that is written or spoken and enforceable by law.

1169 Business Term – *Purchasing Agreement*

1170 6.6.4.1 Aggregate Core Component Dictionary Entry Names

1171 [C42] Each ACC DEN shall conform to all CC DEN rules.

1172 [C43] The DEN of an ACC shall consist of a meaningful object class term followed
1173 by a dot, a space character, and the term `Details`.

1174 The object class term may consist of more than one word.

1175 [Example] – DEN for ACCs

1176 *Contract. Details*

1177 *Metrics. Details*

1178 6.6.4.2 Aggregate Core Component Definitions

1179 [C44] Each ACC definition shall conform to all CC definition rules.

1180 [C45] Each ACC definition shall include the object class term.

1181 [Example] – ACC Definition

1182 **Contract. Details**

1183 A **contract** is an agreement between two or more parties, especially one that is
1184 written or spoken and enforceable by law.

1185 **6.6.4.3 Aggregate Core Component Business Terms**

1186 An ACC may have several business terms. ACC business terms are synonym terms
1187 under which the ACC is commonly known and used in business.

1188 [C46] Each ACC shall have zero or more business terms.

1189 **6.6.5 Aggregate Core Component Localized Information**

1190 The ACC localized information class contains the relevant information necessary to
1191 associate native language expressions of ACC attributes to the ACC.

1192 [C47] Each ACC shall have zero or more localized information classes.

1193 [C48] Each occurrence of an ACC localized information class shall contain:

- 1194 • **Language Code (mandatory):** A code which identifies the language
1195 being used. *Internet Engineering Task Force RFC 3066 of January*
1196 *2001* shall be used as the authoritative source for code values.
- 1197 • **DEN (optional):** The official name of the ACC in a language other
1198 than English.
- 1199 • **Definition (mandatory):** The semantic meaning of the ACC in a
1200 language other than English.
- 1201 • **Business Term (optional, repetitive):** A synonym term in another
1202 language under which the ACC is commonly known and used in a
1203 business expression in that language.

1204 ACC localized information DENs should follow, as much as possible, all ACC DEN
1205 rules.

1206 [C49] Each ACC localized information DEN shall only consist of alphabetic,
1207 ideographic characters, plus the dot, the underscore and the space
1208 characters unless required by language rules.

1209 [C50] Each ACC localized information definition shall adhere to all ACC definition
1210 rules other than the requirement to be in the English language.

1211 [C51] ACC localized information DENs and definitions shall be in the language
1212 identified by the language and locale code.

1213 The business terms must only be expressed in the language identified by the
1214 language code property of that class, or a recognized dialect of the language.

1215 [C52] Each ACC localized information business term shall be in the language
1216 identified by the language and locale code, or a recognized dialect of the
1217 language.

1218 **6.7 Aggregate Core Component Properties**

1219 An ACC consists of ACC properties. The ACC property is a generalization of either
1220 an ASCC or a BCC. Every ACC contains at least one ACC property.

1221 [C53] An ACC shall contain at least one ACC property.

1222 [C54] An ACC property shall be either a BCC or an ASCC.

1223 [Definition] – ACC Property

1224 An ACC property is a unique property of the aggregate core component that must
1225 be related to the concept of the aggregate core component. An ACC property is
1226 either an ASCC or a BCC.

1227 [C55] Within an ACC, all embedded BCCs and ASCCs shall be related to the
1228 concept of the aggregate.

1229 ACC properties must be unique within the ACC.

1230 [C56] An ASCC and a BCC DEN shall never be identical when used in an ACC.

1231 An ACC property that is an ASCC must be devoid of mandatory circular references.

1232 [C57] An ACC shall never contain –directly or at any nested level – a mandatory
1233 ASCC whose associated ACC is the same as the top level ACC.

1234 [Note] – Recursion

1235 The objective of rule C48 is to prevent endless nesting in component models. The
1236 rule does not prevent an ACC containing an ASCC reference to itself. However, it
1237 must be optional, making it possible to stop the nesting at a finite number of levels.

1238 6.8 Association Core Components

1239 Association core components associate two ACCs, where the associated ACC is the
1240 property of the associating ACC. The property term represents the role of the
1241 associated ACC in the association. ASCCs have a defined minimum and maximum
1242 occurrence. ASCCs are always UML associations of `AggregationKind=shared`.

1243 [Definition] – Association Core Component (ASCC)

1244 An association core component is a core component which defines the role of a
1245 specific aggregate core component (known as the associated ACC) associated to
1246 another aggregate core component (known as the associating ACC). An
1247 association core component functions as an ACC property of the associating ACC.

1248 6.8.1 Association Core Component Association Type

1249 ASCCs represent an association between the associating (parent) ACC and the
1250 associated (child) ACC. The associated ACC will exist regardless of the state of the
1251 associating ACC, therefore the nature of the association of all ASCCs is as a UML
1252 association `AggregationKind=shared`. An association type indicator is required to reflect
1253 this association as a mechanism for transformation between alternative syntax
1254 storage expressions and UML representation.

1255 [C58] An ASCC shall have an UML association `AggregationKind` value of `shared`.

1256 6.8.2 Association Core Component Usage Rule

1257 ASCCs may have usage rules. Each usage rule defines a constraint that describes
1258 specific conditions that are applicable to the ASCC. ASCC usage rules clarify (or
1259 constrain) the use of an ASCC as an ACC property. ASCC usage rules can be either

1260 unstructured – expressed as free form text , or structured – expressed in a formal
1261 language.

1262 [C59] An ASCC shall have zero or more usage rules.

1263 Usage rules will be defined at the lowest possible level of the hierarchical structure to
1264 which they apply.

1265 [C60] ASCC usage rules shall not replicate ACC, BCC, or CDT usage rules.

1266 [C61] An ASCC usage rule shall have an identifier that is unique amongst all
1267 usage rules for the library of which it is a part.

1268 [Note] – Usage Rule Identifier Structure

1269 There are no specific rules for the structure of usage rule identifiers. Implementers
1270 are free to choose any structure providing it guarantees uniqueness within the group
1271 of usage rules of a library.

1272 The ASCC usage rule constraint is the formal expression of the usage rule. The
1273 constraint can be structured or unstructured. An unstructured constraint will be
1274 expressed as free form text.

1275 [C62] An unstructured ASCC usage rule constraint shall have a free form text
1276 expression that fully details the usage rule.

1277 A structured constraint is a constraint that is expressed in a formal constraint
1278 language such as the UML OCL or OMG SBVR.

1279 [C63] A structured ASCC usage rule constraint shall have a formal constraint
1280 language expression.

1281 ASCC usage rule constraint types must also be specified. The constraint type value
1282 is taken from a formal constraint type code list.

1283 [C64] Every ASCC usage rule shall have a constraint type taken from a constraint
1284 type code list.

1285 [Note] –Constraint Type Code List

1286 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
1287 List for use in support of this rule.

1288 ASCC usage rules expressed as formal constraints will also have a condition type
1289 that identifies when the constraint should be applied.

1290 [C65] Every ASCC usage rule shall have a condition type

1291 [C66] Every ASCC usage rule condition type shall be one of `pre-condition`, `post-`
1292 `condition`, `Of invariant`..

1293 6.8.2.1 Association Core Component Usage Rule Identification Metadata

1294 Although the unique identifier is sufficient to differentiate one usage rule for a given
1295 ASCC from all other usage rules for a library, an ASCC usage rule may also have an
1296 identification metadata class that provides additional information.

1297 [C67] An ASCC usage rule shall have zero or one identification metadata classes.

1298 The usage rule identification metadata class contains a unique name that
1299 semantically differentiates the usage rule from all other named usage rules for the
1300 ASCC.

1301 [C68] An ASCC usage rule shall have zero or one names that is unique within the
1302 group of usage rules of an ACC.

1303 The ASCC usage rule identification metadata class may contain several business
1304 terms. ASCC usage rule business terms are synonym terms under which the ASCC
1305 usage rule is commonly known and used in business.

1306 [C69] Each ASCC usage rule shall have zero or more business terms.

1307 6.8.2.2 Association Core Component Usage Rule Localized Metadata

1308 ASCC usage rules may have localized metadata that is used to provide other
1309 language expressions of its name and business term or terms.

1310 [C70] An ASCC usage rule shall have zero or more localized metadata classes.

1311 [C71] Each occurrence of an ASCC usage rule localized metadata class shall
1312 contain:

- 1313 • **Language Code (mandatory):** A code which identifies the language
1314 being used. *Internet Engineering Task Force RFC 3066 of January*
1315 *2001* shall be used as the authoritative source for code values.
- 1316 • **Name (optional):** The name of the usage rule in a language other
1317 than English.
- 1318 • **Business Term (optional, repetitive):** A synonym term in another
1319 language under which the usage rule is commonly known and used in
1320 a business expression in that language.

1321 [C72] ASCC usage rule localized metadata shall be in the language identified by
1322 the language and locale code.

1323 6.8.3 Association Core Component Cardinality

1324 Each ASCC, in its role as an ACC property, will have its cardinality explicitly
1325 expressed.

1326 [C73] Each ASCC shall have a cardinality that consists of a set of values
1327 consisting of a minimum occurrence and a maximum occurrence.

1328 [C74] ASCC cardinality values shall be non-negative integers of zero or greater, or
1329 – only in the case of maximum cardinality – the token `unbounded` if no limit
1330 applies.

1331 6.8.4 Association Core Component Sequencing Key

1332 Software and storage applications may have unique sequencing algorithms that
1333 change the normatively defined order of the ASCC within an ACC. To ensure the
1334 desired order is preserved, each ASCC within an ACC will be assigned a unique
1335 sequencing key only for the aspects of presentation.

1336 [C75] Each ASCC shall be assigned a unique sequencing key within the ACC of
1337 which it is a part.

1338 [Note] – Sequence Key Structure

1339 There are no specific rules for the structure of the sequencing keys. Implementers
 1340 are free to choose any structure providing it guarantees uniqueness within the ACC
 1341 to which it belongs and the structuring scheme is readily available for anyone
 1342 accessing or using the ACC.

1343 **6.8.5 Association Core Component Common Information**

1344 In its role as an ACC property, each ASCC has a common information class.

1345 [C76] Each ASCC shall have a common information class.

1346 [C77] The ASCC common information class shall conform to all CC common
 1347 information rules.

1348 [C78] The ASCC common information class shall consist of:

- 1349 • **DEN (mandatory):** The official name of the ASCC.
- 1350 • **Definition (mandatory):** The semantic meaning of the ASCC.
- 1351 • **Business Term (optional, repetitive):** A synonym term under which
 1352 the ASCC is commonly known and used in business.

1353 [Example] – ASCC Common Information

1354 DEN – Contract. Effective. Period

1355 **Definition** – A period within which the provisions of this contract are, or will be, in
 1356 force or effective.

1357 Business Term – Contract Duration

1358 **6.8.5.1 Association Core Component Dictionary Entry Names**

1359 [C79] Each ASCC DEN shall conform to all CC DEN rules.

1360 [C80] The DEN of an ASCC shall consist of the following components in the
 1361 specified order:

- 1362 • The object class term of the associating ACC, followed by a dot and
 1363 space character.
- 1364 • The DEN of the included ASCC property.

1365 [Example] - ASCCs

1366 Contract. Effective. Period where the associated ACC Period. Details NOW
 1367 becomes a property of the associating ACC of contract. Details and the nature
 1368 of that association is Effective.

1369 **6.8.5.2 Association Core Component Definitions**

1370 [C81] Each ASCC definition shall conform to all CC definition rules.

1371 [C82] The definition of an ASCC shall include the object class term of the
 1372 associating ACC, and the definition of the ASCC property the ASCC
 1373 includes.

1374 [Example] – ASCC Definition

1375 **Contract. Effective. Period**

1376 A **period** within which the provisions of this contract are, or will be, in force or
1377 **effective**. It constitutes a specific period of time such as the length of time
1378 between two known date/time points, from a start date onwards, or up to an end
1379 date that constitutes an effective period.

1380 Where the ASCC Property

1381 **Effective. Period** definition is:

1382 A specific **period** of time such as the length of time between two known date/time
1383 points, from a start date onwards, or up to an end date that constitutes an
1384 **effective period**.

1385 **6.8.5.3 Association Core Component Business Terms**

1386 An ASCC may have several business terms. ASCC business terms are synonym
1387 terms under which the ASCC is commonly known and used in business.

1388 [C83] – Each ASCC shall have zero or more business terms.

1389 **6.8.6 Association Core Component Localized Information**

1390 The ASCC localized information class contains the relevant information necessary to
1391 associate native language expressions of ASCC attributes to the ASCC.

1392 [C84] An ASCC shall have zero or more localized information classes.

1393 [C85] Each occurrence of an ASCC localized information class shall contain:

- 1394 • **Language Code (mandatory):** A code which identifies the language.
1395 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
1396 used as the authoritative source for code values.
- 1397 • **DEN (Optional):** The official name of the ASCC in a language other
1398 than English.
- 1399 • **Definition (mandatory):** The semantic meaning of the ASCC in a
1400 language other than English.
- 1401 • **Business Term (optional, repetitive):** A synonym term in another
1402 language under which the ASCC is commonly known and used in a
1403 business expression in that language.

1404 ASCC localized information DENs should follow, as much as possible, all ASCC
1405 DEN rules.

1406 [C86] Each ASCC localized information DEN shall only consist of alphabetic
1407 characters, ideographic characters, plus the dot, the underscore and the
1408 space characters unless required by language rules.

1409 [C87] Each ASCC localized information definition shall adhere to all ASCC
1410 definition rules other than the requirement to be in the English language.

1411 The DEN and definition in the localized information class must only be expressed in
1412 the language identified by the language code property of that class.

1413 [C88] Each ASCC localized information DEN and definition shall be in the
1414 language identified by the language and locale code.

1415 The business terms must only be expressed in the language identified by the
1416 language code property of that class, or a recognized dialect of the language.

1417 [C89] Each ASCC localized information business term shall be in the language
1418 identified by the language and locale code, or a recognized dialect of the
1419 language.

1420 **6.9 Association Core Component Properties**

1421 An ASCC property consists of a property term plus the object class term of the
1422 associated ACC.

1423 [Definition] – Association Core Component Property (ASCC Property)

1424 An association core component property is a core component property for which
1425 the permissible values are expressed as a complex structure, represented by an
1426 aggregate core component.

1427 [C90] An ASCC property shall be defined for each ASCC.

1428 ASCC properties are reusable across object classes.

1429 [Example] – Reuse of ASCC Properties in Multiple Object Classes

1430 For the ASCC property of **Effective. Period - Contract. Effective. Period**
1431 and **Price. Effective. Period** – may both exist.

1432 **6.9.1 Association Core Component Property – Property Term**

1433 Each ASCC property contains a property term. The property term of an ASCC
1434 property is a semantically meaningful name for the characteristic that represents the
1435 nature of the association to the associated ACC.

1436 [C91] Each ASCC property shall have a property term.

1437 [C92] The property term of an ASCC property may consist of more than one word.

1438 [C93] A multi-worded property term of an ASCC property shall have a unique
1439 semantic meaning compared to the words separately and compared to any
1440 other combination of these words.

1441 [Example] – Single versus Multiple Word Property Terms

1442 **Trade Line Item. Additional Information. Note** is not the same as **Trade**
1443 **Line Item. Additional. Note**

1444 **Trade Line Item. Additional Information. Note** is not the same as **Trade**
1445 **Line Item. Information. Note**

1446 **Trade Line Item. Additional Information. Note** is not the same as **Trade**
1447 **Line Item. Information Additional. Note**

1449 **6.9.2 Association Core Component Property Identifiers**

1450 Every ASCC property is a registry class. In order to ensure uniqueness, every ASCC
1451 property will have assigned a:

- 1452 • **Unique Identifier:** The identifier that references an ASCC property in
1453 a unique and unambiguous way.
- 1454 • **Version Identifier:** An indication of the evolution over time of an
1455 ASCC property.
- 1456 [C94] Each ASCC property shall have a unique identifier within the library of which
1457 it is a part.
- 1458 [C95] Each version of an ASCC property shall have a unique version identifier
1459 within the library of which it is a part.

1460 **6.9.3 Association Core Component Property Common Information**

- 1461 [C96] Each ASCC property shall have a common information class.
- 1462 [C97] The ASCC property common information class shall conform to all CC
1463 common information rules.
- 1464 [C98] The ASCC property common information class shall consist of:
- 1465 • **DEN (mandatory):** The official name of the ASCC property.
 - 1466 • **Definition (mandatory):** The semantic meaning of the ASCC
1467 property.
 - 1468 • **Business Term (optional, repetitive):** A synonym term under which
1469 the ASCC property is commonly known and used in business.

1470 [Example] – ASCC Property Common Information

1471 DEN – **Effective. Period**

1472 **Definition** – A specific period of time such as the length of time between two
1473 known date/time points, from a start date onwards, or up to an end date that
1474 constitutes an effective period.

1475 **Business Term** – **Effective Duration, In Force Period.**

1476 **6.9.3.1 Association Core Component Property Dictionary Entry Names**

- 1477 [C99] Each ASCC property DEN shall conform to all CC DEN rules.
- 1478 [C100] The DEN of an ASCC property shall consist of a property term that
1479 represents the nature of the association to the associated ACC, followed by
1480 a dot, a space character, and the object class term of the associated ACC.

1481 [Example] – DEN for ASCC properties

1482 **Performance. Metrics; Effective. Period; Effective. Contract**

1483 **6.9.3.2 Association Core Component Property Definitions**

- 1484 [C101] Each ASCC property definition shall conform to all CC definition rules.
- 1485 [C102] The definition of an ASCC property shall include the object class term of the
1486 associated ACC and the property term that expresses the nature of the
1487 association.

1488 [Example] – ASCC Property Definition

1489 ASCC property: **Performance. Metrics**

1490 Performance metrics are a system of quantitative parameters for performance
1491 assessment purposes.

1492 6.9.3.3 Association Core Component Property Business Terms

1493 An ASCC property may have several business terms. ASCC property business
1494 terms are synonym terms under which the ASCC property is commonly known and
1495 used in business.

1496 [C103] Each ASCC property shall have zero or more business terms.

1497 6.9.4 Association Core Component Property Localized Information

1498 The ASCC property localized information class contains the relevant information
1499 necessary to associate native language expressions of ASCC property attributes to
1500 the ASCC property.

1501 [C104] An ASCC property shall have zero or more localized information classes.

1502 [C105] Each occurrence of an ASCC property localized information class shall
1503 contain:

- 1504 • **Language Code (mandatory):** A code which identifies the language.
1505 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
1506 used as the authoritative source for code values.
- 1507 • **DEN (optional):** The official name of the ASCC property in a language
1508 other than English
- 1509 • **Definition (mandatory):** The semantic meaning of the ASCC property
1510 in a language other than English.
- 1511 • **Business Term (optional, repetitive):** A synonym term in another
1512 language under which the ASCC property is commonly known and
1513 used in a business expression in that language.

1514 ASCC property localized information DENs should follow, as much as possible, all
1515 ASCC property DEN rules.

1516 [C106] Each ASCC property localized information DEN shall only consist of
1517 alphabetic characters, ideographic characters, plus the dot, the underscore
1518 and the space characters unless required by language rules.

1519 [C107] Each ASCC property localized information definition shall adhere to all
1520 ASCC property definition rules other than the requirement to be in the
1521 English language.

1522 The DEN and definition in the localized information class must only be expressed in
1523 the language identified by the language code property of that class.

1524 [C108] Each ASCC property localized information DEN and definition shall be in the
1525 language identified by the language and locale code.

1526 The business terms must only be expressed in the language identified by the
1527 language code property of that class, or a recognized dialect of the language.

1528 [C109] Each ASCC property localized information business term shall be in the
1529 language identified by the language and locale code, or a recognized dialect
1530 of the language.

1531 **6.10 Basic Core Components**

1532 BCCs represent properties of an ACC. The BCC consists of a BCC property and the
1533 object class of the ACC to which it belongs.

1534 [Definition] – Basic Core Component (BCC)

1535 A basic core component is a core component which constitutes a singular
1536 business characteristic of a specific aggregate core component. It has a unique
1537 business semantic definition. A basic core component represents a basic core
1538 component property and is therefore of a core data type which defines its value
1539 domain. Basic core components function as properties of aggregate core
1540 components.

1541 **6.10.1 Basic Core Component Usage Rules**

1542 A BCC may have usage rules. Each usage rule defines a constraint that describes
1543 specific conditions that are applicable to the BCC. The BCC usage rules represent
1544 the specific application of a BCC as an ACC property. BCC usage rules can be
1545 either unstructured – expressed as free form text, or structured –expressed in a
1546 formal language.

1547 [C110] A BCC shall have zero or more usage rules.

1548 Usage rules will be defined at the lowest possible level of the hierarchical structure to
1549 which they apply.

1550 [C111] BCC usage rules shall not replicate ACC, ASCC, or CDT usage rules.

1551 [C112] A BCC usage rule shall have an identifier that is unique amongst all usage
1552 rules for the library of which it is a part.

1553 [Note] – Usage Rule Identifier Structure

1554 There are no specific rules for the structure of usage rule identifiers. Implementers
1555 are free to choose any structure providing it guarantees uniqueness within the group
1556 of usage rules of a library.

1557 The BCC usage rule constraint is the formal expression of the usage rule. The
1558 constraint can be structured or unstructured. An unstructured constraint will be
1559 expressed as free form text.

1560 [C113] An unstructured BCC usage rule constraint shall have a free form text
1561 expression that fully details the usage rule.

1562 A BCC structured constraint is a constraint that is expressed in a formal language
1563 such as the UML OCL or OMG SBVR.

1564 [C114] A structured BCC usage rule shall have a formal constraint expressed in a
1565 formal constraint language.

1566 BCC usage rule constraint types must also be specified. The constraint type value is
1567 taken from a constraint type code list.

1568 [C115] Every BCC usage rule shall have a constraint type taken from a constraint
1569 type code list.

1570 [Note] –Constraint Type Code List

1571 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
1572 List for use in support of this rule.

1573 BCC usage rules will also have a condition type that identifies when the formal
1574 constraint should be applied.

1575 [C116] Every BCC usage rule shall have a condition type.

1576 [C117] Every BCC usage rule condition type shall be one of `pre-condition`, `post-`
1577 `condition`, `Of invariant`..

1578 6.10.1.1 Basic Core Component Usage Rule Identification Metadata

1579 Although the unique identifier is sufficient to differentiate one usage rule for a given
1580 BCC from all other usage rules for a library, a BCC usage rule may also have an
1581 identification metadata class that provides additional information.

1582 [C118] A BCC usage rule shall have zero or one identification metadata classes.

1583 The usage rule identification metadata class contains a unique name that
1584 semantically differentiates it from all other named usage rules for the BCC.

1585 [C119] A BCC usage rule shall have zero or one names that is unique within the
1586 group of usage rules of the ACC to which it belongs.

1587 The BCC usage rule identification metadata class may contain several business
1588 terms. BCC usage rule business terms are synonym terms under which the BCC
1589 usage rule is commonly known and used in business.

1590 [C120] Each BCC usage rule shall have zero or more business terms.

1591 6.10.1.2 Basic Core Component Usage Rule Localized Metadata

1592 BCC usage rules may have localized metadata that is used to provide other
1593 language expressions of its name and business term or terms.

1594 [C121] A VCC usage rule shall have zero or more localized metadata classes.

1595 [C122] Each occurrence of a BCC usage rule localized metadata class shall
1596 contain:

- 1597 • **Language Code (mandatory):** A code which identifies the language
1598 being used. *Internet Engineering Task Force RFC 3066 of January*
1599 *2001* shall be used as the authoritative source for code values.
- 1600 • **Name (optional):** The name of the usage rule in a language other
1601 than English.
- 1602 • **Business Term (optional, repetitive):** A synonym term in another
1603 language under which the usage rule is commonly known and used in
1604 a business expression in that language.

1605 [C123] BCC usage rule localized metadata shall be in the language identified by the
1606 language and locale code.

6.10.2 Basic Core Component Cardinality

Each BCC, in its role as an ACC property, will have its cardinality explicitly expressed.

[C124] Each BCC shall have a cardinality that consists of a set of values consisting of a minimum occurrence and a maximum occurrence.

[C125] BCC cardinality values shall be non-negative integers of zero or greater, or – only in the case of maximum cardinality – the token `unbounded` if no limit applies.

6.10.3 Basic Core Component Sequencing Key

Business requirements may exist for BCCs to occur in a specific order within an ACC. Software and storage applications may have unique sequencing algorithms that change the normatively defined order of the BCC within an ACC. To ensure the desired order is preserved, each BCC within an ACC will be assigned a unique sequencing key.

[C126] Each BCC shall be assigned a unique sequencing key within the ACC of which it is a part.

Note – Sequencing Key Structure

There are no specific rules for the structure of the sequencing keys. Implementers are free to choose any structure providing it guarantees uniqueness within the ACC to which it belongs and the structuring scheme is readily available for anyone accessing or using the ACC.

6.10.4 Basic Core Component Common Information

In its role as an ACC property, each BCC has a common information class.

[C127] Each BCC shall have a common information class.

[C128] The BCC common information class shall conform to all component common information rules.

[C129] The BCC common information class shall consist of:

- **DEN (mandatory):** The official name of the BCC.
- **Definition (mandatory):** The semantic meaning of the BCC.
- **Business Term (optional, repetitive):** A synonym term under which the BCC is commonly known and used in business.

[Example] – Common Information

DEN – `Period. Start. Date Time`

Definition – The date, time, date time or other date time value for the start of this period of time.

Business Term – `Duration Start`

6.10.4.1 Basic Core Component Dictionary Entry Names

[C130] Each BCC DEN shall conform to all CC DEN rules.

[C131] The DEN of a BCC shall consist of the following parts in the order specified:

- 1646 • the object class term of the ACC owning the corresponding BCC,
1647 followed by a dot and space character.
- 1648 • the DEN of the included BCC property.

1649 **Example – BCCs**

1650 **Period. Start. Date Time; Contract. Price. Amount**

1651 **6.10.4.2 Basic Core Component Definitions**

1652 [C132] Each BCC definition shall conform to all CC definition rules.

1653 [C133] The definition of a BCC shall include the object class term of the ACC to
1654 which it belongs, and the definition of the included BCC property.

1655 **[Example] – BCC Definition**

1656 **Period. Start. Date Time**

1657 The **date, time, date time** or other date time value for the **start** of this **period** of
1658 **time**.

1659 **6.10.4.3 Basic Core Component Business Terms**

1660 A BCC may have several business terms. BCC business terms are synonym terms
1661 under which the BCC is commonly known and used in business.

1662 [C134] Each BCC shall have zero or more business terms.

1663 **6.10.5 Basic Core Component Localized Information**

1664 The BCC localized information class contains the relevant information necessary to
1665 associate native language expressions of BCC attributes to the BCC.

1666 [C135] A BCC shall have zero or more localized information classes.

1667 [C136] Each occurrence of a BCC localized information class shall contain:

- 1668 • **Language Code (mandatory):** A code which identifies the language.
1669 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
1670 used as the authoritative source for code values.
- 1671 • **DEN (optional):** The official name of the BCC in a language other
1672 than English.
- 1673 • **Definition (mandatory):** The semantic meaning of the BCC in a
1674 language other than English.
- 1675 • **Business Term (optional, repetitive):** A synonym term in another
1676 language under which the BCC is commonly known and used in a
1677 business expression in that language.

1678 BCC localized information DENs should follow, as much as possible, all BCC DEN
1679 rules.

1680 [C137] Each BCC localized information DEN shall only consist of alphabetic
1681 characters, ideographic characters, plus the dot, the underscore and the
1682 space characters unless required by language rules.

1683 [C138] Each BCC localized information definition shall adhere to all BCC definition
1684 rules other than the requirement to be in the English language.

1685 The DEN and definition in the localized information class must only be expressed in
1686 the language identified by the language code property of that class.

1687 [C139] Each BCC localized information DEN and definition shall be in the language
1688 identified by the language and locale code.

1689 The business terms must only be expressed in the language identified by the
1690 language code property of that class, or a recognized dialect of the language.

1691 [C140] Each BCC localized information business term shall be in the language
1692 identified by the language and locale code, or a recognized dialect of the
1693 language.

1694 **6.11 Basic Core Component Properties**

1695 The BCC property represents a generic reusable data element independent of an
1696 object class. A BCC property consists of a property term plus a representation term.

1697 [Definition] – Basic Core Component Property (BCC Property)

1698 A basic core component property is a core component property for which the
1699 permissible values are expressed by simple values, represented by a data type.

1700 [C141] A BCC property shall be defined for each BCC.

1701 BCC properties are reusable across ACCs.

1702 [Example] – Reuse of BCC Properties in Multiple BCCs

1703 `Contact . Type . Code` and `Event . Type . Code` may both exist.

1704 To ensure consistency in use, BCC properties are always based on an approved
1705 CDT in the *UN/CEFACT Data Type Catalogue*.

1706 [C142] A BCC Property shall only use an approved CDT in the *UN/CEFACT Data*
1707 *Type Catalogue*.

1708 **6.11.1 Basic Core Component Property – Property Term**

1709 Each BCC property contains a property term. The property term of a BCC property is
1710 a semantically meaningful name for a unique characteristic that can be used in an
1711 ACC object class.

1712 [C143] Each BCC property shall have a property term.

1713 [C144] The property term of a BCC property may consist of more than one word.

1714 [C145] A multi-worded property term of a BCC property shall have a unique
1715 semantic meaning compared to the words separately and compared to any
1716 other combination of these words.

1717 [Example] – Single versus Multiple Word Property Terms

1718 Longitude Direction. Indicator is not the same as Longitude. Indicator

1719 Longitude Direction. Indicator is not the same as Direction. Indicator

1720 Longitude Direction. Indicator is not the same as Direction Longitude.
1721 Indicator

1722 **6.11.2 Basic Core Component Property Representation Term**

1723 Each BCC property contains a representation term. The representation term is a
1724 semantically meaningful name that represents the value domain of the BCC property
1725 as defined by a CDT. UN/CEFACT defines the approved representation terms as
1726 part of the *UN/CEFACT Data Type Catalogue*.

1727 [C146] A representation term shall be defined for each BCC property.

1728 [C147] The name of the BCC property representation term may consist of more
1729 than one word.

1730 [C148] A multi-worded BCC property representation term shall have a unique
1731 semantic meaning compared to the words separately and compared to any
1732 other combination of these words.

1733 [C149] The name of the BCC property representation term shall be one of the
1734 approved representation terms in the *UN/CEFACT Data Type Catalogue*.

1735 **6.11.3 Basic Core Component Property Identifiers**

1736 Every BCC property is a registry class. In order to ensure uniqueness, every BCC
1737 property will have assigned a:

- 1738 • **Unique Identifier (mandatory):** The identifier that references the
1739 BCC property in a unique and unambiguous way.
- 1740 • **Version Identifier (mandatory):** An indication of the evolution over
1741 time of the BCC property.

1742 [C150] Each BCC property shall have a unique identifier within the library of which it
1743 is a part.

1744 [C151] Each version of a BCC property shall have a unique version identifier within
1745 the library of which it is a part.

1746 **6.11.4 Basic Core Component Property Common Information**

1747 [C152] Each BCC property shall have a common information class.

1748 [C153] The BCC property common information class shall conform to all CC
1749 common information rules.

1750 [C154] The BCC property common information class shall consist of:

- 1751 • **DEN (mandatory):** The official name of the BCC property.
- 1752 • **Definition (mandatory):** The semantic meaning of the BCC property.
- 1753 • **Business Term (optional, repetitive):** A synonym term under which
1754 the BCC property is commonly known and used in business.

1755 [Example] – BCC Property Common Information

1756 DEN – start. Date Time

1757 **Definition** – A date, time, `date time` or other date time value that marks the
1758 `start` or initiation of an event.

1759 Business Term – Beginning Date Time

1760 6.11.4.1 Basic Core Component Property Dictionary Entry Names

1761 [C155] Each BCC property shall have a DEN.

1762 [C156] Each BCC property DEN shall conform to all CC DEN rules.

1763 [C157] The DEN of a BCC property shall consist of a property term, followed by a
1764 dot, a space character, and a representation term.

1765 [C158] The DEN of a BCC property shall be unique within the context of an object
1766 class but may be reused across different object classes.

1767 [Example] – Reuse of CC Properties in Multiple Object Classes

1768 `Contract. Type. Code` and `Metrics. Type. Code` may both exist.
1769

1770 [Example] – DEN for BCC Property

1771 `Start. Date Time; Start. Measure Type. Code; Type. Text`

1772 6.11.4.2 Basic Core Component Property Definitions

1773 [C159] BCC property definitions shall conform to all CC definition rules.

1774 [C160] The definition of a BCC property shall include the property and
1775 representation term of the BCC property.

1776 [Example] – BCC Property Definition

1777 `Start. Date Time`

1778 A date, time, `date time` or other date time value that marks the `start` or initiation of
1779 an event.

1780 6.11.4.3 Basic Core Component Property Business Terms

1781 A BCC property may have several business terms. BCC property business terms are
1782 synonym terms under which the BCC property is commonly known and used in
1783 business.

1784 [C161] Each BCC property shall have zero or more business terms.

1785 6.11.5 Basic Core Component Property Localized Information

1786 The BCC property localized information class contains the relevant information
1787 necessary to associate native language expressions of BCC property attributes to
1788 the BCC property.

1789 [C162] A BCC property shall have zero or more localized information classes.

1790 [C163] Each occurrence of a BCC property localized information class shall
1791 contain:

- 1792 • **Language Code (mandatory):** A code which identifies the language.
1793 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
1794 used as the authoritative source for code values.
- 1795 • **DEN (optional):** The official name of the BCC property in a language
1796 other than English.
- 1797 • **Definition (mandatory):** The semantic meaning of the BCC property
1798 in a language other than English.
- 1799 • **Business Term (optional, repetitive):** A synonym term in another
1800 language under which the BCC property is commonly known and used
1801 in a business expression in that language.

1802 BCC property localized information DENs should follow, as much as possible, all
1803 BCC property DEN rules.

1804 [C164] Each BCC property localized information DEN shall only consist of
1805 alphabetic characters, ideographic characters, plus the dot, the underscore
1806 and the space characters unless required by language rules.

1807 [C165] Each BCC property localized information definition shall adhere to all BCC
1808 definition rules other than the requirement to be in the English language.

1809 The DEN and definition in the localized information class must only be expressed in
1810 the language identified by the language code property of that class.

1811 [C166] Each BCC property localized information DEN and definition shall be in the
1812 language identified by the language and locale code.

1813 The business terms must only be expressed in the language identified by the
1814 language code property of that class, or a recognized dialect of the language.

1815 [C167] Each BCC property localized information business term shall be in the
1816 language identified by the language and locale code, or a recognized dialect
1817 of the language.

7 Business Information Entity Model

This section provides a detailed technical explanation of the Business Information Entity (BIE) metamodel as seen in the UML diagram figure 7-1.

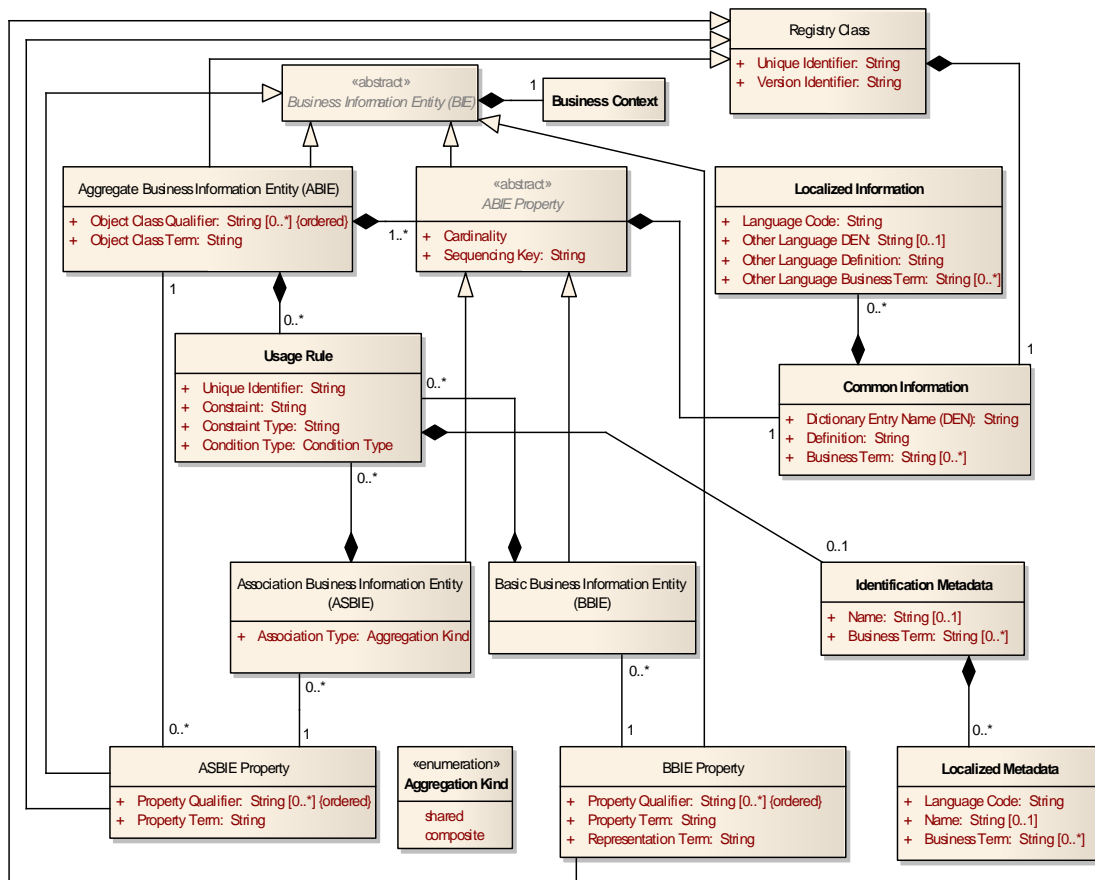


Figure 7-1. UML Diagram of Business Information Entity Basic Definition Model

7.1 Overview

Business information entities represent the real world application of core components for a specific context of use. BIEs are used to create logical models that may be implemented in a specific syntax as document models for business information exchanges. A BIE is a context specific instantiation of a conceptual core component. A BIE will be part of a package within a library. The package represents a set of BIEs being used in a specific context and tailored to meet the unique requirements for the package. BIEs are semantically unique within a package, but may be semantically similar in name and definition to, albeit with a different content model than, BIEs in other packages.

1833

[Definition] – Business Information Entity (BIE)

1834

A business information entity is a context specific instantiation of a core component that constitutes a piece of business data or a group of pieces of business data with a unique business semantic definition in a specific business context.

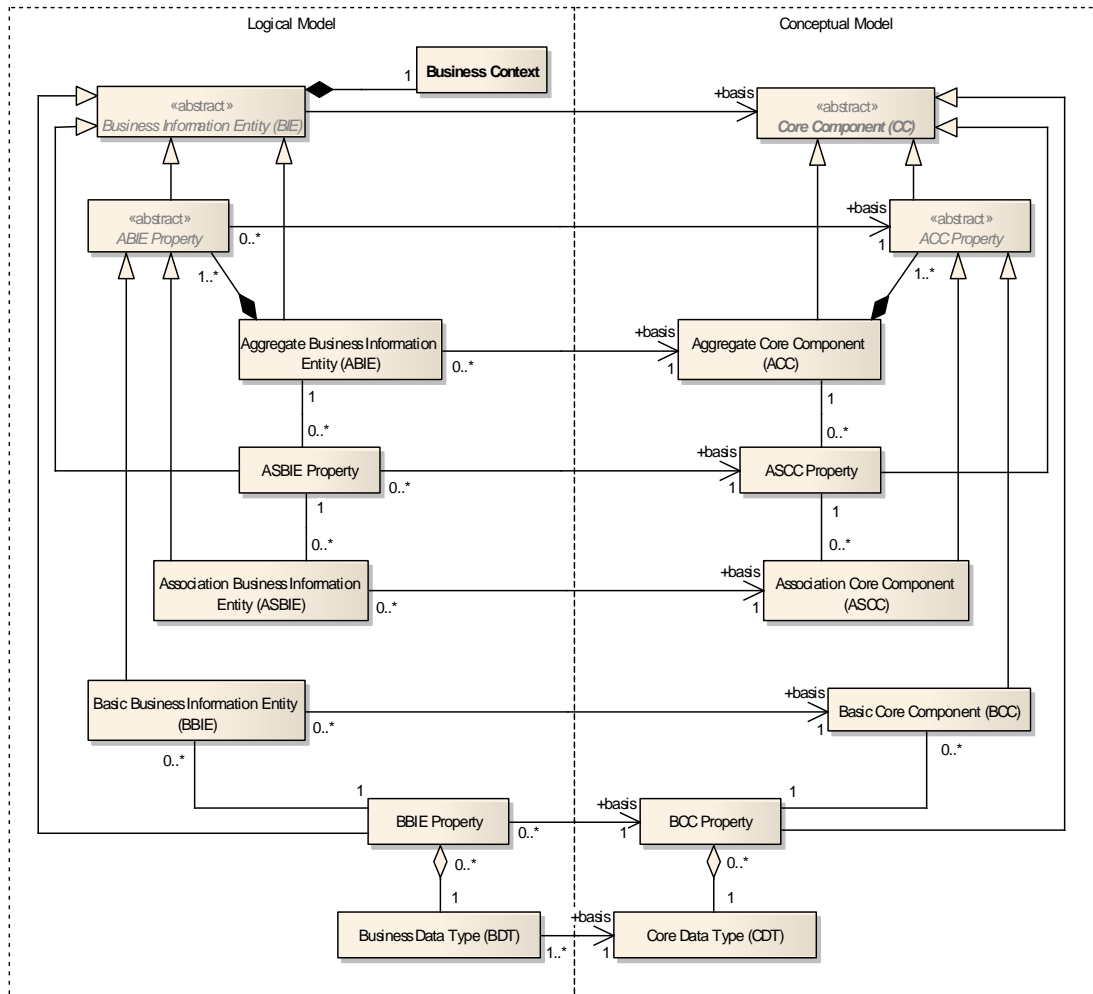
1835

1836

1837

1838

Figure 7-2 shows the relationships between BIEs and their CC counterparts.



1839

1840

1841

Figure 7-2. UML Diagram of Relationship Between Business Information Entities And Core Components

1842

[Note] – Figure 7-2

1843

For completeness, figure 7-2 includes CDTs and BDTs (See Section 8).

1844

Just as with ACCs, there are five categories of BIEs:

1845

1846

1847

1848

- Aggregate Business Information Entity (ABIE). An ABIE is based on an (has one and only one source) ACC.
- Association Business Information Entity (ASBIE). An ASBIE is based on an (has one and only one source) ASCC.

- 1849 • Basic Business Information Entity (BBIE). A BBIE is based on a (has
1850 one and only one source) BCC.
- 1851 • Association Business Information Entity Property. An ASBIE property
1852 is based on an (has one and only one source) ASCC property.
- 1853 • Basic Business Information Entity Property. A BBIE property is based
1854 on a (has only one source) BCC property.
- 1855 [B1] A BIE shall be an ABIE, ASBIE, BBIE, ASBIE property or a BBIE property.
- 1856 [B2] A BIE shall be defined by one or more individual business context category
1857 values that together constitute a unique business context.

1858 [Definition] – Business Context

1859 Business context is the formal description of a specific business circumstance as
1860 identified by the values of a set of context categories, allowing different business
1861 circumstances to be uniquely distinguished.

1862 ABIEs, ASBIEs, BBIEs, ASBIE properties, and BBIE properties are collectively called
1863 BIEs and are typically stored in a registry, database, or other mechanism to
1864 maximize reuse.

1865 7.2 Business Information Entity Naming and Definition 1866 Conventions

1867 BIE naming and definition conventions are based on CC naming and definition
1868 conventions to ensure consistency in the naming and defining of BIEs with their
1869 source CCs. The BIE naming and definition conventions are derived from the
1870 guidelines and principles described in *ISO 11179 Part 4 – Definitions and ISO 11179*
1871 *Part 5 – Naming and Identification Principles*.

1872 The official language for UN/CEFACT BIEs is English. All official dictionary entries
1873 will be in English. BIE discovery work may very well occur in other languages;
1874 however official submissions for inclusion in the UN/CEFACT library must be in
1875 English. In order to ensure absolute clarity and understanding of the names and
1876 definitions it is essential to use words from the *Oxford English Dictionary*.

1877 As with CCs, a controlled vocabulary will be developed to identify the definition to be
1878 used for any words that are potentially ambiguous.

1879 [Note] – UN/CEFACT Controlled Vocabulary

1880 Implementers are encouraged to use the UN/CEFACT controlled vocabulary as the
1881 authoritative source for BIE terms.

1882 7.3 Business Information Entity Registry Class

1883 A BIE registry class represents a cohesive set of information associated with a single
1884 BIE. Each ABIE, ASBIE property, and BBIE property are registry classes.

1885 [B3] A registry class shall be created for each ABIE, ASBIE property, and BBIE
1886 property.

1887 Each BIE registry class contains the following information:

- 1888 • Unique Identifier

- 1889
- Unique Version Identifier

1890 [Note] – BIE Identifier Structure

1891 There are no specific rules for the structure of the BIE identifiers. Implementers are
 1892 free to choose any structure providing it guarantees uniqueness within the library to
 1893 which it belongs.

1894 **7.4 Business Information Entity Common Information**

1895 The BIE common information class provides necessary component information that
 1896 is applicable to business components either directly or through inheritance. The BIE
 1897 common information class contains the following information:

- 1898
- **DEN.** This is the unique official name of the BIE in the dictionary.
 - **Definition.** This is the unique business semantic meaning of the BIE.
 - **Business Term.** This is a synonym term under which the BIE is commonly known and used in business for a specific context. A BIE may have several business terms.

1903 [Example] – BIE Common Information

1904 DEN – Trade_Contract. Business_Type. Code

1905 **Definition** – A code specifying a business type of the trade contract, such as a
 1906 fixed price contract, or a time and materials based contract.

1907 Business Term – Service Agreement Type

1908 **7.4.1 Business Information Entity Dictionary Entry Name**

1909 BIE naming rules are based on the following concepts as defined in ISO 11179:

- 1910
- **Object Class** – represents the logical data grouping or aggregation (in a logical data model) to which a property belongs. The object class is represented by an object class term. Thus, the object class is the part of a BIE's DEN that represents an activity or object in a specific context. Object classes have explicit boundaries and meaning and their properties and behaviour follow the same rules.
 - **Property Term** – represents a distinguishing characteristic of the object class and shall occur naturally in the definition.
 - **Representation Term** – an element of the BIE name which describes the form in which the BIE is represented.
 - **Qualifier Term** – a word or words which help define and differentiate a BIE from its associated CC and other BIEs. Qualifier terms are used to refine the semantic meaning of the DEN to reflect restriction to the BIE object class term and/or property terms as necessary to distinguish one BIE concept, conceptual domain, content model or data value domain from another.

1926 [B4] BIE DENs shall be in the English language following the latest version of the
 1927 *Oxford English Dictionary*. Where conflicting spellings exist, the spelling
 1928 listed as the primary British spelling shall be used.

1929

[Note] – *Oxford English Dictionary*

1930

1931

1932

1933

Users may choose to utilize any version of the *Oxford English Dictionary* to create the spelling and definitions of BIEs; however the complete *Oxford English Dictionary* will be the authoritative source for conflict resolution between competing spellings of component names or definitions.

1934

1935

[B5] A BIE DEN shall be unique amongst all BIE DENs within the package of which it is a part.

1936

[B6] A BIE DEN shall be extracted from the BIE definition.

1937

[B7] A BIE DEN shall not include consecutive identical words.

1938

1939

[B8] A BIE DEN and all its components shall be in singular form unless the concept itself is plural.

1940

1941

[B9] A BIE DEN shall only use alphabetic characters plus the dot, the underscore and space characters.

1942

1943

1944

[B10] A BIE DEN shall only contain verbs, nouns, adverbs and adjectives unless a different part of speech is part of an official title, part of a term listed in the *Oxford English Dictionary*, or part of a controlled vocabulary.

1945

[Note] – Parts of Speech

1946

1947

1948

1949

1950

Articles, prepositions and related parts of speech that are not verbs, nouns, adverbs and adjectives normally add no semantic clarity and should never be used unless as part of an official title or in a controlled vocabulary as part of a common business term that can not otherwise be expressed.

1951

[Example] – Exception Use of Parts of Speech

1952

`Office Of Surface Mining_ Goods Item. Free On Board Value. Amount`

1953

1954

1955

1956

1957

Where the `office of surface Mining` is a formal title that contains the preposition `of`, and removal of the preposition would identify a different organization; and `Free On Board Value` where `Free On Board` is a recognized expression and removal of the preposition `on` would change the semantic meaning of the property term.

1958

1959

[B11] Abbreviations and acronyms that are part of the BIE DEN shall be expanded or explained in the definition.

1960

1961

[B12] BIE DEN object class terms, property terms, and representation terms shall be separated by dots.

1962

1963

[B13] The space character shall separate words in multi-worded BIE object class, property, and representation terms.

1964

[B14] Each word in a BIE DEN shall start with a capital letter.

1965

1966

[B15] The dots after BIE object class and property terms shall be followed by a space character.

1967

[B16] Each BIE DEN shall remain unique when its separators are removed.

1968

1969

1970

[B17] Multi-worded object classes and property terms shall be used in lieu of qualifier terms when the concept the multi worded object class or property term represents exists in three or more dissimilar business domains.

1971 [B18] The order of qualifier terms shall have semantic meaning.

1972 [Example] – Qualifier Order

1973 The BBIE `Electronic_Trade_Contract.Issue.Date Time` has a different
1974 semantic meaning than `Trade_Electronic_Contract.Issue.Date Time`.

1975 [B19] Qualifier terms shall reflect the semantic restriction of the object class or
1976 property term that they are used with.

1977 [Example] – Semantic Restrictions

1978 `Trade_Contract.Details` semantically restricts `Contract.Details`. The
1979 qualifier term of `Trade` is allowed even though it also may exist as a separate
1980 object class, property term, or representation term.

1981 7.4.2 Business Information Entity Definitions

1982 BIE definitions are based on the requirements for data element definitions defined in
1983 ISO 11179-4.

1984 [B20] Each BIE shall have its own unique semantic definition within the library of
1985 which it is a part.

1986 [Note] – Order of Development of Definition and DEN

1987 In the interest of quality, it is recommended that the BIE definition be developed first
1988 and the DEN extracted from it.

1989 [B21] The BIE definition shall be derived from the source CC definition.

1990 [B22] The BIE definition shall be in the English language following the latest
1991 version of the *Oxford English Dictionary*. Where conflicting spellings exist,
1992 the spelling listed as the primary British spelling shall be used.

1993 [B23] The BIE definition shall be consistent with the requirements of *ISO 11179-4*
1994 *Section 4* and shall provide an understandable meaning, which should also
1995 be translatable to other languages.

1996 [B24] The BIE definition shall take into account the fact that the users of the BIE
1997 library are not necessarily native English speakers. It shall therefore contain
1998 short sentences, using normal words. Wherever synonym terms are
1999 possible, the definition shall use the preferred term as identified in the
2000 controlled vocabulary.

2001 [B25] Whenever both the definite (i.e. `the`) and indefinite article (i.e. `a`) are
2002 possible in a BIE definition, preference shall be given to an indefinite article
2003 (i.e. `a`).

2004 [Note] – Definition Quality

2005 To verify the quality of the definition, place the DEN followed by the word `is` before
2006 the definition to ensure that it is not simply a repetition of the DEN.

2007 7.4.3 Business Information Entity Business Terms

2008 BIE business terms are those terms commonly used for day-to-day information
2009 exchanges within a given domain. As such, no specific naming rules apply to

2010 business term structures. Interoperability of business terms will be given by linking
2011 them within the BIE common information class.

2012 **7.5 Business Information Entity Localized Information Class**

2013 As with CCs, the normative expressions of BIEs are in the English language. While
2014 the normative expressions of BIEs are in the English language, implementers may
2015 choose to create alternative language expressions of definitions and business terms.
2016 The BIE localized information class contains the relevant information necessary to
2017 associate the native language expressions to their normative English language
2018 counterparts. Other language BIE DENs will only consist of alphabetic, ideographic
2019 characters, plus the dot, the underscore and the space characters unless required by
2020 language rules. In addition to other language DEN, definition, and business term(s),
2021 a mandatory language code identifies the language in which the components are
2022 being expressed for storage in the registry. The localized information class contains:

- 2023 • **Language Code** – A code which identifies the language being used.
2024 *Internet Engineering Task Force RFC 3066 of January 2001* will be
2025 used as the authoritative source for code values.
- 2026 • **DEN** – The official name of the component in a language other than
2027 English.
- 2028 • **Definition** – the semantic meaning of the component in a language
2029 other than English.
- 2030 • **Business Term** – A synonym term in another language under which
2031 the component is commonly known and used in a business expression
2032 in that language.

2033 The DEN and definition in the localized information class must only be expressed in
2034 the language identified by the language and locale code. The business terms must
2035 only be expressed in the language identified by the language and locale code, or a
2036 recognized dialect of the language.

2037 **7.6 Aggregate Business Information Entities**

2038 Each ABIE represents the logical data grouping or aggregation (in a logical data
2039 model) of the concept of the ABIE.

2040 [Definition] – Aggregate Business Information Entity (ABIE)

2041 An aggregate business information entity is a collection of related pieces of
2042 business information that together convey a distinct business meaning in a specific
2043 business context. Expressed in modelling terms, it is the representation of an
2044 object class, in a specific business context.

2045 An ABIE represents an ACC with business context applied.

2046 [B26] An ABIE shall be based on an ACC.

2047 **7.6.1 Aggregate Business Information Entity Object Class Term**

2048 The ABIE object class is expressed by an object class term. The ABIE object class
2049 term is the same as the ACC on which it is based. The object class term is a
2050 semantically meaningful name for the object class that is represented by the ABIE. It

2051 serves as the basis for the DEN of the ABIE and for the DEN of all BBIEs and
2052 ASBIEs that are properties of the ABIE.

2053 [B27] An ABIE object class term shall be identical to its basis ACC object class
2054 term.

2055 **7.6.2 Aggregate Business Information Entity Object Class Term Qualifier**

2056 The ABIE object class term qualifier is a word or words which help define and
2057 differentiate an ABIE from its associated CC and other BIEs. The ABIE object class
2058 term qualifier enhances the semantic meaning of the ABIE DEN to reflect a
2059 restriction to the BIE concept, conceptual domain, content model or data value. ABIE
2060 object class terms can have one or more qualifier terms.

2061 [B28] A qualified ABIE shall be a restriction of its source ACC or its higher level
2062 ABIE in an ABIE hierarchy.

2063 [Example] – Multi-qualified ABIEs

2064 The Multi-qualified ABIE

2065 **Electronic_Trade_Contract_Details**

2066 qualifies the qualified ABIE

2067 **Trade_Contract_Details**

2068 which qualifies the ACC

2069 **Contract_Details**

2070 Whereas the multi-word qualified

2071 **Electronic Trade_Contract_Details**

2072 Qualifies the ACC

2073 **Contract_Details**

2074 and not the qualified ABIE

2075 **Trade_Contract_Details.**

2076 [B29] ABIE object class qualifier terms shall precede the object class term.

2077 [B30] Each ABIE object class qualifier term shall be followed by an underscore
2078 and a space character (_).

2079 [B31] A multi-worded object class qualifier term shall have a unique semantic
2080 meaning compared to the words separately.

2081 [B32] A qualifying ABIE hierarchy shall be established when multiple qualifiers are
2082 used.

2083 Note – BIE Hierarchy

2084 A BIE hierarchy is a tree like structure that reflects the order of the qualifiers for a set
2085 of qualified BIEs derived from the same unqualified BIE in a graph like form. The first
2086 level in a BIE hierarchy is the unqualified BIE construct, and each succeeding lower
2087 level is a more qualified BIE construct than its preceding BIE construct.
2088

2089

[Example] – BIE Hierarchy

2090

`Trade_Contract.Details` and `Electronic_Trade_Contract.Details` where `Electronic_Trade_Contract.Details` is a reuse and restriction of `Trade_Contract.Details` and the hierarchy of `Trade_Contract` is preserved in the reuse.

2092

2094

[B33] A qualified object class name shall be unique amongst the set of qualified object class names in the library of which it is a part.

2095

2096

[B34] A qualified object class name may be applied in its entirety as a qualifier for another object class to convey a semantic relationship between the objects providing the qualifier hierarchy is preserved.

2097

2098

2099

7.6.3 Aggregate Business Information Entity Usage Rule

2100

ABIEs may have usage rules. Each usage rule defines a constraint that describes specific conditions that are applicable to the ABIE. ABIE usage rules represent the specific application of an ABIE in its role as an object class. ABIE usage rules can be either unstructured – expressed as free form text, or structured – expressed in a formal language.

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[B35] An ABIE shall have zero or more usage rules.

2106

Usage rules will be defined at the lowest possible level of the hierarchical structure to which they apply.

2107

2108

[B36] ABIE usage rules shall not replicate BBIE, ASBIE, or BDT usage rules.

2109

[B37] An ABIE usage rule shall have an identifier that is unique amongst all usage rules for the library of which it is a part.

2110

2111

[Note] – Usage Rule Identifier Structure

2112

There are no specific rules for the structure of usage rule identifiers. Implementers are free to choose any structure providing it guarantees uniqueness within the group of usage rules of a library.

2113

2114

2115

The ABIE usage rule constraint is the formal expression of the usage rule. The constraint can be structured or unstructured. An unstructured constraint will be expressed as free form text.

2116

2117

2118

[B38] An unstructured ABIE usage rule constraint shall have a free form text expression that fully details the usage rule.

2119

2120

A structured constraint is a constraint that is expressed in a formal language such as the UML OCL or OMG SBVR.

2121

2122

[B39] A structured ABIE usage rule shall have a formal constraint language expression.

2123

2124

ABIE usage rule constraint types must also be specified. The constraint type value is taken from a constraint type code list.

2125

2126

[B40] Every ABIE usage rule shall have a formal constraint type taken from a constraint type code list.

2127

2128 [Note] –Constraint Type Code List
2129 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
2130 List for use in support of this rule.

2131 ABIE usage rules will also have a condition type that identifies when the constraint
2132 should be applied.

2133 [B41] Every ABIE usage rule shall have a condition type.

2134 [B42] Every ABIE usage rule condition type shall be one of `pre-condition`, `post-`
2135 `condition`, `Of invariant`.

2136 7.6.3.1 Aggregate Business Information Entity Usage Rule Identification Metadata

2137 Although the unique identifier is sufficient to differentiate one usage rule for a given
2138 ABIE from all other usage rules for a library, an ABIE usage rule may also have an
2139 identification metadata class that provides additional information.

2140 [B43] An ABIE usage rule shall have zero or one identification metadata classes.

2141 The ABIE usage rule identification metadata class contains a unique name that
2142 semantically differentiates the usage rule from all other named usage rules for the
2143 ABIE.

2144 [B44] An ABIE usage rule shall have zero or one names that is unique within the
2145 group of usage rules of an ABIE.

2146 The ABIE usage rule identification metadata class may contain business terms. ABIE
2147 usage rule business terms are synonym terms under which the ABIE usage rule is
2148 commonly known and used in business.

2149 [B45] Each ABIE usage rule shall have zero or more business terms.

2150 7.6.3.2 Aggregate Business Information Entity Usage Rule Localized Metadata

2151 ABIE usage rules may have localized metadata that is used to provide other
2152 language expressions of its name and business term or terms.

2153 [B46] An ABIE usage rule shall have zero or more localized metadata classes.

2154 [B47] Each occurrence of an ABIE usage rule localized metadata class shall
2155 contain:

- 2156 • **Language Code (mandatory):** A code which identifies the language
2157 being used. *Internet Engineering Task Force RFC 3066 of January*
2158 *2001* shall be used as the authoritative source for code values.
- 2159 • **Name (optional):** The name of the usage rule in a language other
2160 than English.
- 2161 • **Business Term (optional, repetitive):** A synonym term in another
2162 language under which the usage rule is commonly known and used in
2163 a business expression in that language.

2164 [B48] ABIE usage rule localized metadata shall be in the language identified by
2165 the language and locale code.

2166 7.6.4 Aggregate Business Information Entity Identifiers

2167 Every ABIE is a registry class. In order to ensure uniqueness, every ABIE will have
2168 assigned a:

- 2169 • **Unique Identifier:** The identifier that references an ABIE in a unique
2170 and unambiguous way.
- 2171 • **Version Identifier:** An indication of the evolution over time of an
2172 ABIE.

2173 [B49] Each ABIE shall have a unique identifier within the library of which it is a
2174 part.

2175 [B50] Each version of an ABIE shall have a unique version identifier within the
2176 library of which it is a part.

2177 7.6.5 Aggregate Business Information Entity Common Information

2178 [B51] Each ABIE shall have a common information class.

2179 [B52] The ABIE common information class shall conform to all BIE common
2180 information rules.

2181 [B53] The ABIE common information class shall consist of:

- 2182 • **DEN (mandatory):** The official name of the ABIE.
- 2183 • **Definition (mandatory):** The semantic meaning of the ABIE.
- 2184 • **Business Term (optional, repetitive):** A synonym term under which
2185 the ABIE is commonly known and used in business.

2186 [Example] – ABIE Common Information

2187 DEN – Trade_Contract.Details

2188 **Definition** – A trade contract is a contractual agreement between two or more
2189 parties for trade purposes.

2190 Business Term – Service Agreement

2191 7.6.5.1 Aggregate Business Information Entity Dictionary Entry Names

2192 [B54] Each ABIE DEN shall conform to all BIE DEN rules.

2193 [B55] The DEN of an ABIE shall consist of the object class term of the ACC it is
2194 based on, and possibly additional qualifier term(s) to represent its specific
2195 business context, followed by a dot, a space character, and the term
2196 Details.

2197 [Example] – DEN for ABIEs

2198 Trade_Contract.Details; Currency Exchange.Details

2199 7.6.5.2 Aggregate Business Information Entity Definitions

2200 [B56] Each ABIE definition shall conform to all BIE definition rules.

2201 [B57] The definition of an ABIE shall include the object class term and any
2202 qualifier terms.

2203

[Example] – ABIE Definition

2204

Trade_Contract_Details

2205

2206

A trade contract is a contractual agreement between two or more parties for trade purposes.

2207

2208

[B58] An ABIE with an unqualified object class shall have the same definition as the ACC the ABIE is based on.

2209

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[B59] An ABIE with a qualified object class term shall have a definition that semantically restricts the definition of the less qualified ABIE or ACC that the ABIE is based on.

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7.6.5.3 Aggregate Business Information Entity Business Terms

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An ABIE may have several business terms. ABIE business terms are synonym terms under which the ABIE is commonly known and used in business.

2215

2216

[B60] Each ABIE shall have zero or more business terms.

2217

7.6.6 Aggregate Business Information Entity Localized Information

2218

The ABIE localized information class contains the relevant information necessary to associate native language expressions of ABIE attributes to the ABIE.

2219

2220

[B61] Each ABIE shall have zero or more localized information classes.

2221

[B62] Each occurrence of an ABIE localized information class shall contain:

2222

- **Language Code (mandatory):** A code which identifies the language. *Internet Engineering Task Force RFC 3066 of January 2001* shall be used as the authoritative source for code values.

2223

2224

2225

- **DEN (optional):** The official name of the ABIE in a language other than English.

2226

2227

- **Definition (mandatory):** The semantic meaning of the ABIE in a language other than English.

2228

2229

- **Business Term (optional, repetitive):** A synonym term in another language under which the ABIE is commonly known and used in a business expression in that language.

2230

2231

2232

ABIE localized information DENs should follow, as much as possible, all ABIE DEN rules.

2233

2234

[B63] Each ABIE localized information DEN shall only consist of alphabetic characters, ideographic characters, plus the dot, the underscore and the space characters unless required by language rules.

2235

2236

2237

[B64] Each ABIE localized information definition shall adhere to all ABIE and definition rules other than the requirement to be in the English language.

2238

2239

The DEN and definition in the localized information class must only be expressed in the language identified by the language code property of that class.

2240

2241

[B65] Each ABIE localized information DEN and definition shall be in the language identified by the language and locale code.

2242

2243 The business terms must only be expressed in the language identified by the
2244 language code property of that class, or a recognized dialect of the language.

2245 [B66] Each ABIE localized information business term shall be in the language
2246 identified by the language and code.

2247 **7.7 Aggregate Business Information Entity Properties**

2248 An ABIE consists of ABIE properties. The ABIE property is a generalization of either
2249 an ASBIE or a BBIE. Every ABIE contains at least one ABIE property.

2250 [Definition] – Aggregate Business Information Entity Property

2251 An aggregate business information entity property is a business information entity
2252 property for which the permissible values are expressed as a complex structure,
2253 represented by an aggregate business information entity.

2254 [B67] An ABIE shall contain at least one ABIE property.

2255 [B68] An ABIE property shall be based on a CC property of the corresponding
2256 ACC.

2257 [B69] An ABIE property shall either be a BBIE or an ASBIE.

2258 Because an ABIE is an independent class, it is important that all listed properties are
2259 in fact conceptually related to the concept of the BIE, and not just added for
2260 convenience.

2261 [B70] Within an ABIE, all embedded BBIEs and ASBIEs shall be related to the
2262 concept of the aggregate.

2263 ABIE properties must be unique within the ABIE.

2264 [B71] An ASBIE and a BBIE DEN shall never be identical when used in an ABIE.

2265 An ABIE property that is an ASBIE must be devoid of mandatory circular references.

2266 [B72] An ABIE shall never contain – directly or at any nested level – a mandatory
2267 ASBIE whose associated ABIE is the same as the top level ABIE.

2268 [Note] – Recursion

2269 The objective of the above rule is to avoid endless loops in the content model of an
2270 ABIE. The rule allows an ABIE to contain an ASBIE property that references itself.
2271 The fact that the ASBIE property is not mandatory makes it possible to stop the loop
2272 after a finite number of iterations.

2273 **7.8 Association Business Information Entities**

2274 An ASBIE is an ASCC with context. ASBIEs associate two ABIEs, where the
2275 associated ABIE is the property of the associating ABIE. The property term
2276 represents the role of the associated ABIE in the association. ASBIEs have a defined
2277 minimum and maximum occurrence. The associated ABIE in an ASBIE may be
2278 either a UML association `AggregationKind=shared` Or `AggregationKind=composite` when
2279 used in an information model.

2280

[Definition] – Association Business Information Entity (ASBIE)

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An association business information entity is a business information entity which defines the role of a specific aggregate business information entity (known as the associated ABIE) associated to another aggregate business information entity (known as the associating ABIE). An association business information entity functions as an ABIE property of the associating ABIE.

2286

[B73] An ASBIE shall be based on an ASCC.

2287

7.8.1 Association Business Information Entity Association Type

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ASBIEs represent an association between the associating (parent) ABIE and the associated (child) ABIE. The nature of the association of all ASBIEs may be either a UML association `AggregationKind=shared` OR `AggregationKind=composite`. An association type indicator is required to reflect this association as a mechanism for transformation between alternative syntax storage expressions and UML representation.

2294

2295

[B74] An ASBIE shall have an UML association `AggregationKind =shared` OR `AggregationKind=composite`.

2296

7.8.2 Association Business Information Entity Usage Rule

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ASBIEs may have usage rules. Each usage rule defines a constraint that describes specific conditions that are applicable to the ASBIE. ASBIE usage rules clarify (or constrain) the use of an ASBIE as an ABIE property. ASBIE usage rules can be either unstructured – expressed as free form text, or structured – expressed in a formal language.

2302

[B75] An ASBIE shall have zero or more usage rules.

2303

2304

Usage rules will be defined at the lowest possible level of the hierarchical structure to which they apply.

2305

[B76] ASBIE usage rules shall not replicate ABIE, BBIE, or BDT usage rules.

2306

2307

[B77] An ASBIE usage rule shall have an identifier that is unique amongst all usage rules for the library of which it is a part.

2308

[Note] – Usage Rule Identifier Structure

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2311

There are no specific rules for the structure of usage rule identifiers. Implementers are free to choose any structure providing it guarantees uniqueness within the group of usage rules of a library.

2312

2313

2314

The ASBIE usage rule constraint is the formal expression of the usage rule. The constraint can be structured or unstructured. An unstructured constraint will be expressed as free form text.

2315

2316

[B78] An unstructured ASBIE usage rule constraint shall have a free form text expression that fully details the usage rule.

2317

2318

A structured constraint is a constraint that is expressed in a formal language such as the UML OCL or OMG SBVR.

2319

2320

[B79] A structured ASBIE usage rule constraint shall have a formal constraint language expression.

2321 ASBIE usage rule constraint types must also be specified. The constraint type value
2322 is taken from a constraint type code list.

2323 [B80] Every ASBIE usage rule shall have a constraint type taken from a constraint
2324 type code list.

2325 [Note] –Constraint Type Code List

2326 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
2327 List for use in support of this rule.

2328 ASBIE usage rules will also have a condition type that identifies when the constraint
2329 should be applied.

2330 [B81] Every ASBIE usage rule shall have a condition type.

2331 [B82] Every ASBIE usage rule condition type shall be one of *pre-condition, post-*
2332 *condition, Or invariant.*

2333 7.8.2.1 Association Business Information Entity Usage Rule Identification Metadata

2334 Although the unique identifier is sufficient to differentiate one usage rule for a given
2335 ASBIE from all other usage rules for a library, an ASBIE usage rule may also have
2336 an identification metadata class that provides additional information.

2337 [B83] An ASBIE usage rule shall have zero or one identification metadata classes.

2338 The usage rule identification metadata class contains a unique name that
2339 semantically differentiates it from all other named usage rules for the ASBIE.

2340 [B84] An ASBIE usage rule shall have zero or one names that is unique within the
2341 group of usage rules of an ASBIE.

2342 The ASBIE usage rule metadata class may contain business terms. ASBIE usage
2343 rule business terms are synonym terms under which the ASBIE usage rule is
2344 commonly known and used in business.

2345 [B85] Each ASBIE usage rule shall have zero or more business terms.

2346 7.8.2.2 Association Business Information Entity Usage Rule Localized Metadata

2347 ASBIE usage rules may have localized metadata that is used to provide other
2348 language expressions of its name and business term or terms.

2349 [B86] An ASBIE usage rule shall have zero or more localized metadata classes.

2350 [B87] Each occurrence of an ASBIE usage rule localized metadata class shall
2351 contain:

- 2352 • **Language Code (mandatory):** A code which identifies the language
2353 being used. *Internet Engineering Task Force RFC 3066 of January*
2354 *2001* shall be used as the authoritative source for code values.
- 2355 • **Name (optional):** The name of the usage rule in a language other
2356 than English.
- 2357 • **Business Term (optional, repetitive):** A synonym term in another
2358 language under which the usage rule is commonly known and used in
2359 a business expression in that language.

2360 [B88] ASBIE usage rule localized metadata shall be in the language identified by
2361 the language and locale code.

2362 **7.8.3 Association Business Information Entity Cardinality**

2363 Each ASBIE, in its role as an ABIE property, will have its cardinality explicitly
2364 expressed.

2365 [B89] Each ASBIE shall have a cardinality that consists of a set of values
2366 consisting of a minimum occurrence and a maximum occurrence.

2367 [B90] ASBIE cardinality values shall be non-negative integers of zero or greater,
2368 or – only in case of maximum occurrence – the token `unbounded` if no limit
2369 applies.

2370 The ASBIE minimum cardinality will never be smaller than the ASCC minimum
2371 cardinality and the maximum cardinality will never be larger than the ASCC
2372 maximum cardinality.

2373 [B91] ASBIE cardinality values shall never be an extension of its basis ASCC
2374 cardinality.

2375 **7.8.4 Association Business Information Entity Sequencing Key**

2376 Business requirements may exist for ASBIEs to occur in a specific order within an
2377 ABIE. Software and storage applications may have unique sequencing algorithms
2378 that change the normatively defined order of the ASBIE within an ABIE. To ensure
2379 the desired order is preserved, each ASBIE within an ABIE will be assigned a unique
2380 sequencing key.

2381 [B92] Each ASBIE shall be assigned a unique sequencing key within the ABIE of
2382 which it is a part.

2383 **[Note] – Sequencing Key Structure**

2384 There are no specific rules for the structure of the sequencing keys. Implementers
2385 are free to choose any structure providing it guarantees uniqueness within the ABIE
2386 to which it belongs and the structuring scheme is readily available for anyone
2387 accessing or using the ABIE.

2388 Since ASBIEs represent contextualized expressions of their source ASCCs, the
2389 sequencing requirements of an ASBIE in an ABIE might be different from the
2390 sequencing key of the corresponding ASCC in an ACC.

2391 [B93] An ASBIE sequencing key may be different from its corresponding ASCC
2392 sequencing key.

2393 **7.8.5 Association Business Information Entity Common Information**

2394 In its role as an ABIE property, each ASBIE has a common information class.

2395 [B94] Each ASBIE shall have a common information class.

2396 [B95] The ASBIE common information class shall conform to all BIE common
2397 information rules.

2398 [B96] The ASBIE common information class shall consist of:

- 2399 • **DEN (mandatory):** The official name of the ASBIE.

- 2400
- **Definition (mandatory):** The semantic meaning of the ASBIE.
- 2401
- **Business Term (optional, repetitive):** A synonym term under which
- 2402
- the ASBIE is commonly known and used in business.

2403 [Example] – ASBIE Common Information

2404 DEN – Trade_ Contract. Effective. Measurement_ Period

2405 **Definition** – A period within which the measurement of provisions of this trade

2406 contract are, or will be effective.

2407 Business Term – Service Agreement Duration

2408 7.8.5.1 Association Business Information Entity Dictionary Entry Names

2409 [B97] Each ASBIE DEN shall conform to all BIE DEN rules.

2410 [B98] The DEN of an ASBIE shall consist of the following components in the

2411 specified order:

- 2412
- the object class term and qualifiers, if any, of the associating BIE,
- 2413
- the DEN of the included ASBIE property.

2414 [Example] – Association Business Information Entity DEN

2415 Trade_ Contract. Effective. Measurement_ Period

2416 Where the associated ABIE Measurement_ Period. Details now becomes part

2417 of a property in the associating ABIE of Trade_ Contract. Details and the

2418 property term (nature of that association) is Effective.

2419 7.8.5.2 Association Business Information Entity Definitions

2420 [B99] Each ASBIE definition shall conform to all BIE definition rules.

2421 [B100] The definition of an ASBIE shall include the object class term and object

2422 class qualifier terms, if any, of the associating ABIE, and the definition of the

2423 ASBIE property the ASBIE includes.

2424 7.8.5.3 Association Business Information Entity Business Terms

2425 An ASBIE may have several business terms. ASBIE business terms are synonym

2426 terms under which the ASBIE is commonly known and used in business.

2427 [B101] Each ASBIE shall have zero or more business terms.

2428 7.8.6 Association Business Information Entity Localized Information

2429 The ASBIE localized information class contains the relevant information necessary to

2430 associate native language expressions of ASBIE attributes to the ASBIE.

2431 [B102] An ASBIE shall have zero or more localized information classes.

2432 [B103] Each occurrence of an ASBIE localized information class shall contain:

- 2433
- **Language Code (mandatory):** A code which identifies the language.
- 2434 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
- 2435 used as the authoritative source for code values.

- 2436 • **DEN (optional):** The official name of the ASBIE in a language other
2437 than English.
- 2438 • **Definition (mandatory):** The semantic meaning of the ASBIE in a
2439 language other than English.
- 2440 • **Business Term (optional, repetitive):** A synonym term in another
2441 language under which the ASBIE is commonly known and used in a
2442 business expression in that language.

2443 ASBIE localized information DENs should follow, as much as possible, all ASBIE
2444 DEN rules.

2445 [B104] Each ASBIE localized information DEN shall only consist of alphabetic
2446 characters, ideographic characters, plus the dot, the underscore and the
2447 space characters unless required by language rules.

2448 [B105] Each ASBIE localized information definition shall adhere to all ASBIE
2449 definition rules other than the requirement to be in the English language.

2450 The DEN and definition in the localized information class must only be expressed in
2451 the language identified by the language code property of that class.

2452 [B106] Each localized information ASBIE DEN and definition shall be in the
2453 language identified by the language and locale code.

2454 The business terms must only be expressed in the language identified by the
2455 language code property of that class, or a recognized dialect of the language.

2456 [B107] Each ASBIE localized information business term shall be in the language
2457 identified by the language and locale code, or a recognized dialect of the
2458 language.

2459 **7.9 Association Business Information Entity Properties**

2460 An ASBIE property consists of a property term and qualifiers if any, plus the object
2461 class term and qualifiers if any, of the associated ABIE.

2462 [Definition] – Association Business Information Entity Property

2463 An association business information entity property is a business information entity
2464 property for which the permissible values are expressed as a complex structure,
2465 represented by an aggregate business information entity.

2466 [B108] An ASBIE property shall be defined for each ASBIE.

2467 ASBIE properties are reusable across object classes and packages.

2468 [Example] – Reuse of ASBIE Properties in Multiple Object Classes

2469 **Trade_Contract. Effective. Measurement_Period** AND **Lodging House.**
2470 **Effective. Measurement_Period** may both exist.

2471 [B109] An ASBIE property shall be based on an ASCC property.

2472 [B110] The associated ABIE of an ASBIE property shall be based on the
2473 associated ACC of the corresponding ASCC property.

2474 **7.9.1 Association Business Information Entity Property – Property Term**

2475 Each ASBIE property contains a property term. The property term of an ASBIE
2476 property is a semantically meaningful name for the characteristic that represents the
2477 nature of the association to the associated ABIE.

2478 [B111] Each ASBIE property shall have a property term.

2479 [B112] The property term of an ASBIE property may consist of more than one word.

2480 [B113] A multi-worded property term of an ASBIE property shall have a unique
2481 semantic meaning compared to the words separately and compared to any
2482 other combination of these words.

2483 [Example] – Single versus Multiple Word Property Terms

2484 For the ASBIE Bid Bond_ Guarantee. Credit Charge. Guarantee Creditor_
2485 Organization:

2486 Credit Charge. Guarantee Creditor_ Organization is different than Credit.
2487 Guarantee Creditor_ Organization

2488 Credit Charge. Guarantee Creditor_ Organization is different than Charge.
2489 Guarantee Creditor_ Organization

2490 Credit Charge. Guarantee Creditor_ Organization is different than Charge
2491 Credit. Guarantee Creditor_ Organization

2492 **7.9.2 Association Business Information Entity Property Qualifier Term**

2493 The ASBIE property qualifier term is a word or words which help define and
2494 differentiate an ASBIE property from its associated ASCC property and other ASBIE
2495 properties. The ASBIE property qualifier enhances the semantic meaning of the
2496 ASBIE property DEN to reflect a restriction to the ASBIE property concept,
2497 conceptual domain, content model or data value. ASBIE properties can have one or
2498 more qualifier terms.

2499 [B114] A qualified ASBIE property shall be a restriction of its source ASCC property
2500 or its higher level ASBIE properties in an ASBIE property hierarchy.

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[Example] – Multi-qualified ASBIE Properties
 The Multi-qualified ASBIE property
`Total_ Actual_ Quantity. Work Item_ Dimension`
 qualifies the qualified ASBIE property
`Actual_ Quantity. Work Item_ Dimension`
 which qualifies the ASCC property
`Quantity. Dimension`
 Whereas the multi-word qualified
`Initial Credit_ Charge. Creditor_ Organization`
 Qualifies the ASCC property
`Charge. Organization`
 and not the qualified ASBIE property
`Credit_ Charge. Creditor_ Organization`

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- [B115] ASBIE property qualifier terms shall precede the property term.
- [B116] Each ASBIE property qualifier term shall be followed by an underscore and a space character ().
- [B117] A multi-worded ASBIE property qualifier term shall have a unique semantic meaning compared to the words separately.
- [B118] A qualifying ASBIE property hierarchy shall be established when multiple qualifiers are used.
- [B119] A qualified property term of an ASBIE property DEN may be applied in its entirety as a qualifier for another property term to convey a semantic relationship between the objects providing the qualifier hierarchy is preserved.

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7.9.3 Association Business Information Entity Property Identifiers

In order to ensure uniqueness, every ASBIE property will have assigned a:

- **Unique Identifier:** The identifier that references an ASBIE property in a unique and unambiguous way.
- **Version Identifier:** An indication of the evolution over time of an ASBIE property.

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- [B120] Each ASBIE property shall have a unique identifier within the library of which it is a part.
- [B121] Each version of an ASBIE property shall have a unique version identifier within the library of which it is a part.

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7.9.4 Association Business Information Entity Property Common Information

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- [B122] Each ASBIE property shall have a common information class.
- [B123] The ASBIE property common information class shall conform to all BIE common information rules.

- 2540 [B124] The ASBIE property common information class shall consist of:
- 2541 • **DEN (mandatory):** The official name of the ASBIE property.
 - 2542 • **Definition (mandatory):** The semantic meaning of the ASBIE
 - 2543 property.
 - 2544 • **Business Term (optional, repetitive):** A synonym term under which
 - 2545 the ASBIE property is commonly known and used in business.

2546 [Example] – ASBIE Property Common Information

2547 DEN – **Effective. Measurement_ Period**

2548 **Definition** – A **period** within which the **measurement** of provisions are, or will be

2549 **effective.**

2550 **Business Term** – **Valid Measurement Period**

2551 7.9.4.1 Association Business Information Entity Property Dictionary Entry Names

2552 [B125] Each ASBIE property shall have a DEN.

2553 [B126] Each ASBIE property DEN shall conform to all BIE DEN rules.

2554 [B127] The DEN of an ASBIE property shall consist of a property term and property

2555 term qualifiers, if any, plus the object class term and qualifiers, if any, of the

2556 associated ABIE.

2557 7.9.4.2 Association Business Information Entity Property Definitions

2558 [B128] Each ASBIE property definition shall conform to all BIE definition rules.

2559 [B129] The definition of an ASBIE property shall include the object class term and

2560 qualifiers, if any, of the associated ABIE and the property term and

2561 qualifiers, if any, that express the nature of the association.

2562 [Example] – ASBIE Property Definition

2563 **Effective. Measurement_ Period**

2564 **Definition** – A **period** within which the **measurement** of provisions are, or will be

2565 **effective.**

2566 Where the associated object class term **period**, and its qualifier **Measurement**, and

2567 property term **Effective** are included in the definition.

2568 [B130] An ASBIE property with a qualified property term shall have a definition that

2569 semantically restricts the definition of the less qualified ASBIE property or

2570 the ASCC property that the ASBIE property is based on.

2571 7.9.4.3 Association Business Information Entity Property Business Terms

2572 An ASBIE property may have several business terms. ASBIE property business

2573 terms are synonym terms under which the ASBIE property is commonly known and

2574 used in business.

2575 [B131] Each ASBIE property shall have zero or more business terms.

2576 **7.9.5 Association Business Information Entity Property Localized** 2577 **Information**

2578 The ASBIE property localized information class contains the relevant information
2579 necessary to associate native language expressions of ASBIE property attributes to
2580 the ASBIE property.

2581 [B132] An ASBIE property shall have zero or more localized information classes.

2582 [B133] Each occurrence of an ASBIE property localized information class shall
2583 contain:

- 2584 • **Language Code (mandatory):** A code which identifies the language.
2585 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
2586 used as the authoritative source for code values.
- 2587 • **DEN (optional):** The official name of the ASBIE property in a
2588 language other than English.
- 2589 • **Definition (mandatory):** The semantic meaning of the ASBIE
2590 property in a language other than English.
- 2591 • **Business Term (optional, repetitive):** A synonym term in another
2592 language under which the ASBIE property is commonly known and
2593 used in a business expression in that language.

2594 ASBIE localized information DENs should follow, as much as possible, all ASBIE
2595 property DEN rules.

2596 [B134] Each ASBIE property localized information DEN shall only consist of
2597 alphabetic characters, ideographic characters, plus the dot, the underscore
2598 and the space characters unless required by language rules.

2599 [B135] Each ASBIE localized information property definition shall adhere to all
2600 ASBIE property definition rules other than the requirement to be in the
2601 English language.

2602 The DEN and definition in the localized information class must only be expressed in
2603 the language identified by the language code property of that class.

2604 [B136] Each ASBIE property localized information DEN and definition shall be in
2605 the language identified by the language and locale code.

2606 The business terms must only be expressed in the language identified by the
2607 language code property of that class, or a recognized dialect of the language.

2608 [B137] Each ASBIE property localized information business term shall be
2609 expressed in the language identified by the language and locale code, or a
2610 recognized dialect of the language.

2611 **7.10 Basic Business Information Entities**

2612 BBIEs represent simple ABIE properties. The BBIE consists of a BBIE property and
2613 the object class of the ABIE to which it belongs.

2614

[Definition] – Basic Business Information Entity (BBIE)

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A basic business information entity is a business information entity that represents a singular business characteristic of a specific aggregate business information entity in a given business context. A basic business information entity is based on a basic core component and has a basic business information entity property that is based on a business data type which defines its value domain.

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[B138] A BBIE shall be based on a BCC.

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7.10.1 Basic Business Information Entity Usage Rules

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BBIEs may have usage rules. Each usage rule defines a constraint that describes specific conditions that are applicable to the BBIE. The BBIE usage rules represent the specific application of a BBIE as an ABIE property. BBIE usage rules can be either unstructured – expressed as free form text, or structured – expressed in a formal language.

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[B139] A BBIE shall have zero or more usage rules.

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Usage rules will be defined at the lowest possible level of the hierarchical structure to which they apply.

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[B140] BBIE usage rules shall not replicate ABIE, ASBIE, or BDT usage rules.

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[B141] A BBIE usage rule shall have an identifier that is unique amongst all usage rules for the library of which it is a part.

2633

[Note] – Usage Rule Identifier Structure

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There are no specific rules for the structure of usage rule identifiers. Implementers are free to choose any structure providing it guarantees uniqueness within the group of usage rules of a library.

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The BBIE usage rule constraint is the formal expression of the usage rule. The constraint can be structured or unstructured. An unstructured constraint will be expressed as free form text.

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[B142] An unstructured BBIE usage rule constraint shall have a free form text expression that fully details the usage rule.

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A structured constraint is a constraint that is expressed in a formal constraint language such as the UML OCL or OMG SBVR.

2644

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[B143] A structured BBIE usage rule constraint shall have a formal constraint language expression.

2646

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BBIE usage rule constraint types must also be specified. The constraint type value is taken from a constraint type code list.

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[B144] Every BBIE usage rule shall have a constraint type taken from a constraint type code list.

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[Note] – Constraint Type Code List

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UN/CEFACT will publish and make freely available a Formal Constraint Type Code List for use in support of this rule.

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BBIE usage rules will also have a condition type that identifies when the formal constraint should be applied.

2655 [B145] Every BBIE usage rule shall have a condition type.

2656 [B146] Every BBIE usage rule condition type shall be one of `pre-condition`, `post-`
2657 `condition`, `Of invariant`.

2658 7.10.1.1 Basic Business Information Entity Usage Rule Identification Metadata

2659 Although the unique identifier is sufficient to differentiate one usage rule for a given
2660 BBIE from all other usage rules for a library, a BBIE usage rule may also have an
2661 identification metadata class that provides additional information.

2662 [B147] A BBIE usage rule shall have zero or one identification metadata classes.

2663 The usage rule identification metadata class contains a unique name that
2664 semantically differentiates it from all other named usage rules for the BBIE.

2665 [B148] A BBIE usage rule shall have zero or one names that is unique within the
2666 group of usage rules of an ABIE.

2667 The BBIE usage rule identification metadata may contain several business terms.
2668 BBIE usage rule business terms are synonym terms under which the BBIE usage
2669 rule is commonly known and used in business.

2670 [B149] Each BBIE usage rule shall have zero or more business terms.

2671 7.10.1.2 Basic Business Information Entity Usage Rule Localized Metadata

2672 BBIE usage rules may have localized metadata that is used to provide other
2673 language expressions of its name and business term or terms.

2674 [B150] A BBIE usage rule shall have zero or more localized metadata classes.

2675 [B151] Each occurrence of a BBIE usage rule localized metadata class shall
2676 contain:

- 2677 • **Language Code (mandatory):** A code which identifies the language
2678 being used. *Internet Engineering Task Force RFC 3066 of January*
2679 *2001* shall be used as the authoritative source for code values.
- 2680 • **Name (optional):** The name of the usage rule in a language other
2681 than English.
- 2682 • **Business Term (optional, repetitive):** A synonym term in another
2683 language under which the usage rule is commonly known and used in
2684 a business expression in that language.

2685 [B152] BBIE usage rule localized metadata shall be in the language identified by
2686 the language and locale code.

2687 7.10.2 Basic Business Information Entity Cardinality

2688 Each BBIE, in its role as an ABIE property, will have its cardinality explicitly
2689 expressed.

2690 [B153] Each BBIE shall have a cardinality that consists of a set of values consisting
2691 of a minimum occurrence and a maximum occurrence.

2692 [B154] BBIE cardinality values shall be non-negative integers of zero or greater, or
2693 – only in the case of maximum cardinality – the token `unbounded` if no limit
2694 applies.

2695 [B155] BBIE cardinality values shall be a restriction of its basis BCC.

2696 The BBIE minimum cardinality will never be smaller than the BCC minimum
2697 cardinality and the maximum cardinality will never be larger than the BCC maximum
2698 cardinality.

2699 **7.10.3 Basic Business Information Entity Sequencing Key**

2700 Business requirements may exist for BBIEs to occur in a specific order within an
2701 ABIE. Software and storage applications may have unique sequencing algorithms
2702 that change the normatively defined order of the BBIE within an ABIE. To ensure the
2703 desired order is preserved, each BBIE within an ABIE will be assigned a unique
2704 sequencing key.

2705 [B156] Each BBIE shall be assigned a unique sequencing key within the ABIE of
2706 which it is a part.

2707 [Note] – Sequencing Key Structure

2708 There are no specific rules for the structure of the sequencing keys. Implementers
2709 are free to choose any structure providing it guarantees uniqueness within the ACC
2710 to which it belongs and the structuring scheme is readily available for anyone
2711 accessing or using the ACC.

2712 Since BBIEs represent contextualized expressions of their source BCCs, the
2713 sequencing requirements of a BBIE in an ABIE might be different than the
2714 sequencing key of the corresponding BCC in an ACC.

2715 [B157] A BBIE sequencing key may be different than its corresponding BCC
2716 sequencing key.

2717 **7.10.4 Basic Business Information Entity Common Information**

2718 In its role as an ABIE property, each BBIE has a common information class.

2719 [B158] Each BBIE shall have a common information class.

2720 [B159] The BBIE common information class shall conform to all BIE common
2721 information rules.

2722 [Example] – Common Information

2723 DEN – Trade_ Contract. Total_ Price. Amount

2724 Definition – The monetary amount of the total price of this trade contract.

2725 Business Term – service Agreement Total Price; Amount Owed

2726 [B160] The BBIE common information class shall consist of:

- 2727 • **DEN (mandatory):** The official name of the BBIE.
- 2728 • **Definition (mandatory):** The semantic meaning of the BBIE.
- 2729 • **Business Term (optional, repetitive):** A synonym term under which
2730 the BBIE is commonly known and used in business.

2731 **7.10.4.1 Basic Business Information Entity Dictionary Entry Names**

2732 [B161] Each BBIE DEN shall conform to all BIE DEN rules.

2733 [B162] The DEN of a BBIE shall consist of the following components in the
2734 specified order:

- 2735 • The object class term and qualifiers, if any, of the ABIE owning the
2736 corresponding BBIE, followed by a dot and space character.
- 2737 • The DEN of the included BBIE property.

2738 [Example] – BBIE DENs

2739 `Trade_Contract. Total_Price. Amount; Calculated_Metrics. Description.`
2740 `Text`

2741 **7.10.4.2 Basic Business Information Entity Definitions**

2742 [B163] Each BBIE definition shall conform to all BIE definition rules.

2743 [B164] The definition of a BBIE shall include the object class term and qualifiers, if
2744 any of the ABIE to which it belongs, and the definition of the included BBIE
2745 property.

2746 [B165] A BBIE with an unqualified property term shall have the same definition as
2747 the BCC the BBIE is based on.

2748 [B166] A BBIE with a qualified property term shall have a definition that
2749 semantically restricts the definition of the less qualified BBIE or BCC that the
2750 BBIE is based on.

2751 [Example] – BBIE Definition

2752 `Trade_Contract. Total_Price. Amount`

2753 Definition – The monetary amount of the total price of this trade contract.

2754 Where the object class term and qualifier `Trade_Contract`, property term and
2755 qualifier `Total_Price`, and representation term `Amount` are in the definition.

2756 **7.10.4.3 Basic Business Information Entity Business Terms**

2757 A BBIE may have several business terms. BBIE business terms are synonym terms
2758 under which the BBIE is commonly known and used in business.

2759 [B167] Each BBIE shall have zero or more business terms.

2760 **7.10.5 Basic Business Information Entity Localized Information**

2761 The BBIE localized information class contains the relevant information necessary to
2762 associate native language expressions of BBIE attributes to the BBIE.

2763 [B168] A BBIE shall have zero or more localized information classes.

2764 [B169] Each occurrence of a BBIE localized information class shall contain:

- 2765 • **Language Code (mandatory):** A code which identifies the language.
2766 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
2767 used as the authoritative source for code values.
- 2768 • **DEN (optional):** The official name of the BBIE in a language other
2769 than English.
- 2770 • **Definition (mandatory):** The semantic meaning of the BBIE in a
2771 language other than English.

- 2772 • **Business Term (optional, repetitive):** A synonym term in another
2773 language under which the BBIE is commonly known and used in a
2774 business expression in that language.

2775 BBIE localized information DENs should follow, as much as possible, all BBIE DEN
2776 rules.

2777 [B170] Each BBIE localized information DEN shall only consist of alphabetic
2778 characters, ideographic characters, plus the dot, the underscore and the
2779 space characters unless required by language rules.

2780 [B171] Each BBIE localized information definition shall adhere to all BBIE definition
2781 rules other than the requirement to be in the English language.

2782 The DEN and definition in the localized information class must only be expressed in
2783 the language identified by the language code property of that class.

2784 [B172] Each BBIE localized information DEN and definition shall be in the language
2785 identified by the language and locale code.

2786 The business terms must only be expressed in the language identified by the
2787 language code property of that class, or a recognized dialect of the language.

2788 [B173] Each BBIE localized information business term shall be in the language
2789 identified by the language and locale code, or a recognized dialect of the
2790 language.

2791 7.11 Basic Business Information Entity Properties

2792 A BBIE property represents a generic reusable data element independent of an
2793 object class. BBIE property consists of a property term plus a representation term.

2794 [Definition] – Basic Business Information Entity Property

2795 A BBIE is a business information entity property for which the permissible values
2796 are expressed by simple values, represented by a data type.

2797 [B174] A BBIE property shall be defined for each BBIE.

2798 BBIE properties are reusable across all object classes and packages.

2799 [Example] – Reuse of BBIE Properties in Multiple BBIEs

2800 `Trade_Contact.Type.Code` and `Delivery_Event.Type.Code` may both exist.

2801 To ensure consistency in use, BBIE properties are always based on an approved
2802 BDT in the *UN/CEFACT Data Type Catalogue*.

2803 [B175] A BBIE property shall only use a BDT based on an approved CDT in the
2804 *UN/CEFACT Data Type Catalogue*.

2805 7.11.1.1 Basic Business Information Entity Property – Property Term

2806 Each BBIE property contains a property term. The property term of a BBIE property
2807 is a semantically meaningful name for a unique characteristic that can be used in an
2808 ABIE object class.

2809 [B176] Each BBIE property shall have a property term.

2810 [B177] The property term of a BBIE property may consist of more than one word.

2811 [B178] A multi-worded property term of a BBIE property shall have a unique
 2812 semantic meaning compared to the words separately and compared to any
 2813 other combination of these words.

2814 [Example] – Single versus Multiple Word Property Terms

2815 `Legal Classification. Code` is not the same as `Legal. Code`

2816 `Legal Classification. Code` is not the same as `Classification. Code`

2817 `Classification Legal. Code` is not the same as `Legal Classification. Code`

2818 7.11.1.2 Basic Business Information Entity Property – Property Term Qualifiers

2819 The BBIE property qualifier term is a word or words which help define and
 2820 differentiate a BBIE property from its associated BCC property and other BBIE
 2821 properties. The BBIE property qualifier enhances the semantic meaning of the BBIE
 2822 property DEN to reflect a restriction to the BBIE property concept, conceptual
 2823 domain, content model or data value. BBIE properties can have one or more qualifier
 2824 terms.

2825 [B179] BBIE property terms may be qualified to reflect semantic meaning.

2826 [B180] A qualified BBIE property shall be a restriction of its source BCC property or
 2827 its higher level BBIE properties in a BBIE property hierarchy.

2828 [B181] BBIE property qualifier terms shall precede the property term.

2829 [Example] – Multi-qualified BBIE Properties

2830 The Multi-qualified BBIE property

2831 `Applied_ Actual_ Conversion Rate. Date Time`

2832 qualifies the qualified BBIE property

2833 `Actual_ Conversion Rate. Date Time`

2834 which qualifies the BCC property

2835 `Conversion Rate. Date Time`

2836 Whereas the multi-word qualified

2837 `Transport Tax Basis_ Information. Amount`

2838 Qualifies the BCC property

2839 `Information. Amount`

2840 and not the qualified BBIE property

2841 `Basis_ Information. Amount`

2842 [B182] Each BBIE property qualifier term shall be followed by an underscore and a
 2843 space character ().

2844 [B183] A multi-worded BBIE property qualifier term shall have a unique semantic
 2845 meaning compared to the words separately.

2846 [B184] A BBIE property hierarchy shall be established when multiple qualifiers are
 2847 used.

2848 [B185] A qualified property term of a BBIE property DEN may be applied in its
2849 entirety as a qualifier for another property term to convey a semantic
2850 relationship between the objects providing the qualifier hierarchy is
2851 preserved.

2852 7.11.1.3 Basic Business Information Entity Property Representation Term

2853 Each BBIE property contains a representation term. The representation term is a
2854 semantically meaningful name that represents the value domain of the BBIE property
2855 and its associated BDT. UN/CEFACT defines the approved representation terms as
2856 part of the *UN/CEFACT Data Type Catalogue*.

2857 If a BBIEs BDT is qualified, the data type qualifier should be used as part of the BBIE
2858 object class, object class qualifier term(s), property term, and/or property term
2859 qualifier term(s).

2860 [B186] A representation term shall be defined for each BBIE property.

2861 [B187] The name of the BBIE property representation term may consist of more
2862 than one word.

2863 [B188] A multi-worded BBIE property representation term shall have a unique
2864 semantic meaning compared to the words separately and compared to any
2865 other combination of these words.

2866 [B189] The name of the BBIE property representation term shall be one of the
2867 approved representation terms in the *UN/CEFACT Data Type Catalogue*.

2868 The BDT or qualified BDT will be of the same CDT as the basis BCC property.

2869 [B190] A BBIE property shall have a BDT that is based on the CDT of the
2870 corresponding BCC property.

2871 7.11.2 Basic Business Information Entity Property Identifiers

2872 In order to ensure uniqueness, every BBIE property will have assigned a:

- 2873 • **Unique Identifier (mandatory):** The identifier that references the
2874 BBIE property in a unique and unambiguous way.
- 2875 • **Version Identifier (mandatory):** An indication of the evolution over
2876 time of the BBIE property.

2877 [B191] Each BBIE property shall have a unique identifier within the library of which
2878 it is a part.

2879 [B192] Each version of a BBIE property shall have a unique version identifier within
2880 the library of which it is a part.

2881 7.11.3 Basic Business Information Entity Property Common Information

2882 [B193] Each BBIE property shall have a common information class.

2883 [B194] The BBIE property common information class shall conform to all BIE
2884 common information rules.

2885 [B195] The BBIE property common information class shall consist of:

- 2886 • **DEN (mandatory):** The official name of the BBIE property.
- 2887 • **Definition (mandatory):** The semantic meaning of the BBIE property.

- **Business Term (optional, repetitive):** A synonym term under which the BBIE property is commonly known and used in business.

[Example] – BBIE Property Common Information

DEN – `Total_ Price. Amount`

Definition – A monetary amount of a total price

Business Term – `Price, Amount Owed`

7.11.3.1 Basic Business Information Entity Property Dictionary Entry Names

[B196] Each BBIE property shall have a DEN.

[B197] Each BBIE property DEN shall conform to all BIE DEN rules.

[B198] The name of a BBIE property shall consist of a property term and property term qualifiers, if any, followed by a dot, a space character, and a representation term.

[B199] The name of a BBIE property shall be unique within the context of an object class but may be reused across different object classes.

[Example] – Reuse of BBIE Properties in Multiple Object Classes

`Trade_ Contact. Type. Code` and `Delivery_ Event. Type. Code` may both exist.

7.11.3.2 Basic Business Information Entity Property Definitions

[B200] BBIE property definitions shall conform to all BIE definition rules.

[B201] The definition of a BBIE property shall include the property and representation term of the BBIE property.

[Example] – DEN for BBIE Properties

`Total_ Price. Amount`

Definition – A monetary amount of a total price

Where the property term `Price` and optional qualifier term `Total` and the representation term `Amount` appear in the definition.

7.11.3.3 Basic Business Information Entity Property Business Terms

A BBIE property may have several business terms. BBIE property business terms are synonym terms under which the BBIE property is commonly known and used in business.

[B202] Each BBIE property shall have zero or more business terms.

7.11.4 Basic Business Information Entity Property Localized Information

The BBIE property localized information class contains the relevant information necessary to associate native language expressions of BBIE property attributes to the BBIE property.

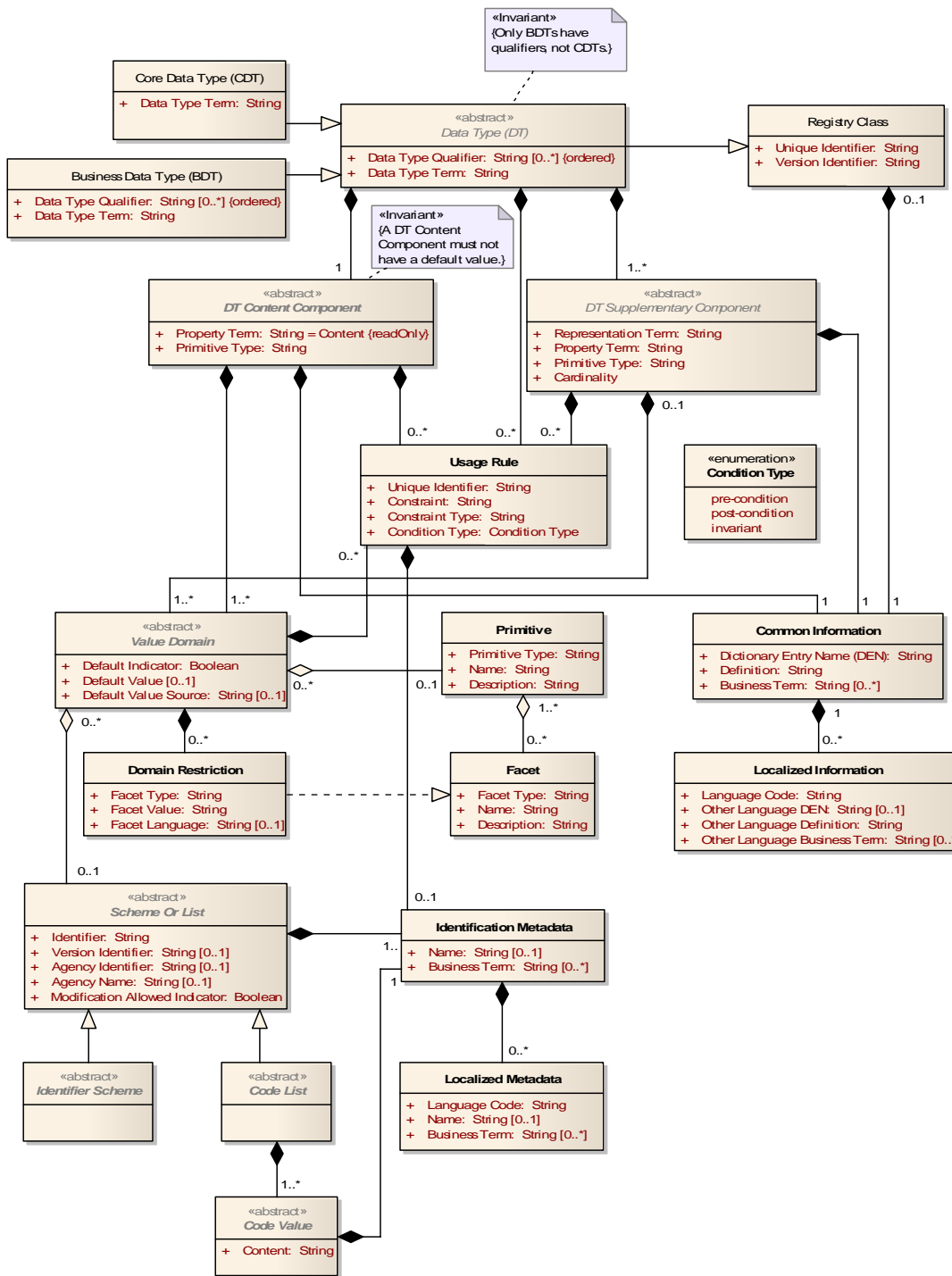
[B203] A BBIE property shall have zero or more localized information classes.

[B204] Each occurrence of a BBIE property localized information class shall contain:

- 2926
- 2927
- 2928
- **Language Code (mandatory):** A code which identifies the language. *Internet Engineering Task Force RFC 3066 of January 2001* shall be used as the authoritative source for code values.
- 2929
- 2930
- **DEN (optional):** The official name of the BBIE property in a language other than English.
- 2931
- 2932
- **Definition (mandatory):** The semantic meaning of the BBIE property in a language other than English.
- 2933
- 2934
- 2935
- **Business Term (optional, repetitive):** A synonym term in another language under which the BBIE property is commonly known and used in a business expression in that language.
- 2936
- 2937
- BBIE property localized information DENs should follow, as much as possible, all BBIE property DEN rules.
- 2938
- 2939
- 2940
- [B205] Each BBIE property localized information DEN shall only consist of alphabetic characters, ideographic characters, plus the dot, the underscore and the space characters unless required by language rules.
- 2941
- 2942
- [B206] Each BBIE property localized information definition shall adhere to all BBIE definition rules other than the requirement to be in the English language.
- 2943
- 2944
- The DEN and definition in the localized information class must only be expressed in the language identified by the language code property of that class.
- 2945
- 2946
- [B207] Each BBIE property localized information DEN and definition shall be in the language identified by the language and locale code.
- 2947
- 2948
- The business terms must only be expressed in the language identified by the language code property of that class, or a recognized dialect of the language.
- 2949
- 2950
- 2951
- [B208] Each BBIE property localized information business term shall be in the language identified by the language and locale code, or a recognized dialect of the language.

2952 **8 Data Types**

2953 This section provides a detailed technical explanation of CCTS data types. The
 2954 abstract UML diagram shown in Figure 8-1 represents a generic data type (DT)
 2955 metamodel that is used by both the CDT and BDT metamodels.



2956
 2957 **Figure 8-1. Abstract Data Type Metamodel**

2958

[Note] – Data Types

2959

2960

2961

All references to data types in sections 8.1 through 8.5 refer to the generic concept that is the basis for the instantiated core and business data types. All rules in these sections apply to both core and business data types.]

2962

2963

Data types form the basis for defining the value domains of BCC and BBIE properties.

2964

8.1 Overview

2965

2966

A data type defines the value domain – set of valid values – that can be used for a particular BCC property or BBIE property.

2967

There are two categories of data Types (DTs)

2968

- Core Data Type (CDT)

2969

- Business Data Type (BDT)

2970

[D1] A data type shall be a CDT or BDT.

2971

8.2 Data Type Naming and Definition Conventions

2972

2973

2974

2975

2976

The data type naming convention is based on CC and BIE naming and definition conventions to ensure consistency in the naming and defining of DT in their use with BCCs and BBIEs. The DT naming and definition conventions are derived from the guidelines and principles described in *ISO 11179 Part 4 – Definitions and ISO 11179 Part 5 – Naming and Identification Principles*.

2977

2978

2979

2980

2981

The official language for UN/CEFACT DTs is English. All official dictionary entries will be in English. DT discovery work may very well occur in other languages; however official submissions for inclusion in the UN/CEFACT library must be in English. In order to ensure absolute clarity and understanding of the names and definitions it is essential to use words from the *Oxford English Dictionary*.

2982

2983

As with CCs and BIEs, a controlled vocabulary will be developed to identify the definition to be used for any DT terms that are potentially ambiguous.

2984

[Note] – UN/CEFACT Controlled Vocabulary for Data Type Terms

2985

2986

Implementers are encouraged to use the UN/CEFACT controlled vocabulary as the authoritative source for DT terms.

2987

8.3 Data Type -Registry Class

2988

2989

Data types are registry classes. Each DT registry class contains the following information:

2990

- Unique Identifier

2991

- Unique Version Identifier

2992

[Note] – Structure of DT Identifiers

2993

2994

2995

As with CCs and BIEs, there are no specific rules for the structures of the DT identifiers. Implementers are free to choose any structure providing it guarantees uniqueness within the library to which it belongs.

2996

[D2] A registry class shall be created for each Data Type.

2997 8.4 Data Type Common Information

2998 The DT common information class provides necessary component information that is
2999 applicable to DTs either directly or through inheritance. The DT common information
3000 class contains the following information:

- 3001 • **DEN** – this is the unique official name of the DT in the dictionary.
- 3002 • **Definition** – this is the unique business semantic meaning of the DT.
- 3003 • **Business Term(s)** – this is a synonym term under which the DT is
3004 commonly known and used in business. A DT may have several
3005 business terms.

3006 [D3] Data Type common information content shall be in the English language
3007 following the *Oxford English Dictionary*. Where conflicting spellings exist, the
3008 spelling listed as the primary British spelling shall be used.

3009 8.4.1 Data Type Dictionary Entry Name

3010 Data type naming rules are based on the following concepts as defined in ISO
3011 11179:

- 3012 • **Data Type Term** – defines the form of the set of valid values for a
3013 data element or value domain. It is the equivalent of the representation
3014 term of the BCC and BBIE, and their subordinate BCC and BBIE
3015 properties.

3016 [D4] DT DENs shall be in the English language following the latest version of the
3017 *Oxford English Dictionary*. Where conflicting spellings exist, the spelling
3018 listed as the primary British spelling shall be used.

3019 [Note] – *Oxford English Dictionary*

3020 The complete *Oxford English Dictionary* will be the authoritative source for conflict
3021 resolution between competing spellings of data type names or definitions.

3022 [D5] A DT DEN shall be unique amongst all DENs within the library of which it is
3023 a part.

3024 [D6] A DT DEN shall be extracted from the DT definition.

3025 [D7] A DT DEN shall not include consecutive identical words.

3026 [D8] A DT DEN and all its components shall be in singular form unless the
3027 concept itself is plural.

3028 [D9] A DT DEN shall only use alphabetic characters plus the dot underscore and
3029 space characters.

3030 [D10] A DT DEN shall only contain verbs, nouns, adverbs and adjectives unless a
3031 different part of speech is part of an official title, part of a term listed in the
3032 *Oxford English Dictionary*, or part of a controlled vocabulary.

3033 [Note] – Parts of Speech

3034 Articles, prepositions and related parts of speech that are not verbs, nouns, adverbs
3035 and adjectives normally add no semantic clarity and should not be used unless as
3036 part of an official title or in a controlled vocabulary as part of a common business
3037 term that can not otherwise be expressed.

3038 [D11] Abbreviations and acronyms that are part of the DEN shall be expanded or
3039 explained in the definition.

3040 [D12] The space character shall separate words in multi-worded DT data type
3041 qualifier and data type terms.

3042 [D13] Each word in a DT DEN shall start with a capital letter.

3043 [D14] The dots after DT terms shall be followed by a space character.

3044 **8.4.2 Data Type Definitions**

3045 Data Type definitions are based on the requirements for data element definitions
3046 defined in ISO 11179-4.

3047 [D15] Each DT shall have its own unique semantic definition within the library of
3048 which it is a part.

3049 [Note] – Order of Development of Definition and DEN

3050 In the interest of quality, it is recommended that the definition be developed first and
3051 the DEN extracted from it.

3052 [D16] The definition shall be in the English language following the latest version of
3053 the *Oxford English Dictionary*. Where conflicting spellings exist, the spelling
3054 listed as the primary British spelling shall be used.

3055 [D17] The definition shall be consistent with the requirements of ISO 11179-4 and
3056 will provide an understandable meaning, which should also be translatable
3057 to other languages.

3058 [D18] The definition shall take into account the fact that the users of the DT library
3059 are not necessarily native English speakers. It shall therefore contain short
3060 sentences, using normal words. Wherever synonym terms are possible, the
3061 definition shall use the preferred term as identified in the controlled
3062 vocabulary.

3063 [D19] Whenever both the definite (i.e. ~~the~~) and indefinite article (i.e. a) are
3064 possible in a definition, preference shall be given to an indefinite article (i.e.
3065 a).

3066 [Note] – Definition Quality

3067 To verify the quality of the definition, place the DEN followed by is before the
3068 definition to ensure that it is not simply a repetition of the DEN.

3069 **8.4.3 Business Terms**

3070 DT business terms are those terms commonly used for day-to-day information
3071 exchanges within a given domain. As such, no specific rules apply to business term
3072 structures. Interoperability of business terms will be given by linking them within the
3073 component common information class.

8.5 Data Type Localized Information Class

While the normative expressions of components are in the English language, implementers may choose to create alternative language expressions of definitions and business terms. While the normative expressions of DTs are in the English language, non-native English speakers may choose to create native language variations of the DEN, definition, and business term. The DT localized information class contains the relevant information necessary to associate the native language expressions to their normative English language counterparts. Other language DT DENs will only consist of alphabetic, ideographic characters, plus the dot, the underscore and the space characters unless required by language rules. In addition to other language DEN, definition, and business term(s), a mandatory language code identifies the language in which the components are being expressed for storage in the registry. The localized information class contains:

- **Language Code** – A code which identifies the language being used. *Internet Engineering Task Force RFC 3066 of January 2001* will be used as the authoritative source for code values.
- **DEN** – The official name of the DT in a language other than English.
- **Definition** – the semantic meaning of the DT in a language other than English.
- **Business Term** – A synonym term in another language under which the DT is commonly known and used in a business expression in that language.

The DEN and definition in the localized information class must only be expressed in the language identified by the language and locale codes. The business terms must only be expressed in the language identified by the language and locale code, or a recognized dialect of the language.

8.6 Core Data Types

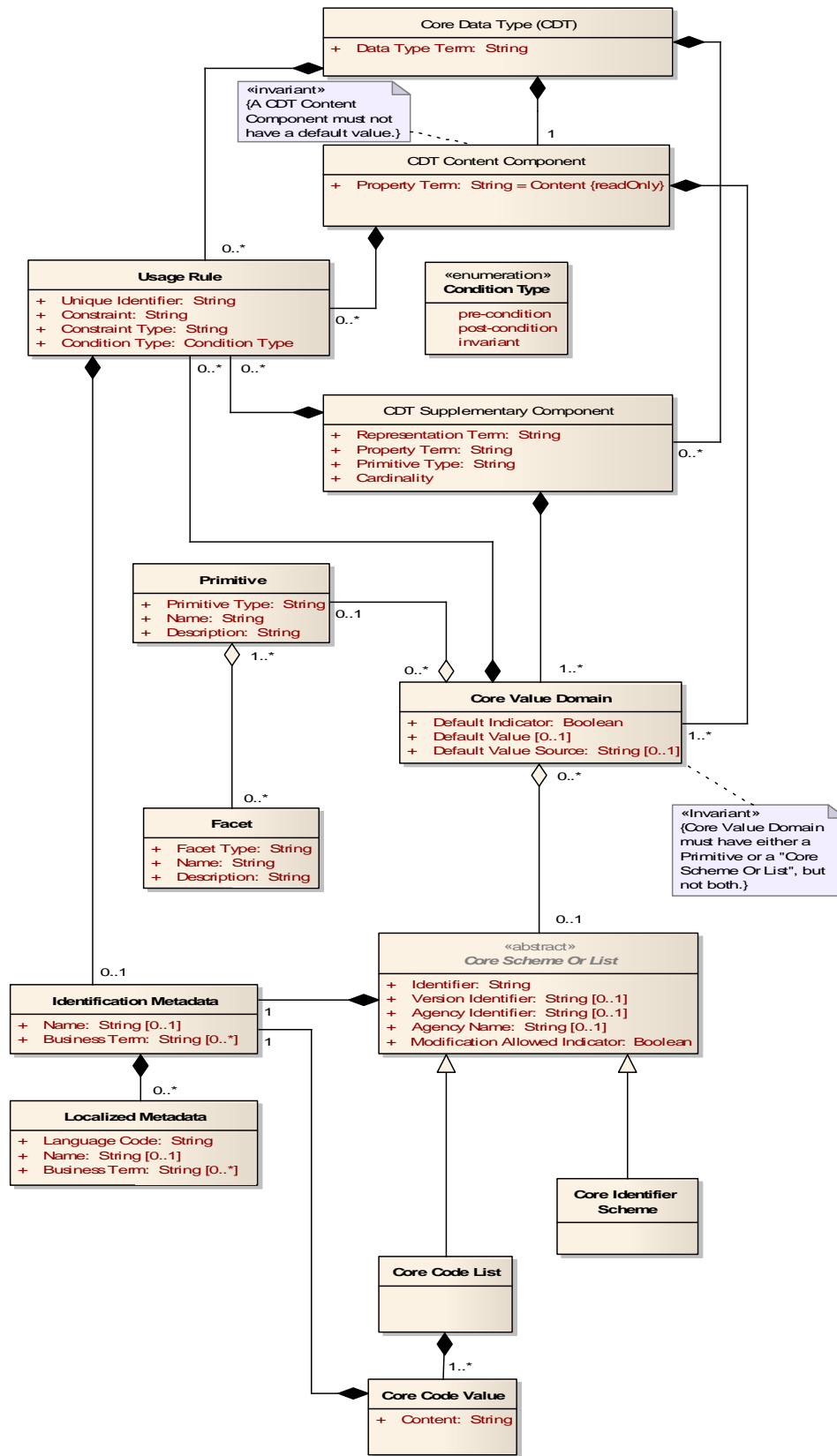
A CDT defines the value domain for a BCC property. Figure 8-2 describes the CDT and relationships between the CDT and its subordinate parts.

[Definition] – Core Data Type (CDT)

A core data type is a data type consisting of one and only one core data type content component that carries the actual content, plus zero or more core data type supplementary components giving essential extra definition to the core data type content component. Core data types do not have business semantics.

UN/CEFACT publishes the approved CDTs in the *UN/CEFACT Data Type Catalogue*.

[D20] A CDT shall be one of the approved CDTs published in the *UN/CEFACT Data Type Catalogue*.



3113

3114 **Figure 8-2. UML Diagram of Core Data Type Metamodel**

3115 **8.6.1 Core Data Type – Data Type Term**

3116 The CDT is expressed by a data type term. The CDT data type term is a
3117 semantically meaningful name that serves as the basis for the DEN of the CDT and
3118 all BDTs derived from it. The CDT data type term defines the form of the set of valid
3119 values for a BCC property data element or value domain.

3120 [D21] Each CDT shall have a unique data type term within the library of which it is
3121 a part.

3122 [D22] Each CDT data type term shall semantically represent a value domain.

3123 [D23] A data type term may have more than one word.

3124 [D24] A multi-worded data type term must have a unique semantic meaning
3125 compared to the words separately and compared to any other combination
3126 of these words.

3127 [D25] The CDT data type term shall be one of the terms specified in the list of
3128 permissible data type terms published in the *UN/CEFACT Data Type*
3129 *Catalogue*.

3130 **8.6.2 Core Data Type Usage Rules**

3131 CDTs may have usage rules. Each usage rule defines a constraint that describes
3132 specific conditions that are applicable to the CDT. CDT usage rules represent the
3133 specific application of a CDT in its role of expressing the value domain of BCCs and
3134 BCC properties. CDT usage rules can be either unstructured – expressed as free
3135 form text, or structured –expressed in a formal language.

3136 [D26] A CDT shall have zero or more usage rules.

3137 CDT usage rules will be defined at the lowest possible level of the hierarchical
3138 structure to which they apply.

3139 [D27] CDT usage rules shall not replicate CDT content component, CDT
3140 supplementary component, or CDT core value domain usage rules.

3141 [D28] A CDT usage rule shall have an identifier that is unique amongst all usage
3142 rules for the library of which it is a part.

3143 [Note] – Usage Rule Identifier Structure

3144 There are no specific rules for the structure of usage rule identifiers. Implementers
3145 are free to choose any structure providing it guarantees uniqueness within the group
3146 of usage rules of a library.

3147 The CDT usage rule constraint is the formal expression of the usage rule. The
3148 constraint can be structured or unstructured. An unstructured constraint will be
3149 expressed as free form text.

3150 [D29] An unstructured CDT usage rule constraint shall have a free form text
3151 expression that fully details the usage rule.

3152 If a CDT usage rule is expressed in a formal language, it will have a structured
3153 constraint. A structured constraint is a constraint that is expressed in a formal
3154 constraint language such as the UML OCL or OMG SBVR.

3155 [D30] A structured CDT usage rule constraint shall have a formal constraint
3156 language expression.

3157 CDT usage rule constraint types must also be specified. The constraint type value is
3158 taken from a constraint type code list.

3159 [D31] Every CDT usage rule shall have a constraint type taken from a constraint
3160 type code list.

3161 [Note] –Constraint Type Code List

3162 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
3163 List for use in support of this rule.

3164 CDT usage rules will also have a condition type that identifies when the constraint
3165 should be applied.

3166 [D32] Every CDT usage rule shall have a condition type.

3167 [D33] Every CDT usage rule condition type shall be one of `pre-condition`, `post-`
3168 `condition`, or `invariant`.

3169 8.6.2.1 Core Data Type Usage Rule Identification Metadata

3170 Although the unique identifier is sufficient to differentiate one usage rule for a given
3171 CDT from all other usage rules for a library, a CDT usage rule may also have an
3172 identification metadata class that provides additional information.

3173 [D34] A CDT usage rule shall have zero or one identification metadata classes.

3174 The usage rule identification metadata class contains a unique name that
3175 semantically differentiates the usage rule from all other named usage rules for the
3176 CDT.

3177 [D35] A CDT usage rule shall have zero or one names that is unique within the
3178 group of usage rules of a CDT.

3179 The CDT usage rule identification metadata class may contain business terms. CDT
3180 usage rule business terms are synonym terms under which the CDT usage rule is
3181 commonly known and used in business.

3182 [C36] Each ACC usage rule shall have zero or more business terms.

3183 8.6.2.2 Core Data Type Usage Rule Localized Metadata

3184 CDT usage rules may have localized metadata that is used to provide other
3185 language expressions of its name and business term or terms.

3186 [D37] A CDT usage rule shall have zero or more localized information classes

3187 [D38] Each occurrence of a CDT usage rule localized information class shall
3188 contain:

- 3189 • **Language Code (mandatory):** A code which identifies the language.
3190 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
3191 used as the authoritative source for code values.
- 3192 • **Name (optional):** The name of the usage rule in a language other
3193 than English.
- 3194 • **Business Term (optional, repetitive):** A synonym term in another
3195 language under which the usage rule is commonly known and used in
3196 a business expression in that language.

3197 [C39] CDT usage rule localized metadata shall be in the language identified by the
3198 language and locale code.

3199 8.6.3 Core Data Type Identifiers

3200 In order to ensure uniqueness, every CDT will have assigned a:

- 3201 • **Unique Identifier (mandatory):** The identifier that references the CDT
3202 in a unique and unambiguous way.
- 3203 • **Version Identifier (mandatory):** An indication of the evolution over
3204 time of the CDT.

3205 [D40] Each CDT shall have a unique identifier within the library of which it is a
3206 part.

3207 [D41] Each version of a CDT shall have a unique version identifier within the
3208 library of which it is a part.

3209 8.6.4 Core Data Type Common Information

3210 [D42] Each CDT shall have a common information class.

3211 [D43] The CDT common information class shall consist of:

- 3212 • **DEN (mandatory):** The official name of the CDT.
- 3213 • **Definition (mandatory):** The semantic meaning of the CDT.
- 3214 • **Business Term (optional, repetitive):** A synonym term under which
3215 the CDT is commonly known and used in business.

3216 [Example] – CDT Common Information
3217 DEN – `Amount . Type`
3218 **Definition** – An `amount` is a number of monetary units specified in a currency
3219 **Business Term** – `Total Money, Sum of Money, Price, Monetary Value`

3220 8.6.4.1 Core Data Type Dictionary Entry Names

3221 The CDT DEN is based on the ISO 11179 data type term.

3222 [D44] Each CDT DEN shall conform to all DT DEN rules.

3223 [D45] The CDT DEN shall consist of the data type term, plus a dot, a space
3224 character, and the term `type`.

3225 [Example] – Core Data Type DENs
3226 `Amount . Type; Date Time . Type; Identifier . Type`

3227 8.6.4.2 Core Data Type Definitions

3228 [D46] CDT definitions shall conform to all rules for DT definitions.

3229 [D47] The CDT definition shall include the CDT data type term.

3230 8.6.4.3 Core Data Type Business Terms

3231 A CDT may have several business terms. CDT business terms are those terms
3232 commonly used for day-to-day information exchanges within a given domain.

3233 [D48] A CDT shall have zero or more business terms.

3234 **8.6.5 Core Data Type Localized Information**

3235 The CDT localized information class contains the relevant information necessary to
3236 associate native language expressions of CDT attributes to the CDT.

3237 [D49] A CDT shall have zero or more localized information classes.

3238 [D50] Each occurrence of a CDT localized information class shall contain:

- 3239 • **Language Code (mandatory):** A code which identifies the language.
3240 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
3241 used as the authoritative source for code values.
- 3242 • **DEN (optional):** The official name of a CDT in a language other than
3243 English.
- 3244 • **Definition (mandatory):** The semantic meaning of the CDT in a
3245 language other than English.
- 3246 • **Business Term (optional, repetitive):** A synonym term in another
3247 language under which the CDT is commonly known and used in a
3248 business expression in that language. Business terms in the localized
3249 information class shall be in the language identified by the language
3250 and locale code.

3251 CDT localized information DENs should follow, as much as possible, all CDT DEN
3252 rules.

3253 [D51] Each CDT localized information DEN shall only consist of alphabetic
3254 characters, ideographic characters, plus the dot, the underscore and the
3255 space characters unless required by language rules.

3256 [D52] Each CDT localized information definition shall adhere to all CDT definition
3257 rules other than the requirement to be in the English language.

3258 The DEN and definition in the localized information class must only be expressed in
3259 the language identified by the language code property of that class.

3260 [D53] Each CDT localized information DEN and definition shall be in the language
3261 identified by the language and locale code.

3262 The business terms must only be expressed in the language identified by the
3263 language code property of that class, or a recognized dialect of the language.

3264 [D54] Each CDT localized information language business term shall be in the
3265 language identified by the language and locale code, or a recognized dialect
3266 of the language.

3267 **8.6.6 Core Data Type Content Component**

3268 CDT content components are defined in the *UN/CEFACT Data Type Catalogue* and
3269 are unique to the CDT to which they are assigned.

3270 [D55] A CDT shall have one and only one CDT Content Component.

3271 [D56] A CDT Content Component shall be the specified CDT content component
3272 as defined in the *UN/CEFACT Data Type Catalogue*.

3273 8.6.6.1 Core Data Type Content Component Property Term

3274 The CDT content component property term represents the actual content of a data
3275 element. The CDT Content Component property term has a fixed value of `content`.

3276 [D57] Each CDT content component shall have a property term.

3277 [D58] The CDT content component property term shall have a fixed value of
3278 `Content`.

3279 8.6.6.2 Core Data Type Content Component Usage Rules

3280 CDT content components may have usage rules. Each usage rule defines a
3281 constraint that describes specific conditions that are applicable to the CDT content
3282 component. The CDT content component usage rules represent the specific
3283 application of a CDT content component in its role of expressing the value domain of
3284 its CDT. CDT usage rules can be either unstructured – expressed as free form text,
3285 or structured – expressed in a formal language.

3286 [D59] A CDT content component shall have zero or more usage rules.

3287 Usage rules will be defined at the lowest possible level of the hierarchical structure to
3288 which they apply.

3289 [D60] CDT content component usage rules shall not replicate CDT, CDT
3290 supplementary component, or CDT core value domain usage rules.

3291 [D61] A CDT content component usage rule shall have an identifier that is unique
3292 amongst all usage rules for the library of which it is a part.

3293 [Note] – Usage Rule Identifier Structure

3294 There are no specific rules for the structure of usage rule identifiers. Implementers
3295 are free to choose any structure providing it guarantees uniqueness within the group
3296 of usage rules of a library.

3297 The CDT content component usage rule constraint is the formal expression of the
3298 usage rule. The constraint can be structured or unstructured. An unstructured
3299 constraint will be expressed as free form text.

3300 [D62] An unstructured CDT content component usage constraint rule shall have a
3301 free form text expression that fully details the usage rule.

3302 A CDT content component formal constraint is a constraint that is expressed in a
3303 formal language such as the UML OCL or OMG SBVR.

3304 [D63] A structured CDT content component usage rule constraint shall have a
3305 formal constraint language expression.

3306 CDT content component usage rule constraint types must also be specified. The
3307 constraint type value is taken from a constraint type code list.

3308 [D64] Every CDT content component usage rule expressed as a formal constraint
3309 shall have a constraint type taken from a constraint type code list.

3310 [Note] –Constraint Type Code List

3311 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
3312 List for use in support of this rule.

3313 CDT content component usage rules will also have a condition type that identifies
3314 when the formal constraint should be applied.

3315 [D65] Every CDT content component usage rule shall have a condition type.

3316 [D66] Every CDT content component usage rule condition type shall be one of
3317 *pre-condition, post-condition, Of invariant*.

3318 8.6.6.2.1 Core Data Type Content Component Usage Rule Identification Metadata

3319 Although the unique identifier is sufficient to differentiate one usage rule for a given
3320 CDT content component from all other usage rules for a library, a CDT content
3321 component usage rule may also have an identification metadata class that provides
3322 additional information.

3323 [D67] A CDT content component usage rule shall have zero or one identification
3324 metadata classes.

3325 The CDT content component usage rule identification metadata class contains a
3326 unique name that semantically differentiates it from all other named usage rules for
3327 the CDT.

3328 [D68] A CDT content component usage rule shall have zero or one names that is
3329 unique within the group of usage rules of a CDT content component.

3330 The CDT content component usage rule metadata class may contain business
3331 terms. CDT content component usage rule business terms are synonym terms under
3332 which the CDT content component usage rule is commonly known and used in
3333 business.

3334 [D69] Each CDT usage rule shall have zero or more business terms.

3335 8.6.6.2.2 Core Data Type Content Component Usage Rule Identification Metadata 3336 Localized Information

3337 CDT Content component usage rules may have localized metadata that is used to
3338 provide other language expressions of its name and business term or terms.

3339 [D70] A CDT content component usage rule shall have zero or more localized
3340 information classes.

3341 [D71] Each occurrence of a CDT content component usage rule localized
3342 information class shall contain:

- 3343 • **Language Code (mandatory):** A code which identifies the language.
3344 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
3345 used as the authoritative source for code values.
- 3346 • **Name (optional):** The name of the usage rule in a language other
3347 than English.
- 3348 • **Business Term (optional, repetitive):** A synonym term in another
3349 language under which the usage rule is commonly known and used in
3350 a business expression in that language.

3351 [D72] CDT content component usage rule localized metadata shall be in the
3352 language identified by the language and locale code.

3353 8.6.6.3 Core Data Type Content Component Common Information

3354 Each CDT content component has a common information class.

3355 [D73] Each CDT content component shall have a common information class.

3356 [D74] The CDT content component common information class shall consist of:

- 3357 • **DEN (mandatory):** The official name of a CDT content component.
- 3358 • **Definition (mandatory):** The semantic meaning of a CDT content
3359 component.
- 3360 • **Business Term (optional, repetitive):** A synonym term under which
3361 the CDT content component is commonly known and used in
3362 business.

3363 [Example] – CDT Content Component Common Information

3364 DEN – `Amount . Content`

3365 **Definition** – An `amount` is a number of monetary units

3366 Business Term – `Money`

3367 8.6.6.3.1 Core Data Type Content Component Dictionary Entry Names

3368 The CDT content component DENs are based on ISO 11179 defined data type and
3369 property terms.

3370 [D75] Each CDT content component DEN shall conform to all DT DEN rules.

3371 [D76] The DEN of a CDT content component shall consist of the data type term of
3372 the CDT to which it is assigned, plus a dot, space character, and the
3373 property term `content`.

3374 [Example] – Core Data Type Content Components

3375 `Amount . Content; Date Time . Content`

3376 8.6.6.3.2 Core Data Type Content Component Definition

3377 [D77] Each CDT content component definition shall conform to all DT definition
3378 rules.

3379 [D78] The CDT content component definition shall include the primitive type term
3380 and the definition of the source representation term.

3381 8.6.6.3.3 Core Data Type Content Component Business Terms

3382 A CDT content component may have several business terms. CDT content
3383 component business terms are synonym terms under which the CDT content
3384 component is commonly known and used in business.

3385 [D79] A CDT content component shall have zero or more business terms.

3386 8.6.6.4 Core Data Type Content Component Localized Information

3387 The CDT content component localized information class contains the relevant
3388 information necessary to associate native language expressions of CDT content
3389 components to the CDT content component.

3390 [D80] Each CDT content component shall have zero or more localized information
3391 classes.

3392 [D81] Each occurrence of a CDT content component localized information class
3393 shall contain:

- 3394 • **Language Code (mandatory):** A code which identifies the language.
3395 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
3396 used as the authoritative source for code values.
- 3397 • **DEN (optional):** The official name of the CDT content component in a
3398 language other than English
- 3399 • **Definition (mandatory):** The semantic meaning of the CDT content
3400 component in a language other than English.
- 3401 • **Business Term (optional, repetitive):** A synonym term in another
3402 language under which the CDT content component is commonly
3403 known and used in a business expression in that language.

3404 CDT content component localized information DENs should follow, as much as
3405 possible, all CDT content component DEN rules.

3406 [D82] Each CDT content component localized information DEN shall only consist
3407 of alphabetic characters, ideographic characters, plus the dot, the
3408 underscore and the space characters unless required by language rules.

3409 [D83] Each CDT content component localized information definition shall adhere
3410 to all CDT content component definition rules other than the requirement to
3411 be in the English language.

3412 The DEN and definition in the localized information class must only be expressed in
3413 the language identified by the language code property of that class.

3414 [D84] Each CDT content component localized information DEN and definition shall
3415 be in the language identified by the language and locale code.

3416 The business terms must only be expressed in the language identified by the
3417 language code property of that class, or a recognized dialect of the language.

3418 [D85] Each CDT content component localized information business term shall be
3419 in the language identified by the language and locale code, or a recognized
3420 dialect of the language.

3421 8.6.6.5 Core Data Type Content Component Core Value Domain

3422 CDT content components can have one or more value domains. A CDT content
3423 component core value domain is an abstract class that defines the set of allowed
3424 values through the presence of either a scheme or list, or a primitive with defined
3425 facets and their restrictions.

3426 [D86] A CDT content component shall have one or more value domains.

3427 Since each CDT content component may have multiple value domains, each defined
3428 value domain contains a default indicator that identifies it as the default value domain
3429 amongst the set of value domains for the CDT content component.

3430 [D87] A CDT content component core value domain shall have a default indicator
3431 whose value = `true` if it is the default value domain.

3432 [D88] A CDT content component core value domain shall have a default indicator
3433 whose value = `false` if it is not the default value domain.

3434 Each CDT content component core value domain may also have a default value.
3435 This default value represents a CDT content component core value domain value
3436 that is to be automatically applied to the CDT content component in the absence of a
3437 choice made by the user.

3438 [D89] A CDT content component core value domain shall have zero or one default
3439 values.

3440 Default values will be conformant to the defined primitive or scheme or list of the
3441 CDT content component core value domain.

3442 [D90] the CDT content component core value domain default value shall be
3443 conformant to its defined primitive or scheme or list.

3444 If a CDT content component value domain has a default value, the source of that
3445 default value will also be identified.

3446 [D91] A CDT core value domain with a default value shall have a default value
3447 source.

3448 [Note] – Value Domain Default Sources

3449 There are no specific rules for the structure of value domain default value sources.
3450 Implementers are free to choose any structure providing it guarantees uniqueness
3451 within the group of value domain default value sources of a value domain.

3452 CDT content component core value domains are defined by either a primitive or a
3453 scheme or list. Each primitive or scheme or list constitutes a separate core value
3454 domain for the CDT content component.

3455 [D92] Each CDT content component core value domain shall consist of a primitive
3456 or a scheme or list.

3457 8.6.6.5.1 Core Data Type Content Component Core Value Domain Primitive

3458 Primitives represent basic building blocks for defining value domains of content and
3459 supplementary components. Each content component core value domain can have
3460 zero or one primitives defined for it. The CDT content component core value domain
3461 primitive defines the value domain. Primitives are referred to as primitive types.

3462 Primitives include, but are not limited to:

- 3463 • Binary
- 3464 • Date
- 3465 • Decimal
- 3466 • Double

- 3467 • Float
- 3468 • Integer
- 3469 • String
- 3470 • Token

3471 [D93] Each CDT content component core value domain shall have zero or one
3472 primitives.

3473 [D94] A CDT content component primitive shall be one of the defined primitives in
3474 the *UN/CEFACT Data Type Catalogue*.

3475 Each primitive shall have a primitive type. The primitive type code value is taken
3476 from a primitive type code list.

3477 [D95] Every CDT content component core value domain primitive shall have a
3478 primitive type taken from a primitive type code list.

3479 [Note] –Primitive Type Code List

3480 UN/CEFACT will publish and make freely available a Primitive Type Code List for
3481 use in support of this rule.

3482 Each primitive has a formal name. This name typically represents the nature of the
3483 value domain it represents.

3484 [D96] Every CDT content component core value domain primitive shall have a
3485 primitive name.

3486 [D97] Every CDT content component core value domain primitive name shall be
3487 unique within the set of primitives of CDTs.

3488 A CDT content component core value domain primitive will also have a description
3489 that semantically defines its value domain.

3490 [D98] Each CDT content component core value domain primitive shall have a
3491 description that semantically defines its value domain.

3492 **8.6.6.5.1.1 Core Data Type Content Component Core Value Domain Primitive Facet**

3493 The value domains expressed by primitives are quantified through their facets. A
3494 primitive may have one or more facets. Each facet defines or constrains an aspect of
3495 the value domain expressed by the primitive.

3496 [D99] Each CDT content component core value domain primitive shall have zero
3497 or more facets.

3498 Each facet shall have a facet type. The facet type code value is taken from a facet
3499 type code list.

3500 [D100] Each CDT content component core value domain primitive facet shall have
3501 a facet type taken from a facet type code list.

3502 [Note] –Facet Type Code List

3503 UN/CEFACT will publish and make freely available a Facet Type Code List for use in
3504 support of this rule.

3505 [D101] Each CDT content component core value domain primitive facet shall have
3506 a name that is unique amongst the set of facet names of a primitive.

3507 [D102] Each CDT content component core value domain primitive facet shall have
3508 a description that semantically expresses the nature of the restrictions
3509 associated with it.

3510 8.6.6.5.2 Core Data Type Content Component Core Value Domain Scheme or List

3511 Schemes are the equivalent of a pattern facet. A scheme formally expresses the
3512 pattern and the allowed values for populating that pattern in the form of identifiers.
3513 Lists are the equivalent of enumerated lists and are typically published as formal
3514 code lists. The set of codes in a formal code list is used by core value domains as an
3515 enumerated set of allowed values.

3516 Unambiguous identification of the scheme or list is necessary.

3517 [D103] Every CDT content component core value domain scheme or list shall have
3518 an identifier.

3519 A version identifier serves to differentiate one version of a scheme or list from all
3520 other versions of the scheme or list.

3521 [D104] Every CDT content component core value domain scheme or list shall have
3522 zero or one version identifiers.

3523 Every scheme or list will be owned by an organization. The organization may either
3524 identified by a unique identifier or a name.

3525 [D105] Every CDT content component core value domain scheme or list shall have
3526 either an agency identifier or an agency name.

3527 [D106] Every CDT content component core value domain scheme or list shall have
3528 zero or one agency identifiers.

3529 [Note] – Agency Identifier

3530 UN/CEFACT recommends using UN/CEFACT Agency Identifier Code List (Data
3531 Element 3055) in the latest version of the UN/CEFACT directory.

3532 [D107] Every CDT content component core value domain scheme or list shall have
3533 zero or one agency names.

3534 Business Data Types are able to place restrictions on schemes and lists. If such
3535 restrictions are undesirable, then this will be indicated through the use of a required
3536 modification allowed indicator.

3537 [D108] Every CDT content component core value domain scheme or list shall have
3538 a modification allowed indicator whose value = `true` if modifications are
3539 allowed, or whose value = `false` if modifications are not allowed.

3540 8.6.6.5.2.1 Core Data Type Content Component Core Scheme or List Identification 3541 Metadata

3542 Although the identifier is sufficient to differentiate one core scheme or list for a given
3543 CDT content component core value domain from all other schemes or lists for that
3544 CDT content component, a CDT content component core scheme or list may also
3545 have an identification metadata class that provides additional information.

3546 [D109] A CDT content component core scheme or list shall have zero or one
3547 identification metadata classes.

3548 The CDT content component core scheme or list identification metadata class
3549 contains a unique name that semantically differentiates it.

3550 [D110] A CDT content component core scheme or list shall have zero or one
3551 names that is unique within the group of core scheme or lists of a CDT.

3552 The CDT content component core scheme or list identification metadata class may
3553 contain business terms. These business terms are synonym terms under which the
3554 scheme or list is commonly known and used in business.

3555 [D111] Each CDT content component core value domain core scheme or list shall
3556 have zero or more business terms.

3557 **8.6.6.5.2.2 Core Data Type Content Component Core Value Domain Core Scheme or** 3558 **List Identification Metadata Localized Information**

3559 CDT content component core value domain core schemes or lists may have
3560 localizedsiness term or terms.

3561 [D112] A CDT content component core value domain core scheme or list shall have
3562 zero or more localized information classes

3563 [D113] Each occurrence of a CDT content component core value domain core
3564 scheme or list localized information class shall contain:

- 3565 • **Language Code (mandatory):** A code which identifies the language.
3566 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
3567 used as the authoritative source for code values.
- 3568 • **Name (optional):** The name of the scheme or list in a language other
3569 than English.
- 3570 • **Business Term (optional, repetitive):** A synonym term in another
3571 language under which the scheme or list is commonly known and
3572 used in a business expression in that language.

3573 [D114] CDT content component core value domain core scheme or list localized
3574 metadata shall be in the language identified by the language and locale
3575 code.

3576 **8.6.6.5.2.3 Core Data Type Content Component Core Value Domain Core Identifier** 3577 **Scheme**

3578 Core identifier schemes are typically not enumerated. No additional rules are
3579 provided regarding the content of identifier schemes. However, at a minimum, an
3580 identifier scheme should define a specific pattern for the values of the identifiers to
3581 conform to.

3582 **8.6.6.5.2.4 Core Data Type Content Component Core Value Domain Core Code List**

3583 Core code lists contain lists of enumerated code values. However, the diversity of
3584 code list content is such that no additional rules are provided with the exception of
3585 the requirement for one or more code values.

3586 [D115] Each CDT content component core value domain core scheme or list shall
3587 contain one or more core code values.

3588 8.6.6.5.2.4.1 Core Data Type Content Component Core Value Domain Core Code 3589 Value Identification Metadata

3590 A CDT content component core code value will contain an identification metadata
3591 class consisting of a name and optional business term or terms.

3592 [D116] A CDT content component core value domain core code list core code value
3593 shall have zero or one identification metadata classes.

3594 [D117] A CDT content component core value domain core code list core code value
3595 shall have zero or one names that is unique within the set of core code
3596 values for a core code list.

3597 The CDT content component core code list identification metadata class may also
3598 contain several business terms. These business terms are synonym terms under
3599 which the core code value is commonly known and used in business.

3600 [D118] Each CDT content component core code value shall have zero or more
3601 business terms.

3602 8.6.6.5.2.4.2 Core Data Type Content Component Core Value Domain Core Code 3603 Value Localized Metadata

3604 CDT content component core value domain core scheme or list may have localized
3605 metadata that is used to provide other language expressions of its name and
3606 business terms.

3607 [D119] A CDT content component core value domain core scheme or list shall have
3608 zero or more localized metadata classes.

3609 [D120] Each occurrence of a CDT content component core value domain core
3610 scheme or list localized information class shall contain:

- 3611 • **Language Code (mandatory):** A code which identifies the language.
3612 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
3613 used as the authoritative source for code values.
- 3614 • **Name (optional):** The name of the scheme or list in a language other
3615 than English.
- 3616 • **Business Term (optional, repetitive):** A synonym term in another
3617 language under which the scheme or list is commonly known and
3618 used in a business expression in that language.

3619 [D121] CDT content component core value domain core scheme or list localized
3620 metadata shall be in the language identified by the language and locale
3621 code.

3622 **8.6.6.5.3 Core Data Type Content Component Core Value Domain Usage Rule**

3623 CDT content component core value domains may have usage rules. Each usage
3624 rule defines a constraint that describes specific conditions that are applicable to the
3625 CDT content component value domain. CDT content component core value domain
3626 usage rules represent the specific application of a CDT content component value
3627 domain in its role of expressing the value domain of its CDT content component.
3628 CDT content component core value domain usage rules can be either unstructured –
3629 expressed as free form text, or structured – expressed in a formal language.

3630 [D122] A CDT content component core value domain shall have zero or more
3631 usage rules.

3632 Usage rules will be defined at the lowest possible level of the hierarchical structure to
3633 which they apply.

3634 [D123] CDT content component core value domain usage rules shall not replicate
3635 CDT, CDT content component, CDT supplementary component or CDT
3636 supplementary component core value domain usage rules.

3637 [D124] A CDT content component core value domain usage rule shall have an
3638 identifier that is unique amongst all usage rules for the library of which it is a
3639 part.

3640 [Note] – Usage Rule Identifier Structure

3641 There are no specific rules for the structure of usage rule identifiers. Implementers
3642 are free to choose any structure providing it guarantees uniqueness within the group
3643 of usage rules of a library.

3644 The CDT content component core value domain usage rule constraint is the formal
3645 expression of the usage rule. The constraint can be structured or unstructured. An
3646 unstructured constraint will be expressed as free form text.

3647 [D125] An unstructured CDT content component core value domain usage rule
3648 constraint shall have a free form text expression that fully details the usage
3649 rule.

3650 A CDT content component core value domain formal constraint is a constraint that is
3651 expressed in a formal language such as the UML OCL or OMG SBVR.

3652 [D126] A structured CDT content component core value domain usage rule
3653 constraint shall have a formal constraint language expression.

3654 CDT content component usage rule constraint types must also be specified. The
3655 constraint type value is taken from a constraint type code list.

3656 [D127] Every CDT content component usage rule expressed as a formal constraint
3657 shall have a constraint type taken from a constraint type code list.

3658 [Note] –Constraint Type Code List

3659 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
3660 List for use in support of this rule.

3661 CDT content component usage rules will also have condition types that identify when
3662 the formal constraint should be applied.

3663 [D128] Every CDT content component core value domain usage rule shall have a
3664 condition type.

3665 [D129] Every CDT content component core value domain usage rule condition type
3666 shall be one of `pre-condition`, `post-condition`, or `invariant`.

3667 **8.6.6.5.3.1 Core Data Type Content Component Core Value Domain Usage Rule** 3668 **Identification Metadata**

3669 Although the unique identifier is sufficient to differentiate one usage rule in a library
3670 for all other usage rules, a CDT content component core value domain usage rule
3671 may also have an identification metadata class that provides additional information.

3672 [D130] A CDT content component core value domain usage rule shall have zero or
3673 one identification metadata classes.

3674 The CDT content component core value domain usage rule contains a unique name
3675 that semantically differentiates the usage rule from all other named usage rules for
3676 the CDT.

3677 [D131] A CDT content component core value domain usage rule shall have zero or
3678 one names that is unique within the group of usage rules of a CDT.

3679 The CDT content component core value domain usage rule identification metadata
3680 class may contain business terms. CDT content component core value domain
3681 Business terms are synonym terms under which the CDT content component core
3682 value domain usage rule is commonly known and used in business.

3683 [D132] Each CDT content component core value domain usage rule shall have zero
3684 or more business terms.

3685 **8.6.6.5.3.2 Core Data Type Content Component Core Value Domain Usage Rule** 3686 **Identification Metadata Localized Information**

3687 CDT content component core value domain usage rules may have localized
3688 metadata that is used to provide other language expressions of its name and
3689 business term or terms.

3690 [B133] A CDT content component core value domain usage rule shall have zero or
3691 more localized metadata classes.

3692 [B134] Each occurrence of a CDT content component core value domain usage
3693 rule localized metadata class shall contain:

- 3694 • **Language Code (mandatory):** A code which identifies the language
3695 being used. *Internet Engineering Task Force RFC 3066 of January*
3696 *2001* shall be used as the authoritative source for code values.
- 3697 • **Name (optional):** The name of the usage rule in a language other
3698 than English.
- 3699 • **Business Term (optional, repetitive):** A synonym term in another
3700 language under which the usage rule is commonly known and used in
3701 a business expression in that language.

3702 [C135] CDT content component core value domain usage rule localized metadata
3703 shall be in the language identified by the language and locale code.

3704 **8.6.7 Core Data Type Supplementary Components**

3705 CDT supplementary components are defined and published in the UN/CEFACT Data
3706 Type Catalogue, and are unique to the CDT to which they are assigned. A CDT will
3707 have zero or more CDT supplementary components.

3708 [D136] A CDT shall have zero or more CDT supplementary components.

3709 [D137] A CDT supplementary component shall be one of the specified CDT
3710 supplementary components as defined in the UN/CEFACT Data Type
3711 Catalogue.

3712 **8.6.7.1 Core Data Type Supplementary Component Property Term**

3713 Each CDT supplementary component contains a property term. The CDT
3714 supplementary component property term is a semantically meaningful name for a
3715 unique characteristic that can be used in a CDT.

3716 [D138] Each CDT supplementary component shall have a property term.

3717 [D139] The CDT supplementary component property term may consist of more than
3718 one word.

3719 [D140] A multi-worded CDT supplementary component property term must have a
3720 unique semantic meaning compared to the words separately and compared to
3721 any other combination of these words.

3722 **8.6.7.2 Core Data Type Supplementary Component Representation Term**

3723 Each CDT supplementary component contains a representation term. The
3724 representation term is a semantically meaningful name that represents the value
3725 domain of the supplementary component. UN/CEFACT defines the approved
3726 representation terms as part of the UN/CEFACT Data Type Catalogue.

3727 [D141] A representation term shall be defined for each CDT supplementary
3728 component.

3729 [D142] The name of the CDT supplementary component representation term may
3730 consist of more than one word.

3731 [D143] A multi-worded CDT supplementary component representation term shall
3732 have a unique semantic meaning compared to the words separately and
3733 compared to any other combination of these words.

3734 [D144] The name of the CDT supplementary component representation term shall
3735 be one of the approved representation terms in the UN/CEFACT Data Type
3736 Catalogue.

3737 **8.6.7.3 Core Data Type Supplementary Component Cardinality**

3738 Each CDT supplementary component will have its cardinality explicitly expressed.
3739 The supplementary component cardinality defines the occurrence requirements of
3740 the supplementary component within its data type.

3741 [D145] Each CDT supplementary component shall have a cardinality that consists
3742 of a set of values consisting of a minimum occurrence and a maximum
3743 occurrence.

3744 [D146] CDT supplementary component cardinality shall be equal to $[0..1]$ if the
3745 CDT supplementary component is optional, or $[1..1]$ if mandatory.

3746 **8.6.7.4 Core Data Type Supplementary Component Usage Rules**

3747 A CDT supplementary component may have usage rules. Each usage rule defines a
3748 constraint that describes specific conditions that are applicable to the CDT
3749 supplementary component. The CDT supplementary component usage rules
3750 represent the specific application of a CDT supplementary component in its role of
3751 expressing the value domain of its CDT. CDT supplementary component usage rules
3752 can be either unstructured – expressed as free form text, or structured – expressed
3753 in a formal language.

3754 [D147] A CDT supplementary component shall have zero or more usage rules.

3755 Usage rules will be defined at the lowest possible level of the hierarchical structure to
3756 which they apply.

3757 [D148] CDT supplementary component usage rules shall not replicate CDT, CDT
3758 content component, or CDT core value domain usage rules.

3759 [D149] A CDT supplementary component usage rule shall have an identifier that is
3760 unique amongst all usage rules for the library of which it is a part.

3761 [Note] – Usage Rule Identifier Structure

3762 There are no specific rules for the structure of usage rule identifiers. Implementers
3763 are free to choose any structure providing it guarantees uniqueness within the group
3764 of usage rules of a library.

3765 The CDT supplementary component usage rule constraint is the formal expression
3766 of the usage rule. The constraint can be structured or unstructured. An unstructured
3767 constraint will be expressed as free form text.

3768 [D150] An unstructured CDT supplementary component usage constraint rule shall
3769 have a free form text expression that fully details the usage rule.

3770 A CDT supplementary component formal constraint is a constraint that is expressed
3771 in a formal language such as the UML OCL or OMG SBVR.

3772 [D151] A structured CDT supplementary component usage rule constraint shall
3773 have a formal constraint language expression.

3774 CDT supplementary component usage rule constraint types must also be specified.
3775 The constraint type value is taken from a constraint type code list.

3776 [D152] Every CDT supplementary component usage rule expressed as a formal
3777 constraint shall have a constraint type taken from a constraint type code list.

3778 [Note] –Constraint Type Code List

3779 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
3780 List for use in support of this rule.

3781 CDT supplementary component usage rules will also have a condition type that
3782 identifies when the formal constraint should be applied.

3783 [D153] Every CDT supplementary component usage rule shall have a condition
3784 type.

3785 [D154] Every CDT supplementary component usage rule condition type shall be
3786 one of *pre-condition*, *post-condition*, or *invariant*.

3787 **8.6.7.4.1 Core Data Type Supplementary Component Usage Rule Identification**
3788 **Metadata**

3789 Although the unique identifier is sufficient to differentiate one usage rule for a given
3790 CDT supplementary component from all other usage rules in a library, a CDT
3791 supplementary component usage rule may also have a unique name that
3792 semantically differentiates it from all other named usage rules for the CDT.

3793 [D155] A CDT supplementary component usage rule shall have zero or one names
3794 that is unique within the group of usage rules of a CDT supplementary
3795 component.

3796 A CDT supplementary component usage rule may have several business terms.
3797 CDT supplementary component usage rule business terms are synonym terms
3798 under which the CDT usage rule is commonly known and used in business.

3799 [D156] Each CDT usage rule shall have zero or more business terms.

3800 **8.6.7.4.2 Core Data Type Supplementary Component Usage Rule Identification**
3801 **Metadata Localized Information**

3802 The CDT supplementary component usage rule localized information class contains
3803 the relevant information necessary to associate native language expressions of
3804 usage rules.

3805 [D157] A CDT supplementary component usage rule shall have zero or more
3806 localized information classes

3807 [D158] Each occurrence of a usage rule localized information class shall contain:

- 3808 • **Language Code (mandatory):** A code which identifies the language.
3809 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
3810 used as the authoritative source for code values.
- 3811 • **Name (optional):** The name of the usage rule in a language other
3812 than English.
- 3813 • **Business Term (optional, repetitive):** A synonym term in another
3814 language under which the usage rule is commonly known and used in
3815 a business expression in that language.

3816 Core Data Type supplementary component localized information names should
3817 follow, as much as possible, all CDT supplementary component DEN rules.

3818 [D159] Each usage rule localized information name shall only consist of alphabetic
3819 characters, ideographic characters, plus the dot, the underscore and the
3820 space characters unless required by language rules.

3821 The usage rule name in the localized information class must only be expressed in
3822 the language identified by the language code property of that class.

3823 [D160] Each usage rule name shall be in the language identified by the language
3824 and locale code.

3825 The business terms must only be expressed in the language identified by the
3826 language code property of that class, or a recognized dialect of the language.

3827 [D161] Each usage rule localized information business term shall be in the
 3828 language identified by the language and locale code, or a recognized dialect
 3829 of the language.

3830 8.6.7.5 Core Data Type Supplementary Component Common Information

3831 Each CDT supplementary component has a common information class.

3832 [D162] Each CDT supplementary component shall have a common information
 3833 class.

3834 [D163] The CDT supplementary component common information class shall consist
 3835 of:

- 3836 • **DEN (mandatory):** The official name of a CDT supplementary
 3837 component.
- 3838 • **Definition (mandatory):** The semantic meaning of the CDT
 3839 supplementary component.
- 3840 • **Business Term (optional, repetitive):** A synonym term under which
 3841 the CDT supplementary component is commonly known and used in
 3842 business.

3843 [Example] – CDT Supplementary Component Common Information

3844 DEN – Amount. Currency Code List Agency. Identifier

3845 **Definition** – The identifier of the agency that maintains the currency code
 3846 list used for the amount.

3847 Business Term – Currency Code Owner

3848 8.6.7.5.1 Core Data Type Supplementary Component Dictionary Entry Names

3849 The CDT supplementary component DENs are based on ISO 11179 defined data
 3850 type and property terms.

3851 [D164] Each CDT supplementary component DEN shall conform to all DT DEN
 3852 rules.

3853 [D165] The DEN of a CDT supplementary component shall consist of the following
 3854 parts in the order specified:

- 3855 • Data Type term of the CDT to which it belongs, followed by a dot and
 3856 space character (.).
- 3857 • Property term which expresses the unique characteristic of the CDT
 3858 supplementary component, followed by a dot and space character
 3859 (.).
- 3860 • Representation term which represents the value domain of the content
 3861 of the CDT supplementary component.

3862 [Example] – Core Data Type Supplementary components

3863 Amount. Currency Code List Version. Identifier; Code. List Agency.
3864 Identifier; Quantity. Unit. Code

3865 [D166] The CDT supplementary component DEN shall be unique amongst all CDT
3866 supplementary component names within the library of which it is a part.

3867 8.6.7.5.2 Core Data Type Supplementary Component Definition

3868 A CDT supplementary component definition provides a clear, unambiguous and
3869 complete explanation of the meaning of a CDT supplementary component and its
3870 relevance for the related CDT.

3871 [D167] Each CDT supplementary component definition shall conform to all DT
3872 definition rules.

3873 [D168] The definition of a CDT supplementary component shall include the data
3874 type term of the CDT to which it belongs, the property term and the
3875 representation term.

3876 8.6.7.5.3 Core Data Type Supplementary Component Business Terms

3877 CDT supplementary components may have business terms. CDT supplementary
3878 component business terms are synonyms commonly used for day-to-day information
3879 exchanges within a given domain.

3880 [D169] Each CDT supplementary component shall have zero or more business
3881 terms.

3882 8.6.7.6 Core Data Type Supplementary Component Localized Information

3883 The CDT supplementary component localized information class contains the relevant
3884 information necessary to associate native language expressions of CDT
3885 supplementary components to the CDT supplementary component.

3886 [D170] Each CDT supplementary component shall have zero or more localized
3887 information classes.

3888 [D171] Each occurrence of a CDT supplementary component localized information
3889 class shall contain:

- 3890 • **Language Code (mandatory):** A code which identifies the language.
3891 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
3892 used as the authoritative source for code values.
- 3893 • **DEN (optional):** The official name of the CDT supplementary
3894 component in a language other than English
- 3895 • **Definition (mandatory):** The semantic meaning of the CDT
3896 supplementary component in a language other than English.
- 3897 • **Business Term (optional, repetitive):** A synonym term in another
3898 language under which the CDT supplementary component is
3899 commonly known and used in a business expression in that language.

3900 CDT supplementary component localized information DENs should follow, as much
3901 as possible, all CDT supplementary component DEN rules.

3902 [D172] Each CDT supplementary component localized information DEN shall only
3903 consist of alphabetic characters, ideographic characters, plus the dot, the
3904 underscore and the space characters unless required by language rules.

3905 [D173] Each CDT supplementary component localized information definition shall
3906 adhere to all CDT supplementary component definition rules other than the
3907 requirement to be in the English language.

3908 The DEN and definition in the localized information class must only be expressed in
3909 the language identified by the language code property of that class.

3910 [D174] Each CDT supplementary component localized information DEN and
3911 definition shall be in the language identified by the language and locale
3912 code.

3913 The business terms must only be expressed in the language identified by the
3914 language code property of that class, or a recognized dialect of the language.

3915 [D175] Each CDT supplementary component localized information business term
3916 shall be in the language identified by the language and locale code, or a
3917 recognized dialect of the language.

3918 8.6.7.7 Core Data Type Supplementary Component Core Value Domain

3919 CDT supplementary components can have one or more value domains. A CDT
3920 supplementary component core value domain defines the set of allowed values
3921 through the presence of either a scheme or list, or a primitive with defined facets and
3922 their restrictions.

3923 [D176] A CDT supplementary component shall have one or more value domains.

3924 Since each CDT supplementary component may have multiple value domains, each
3925 defined value domain contains a default indicator that identifies it as the default value
3926 domain amongst the set of value domains for the CDT supplementary component.

3927 [D177] A CDT supplementary component core value domain shall have a default
3928 indicator whose value = `true` if it is the default value domain.

3929 [D178] A CDT supplementary component core value domain shall have a default
3930 indicator whose value = `false` if it is not the default value domain.

3931 Each CDT supplementary component core value domain may also have a default
3932 value. This default value represents a CDT supplementary component value that is
3933 to be automatically applied to the CDT supplementary component in the absence of
3934 a choice made by the user. The default value should be used unless an alternate is
3935 required to meet specific business requirements.

3936 [D179] A CDT supplementary component core value domain shall have zero or one
3937 default values.

3938 Example – CDT Supplementary Component Default Value

3939 Supplementary Component – `Amount. Currency Code List. Identifier`

3940 Default Value – `ISO 4217`

3941 Default values will be conformant to the defined primitive or scheme or list of the
3942 CDT supplementary component core value domain.

3943 [D180] the CDT supplementary component core value domain default value shall
3944 be conformant to its defined primitive or scheme or list.

3945 If a CDT supplementary component value domain has a default value, the source of
3946 that default value will also be identified.

3947 [D181] A CDT value domain with a default value shall have a default value source.

3948 [Note] – Value Domain Default Source

3949 There are no specific rules for the structure of value domain default value sources.
3950 Implementers are free to choose any structure providing it guarantees uniqueness
3951 within the group of value domain default value sources of a value domain.

3952 CDT supplementary component core value domains are defined by either a primitive
3953 or a scheme or list. Each primitive or scheme or list constitutes a separate core value
3954 domain for the CDT supplementary component.

3955 [D182] Each CDT supplementary component core value domain shall consist of a
3956 primitive or a scheme or list.

3957 8.6.7.7.1 Core Data Type Supplementary Component Core Value Domain Primitive

3958 Primitives represent basic building blocks for defining value domains of content and
3959 supplementary components. Each CDT supplementary component core value
3960 domain can have zero or one primitives defined for it. The CDT supplementary
3961 component core value domain primitive defines the value domain. Primitives are
3962 referred to as primitive types.

3963 Primitives include, but are not limited to:

- 3964 • Binary
- 3965 • Date
- 3966 • Decimal
- 3967 • Double
- 3968 • Float
- 3969 • Integer
- 3970 • String
- 3971 • Token

3972 [D183] Each CDT supplementary component core value domain shall have zero or
3973 one primitives.

3974 [D184] A CDT supplementary component primitive shall be one of the defined
3975 primitives in the *UN/CEFACT Data Type Catalogue*.

3976 Each primitive shall have a primitive type. The primitive type code value is taken
3977 from a primitive type code list.

3978 [D185] Every CDT supplementary component core value domain primitive shall
3979 have a primitive type taken from a primitive type code list.

3980 [Note] –Primitive Type Code List

3981 UN/CEFACT will publish and make freely available a Primitive Type Code List for
3982 use in support of this rule.

3983 Each primitive has a formal name. This name typically represents the nature of the
3984 value domain it represents.

3985 [D186] Every CDT supplementary component core value domain primitive shall
3986 have a primitive name.

3987 [D187] Every CDT supplementary component core value domain primitive name
3988 shall be unique within the set of primitives of CDTs.

3989 A CDT supplementary component core value domain primitive will also have a
3990 description that semantically defines its value domain.

3991 [D188] Each CDT supplementary component core value domain primitive shall
3992 have a description that semantically defines its value domain.

3993 **8.6.7.7.1.1 Core Data Type Supplementary Component Core Value Domain Primitive** 3994 **Facet**

3995 The value domains expressed by primitives are quantified through their facets. A
3996 primitive may have one or more facets. Each facet defines or constrains an aspect of
3997 the value domain expressed by the primitive.

3998 [D189] Each CDT supplementary component core value domain primitive shall
3999 have zero or more facets.

4000 Each facet shall have a facet type. The facet type code value is taken from a facet
4001 type code list.

4002 [D190] Each CDT supplementary component core value domain primitive facet
4003 shall have a facet type taken from a facet type code list.

4004 [Note] –Facet Type Code List

4005 UN/CEFACT will publish and make freely available a facet type code list for use in
4006 support of this rule.

4007 [D191] Each CDT supplementary component core value domain primitive facet
4008 shall have a name that is unique amongst the set of facet names of a
4009 primitive.

4010 [D192] Each CDT supplementary component core value domain primitive facet
4011 shall have a description that semantically expresses the nature of the
4012 restrictions associated with it.

4013 **8.6.7.7.2 Core Data Type Supplementary Component Core Value Domain Scheme** 4014 **or List**

4015 Schemes are the equivalent of a pattern facet. A scheme formally expresses the
4016 pattern and the allowed values for populating that pattern in the form of identifiers.
4017 Lists are the equivalent of enumerated lists and are typically published as formal
4018 code lists. The set of codes in a formal code list is used by core value domains as an
4019 enumerated set of allowed values.

4020 Unambiguous identification of the scheme or list is necessary.

4021 [D193] Every CDT supplementary component core value domain scheme or list
4022 shall have an identifier.

4023 A version identifier serves to differentiate one version of a scheme or list from all
4024 other versions of the scheme or list.

4025 [D194] Every CDT supplementary component core value domain scheme or list
4026 shall have zero or one version identifiers.

4027 Every scheme or list will be owned by an organization. The organization may either
4028 identified by a unique identifier or a name.

4029 [D195] Every CDT supplementary component core value domain scheme or list
4030 shall have either an agency identifier or an agency name.

4031 [D196] Every CDT supplementary component core value domain scheme or list
4032 shall have zero or one agency identifiers.

4033 [Note] – Agency Identifier

4034 UN/CEFACT recommends using UN/CEFACT Code List Responsible Agency Code
4035 (Data Element 3055) in the latest version of the UN/CEFACT directory.

4036 [D197] Every CDT supplementary component core value domain scheme or list
4037 shall have zero or one agency names.

4038 Business Data Types are able to place restrictions on schemes and lists. If such
4039 restrictions are undesirable, then this will be indicated through the use of a required
4040 modification allowed indicator.

4041 [D198] Every CDT supplementary component core value domain scheme or list
4042 shall have a modification allowed indicator whose value = `true` if
4043 modifications are allowed, or whose value = `false` if modifications are not
4044 allowed.

4045 **8.6.7.7.2.1 Core Data Type Supplementary Component Core Scheme or List** 4046 **Identification Metadata**

4047 Although the identifier is sufficient to differentiate one core scheme or list for a given
4048 CDT supplementary component core value domain from all other schemes or lists for
4049 that CDT supplementary component, a CDT supplementary component core scheme
4050 or list may also have a unique name that semantically differentiates it.

4051 [D199] A CDT supplementary component core scheme or list shall have zero or
4052 one names that is unique within the group of core scheme or lists of a CDT
4053 supplementary component.

4054 A CDT supplementary component core scheme or list may have several business
4055 terms. These business terms are synonym terms under which the scheme or list is
4056 commonly known and used in business.

4057 [D200] Each CDT supplementary component core value domain core scheme or list
4058 shall have zero or more business terms.

4059 **8.6.7.7.2.2 Core Data Type Supplementary Component Core Value Domain Core** 4060 **Scheme or List Identification Metadata Localized Information**

4061 The CDT supplementary component core value domain core scheme or list localized
4062 information class contains the relevant information necessary to associate native
4063 language identification of schemes or lists.

4064 [D201] A CDT supplementary component core value domain core scheme or list
4065 shall have zero or more localized information classes

4066 [D202] Each occurrence of a CDT supplementary component core value domain
4067 core scheme or list localized information class shall contain:

- 4068 • **Language Code (mandatory):** A code which identifies the language.
4069 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4070 used as the authoritative source for code values.
- 4071 • **Name (optional):** The name of the scheme or list in a language other
4072 than English.
- 4073 • **Business Term (optional, repetitive):** A synonym term in another
4074 language under which the scheme or list is commonly known and
4075 used in a business expression in that language.

4076 CDT supplementary component core value domain core scheme or list names
4077 should follow, as much as possible, all CDT DEN rules.

4078 [D203] Each CDT supplementary component core value domain core scheme or list
4079 name shall only consist of alphabetic characters, ideographic characters,
4080 plus the dot, the underscore and the space characters unless required by
4081 language rules.

4082 The CDT supplementary component core value domain core scheme or list name in
4083 the localized information class must only be expressed in the language identified by
4084 the language code property of that class.

4085 [D204] Each supplementary component core value domain core scheme or list
4086 name shall be in the language identified by the language and locale code.

4087 The CDT supplementary component core value domain core scheme or list business
4088 term must only be expressed in the language identified by the language code
4089 property of that class, or a recognized dialect of the language.

4090 [D205] Each CDT supplementary component core value domain core scheme or list
4091 business term shall be in the language identified by the language and locale
4092 code, or a recognized dialect of the language.

4093 **8.6.7.7.2.3 Core Data Type Supplementary Component Core Value Domain Core** 4094 **Identifier Scheme**

4095 Core identifier schemes are typically not enumerated. No additional rules are
4096 provided regarding the content of identifier schemes. However, at a minimum, an
4097 identifier scheme should define a specific pattern for the values of the identifiers to
4098 conform to.

4099 **8.6.7.7.2.4 Core Data Type Supplementary Component Core Value Domain Core Code** 4100 **List**

4101 Core code lists contain lists of enumerated code values. However, the diversity of
4102 code list content is such that no additional rules are provided with the exception of
4103 the requirement for one or more code values.

4104 [D206] Each CDT supplementary component core value domain core scheme or list
4105 shall contain one or more core code values.

4106 8.6.7.7.2.4.1 Core Data Type Supplementary Component Core Value Domain Core 4107 Code Value Identification Metadata

4108 A CDT supplementary component core code value will contain identification
4109 metadata consisting of a name and optional business term or terms.

4110 [D207] A CDT supplementary component core value domain core code list core
4111 code value shall have zero or one names that is unique within the set of
4112 core code values for a core code list.

4113 A CDT supplementary component core code list may also have several business
4114 terms. These business terms are synonym terms under which the core code value is
4115 commonly known and used in business.

4116 [D208] Each CDT supplementary component core code value shall have zero or
4117 more business terms.

4118 8.6.7.7.2.4.2 Core Data Type Supplementary Component Core Value Domain Core 4119 Code Value Localized Metadata

4120 The CDT supplementary component core value domain core scheme or list localized
4121 information class contains the relevant information necessary to associate native
4122 language identification of schemes or lists.

4123 [D209] A CDT supplementary component core value domain core scheme or list
4124 shall have zero or more localized information classes

4125 [D210] Each occurrence of a CDT supplementary component core value domain
4126 core scheme or list localized information class shall contain:

- 4127 • **Language Code (mandatory):** A code which identifies the language.
4128 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4129 used as the authoritative source for code values.
- 4130 • **Name (optional):** The name of the scheme or list in a language other
4131 than English.
- 4132 • **Business Term (optional, repetitive):** A synonym term in another
4133 language under which the scheme or list is commonly known and
4134 used in a business expression in that language.

4135 CDT supplementary component core value domain core scheme or list names
4136 should follow, as much as possible, all CDT DEN rules.

4137 [D211] Each CDT supplementary component core value domain core scheme or list
4138 name shall only consist of alphabetic characters, ideographic characters,
4139 plus the dot, the underscore and the space characters unless required by
4140 language rules.

4141 The CDT supplementary component core value domain core scheme or list name in
4142 the localized information class must only be expressed in the language identified by
4143 the language code property of that class.

4144 [D212] Each supplementary component core value domain core scheme or list
4145 name shall be in the language identified by the language and locale code.

4146 The CDT supplementary component core value domain core scheme or list business
4147 term must only be expressed in the language identified by the language code
4148 property of that class, or a recognized dialect of the language.

4149 [D213] Each CDT supplementary component core value domain core scheme or list
4150 business term shall be in the language identified by the language and locale
4151 code, or a recognized dialect of the language.

4152 8.6.7.7.3 Core Data Type Supplementary Component Core Value Domain Usage 4153 Rule

4154 CDT supplementary component core value domains may have usage rules. Each
4155 usage rule defines a constraint that describes specific conditions that are applicable
4156 to the CDT supplementary component value domain. The CDT supplementary
4157 component core value domain usage rules represent the specific application of a
4158 CDT supplementary component value domain in its role of expressing the value
4159 domain of its CDT supplementary component. CDT supplementary component core
4160 value domain usage rules can be either unstructured – expressed as free form text,
4161 or structured – expressed in a formal language.

4162 [D214] A CDT supplementary component core value domain shall have zero or
4163 more usage rules.

4164 Usage rules will be defined at the lowest possible level of the hierarchical structure to
4165 which they apply.

4166 [D215] CDT supplementary component core value domain usage rules shall not
4167 replicate CDT, CDT content component, CDT content component core value
4168 domain, or CDT supplementary component usage rules.

4169 [D216] A CDT supplementary component core value domain usage rule shall have
4170 an identifier that is unique amongst all usage rules for the library of which it
4171 is a part.

4172 [Note] – Usage Rule Identifier Structure

4173 There are no specific rules for the structure of usage rule identifiers. Implementers
4174 are free to choose any structure providing it guarantees uniqueness within the group
4175 of usage rules of a library.

4176 The CDT supplementary component core value domain usage rule constraint is the
4177 formal expression of the usage rule. The constraint can be structured or
4178 unstructured. An unstructured constraint will be expressed as free form text.

4179 [D217] An unstructured CDT supplementary component core value domain usage
4180 rule constraint shall have a free form text expression that fully details the
4181 usage rule.

4182 A CDT supplementary component core value domain formal constraint is a
4183 constraint that is expressed in a formal language such as the UML OCL or OMG
4184 SBVR.

4185 [D218] A structured CDT supplementary component core value domain usage rule
4186 constraint shall have a formal constraint language expression.

4187 CDT supplementary component usage rule constraint types must also be specified.
4188 The constraint type value is taken from a constraint type code list.

4189 [D219] Every CDT supplementary component usage rule expressed as a formal
4190 constraint shall have a constraint type taken from a constraint type code list.

4191 [Note] –Constraint Type Code List

4192 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
4193 List for use in support of this rule.

4194 CDT supplementary component usage rules will also have condition types that
4195 identify when the formal constraint should be applied.

4196 [D220] Every CDT supplementary component core value domain usage rule shall
4197 have a condition type.

4198 [D221] Every CDT supplementary component core value domain usage rule
4199 condition type shall be one of *pre-condition*, *post-condition*, or *invariant*.

4200 8.6.7.7.3.1 Core Data Type Supplementary Component Core Value Domain Usage 4201 Rule Identification Metadata

4202 Although the unique identifier is sufficient to differentiate one usage rule in a library
4203 for all other usage rules, a CDT supplementary component core value domain usage
4204 rule may also have a unique name that semantically differentiates it from all other
4205 named usage rules.

4206 [D222] A CDT supplementary component core value domain usage rule shall have
4207 zero or one names that is unique within the group of usage rules of library of
4208 which it is a part.

4209 A CDT supplementary component core value domain usage rule may have several
4210 business terms. CDT supplementary component core value domain usage rule
4211 business terms are synonym terms under which the CDT supplementary component
4212 core value domain usage rule is commonly known and used in business.

4213 [D223] Each CDT usage rule shall have zero or more business terms.

4214 8.6.7.7.3.2 Core Data Type Supplementary Component Core Value Domain Usage 4215 Rule Identification Metadata Localized Information

4216 The CDT supplementary component core value domain usage rule localized
4217 information class contains the relevant information necessary to associate native
4218 language expressions of usage rules.

4219 [D224] A CDT supplementary component core value domain usage rule shall have
4220 zero or more localized information classes

4221 [D225] Each occurrence of a CDT supplementary component core value domain
4222 usage rule localized information class shall contain:

- 4223 • **Language Code (mandatory):** A code which identifies the language.
4224 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4225 used as the authoritative source for code values.
- 4226 • **Name (optional):** The name of the usage rule in a language other
4227 than English.
- 4228 • **Business Term (optional, repetitive):** A synonym term in another
4229 language under which the usage rule is commonly known and used in
4230 a business expression in that language.

4231 Core Data Type supplementary component core value domain localized information
4232 DENs should follow, as much as possible, all ASCC DEN rules.

4233 [D226] Each CDT supplementary component core value domain usage rule
4234 localized information name shall only consist of alphabetic characters,
4235 ideographic characters, plus the dot, the underscore and the space
4236 characters unless required by language rules.

4237 The CDT supplementary component core value domain usage rule name in the
4238 localized information class must only be expressed in the language identified by the
4239 language code property of that class.

4240 [D227] Each usage rule name shall be in the language identified by the language
4241 and locale code.

4242 The business terms must only be expressed in the language identified by the
4243 language code property of that class, or a recognized dialect of the language.

4244 [D228] Each CDT supplementary component core value domain usage rule
4245 localized information business term shall be in the language identified by the
4246 language and locale code, or a recognized dialect of the language.

4247 **8.7 Business Data Types**

4248 A BDT defines the value domain for a particular BBIE property. Figure 8-3 describes
4249 the BDT and relationships between the BDT and its subordinate parts.

4250 [Definition] – Business Data Type (BDT)

4251 A business data type is a data type consisting of one and only one business data
4252 type content component that carries the actual content plus zero or more business
4253 data type supplementary components giving essential extra definition to the CDT
4254 content component. Business data types have business semantics.

4255 BDTs can be qualified or unqualified. Unqualified BDTs are of type CDT without
4256 restrictions. Qualified BDTs are defined by specifying restrictions on the CDT from
4257 which it is derived. BDTs can only contain the CDT content and supplementary
4258 components contained in its underlying CDT. Qualified BDTs can only contain the
4259 supplementary components contained in its less qualified BDT.

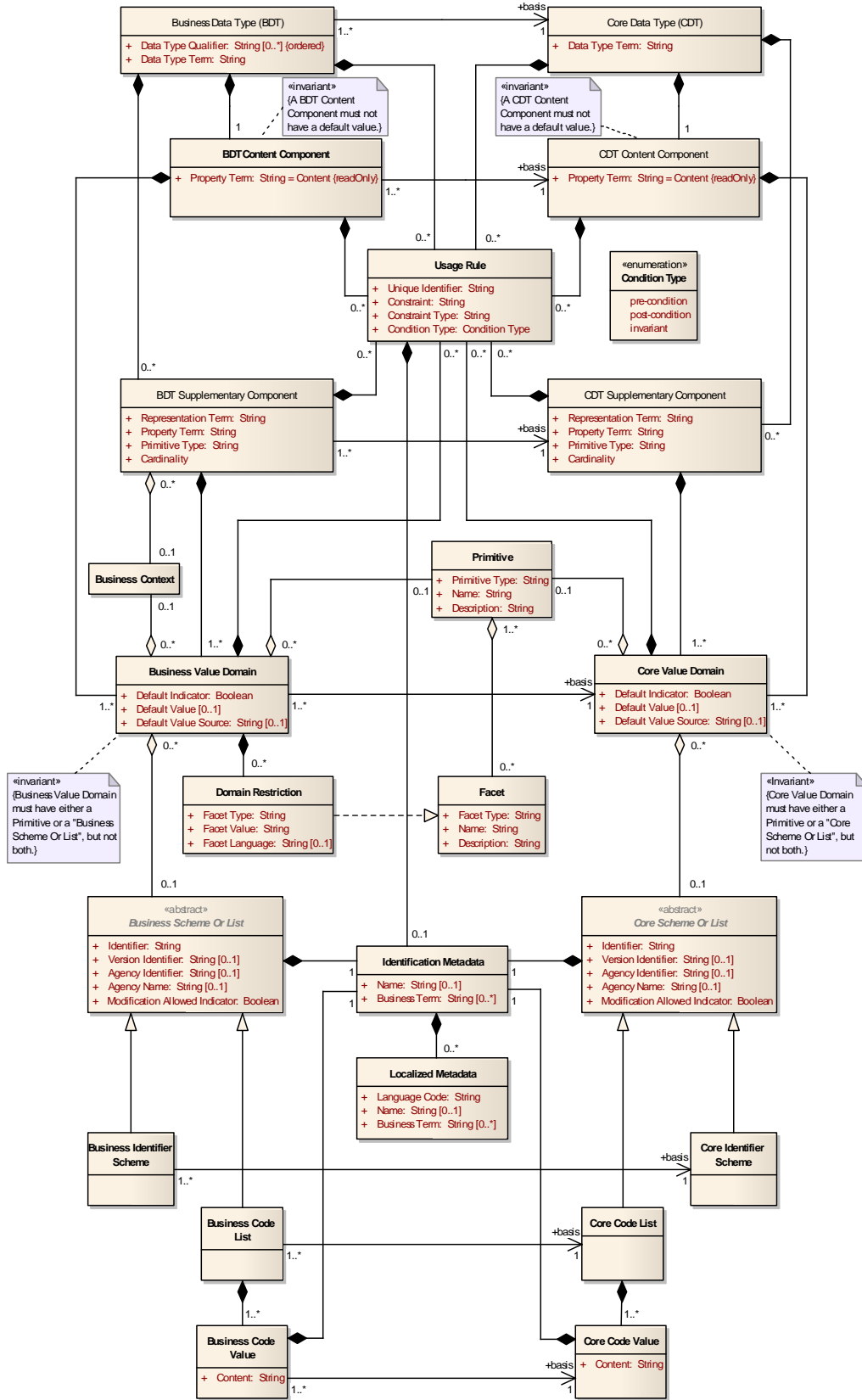
4260 **8.7.1 Business Data Type – Data Type Term**

4261 The BDT is expressed by a data type term. The BDT data type term is a semantically
4262 meaningful name that serves as the basis for the DEN of the BDT and all qualified
4263 BDTs derived from it. The BDT data type term defines the form of the set of valid
4264 values for a BBIE data element or value domain. BDT data type terms semantically
4265 identify their source CDT by replicating the CDT data type term.

4266 [D229] A BDT DEN data type term shall be the same as its source CDT data type
4267 term.

4268 **8.7.2 Business Data Type Qualifier Term**

4269 A BDT qualifier term is a word or words which help define and differentiate a
4270 qualified BDT from its higher level BDT. Qualifier terms are used to refine the



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Figure 8-3. UML Diagram of Business Data Type Metamodel

4273 semantic meaning of the DEN to reflect the nature of the restriction to the properties
 4274 and representation of the data type as necessary to distinguish one BDT concept,
 4275 conceptual domain, content model or data value domain from another.

4276 **[Note] BDT Qualifier Hierarchy**

4277 A BDT qualifier hierarchy is a tree like structure that reflects the order of the
 4278 qualifiers for a set of qualified BDTs derived from the same unqualified BDT in a
 4279 graph like form. The first level in a BDT hierarchy is the unqualified BDT construct,
 4280 and each succeeding lower level is a more qualified BDT construct than its
 4281 preceding BDT construct.

4282 **[D230]** Where necessary, a BDT shall be qualified by restricting the set of valid
 4283 values allowed by imposing restrictions on the BDT content component
 4284 and/or the BDT supplementary component(s).

4285 **[D231]** A qualified BDT shall be a restriction of its higher level BDT in a BDT
 4286 hierarchy.

4287 **[D232]** A qualified BDT shall be unique amongst the set of qualified BDTs in the
 4288 library of which it is a part.

4289 **[D233]** BDT qualifier terms shall precede the data type term.

4290 **[D234]** Each BDT data type qualifier term shall be followed by an underscore and a
 4291 space character (_).

4292 **[D235]** Each word in a multi-worded BDT data type qualifier term shall be separated
 4293 by a space character ().

4294 BDT data type qualifier terms are derived from the semantic use of the restricted
 4295 data type and not the restriction values themselves.

4296 **[D236]** BDT qualifier terms shall be taken from the semantics of the supported
 4297 BBIE(s).

4298 **[D237]** BDT qualifier terms shall not describe the actual content or supplementary
 4299 component restriction values.

4300 **[Example] – Allowed BDT Qualifiers**

4301 **Allowed:**

4302 **Price_ Amount. Type**

4303 **Not Allowed:**

4304 **1 to 50 Euros_ Amount. Type Of One To Fifty Euros_ Amount. Type**

4305 **[D238]** A multi-worded BDT qualifier term shall have a unique semantic meaning
 4306 compared to the words separately.

4307 **[D239]** A qualifying BDT hierarchy shall be established when multiple qualifiers are
 4308 used.

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[Example] – BDT Qualifier Hierarchy
BBIE - Trade_ Contract. Issue. Date Time
May have any of the following data types:
Date Time. Type
Issue_ Date Time. Type
Contract_ Issue_ Date Time. Type
Trade_ Contract_ Issue_ Date Time. Type

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8.7.3 Business Data Type Usage Rule

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BDTs may have usage rules. Each BDT usage rule defines a constraint that describes specific conditions that are applicable to the BDT. BDT usage rules represent the specific application of a BDT in its role of expressing the value domain of BBIEs and BBIE Properties. BDT usage rules can be either unstructured – expressed as free form text, or structured – expressed in a formal language.

[D240] A BDT shall have zero or more usage rules.

Usage rules will be defined at the lowest possible level of the hierarchical structure to which they apply.

[D241] BDT usage rules shall not replicate CDT, BDT Content, BDT supplementary component, or BDT business value domain usage rules.

[D242] A BDT usage rule shall have an identifier that is unique amongst all usage rules for the library of which it is a part.

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[Note] – Usage Rule Identifier Structure
There are no specific rules for the structure of usage rule identifiers. Implementers are free to choose any structure providing it guarantees uniqueness within the group of usage rules of a library.

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The BDT usage rule constraint is the formal expression of the usage rule. The constraint can be structured or unstructured. An unstructured constraint will be expressed as free text.

[D243] An unstructured BDT usage rule constraint shall have a free form text expression that fully details the usage rule.

If a BDT usage rule is expressed in a formal language, it will have a structured constraint. A structured constraint is a constraint that is expressed in a formal language such as the UML OCL or OMG SBVR.

[D244] A structured BDT usage rule constraint shall have a formal constraint language expression..

BDT usage rule constraint types must also be specified. The constraint type value is taken from a constraint type code list.

[D245] Every BDT usage rule shall have a constraint type taken from a constraint type code list.

4347 [Note] –Constraint Type Code List

4348 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
4349 List for use in support of this rule.

4350 BDT usage rules expressed will also have a condition type that identifies when the
4351 formal constraint should be applied.

4352 [D246] Every BDT usage rule shall have a condition type.

4353 [D247] Every BDT usage rule condition type shall be one of `pre-condition`, `post-`
4354 `condition`, `Of invariant..`

4355 8.7.3.1 Business Data Type Usage Rule Identification Metadata

4356 Although the unique identifier is sufficient to differentiate one usage rule for a given
4357 BDT from all other usage rules for a library, a BDT usage rule may also have an
4358 identification metadata class that provides additional information.

4359 [D248] A BDT usage rule shall have zero or one identification metadata classes.

4360 The usage rule identification metadata class contains a unique name that
4361 semantically differentiates it from all other named usage rules for the BDT.

4362 [D249] A BDT usage rule shall have zero or one names that is unique within the
4363 group of usage rules of a BDT.

4364 [Ed Note – we need to finalize how much uniqueness we want for the names – BDT
4365 or DT or library]

4366 The BDT usage rule identification metadata class may contain business terms. BDT
4367 usage rule business terms are synonym terms under which the BDT usage rule is
4368 commonly known and used in business.

4369 [D250] Each BDT usage rule shall have zero or more business terms.

4370 8.7.3.2 Business Data Type Usage Rule Localized Metadata

4371 BDT usage rules may have localized metadata that is used to provide other
4372 language expressions of its name and business term or terms.

4373 [D251] A BDT usage rule shall have zero or more localized information classes

4374 [D252] Each occurrence of a BDT usage rule localized information class shall
4375 contain:

- 4376 • **Language Code (mandatory):** A code which identifies the language.
4377 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4378 used as the authoritative source for code values.
- 4379 • **Name (optional):** The name of the usage rule in a language other
4380 than English.
- 4381 • **Business Term (optional, repetitive):** A synonym term in another
4382 language under which the usage rule is commonly known and used in
4383 a business expression in that language.

4384 [D253] BDT usage rule localized metadata shall be in the language identified by the
4385 language and locale code.

8.7.4 Business Data Type Identifiers

In order to ensure uniqueness, every BDT will have assigned a:

- **Unique Identifier (mandatory):** The identifier that references the BDT in a unique and unambiguous way.
- **Version Identifier (mandatory):** An indication of the evolution over time of the BDT.

[D254] Each BDT shall have a unique identifier within the library of which it is a part.

[D255] Each version of a BDT shall have a unique version identifier within the library of which it is a part.

8.7.5 Business Data Type Common Information

[D256] Each BDT shall have a common information class.

[D257] The BDT common information class shall consist of:

- **DEN (mandatory):** The official name of the BDT.
- **Definition (mandatory):** The semantic meaning of the BDT.
- **Business Term (optional, repetitive):** A synonym term under which the BDT is commonly known and used in business.

[Example] – BDT Common Information

DEN – `start_ Date Time. Type`

Definition – A `start` date, start time, start date time, or other `start date time` value used as a particular point in the progression of time.

Business Term – `Begin`

8.7.5.1 Business Data Type Dictionary Entry Names

The BDT DEN is based on the ISO 11179 data type term.

[D258] Each BDT DEN shall conform to all DT DEN rules.

[D139] The BDT DEN shall consist of the data type term and data type term qualifiers, if any, followed by a dot, a space character, and the term `type`.

[Example] – Business Data Type DEN

`Country_ Identifier. Type`

8.7.5.2 Business Data Type Definitions

[D259] BDT definitions shall conform to all rules for DT definitions.

[D260] The BDT definition shall include the BDT data type term and data type qualifier terms, if any.

8.7.5.3 Business Data Type Business Terms

A BDT may have several business terms. BDT business terms are those terms commonly used for day-to-day information exchanges within a given domain.

[D261] A BDT shall have zero or more business terms.

4423 **8.7.6 Business Data Type Localized Information**

4424 The BDT localized information class contains the relevant information necessary to
4425 associate native language expressions of BDT attributes to the BDT.

4426 [D262] A BDT shall have zero or more localized information classes.

4427 [D263] Each occurrence of a BDT localized information class shall contain:

- 4428 • **Language Code (mandatory):** A code which identifies the language.
4429 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4430 used as the authoritative source for code values.
- 4431 • **DEN (optional):** The official name of a BDT in a language other than
4432 English.
- 4433 • **Definition (mandatory):** The semantic meaning of the BDT in a
4434 language other than English.
- 4435 • **Business Term (optional, repetitive):** A synonym term in another
4436 language under which the BDT is commonly known and used in a
4437 business expression in that language. Business terms in the localized
4438 information class shall be in the language identified by the language
4439 and locale code.

4440 BDT localized information DENs should follow, as much as possible, all BDT DEN
4441 rules.

4442 [D264] Each BDT localized information DEN shall only consist of alphabetic
4443 characters, ideographic characters, plus the dot, the underscore and the
4444 space characters unless required by language rules.

4445 [D265] Each BDT localized information definition shall adhere to all BDT definition
4446 rules other than the requirement to be in the English language.

4447 The DEN and definition in the localized information class must only be expressed in
4448 the language identified by the language code property of that class.

4449 [D266] Each BDT localized information DEN and definition shall be in the language
4450 identified by the language and locale code.

4451 The business terms must only be expressed in the language identified by the
4452 language code property of that class, or a recognized dialect of the language.

4453 [D267] Each BDT localized information business term shall be in the language
4454 identified by the language and locale code, or a recognized dialect of the
4455 language.

4456 **8.7.7 Business Data Type Content Component**

4457 Each BDT will have a single BDT content component. BDT content components are
4458 defined in the UN/CEFACT Data Type Catalogue and are unique to the BDT to
4459 which they are assigned.

4460 [D268] A BDT shall have one and only one BDT content component.

4461 A BDT content component is the CDT content component of the source CDT.

4462 [D269] A BDT content component shall inherit all of the properties and restrictions,
4463 including the name, of the CDT content component of the source CDT.

4464 8.7.7.1 Business Data Type Content Component Property Term

4465 Each BDT content component has a property term. The BDT content component
4466 property term represents the actual content of a data element. The BDT content
4467 component property term is the same as the CDT content component of the source
4468 CDT and has a fixed value of `Content`.

4469 [D270] Each BDT content component shall have a property term.

4470 [D271] The BDT content component property term shall have a fixed value of
4471 `Content`.

4472 8.7.7.2 Business Data Type Content Component Usage Rules

4473 BDT content components may have usage rules. Each usage rule defines a
4474 constraint that describes specific conditions that are applicable to the BDT content
4475 component. The BDT content component usage rules represent the specific
4476 application of a BDT content component in its role of expressing the value domain of
4477 its BDT. BDT usage rules can be either unstructured – expressed as free form text,
4478 or structured – expressed in a formal language.

4479 [D272] A BDT content component shall have zero or more usage rules.

4480 Usage rules will be defined at the lowest possible level of the hierarchical structure to
4481 which they apply.

4482 [D273] BDT content component usage rules shall not replicate BDT, BDT
4483 supplementary component, or BDT business value domain usage rules.

4484 [D274] BDT content component usage rules shall not replicate BDT business value
4485 domain restrictions.

4486 [D275] A BDT content component usage rule shall have an identifier that is unique
4487 amongst all usage rules for the library of which it is a part.

4488 [Note] – Usage Rule Identifier Structure

4489 There are no specific rules for the structure of usage rule identifiers. Implementers
4490 are free to choose any structure providing it guarantees uniqueness within the group
4491 of usage rules of a library.

4492 The BDT content component usage rule constraint is the formal expression of the
4493 usage rule. The constraint can be structured or unstructured. An unstructured
4494 constraint will be expressed as free form text.

4495 [D276] An unstructured BDT content component usage rule shall have a free form
4496 text expression that fully details the usage rule.

4497 A BDT content component formal constraint is a constraint that is expressed in a
4498 formal language such as the UML OCL or OMG SBVR.

4499 [D277] a structured BDT content component usage rule constraint shall have a
4500 formal constraint language expression.

4501 BDT content component usage rule constraint types must also be specified. The
4502 constraint type value is taken from a constraint type code list.

4503 [D278] Every BDT content component usage rule shall have a constraint type taken
4504 from a constraint type code list.

4505 [Note] –Constraint Type Code List

4506 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
4507 List for use in support of this rule.

4508 BDT content component usage rules will also have a condition type that identifies
4509 when the constraint should be applied.

4510 [D279] Every BDT content component usage rule shall have a condition type.

4511 [D280] Every BDT content component usage rule condition type shall be one of
4512 *pre-condition, post-condition, Of invariant.*

4513 8.7.7.2.1 Business Data Type Content Component Usage Rule Identification 4514 Metadata

4515 Although the unique identifier is sufficient to differentiate one usage rule for a given
4516 BDT content component from all other usage rules for a library, a BDT content
4517 component usage rule may also have a unique name that semantically differentiates
4518 it from all other named usage rules for the BDT.

4519 [D281] A BDT content component usage rule shall have zero or one names that is
4520 unique within the group of usage rules of a BDT content component.

4521 The BDT content component usage rule metadata class may contain business
4522 terms. BDT content component usage rule business terms are synonym terms under
4523 which the BDT content component usage rule is commonly known and used in
4524 business.

4525 [D282] Each BDT content component usage rule shall have zero or more business
4526 terms.

4527 8.7.7.2.2 Business Data Type Content Component Usage Rule Identification 4528 Metadata Localized Information

4529 BDT content component usage rules may have localized metadata that is used to
4530 provide other language expressions of its name and business term or terms.

4531 [D283] A BDT content component usage rule shall have zero or more localized
4532 information classes.

4533 [D284] Each occurrence of a BDT content component usage rule localized
4534 information class shall contain:

- 4535 • **Language Code (mandatory):** A code which identifies the language.
4536 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4537 used as the authoritative source for code values.
- 4538 • **Name (optional):** The name of the usage rule in a language other
4539 than English.
- 4540 • **Business Term (optional, repetitive):** A synonym term in another
4541 language under which the usage rule is commonly known and used in
4542 a business expression in that language.

4543 [D285] BDT content component usage rule localized metadata shall be in the
4544 language identified by the language and locale code.

4545 8.7.7.3 Business Data Type Content Component Common Information

4546 Each BDT content component has a common information class.

4547 [D286] Each BDT content component shall have a common information class.

4548 [D287] The BDT content component common information class shall consist of:

- 4549 • **DEN (mandatory):** The official name of a BDT content component.
- 4550 • **Definition (mandatory):** The semantic meaning of a BDT content
4551 component.
- 4552 • **Business Term (optional, repetitive):** A synonym term under which
4553 the BDT content component is commonly known and used in
4554 business.

4555 [Example] – BDT Content Component Common Information

4556 DEN – **Amount. Content**

4557 **Definition** – An **amount** is a number of monetary units.

4558 **Business Term** – **Money**

4559 8.7.7.3.1 Business Data Type Content Component Dictionary Entry Names

4560 The BDT content component DENs are based on ISO 11179 defined data type and
4561 property terms.

4562 [D288] Each BDT content component DEN shall conform to all DT DEN rules.

4563 [D289] The DEN of a BDT content component shall be the DEN of the CDT content
4564 component of the source CDT.

4565 [Example] – Business Data Type Content Components

4566 **Amount. Content; Date Time. Content**

4567 8.7.7.3.2 Business Data Type Content Component Definition

4568 [D290] Each BDT content component definition shall conform to all DT definition
4569 rules.

4570 [D291] The BDT content component definition shall include the primitive type term
4571 and the definition of the source representation term.

4572 8.7.7.3.3 Business Data Type Content Component Business Terms

4573 A BDT content component may have several business terms. BDT content
4574 component business terms are synonym terms under which the BDT content
4575 component is commonly known and used in business.

4576 [D292] A BDT content component shall have zero or more business terms.

4577 8.7.7.4 Business Data Type Content Component Localized Information

4578 The BDT content component localized information class contains the relevant
4579 information necessary to associate native language expressions of BDT content
4580 components to the BDT content component.

4581 [D293] Each BDT content component shall have zero or more localized information
4582 classes.

4583 [D294] Each occurrence of a BDT content component localized information class
4584 shall contain:

- 4585 • **Language Code (mandatory):** A code which identifies the language.
4586 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4587 used as the authoritative source for code values.
- 4588 • **DEN (optional):** The official name of the BDT content component in a
4589 language other than English.
- 4590 • **Definition (mandatory):** The semantic meaning of the BDT content
4591 component in a language other than English.
- 4592 • **Business Term (optional, repetitive):** A synonym term in another
4593 language under which the BDT content component is commonly
4594 known and used in a business expression in that language.

4595 BDT content component localized information DENs should follow, as much as
4596 possible, all BDT content component DEN rules.

4597 [D295] Each BDT content component localized information DEN shall only consist
4598 of alphabetic characters, ideographic characters, plus the dot, the
4599 underscore and the space characters unless required by language rules.

4600 [D296] Each BDT content component localized information definition shall adhere
4601 to all BDT content component definition rules other than the requirement to
4602 be in the English language.

4603 The DEN and definition in the localized information class must only be expressed in
4604 the language identified by the language code property of that class.

4605 [D297] Each BDT content component localized information DEN and definition shall
4606 be in the language identified by the language and locale code.

4607 The business terms must only be expressed in the language identified by the
4608 language code property of that class, or a recognized dialect of the language.

4609 [D298] Each BDT content component localized information business term shall be
4610 in the language identified by the language and locale code, or a recognized
4611 dialect of the language.

4612 8.7.7.5 Business Data Type Content Component Business Value Domain

4613 BDT content components can have one or more value domains. A BDT content
4614 component business value domain defines the set of allowed values through the
4615 presence of either a scheme or list, or a primitive with defined facets and their
4616 restrictions.

4617 [D299] A BDT content component shall have one or more value domains.

4618 A BDT content component business value domain is based on its source CDT
4619 content component value domain.

4620 [D300] A BDT content component value domain shall inherit all of the properties
4621 and restrictions, including the name of the source CDT content component
4622 value domain.

4623 Since each BDT content component may have multiple value domains, each defined
4624 value domain contains a default indicator that identifies it as the default value domain
4625 amongst the set of value domains for the BDT content component.

4626 [D301] A BDT content component business value domain shall have a default
4627 indicator whose value = `true` if it is the default value domain.

4628 [D302] A BDT content component business value domain shall have a default
4629 indicator whose value = `false` if it is not the default value domain.

4630 Each BDT content component business value domain may also have a default value.
4631 This default value represents a BDT content component business value domain
4632 value that is to be automatically applied to the BDT content component in the
4633 absence of a choice made by the user.

4634 [D303] A BDT content component business value domain shall have zero or one
4635 default values.

4636 Default values will be conformant to the defined primitive or scheme or list of the
4637 BDT content component business value domain.

4638 [D304] the BDT content component business value domain default value shall be
4639 conformant to its defined primitive or scheme or list.

4640 If a BDT content component value domain has a default value, the source of that
4641 default value will also be identified.

4642 [D305] A BDT business value domain with a default value shall have a default value
4643 source.

4644 [Note] – Default Value Sources

4645 There are no specific rules for the structure of value domain default value sources.
4646 Implementers are free to choose any structure providing it guarantees uniqueness
4647 within the group of value domain default value sources of a value domain.

4648 BDT content component business value domains are defined by either a primitive or
4649 a scheme or list. Each primitive or scheme or list constitutes a separate business
4650 value domain for the BDT content component.

4651 [D306] Each BDT content component business value domain shall consist of a
4652 primitive or a scheme or list.

4653 8.7.7.5.1 Business Data Type Content Component Business Value Domain – 4654 Domain Restrictions

4655 .Domain restrictions of a BDT content component business value domain restrict the
4656 set of allowed values of the source CDT content component or less qualified BDT
4657 content component. Domain restrictions only apply when the business value domain
4658 is defined by a primitive as domain restrictions take the form of facets of the
4659 primitive. Restrictions of the business value domain when the domain is defined by a
4660 business scheme or list take the form of restrictions to the scheme or list itself rather
4661 than domain restriction facets.

4662 [D307] Domain restrictions of a BDT content component business value domain
4663 shall only be used to define restrictions on possible values.

4664 [D308] A BDT content component business value domain shall have zero or more
4665 domain restrictions.

4666 The allowed set of facets for a specific BDT content component business value
4667 domain is determined by its primitive type. The allowed restrictions for each primitive
4668 type are defined in the UN/CEFACT Data Type Catalogue.

4669 [D309] BDT content component business value domain domain restrictions shall be
4670 limited to those allowed for the primitive of the BDT content component
4671 business value domain as specified in the UN/CEFACT Data Type
4672 Catalogue.

4673 [Example] – Allowed Facet Restrictions for Primitive Type of Date

4674 BDT Content Component – Date. Content

4675 Primitive Type – Date

4676 Allowed Restriction Facets for Date:

4677 Facet Type: Minimum Inclusive – 2005-06-25

4678 Facet Type: Maximum Inclusive – 2005-06-30

4679 or

4680 Facet Type: Minimum Exclusive – 2007-01-01

4681 Facet Type: Maximum Exclusive – 2007-03-31

4682 [D310] Each BDT content component business value domain domain restriction
4683 shall have zero or one component restrictions for each facet type.

4684 [Example] – Multiple facet restrictions

4685 The BDT of `code. Type` has a content component of `code. Content` whose
4686 business value domain primitive is `string`. The allowed facet types for the string
4687 primitive type include `Expression`, `Length`, `Minimum Length`, `Maximum Length`, and
4688 `Enumeration`. For a qualified data type of `currency_ Code. Type`, each of the
4689 allowed facet restrictions may or may not be present. If an allowed facet
4690 restriction is present, there can only be one occurrence of that facet type.

4691 Primitive type facet restrictions for BDT content component business value domains
4692 consist of the facet type, facet value, and optional facet language.

4693 [D311] Each BDT content component business value domain – domain restriction
4694 shall contain the following attributes:

- 4695 • **Facet Type (mandatory):** Identifies the facet being defined.
- 4696 • **Facet Value (mandatory):** The actual facet restriction value.
- 4697 • **Facet Language (mandatory for expression/not used otherwise):**
4698 For a facet type of expression, defines the language of the regular
4699 expression of the facet value such as Perl, W3C XML Schema
4700 Definition Language, JAVA, or Microsoft .Net.

4701

[Example] – Component Restriction

4702

For a BDT content component business value domain whose primitive type is `binary`, an allowed facet would be `length`. The values for the `length` facet would be:

4703

4704

4705

Facet Type (mandatory) - `length`

4706

Facet Value (mandatory): `10`

4707

Facet Language (optional): not used since the facet type is not `expression`.

4708

8.7.7.5.2 Business Data Type Content Component Business Value Domain Primitive

4709

Primitives represent basic building blocks for defining value domains of content and supplementary components. Each content component business value domain can have zero or one primitives defined for it. The BDT content component business value domain primitive defines the value domain. Primitives are referred to as primitive types.

4710

4711

4712

4713

4714

Primitives include, but are not limited to:

4715

- Binary

4716

- Date

4717

- Decimal

4718

- Double

4719

- Float

4720

- Integer

4721

- String

4722

- Token

4723

[D312] Each BDT content component business value domain shall have zero or one primitives.

4724

4725

[D313] A BDT content component primitive shall be one of the defined primitives in the *UN/CEFACT Data Type Catalogue*.

4726

4727

Each primitive shall have a primitive type. The primitive type code value is taken from a primitive type code list.

4728

4729

[D314] Every BDT content component business value domain primitive shall have a primitive type taken from a primitive type code list.

4730

4731

[Note] –Primitive Type Code List

4732

UN/CEFACT will publish and make freely available a primitive type code list for use in support of this rule.

4733

4734

Each primitive has a formal name. This name typically represents the nature of the value domain it represents.

4735

4736

[D315] Every BDT content component business value domain primitive shall have a primitive name.

4737

4738 [D316] Every BDT content component business value domain primitive name shall
4739 be unique within the set of primitives of BDTs.

4740 A BDT content component business value domain primitive will also have a
4741 description that semantically defines its value domain.

4742 [D317] Each BDT content component business value domain primitive shall have a
4743 description that semantically defines its value domain.

4744 **8.7.7.5.2.1 Business Data Type Content Component Business Value Domain Primitive** 4745 **Facet**

4746 The value domains expressed by primitives are quantified through their facets. A
4747 primitive may have one or more facets. Each facet defines or constrains an aspect of
4748 the value domain expressed by the primitive.

4749 [D318] Each BDT content component business value domain primitive shall have
4750 zero or more facets.

4751 Each facet shall have a facet type. The facet type code value is taken from a facet
4752 type code list.

4753 [D319] Each BDT content component business value domain primitive facet shall
4754 have a facet type taken from a facet type code list.

4755 [Note] –Facet Type Code List

4756 UN/CEFACT will publish and make freely available a Facet Type Code List for use in
4757 support of this rule.

4758 [D320] Each BDT content component business value domain primitive facet shall
4759 have a name that is unique amongst the set of facet names of a primitive.

4760 [D321] Each BDT content component business value domain primitive facet shall
4761 have a description that semantically expresses the nature of the restrictions
4762 associated with it.

4763 **8.7.7.5.3 Business Data Type Content Component Business Value Domain Scheme** 4764 **or List**

4765 Schemes are the equivalent of a pattern facet. A scheme formally expresses the
4766 pattern and the allowed values for populating that pattern in the form of identifiers.
4767 Lists are the equivalent of enumerated lists and are typically published as formal
4768 code lists. The set of codes in a formal code list is used by business value domains
4769 as an enumerated set of allowed values.

4770 Unambiguous identification of the scheme or list is necessary.

4771 [D322] Every BDT content component business value domain scheme or list shall
4772 have an identifier.

4773 A version identifier serves to differentiate one version of a scheme or list from all
4774 other versions of the scheme or list.

4775 [D323] Every BDT content component business value domain scheme or list shall
4776 have zero or one version identifiers.

4777 Every scheme or list will be owned by an organization. The organization may either
4778 identified by a unique identifier or a name.

4779 [D324] Every BDT content component business value domain scheme or list shall
4780 have either an agency identifier or an agency name.

4781 [D325] Every BDT content component business value domain scheme or list shall
4782 have zero or one agency identifiers.

4783 [Note] – Agency Identifier

4784 UN/CEFACT recommends using UN/CEFACT Agency Identifier Code List (Data
4785 Element 3055) in the latest version of the UN/CEFACT directory.

4786 [D326] Every BDT content component business value domain scheme or list shall
4787 have zero or one agency names.

4788 Business Data Types are able to place restrictions on the content of schemes and
4789 lists. If such restrictions are undesirable, then this will be indicated through the use
4790 of a modification allowed indicator.

4791 [D327] Every BDT content component business value domain scheme or list shall
4792 have a modification allowed indicator whose value = `true` if modifications are
4793 allowed, or whose value = `false` if modifications are not allowed.

4794 **8.7.7.5.3.1 Business Data Type Content Component Business Scheme or List** 4795 **Identification Metadata**

4796 Although the identifier is sufficient to differentiate one business scheme or list for a
4797 given BDT content component business value domain from all other schemes or lists
4798 for that BDT content component, a BDT content component business scheme or list
4799 may also have an identification metadata class that provides additional information.

4800 [D328] A BDT content component business scheme or list shall have zero or one
4801 identification metadata classes.

4802 The BDT content component business scheme or list identification metadata class
4803 contains a unique name that semantically differentiates it.

4804 [D329] A BDT content component business scheme or list shall have zero or one
4805 names that is unique within the group of business scheme or lists of a BDT
4806 content component.

4807 The BDT content component business scheme or list identification metadata class
4808 may contain business terms. These business terms are synonym terms under which
4809 the scheme or list is commonly known and used in business.

4810 [D330] Each BDT content component business value domain business scheme or
4811 list shall have zero or more business terms.

4812 **8.7.7.5.3.2 Business Data Type Content Component Business Value Domain Business** 4813 **Scheme or List Identification Metadata Localized Information**

4814 BDT content component business value domain business schemes or lists may have
4815 localized information classes.

4816 [D331] A BDT content component business value domain business scheme or list
4817 shall have zero or more localized information classes

4818 [D332] Each occurrence of a BDT content component business value domain
4819 business scheme or list localized information class shall contain:

- 4820 • **Language Code (mandatory):** A code which identifies the language.
4821 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4822 used as the authoritative source for code values.
- 4823 • **Name (optional):** The name of the scheme or list in a language other
4824 than English.
- 4825 • **Business Term (optional, repetitive):** A synonym term in another
4826 language under which the scheme or list is commonly known and
4827 used in a business expression in that language.

4828 [D333] BDT content component business value domain business scheme or list
4829 localized metadata shall be in the language identified by the language and
4830 locale code.

4831 **8.7.7.5.3.3 Business Data Type Content Component Business Value Domain Business** 4832 **Identifier Scheme**

4833 Business Data Type content component business value domain business identifier
4834 schemes are typically not enumerated, rather the scheme defines a regular
4835 expression or pattern that is used to populate its set of values and also used to
4836 validate values. BDT content component business value domain business identifier
4837 schemes can be restricted from their source CDT content component core value
4838 domain core scheme, or less restricted BDT content component business value
4839 domain business scheme. These restrictions take the form of subsetting the set of
4840 allowed values.

4841 [D334] Each BDT content component business value domain business identifier
4842 scheme set of allowed values shall be equal to or less than the set of
4843 allowed values of its source CDT content component core value domain
4844 core identifier scheme or less restricted BDT content component core value
4845 domain business identifier scheme.

4846 **8.7.7.5.3.4 Business Data Type Content Component Business Value Domain Business** 4847 **Code List**

4848 Business Data Type content component business value domain business code lists
4849 contain lists of enumerated code values.

4850 [D335] Each BDT content component business value domain business code list
4851 shall contain one or more business code values.

4852 BDT content component business value domain business code lists can be equal to
4853 or a restriction of, but never an extension of, their source CDT content component
4854 core value domain core code list, or less restricted BDT content component business
4855 value domain business code list.

4856 [D336] Each BDT content component business value domain business code list set
4857 of allowed values shall be equal to or less than the set of allowed values of
4858 its source CDT content component core value domain core code list or less
4859 restricted BDT content component core value domain business code list.

4860 **8.7.7.5.3.4.1 Business Data Type Content Component Business Value Domain** 4861 **Business Code Value Identification Metadata**

4862 A BDT content component business code value will contain an identification
4863 metadata class consisting of a name and optional business term or terms.

4864 [D337] A BDT content component business value domain business code list
4865 business code value shall have zero or one identification metadata classes.

4866 [D338] A BDT content component business value domain business code list
4867 business code value shall have zero or one names that is unique within the
4868 set of business code values for a business code list.

4869 The BDT content component business code list identification metadata class may
4870 also contain several business terms. These business terms are synonym terms
4871 under which the business code value is commonly known and used in business.

4872 [D339] Each BDT content component business code value shall have zero or more
4873 business terms.

4874 8.7.7.5.3.4.2 Business Data Type Content Component Business Value Domain 4875 Business Code Value Localized Metadata

4876 BDT content component business value domain business scheme or list may have
4877 localized metadata that is used to provide other language expressions of its name
4878 and business terms.

4879 [D340] A BDT content component business value domain business scheme or list
4880 shall have zero or more localized metadata classes.

4881 [D341] Each occurrence of a BDT content component business value domain
4882 business scheme or list localized information class shall contain:

- 4883 • **Language Code (mandatory):** A code which identifies the language.
4884 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
4885 used as the authoritative source for code values.
- 4886 • **Name (optional):** The name of the scheme or list in a language other
4887 than English.
- 4888 • **Business Term (optional, repetitive):** A synonym term in another
4889 language under which the scheme or list is commonly known and
4890 used in a business expression in that language.

4891 [D342] BDT content component business value domain business scheme or list
4892 localized metadata shall be in the language identified by the language and
4893 locale code.

4894 8.7.7.5.4 Business Data Type Content Component Business Value Domain Usage 4895 Rule

4896 BDT content component business value domains may have usage rules. Each
4897 usage rule defines a constraint that describes specific conditions that are applicable
4898 to the BDT content component value domain. BDT content component business
4899 value domain usage rules represent the specific application of a BDT content
4900 component value domain in its role of expressing the value domain of its BDT
4901 content component. BDT content component business value domain usage rules
4902 can be either unstructured – expressed as free form text, or structured – expressed
4903 in a formal language.

4904 [D343] A BDT content component business value domain shall have zero or more
4905 usage rules.

4906 Usage rules will be defined at the lowest possible level of the hierarchical structure to
4907 which they apply.

4908 [D344] BDT content component business value domain usage rules shall not
4909 replicate BDT, BDT content component, BDT supplementary component or
4910 BDT supplementary component business value domain usage rules.

4911 [D345] A BDT content component business value domain usage rule shall have an
4912 identifier that is unique amongst all usage rules for the library of which it is a
4913 part.

4914 [Note] – Usage Rule Identifier Structure

4915 There are no specific rules for the structure of usage rule identifiers. Implementers
4916 are free to choose any structure providing it guarantees uniqueness within the group
4917 of usage rules of a library.

4918 The BDT content component business value domain usage rule constraint is the
4919 formal expression of the usage rule. The constraint can be structured or
4920 unstructured. An unstructured constraint will be expressed as free form text.

4921 [D346] An unstructured BDT content component business value domain usage rule
4922 constraint shall have a free form text expression that fully details the usage
4923 rule.

4924 A BDT content component business value domain formal constraint is a constraint
4925 that is expressed in a formal language such as the UML OCL or OMG SBVR.

4926 [D347] A structured BDT content component business value domain usage rule
4927 constraint shall have a formal constraint language expression.

4928 BDT content component usage rule constraint types must also be specified. The
4929 constraint type value is taken from a constraint type code list.

4930 [D348] Every BDT content component usage rule expressed as a formal constraint
4931 shall have a constraint type taken from a constraint type code list.

4932 [Note] –Constraint Type Code List

4933 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
4934 List for use in support of this rule.

4935 BDT content component usage rules will also have condition types that identify when
4936 the formal constraint should be applied.

4937 [D349] Every BDT content component business value domain usage rule shall have
4938 a condition type.

4939 [D350] Every BDT content component business value domain usage rule condition
4940 type shall be one of `pre-condition`, `post-condition`, `Of invariant`.

4941 **8.7.7.5.4.1 Business Data Type Content Component Business Value Domain Usage** 4942 **Rule Identification Metadata**

4943 Although the unique identifier is sufficient to differentiate one usage rule in a library
4944 for all other usage rules, a BDT content component business value domain usage

4945 rule may also have an identification metadata class that provides additional
4946 information.

4947 [D351] A BDT content component business value domain usage rule shall have
4948 zero or one identification metadata classes.

4949 The BDT content component business value domain usage rule contains a unique
4950 name that semantically differentiates the usage rule from all other named usage
4951 rules for the BDT.

4952 [D352] A BDT content component business value domain usage rule shall have
4953 zero or one names that is unique within the group of usage rules of a BDT.

4954 The BDT content component business value domain usage rule identification
4955 metadata class may contain business terms. BDT content component business
4956 value domain usage rule business terms are synonym terms under which the BDT
4957 content component business value domain usage rule is commonly known and used
4958 in business.

4959 [D353] Each BDT content component business value domain usage rule shall have
4960 zero or more business terms.

4961 **8.7.7.5.4.2 Business Data Type Content Component Business Value Domain Usage** 4962 **Rule Identification Metadata Localized Information**

4963 BDT content component business value domain usage rules may have localized
4964 metadata that is used to provide other language expressions of its name and
4965 business term or terms.

4966 [D354] A BDT content component business value domain usage rule shall have
4967 zero or more localized information classes.

4968 [D355] Each occurrence of a BDT content component business value domain
4969 usage rule localized metadata class shall contain:

- 4970 • **Language Code (mandatory):** A code which identifies the language
4971 being used. *Internet Engineering Task Force RFC 3066 of January*
4972 *2001* shall be used as the authoritative source for code values.
- 4973 • **Name (optional):** The name of the usage rule in a language other
4974 than English.
- 4975 • **Business Term (optional, repetitive):** A synonym term in another
4976 language under which the usage rule is commonly known and used in
4977 a business expression in that language.

4978 [D356] BDT content component business value domain usage rule localized
4979 metadata shall be in the language identified by the language and locale
4980 code.

4981 **8.7.8 Business Data Type Supplementary Components**

4982 Business Data Type supplementary components are defined and published in the
4983 UN/CEFACT Data Type Catalogue, and are unique to the BDT to which they are
4984 assigned. A BDT will have zero or more CDT supplementary components.

4985 [D357] A BDT shall have zero or more BDT supplementary components.

4986 BDT supplementary components are based on the CDT supplementary component
4987 of the source CDT.

4988 [D358] A BDT supplementary component shall inherit all of the properties and
4989 restrictions, including the name of the CDT supplementary component of the
4990 source CDT.

4991 8.7.8.1 Business Data Type Supplementary Component Property Term

4992 Each BDT supplementary component contains a property term. The BDT
4993 supplementary component property term is a semantically meaningful name for a
4994 unique characteristic that can be used in a BDT. The BDT supplementary
4995 component property term is the same as the CDT supplementary component of the
4996 source CDT.

4997 [D359] Each BDT supplementary component shall have a property term.

4998 [D360] Each BDT supplementary component property term shall be the same as
4999 the source CDT supplementary component of the source CDT.

5000 8.7.8.2 Business Data Type Supplementary Component Representation Term

5001 Each BDT supplementary component contains a representation term. The
5002 representation term is a semantically meaningful name that represents the value
5003 domain of the supplementary component. UN/CEFACT defines the approved
5004 representation terms as part of the UN/CEFACT Data Type Catalogue.

5005 [D361] A representation term shall be defined for each BDT supplementary
5006 component.

5007 [D362] Each BDT supplementary component representation term shall be the same
5008 as the CDT supplementary component of the source CDT.

5009 8.7.8.3 Business Data Type Supplementary Component Cardinality

5010 The restriction on the presence of BDT supplementary components will be
5011 accomplished through the use of the BDT supplementary component cardinality
5012 value. Each BDT supplementary component will have its cardinality explicitly
5013 expressed. The BDT supplementary component cardinality defines the occurrence
5014 requirements of the supplementary component within its data type,

5015 [D363] Each BDT supplementary component shall have a cardinality that consists
5016 of a set of values consisting of a minimum occurrence and a maximum
5017 occurrence.

5018 [D364] BDT supplementary component cardinality shall be equal to [0..1] if the
5019 BDT supplementary component is optional, or [1..1] if mandatory.

5020 An unqualified BDT will always include the same supplementary components as its
5021 source CDT.

5022 [D365] An unqualified BDT shall include the same supplementary components as
5023 its source CDT.

5024 An unqualified BDT will never change the cardinality of the included supplementary
5025 components of its source CDT.

5026 [D366] The cardinality of a supplementary component of an unqualified BDT shall
5027 be the same as its source CDT.

5028 A qualified BDT will always include all mandatory supplementary components of its
5029 source BDT and retain its cardinality as being mandatory. A qualified BDT may also
5030 restrict to being mandatory, or not include, any supplementary components that are
5031 optional in its source BDT.

5032 Once a BDT supplementary component is not included in a qualified BDT, it can
5033 never be added back to a more qualified BDT.

5034 [D367] A BDT supplementary component occurrence shall only be restricted and
5035 never extended.

5036 8.7.8.4 Business Data Type Supplementary Component Usage Rules

5037 A BDT supplementary component may have usage rules. Each usage rule defines a
5038 constraint that describes specific conditions that are applicable to the BDT
5039 supplementary component. The BDT supplementary component usage rules
5040 represent the specific application of a BDT supplementary component in its role of
5041 expressing the value domain of its BDT. BDT supplementary component usage rules
5042 can be either unstructured – expressed as free form text, or structured – expressed
5043 in a formal language.

5044 [D368] A BDT supplementary component shall have zero or more usage rules.

5045 Usage rules will be defined at the lowest possible level of the hierarchical structure to
5046 which they apply.

5047 [D369] BDT supplementary component usage rules shall not replicate BDT, BDT
5048 content component, or BDT core value domain usage rules.

5049 [D370] A BDT supplementary component usage rule shall have an identifier that is
5050 unique amongst all usage rules for the library of which it is a part.

5051 [Note] – Usage Rule Identifier Structure

5052 There are no specific rules for the structure of usage rule identifiers. Implementers
5053 are free to choose any structure providing it guarantees uniqueness within the group
5054 of usage rules of a BDT supplementary component.

5055 The BDT supplementary component usage rule constraint is the formal expression of
5056 the usage rule. The constraint can be structured or unstructured. An unstructured
5057 constraint will be expressed as free form text.

5058 [D371] An unstructured BDT supplementary component usage rule shall have a
5059 free form text expression that fully details the usage rule.

5060 A structured constraint is a constraint that is expressed in a formal language such as
5061 the UML OCL or OMG SBVR.

5062 [D372] A structured BDT supplementary component usage rule shall have a formal
5063 constraint language expression.

5064 BDT supplementary component usage rule formal constraints must also be
5065 specified. The constraint type value is taken from a constraint type code list.

5066 [D373] Every BDT supplementary component usage rule shall have a constraint
5067 type taken from a constraint type code list.

5068 [Note] –Constraint Type Code List
5069 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
5070 List for use in support of this rule.

5071 BDT supplementary component usage rules will also have a condition type that
5072 identifies when the constraint should be applied.

5073 [D374] Every BDT supplementary component usage rule shall have a condition
5074 type.

5075 [D375] Every BDT supplementary component usage rule condition type shall be
5076 one of `pre-condition`, `post-condition`, or `invariant`.

5077 8.7.8.4.1 Business Data Type Supplementary Component Usage Rule Identification 5078 Metadata

5079 Although the unique identifier is sufficient to differentiate one usage rule for a given
5080 BDT supplementary component from all other usage rules in a library, a BDT
5081 supplementary component usage rule may also have a unique name that
5082 semantically differentiates it from all other named usage rules for the BDT
5083 supplementary component.

5084 [D376] A BDT supplementary component usage rule shall have zero or one names
5085 that is unique within the group of usage rules of a BDT supplementary
5086 component.

5087 An BDT supplementary component usage rule may have several business terms.
5088 BDT supplementary component usage rule business terms are synonym terms
5089 under which the BDT supplementary component usage rule is commonly known and
5090 used in business.

5091 8.7.8.4.2 Business Data Type Supplementary Component Usage Rule Identification 5092 Metadata Localized Information

5093 The BDT supplementary component usage rule localized information class contains
5094 the relevant information necessary to associate native language expressions of
5095 usage rules.

5096 [D377] A BDT supplementary component usage rule shall have zero or more
5097 localized information classes.

5098 [D378] Each occurrence of a usage rule localized information class shall contain:

- 5099 • **Language Code (mandatory):** A code which identifies the language.
5100 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
5101 used as the authoritative source for code values.
- 5102 • **Name (optional):** The name of the usage rule in a language other
5103 than English.
- 5104 • **Business Term (optional, repetitive):** A synonym term in another
5105 language under which the usage rule is commonly known and used in
5106 a business expression in that language.

5107 Business Data Type supplementary component localized information names should
5108 follow, as much as possible, all BDT supplementary component DEN rules.

5109 [D379] Each usage rule localized information name shall only consist of alphabetic
5110 characters, ideographic characters, plus the dot, the underscore and the
5111 space characters unless required by language rules.

5112 The usage rule name in the localized information class must only be expressed in
5113 the language identified by the language code property of that class.

5114 [D380] Each usage rule name shall be in the language identified by the language
5115 and locale code.

5116 The business terms must only be expressed in the language identified by the
5117 language code property of that class, or a recognized dialect of the language.

5118 [D381] Each usage rule localized information business term shall be in the
5119 language identified by the language and locale code, or a recognized dialect
5120 of the language.

5121 8.7.8.5 Business Data Type Supplementary Component Common Information

5122 Each BDT supplementary component has a common information class.

5123 [D382] Each BDT supplementary component shall have a common information
5124 class.

5125 [D383] The BDT supplementary component common information class shall consist
5126 of:

- 5127 • **DEN (mandatory):** The official name of the BDT supplementary
5128 component.
- 5129 • **Definition (mandatory):** The semantic meaning of the BDT
5130 supplementary component.
- 5131 • **Business Term (optional, repetitive):** A synonym term under which
5132 the BDT supplementary component is commonly known and used in
5133 business.

5134 Example] – BDT Supplementary Component Common Information

5135 DEN – Amount. Currency Code List Agency. Identifier

5136 **Definition** – The identifier of the agency that maintains the currency code
5137 list used for the amount.

5138 Business Term – Currency Code Owner

5139 8.7.8.5.1 Business Data Type Supplementary Component Dictionary Entry Names

5140 The BDT supplementary component DENs are based on ISO 11179 concepts of
5141 data type term, property term, and representation term.

5142 [D384] Each BDT supplementary component DEN shall conform to all DT DEN
5143 rules.

5144 [D385] The DEN of a BDT supplementary component shall be the DEN of the CDT
5145 supplementary component of the source CDT.

5146 [Example] – Business Data Type Supplementary Components

5147 Amount. Currency Code List Version. Identifier, Code. List Agency.
5148 Identifier, Quantity. Unit. Code

5149 [D386] The BDT supplementary component DEN shall be unique amongst all BDT
5150 supplementary component names within the library of which it is a part.

5151 [8.7.8.5.2 Business Data Type Supplementary Component Definitions](#)

5152 A BDT supplementary component definition provides a clear, unambiguous and
5153 complete explanation of the meaning of a BDT supplementary component and its
5154 relevance for the related BDT.

5155 [D387] Each BDT supplementary component definition shall conform to all DT
5156 definition rules.

5157 [D388] The definition of a BDT supplementary component shall include the data
5158 type term of the BDT to which it belongs, the property term and the
5159 representation term.

5160 [8.7.8.5.3 Business Data Type Supplementary Component Business Terms](#)

5161 BDT supplementary components may have business terms. BDT supplementary
5162 component business terms are synonyms commonly used for day-to-day information
5163 exchanges within a given domain.

5164 [D389] Each BDT supplementary component shall have zero or more business
5165 terms.

5166 [8.7.8.6 Business Data Type Supplementary Component Localized Information](#)

5167 The BDT supplementary component localized information class contains the relevant
5168 information necessary to associate native language expressions of BDT
5169 supplementary components to the BDT supplementary component.

5170 [D390] Each BDT supplementary component shall have zero or more localized
5171 information classes.

5172 [D391] Each occurrence of a BDT supplementary component localized information
5173 class shall contain:

- 5174 • **Language Code (mandatory):** A code which identifies the language.
5175 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
5176 used as the authoritative source for code values.
- 5177 • **DEN (optional):** The official name of the BDT supplementary
5178 component in a language other than English.
- 5179 • **Definition (mandatory):** The semantic meaning of the BDT
5180 supplementary component in a language other than English.
- 5181 • **Business Term (optional, repetitive):** A synonym term in another
5182 language under which the BDT supplementary component is
5183 commonly known and used in a business expression in that language.
5184 Business terms in the localized information class shall be in the
5185 language identified by the language and locale code.

5186 BDT supplementary component localized information DENs should follow, as much
5187 as possible, all BDT supplementary component DEN rules.

5188 [D392] Each BDT supplementary component localized information DEN shall only
5189 consist of alphabetic characters, ideographic characters, plus the dot, the
5190 underscore and the space characters unless required by language
5191 rules.

5192 [D393] Each BDT supplementary component localized information definition shall
5193 adhere to all BDT supplementary component definition rules other than the
5194 requirement to be in the English language.

5195 The DEN and definition in the localized information class must only be expressed in
5196 the language identified by the language code property of that class.

5197 [D394] Each BDT supplementary component localized information DEN and
5198 definition shall be in the language identified by the language and locale
5199 code.

5200 The business terms must only be expressed in the language identified by the
5201 language code property of that class, or a recognized dialect of the language.

5202 [D395] Each BDT supplementary component localized information business term
5203 shall be in the language identified by the language and locale code, or a
5204 recognized dialect of the language.

5205 [8.7.8.7 Business Data Type Supplementary Component Business Value Domain](#)

5206 BDT supplementary components can have one or more value domains. A BDT
5207 supplementary component business value domain defines the set of allowed values
5208 through the presence of either a scheme or list, or a primitive with defined facets and
5209 their restrictions.

5210 [D396] A BDT supplementary component shall have one or more value domains.

5211 Since each BDT supplementary component may have multiple value domains, each
5212 defined value domain contains a default indicator that identifies it as the default value
5213 domain amongst the set of value domains for the BDT supplementary component.

5214 [D397] A BDT supplementary component business value domain shall have a
5215 default indicator whose value = `true` if it is the default value domain.

5216 [D398] A BDT supplementary component business value domain shall have a
5217 default indicator whose value = `false` if it is not the default value domain.

5218 Each BDT supplementary component business value domain may also have a
5219 default value. This default value represents a BDT supplementary component value
5220 that is to be automatically applied to the BDT supplementary component in the
5221 absence of a choice made by the user. The default value should be used unless an
5222 alternate is required to meet specific business requirements.

5223 [D399] A BDT supplementary component business value domain shall have zero or
5224 one default values.

5225

Example – BDT Supplementary Component Default Value

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Supplementary Component – **Amount. Currency Code List. Identifier**

5227

Default Value – **ISO 4217**

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Default values will be conformant to the defined primitive or scheme or list of the BDT supplementary component business value domain.

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[D400] the BDT supplementary component business value domain default value shall be conformant to its defined primitive or scheme or list.

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If a BDT supplementary component value domain has a default value, the source of that default value will also be identified.

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[D401] A BDT value domain with a default value shall have a default value source.

5235

[Note] – Value Domain Default Value

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There are no specific rules for the structure of value domain default value sources. Implementers are free to choose any structure providing it guarantees uniqueness within the group of value domain default value sources of a value domain.

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BDT supplementary component business value domains are defined by either a primitive or a scheme or list. Each primitive or scheme or list constitutes a separate business value domain for the BDT supplementary component.

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[D402] Each BDT supplementary component business value domain shall consist of a primitive or a scheme or list.

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8.7.8.7.1 Business Data Type Supplementary Component Business Value Domain – Domain Restrictions

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.Domain restrictions of a BDT supplementary component business value domain restrict the set of allowed values of the source CDT supplementary component or less qualified BDT supplementary component. Domain restrictions only apply when the business value domain is defined by a primitive as domain restrictions take the form of facets of the primitive. Restrictions of the business value domain when the domain is defined by a business scheme or list take the form of restrictions to the scheme or list itself rather than domain restriction facets.

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[D403] Domain restrictions of a BDT supplementary component business value domain shall only be used to define restrictions on possible values.

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[D404] A BDT supplementary component business value domain shall have zero or more domain restrictions.

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The allowed set of facets for a specific BDT supplementary component business value domain is determined by its primitive type. The allowed restrictions for each primitive type are defined in the UN/CEFACT Data Type Catalogue.

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[D405] BDT supplementary component business value domain domain restrictions shall be limited to those allowed for the primitive of the BDT supplementary component business value domain as specified in the UN/CEFACT Data Type Catalogue.

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[Example] – Allowed Facet Restrictions for Primitive Type of String
BDT Supplementary Component – `Measure. Unit. Code`
Primitive Type – String
Allowed Restriction Facets for String:
Facet Type: Expression – `[A-Z]{1,2}`
Facet Type: Length – **not used**
Facet Type: Minimum Length – 1
Facet Type: Maximum Length – 2
Facet Type: Enumeration – `FT, YD, MI, CM, M, CM`

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[D406] Each BDT supplementary component business value domain domain restriction shall have zero or one domain restrictions for each facet type.

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[Example] – Multiple facet restrictions
The BDT of `code. Type` has a supplementary component of `code List. Name. Text` whose primitive type is `string`. The allowed facet types for the string primitive type include `Expression, Length, Minimum Length, Maximum Length, and Enumeration`. For a qualified data type of `Business Type_ Code. Type`, each of the allowed facet restrictions may or may not be present for the `code List. Name. Text`. If present, there can only be one instance of each facet type.

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Primitive type facet restrictions for BDT supplementary component business value domains consist of the facet type, facet value, and optional facet language.

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[D407] Each BDT supplementary component business value domain – domain restriction shall contain the following attributes:

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- **Facet Type (mandatory):** Identifies the facet being defined.
- **Facet Value (mandatory):** The actual facet restriction value.
- **Facet Language (mandatory for expression/not used otherwise):** For a facet type of expression, defines the language of the regular expression of the facet value such as Perl, W3C XML Schema Definition Language, JAVA, or Microsoft .Net.

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[Example] – Domain Restriction
For a BDT supplementary component whose primitive type is `string`, an allowed facet would be `expression`. The values for the `Expression` facet would be:
Facet Type (mandatory): `Expression`
Facet Value (mandatory): `[A-Z]*`
Facet Language (optional): `Perl`

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8.7.8.7.2 Business Data Type Supplementary Component Business Value Domain Primitive

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Primitives represent basic building blocks for defining value domains of content and supplementary components. Each BDT supplementary component business value

5302 domain can have zero or one primitives defined for it. The BDT supplementary
5303 component business value domain primitive defines the value domain. Primitives are
5304 referred to as primitive types.

5305 Primitives include, but are not limited to:

- 5306 • Binary
- 5307 • Date
- 5308 • Decimal
- 5309 • Double
- 5310 • Float
- 5311 • Integer
- 5312 • String
- 5313 • Token

5314 [D408] Each BDT supplementary component business value domain shall have
5315 zero or one primitives.

5316 [D409] A BDT supplementary component primitive shall be one of the defined
5317 primitives in the *UN/CEFACT Data Type Catalogue*.

5318 Each primitive shall have a primitive type. The primitive type code value is taken
5319 from a primitive type code list.

5320 [D410] Every BDT supplementary component business value domain primitive shall
5321 have a primitive type taken from a primitive type code list.

5322 [Note] –Primitive Type Code List

5323 UN/CEFACT will publish and make freely available a primitive type code list for use
5324 in support of this rule.

5325 Each primitive has a formal name. This name typically represents the nature of the
5326 value domain it represents.

5327 [D411] Every BDT supplementary component business value domain primitive shall
5328 have a primitive name.

5329 [D412] Every BDT supplementary component business value domain primitive
5330 name shall be unique within the set of primitives of BDTs.

5331 A BDT supplementary component business value domain primitive will also have a
5332 description that semantically defines its value domain.

5333 [D413] Each BDT supplementary component business value domain primitive shall
5334 have a description that semantically defines its value domain.

5335 **8.7.8.7.2.1 Business Data Type Supplementary Component Business Value Domain** 5336 **Primitive Facet**

5337 The value domains expressed by primitives are quantified through their facets. A
5338 primitive may have one or more facets. Each facet defines or constrains an aspect of
5339 the value domain expressed by the primitive.

5340 [D414] Each BDT supplementary component business value domain primitive shall
5341 have zero or more facets.

5342 Each facet shall have a facet type. The facet type code value is taken from a facet
5343 type code list.

5344 [D415] Each BDT supplementary component business value domain primitive facet
5345 shall have a facet type taken from a facet type code list.

5346 [Note] –Facet Type Code List

5347 UN/CEFACT will publish and make freely available a facet type code list for use in
5348 support of this rule.

5349 [D416] Each BDT supplementary component business value domain primitive facet
5350 shall have a name that is unique amongst the set of facet names of a
5351 primitive.

5352 [D417] Each BDT supplementary component business value domain primitive facet
5353 shall have a description that semantically expresses the nature of the
5354 restrictions associated with it.

5355 8.7.8.7.3 Business Data Type Supplementary Component Business Value Domain 5356 Business Scheme or List

5357 Schemes are the equivalent of a pattern facet. A scheme formally expresses the
5358 pattern and the allowed values for populating that pattern in the form of identifiers.
5359 Lists are the equivalent of enumerated lists and are typically published as formal
5360 code lists. The set of codes in a formal code list is used by business value domains
5361 as an enumerated set of allowed values.

5362 Unambiguous identification of the scheme or list is necessary.

5363 [D418] Every BDT supplementary component business value domain scheme or list
5364 shall have an identifier.

5365 A version identifier serves to differentiate one version of a scheme or list from all
5366 other versions of the scheme or list.

5367 [Dxx] Every BDT supplementary component business value domain scheme or list
5368 shall have zero or one version identifiers.

5369 Every scheme or list will be owned by an organization. The organization may either
5370 identified by a unique identifier or a name.

5371 [D419] Every BDT supplementary component business value domain scheme or list
5372 shall have either an agency identifier or an agency name.

5373 [D420] Every BDT supplementary component business value domain scheme or list
5374 shall have zero or one agency identifiers.

5375 [Note] – Agency Identifier

5376 UN/CEFACT recommends using UN/CEFACT Code List Responsible Agency Code
5377 (Data Element 3055) in the latest version of the UN/CEFACT directory.

5378 [D421] Every BDT supplementary component business value domain scheme or list
5379 shall have zero or one agency names.

5380 Business Data Types are able to place restrictions on the content of schemes and
5381 lists. If such restrictions are undesirable, then this will be indicated through the use
5382 of a modification allowed indicator.

5383 [D422] Every BDT supplementary component business value domain scheme or list
5384 shall have a modification allowed indicator whose value = `true` if
5385 modifications are allowed, or whose value = `false` if modifications are not
5386 allowed.

5387 **8.7.8.7.3.1 Business Data Type Supplementary Component Business Value Domain** 5388 **Business Scheme or List Identification Metadata**

5389 Although the identifier is sufficient to differentiate one business scheme or list for a
5390 given BDT supplementary component business value domain from all other schemes
5391 or lists for that BDT supplementary component, a BDT supplementary component
5392 business scheme or list may also have an identification metadata class that provides
5393 additional information.

5394 [D423] A BDT supplementary component business scheme or list shall have zero
5395 or one identification metadata classes.

5396 The BDT supplementary component business scheme or list identification metadata
5397 class contains a unique name that semantically differentiates it.

5398 [D424] A BDT supplementary component business scheme or list shall have zero
5399 or one names that is unique within the group of business scheme or lists of
5400 a BDT supplementary component.

5401 A BDT supplementary component business scheme or list may contain business
5402 terms. These business terms are synonym terms under which the scheme or list is
5403 commonly known and used in business.

5404 [D425] Each BDT supplementary component business value domain business
5405 scheme or list shall have zero or more business terms.

5406 **8.7.8.7.3.2 Business Data Type Supplementary Component Business Value Domain** 5407 **Business Scheme or List Identification Metadata Localized Information**

5408 The BDT supplementary component business value domain business scheme or list
5409 localized information class contains the relevant information necessary to associate
5410 native language identification of schemes or lists.

5411 [D426] A BDT supplementary component business value domain business scheme
5412 or list shall have zero or more localized information classes

5413 [D427] Each occurrence of a BDT supplementary component business value
5414 domain business scheme or list localized information class shall contain:

- 5415 • **Language Code (mandatory):** A code which identifies the language.
5416 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
5417 used as the authoritative source for code values.
- 5418 • **Name (optional):** The name of the scheme or list in a language other
5419 than English.
- 5420 • **Business Term (optional, repetitive):** A synonym term in another
5421 language under which the scheme or list is commonly known and
5422 used in a business expression in that language.

5423 [D428] BDT content component business value domain business scheme or list
5424 localized metadata shall be in the language identified by the language and
5425 locale code.

5426 **8.7.8.7.3.3 Business Data Type Supplementary Component Business Value Domain**
5427 **Business Identifier Scheme**

5428 Business Data Type supplementary component business value domain business
5429 identifier schemes are typically not enumerated, rather the scheme defines a regular
5430 expression or pattern that is used to populate its set of values and also used to
5431 validate values. BDT supplementary component business value domain business
5432 identifier schemes can be restricted from their source CDT supplementary
5433 component core value domain scheme, or less restricted BDT supplementary
5434 component business value domain scheme. These restrictions take the form of
5435 subsetting the set of allowed values.

5436 [D429] Each BDT supplementary component business value domain business
5437 identifier scheme set of allowed values shall be equal to or less than the set
5438 of allowed values of its source CDT content component core value domain
5439 core identifier scheme or less restricted BDT content component core value
5440 domain business identifier scheme.

5441 **8.7.8.7.3.4 Business Data Type Supplementary Component Business Value Domain**
5442 **Business Code List**

5443 Business Data Type supplementary component business value domain business
5444 code lists contain lists of enumerated code values.

5445 [D430] Each BDT supplementary component business value domain business
5446 scheme or list shall contain one or more business code values.

5447 BDT supplementary component business value domain business code lists can be
5448 equal to or a restriction of, but never an extension of, their source CDT
5449 supplementary component core value domain core code list, or less restricted BDT
5450 supplementary component business value domain business code list.

5451 [D431] Each BDT content component business value domain business code list set
5452 of allowed values shall be equal to or less than the set of allowed values of
5453 its source CDT content component core value domain core code list or less
5454 restricted BDT content component core value domain business code list.

5455 **8.7.8.7.3.4.1 Business Data Type Supplementary Component Business Value**
5456 **Domain Business Code Value Identification Metadata**

5457 A BDT supplementary component business code value will contain an identification
5458 metadata class consisting of a name and optional business term or terms.

5459 [D432] A BDT supplementary component business value domain business code list
5460 business code value shall have zero or one identification metadata classes.

5461 [D433] A BDT supplementary component business value domain business code list
5462 business code value shall have zero or one names that is unique within the
5463 set of business code values for a business code list.

5464 A BDT supplementary component business code list may also have several
5465 business terms. These business terms are synonym terms under which the business
5466 code value is commonly known and used in business.

5467 [D434] Each BDT supplementary component business code value shall have zero
5468 or more business terms.

5469 8.7.8.7.3.4.2 Business Data Type Supplementary Component Business Value 5470 Domain Business Code Value Localized Metadata

5471 The BDT supplementary component business value domain business scheme or list
5472 localized information class contains the relevant information necessary to associate
5473 native language identification of schemes or lists.

5474 [D435] A BDT supplementary component business value domain business scheme
5475 or list shall have zero or more localized information classes

5476 [D436] Each occurrence of a BDT supplementary component business value
5477 domain business scheme or list localized information class shall contain:

- 5478 • **Language Code (mandatory):** A code which identifies the language.
5479 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
5480 used as the authoritative source for code values.
- 5481 • **Name (optional):** The name of the scheme or list in a language other
5482 than English.
- 5483 • **Business Term (optional, repetitive):** A synonym term in another
5484 language under which the scheme or list is commonly known and
5485 used in a business expression in that language.

5486 [D437] BDT supplementary component business value domain business scheme or
5487 list localized metadata shall be in the language identified by the language
5488 and locale code.

5489 8.7.8.7.4 Business Data Type Supplementary Component Business Value Domain 5490 Usage Rule

5491 BDT supplementary component business value domains may have usage rules.
5492 Each usage rule defines a constraint that describes specific conditions that are
5493 applicable to the BDT supplementary component value domain. The BDT
5494 supplementary component business value domain usage rules represent the specific
5495 application of a BDT supplementary component value domain in its role of
5496 expressing the value domain of its BDT supplementary component. BDT
5497 supplementary component business value domain usage rules can be either
5498 unstructured – expressed as free form text, or structured – expressed in a formal
5499 language.

5500 [D438] A BDT supplementary component business value domain shall have zero or
5501 more usage rules.

5502 Usage rules will be defined at the lowest possible level of the hierarchical structure to
5503 which they apply.

5504 [D439] BDT supplementary component business value domain usage rules shall
5505 not replicate BDT, BDT content component, BDT content component
5506 business value domain, or BDT supplementary component usage rules.

5507 [D440] A BDT supplementary component business value domain usage rule shall
5508 have an identifier that is unique amongst all usage rules for the library of
5509 which it is a part.

5510 [Note] – Usage Rule Identifier Structure

5511 There are no specific rules for the structure of usage rule identifiers. Implementers
5512 are free to choose any structure providing it guarantees uniqueness within the group
5513 of usage rules of a library.

5514 The BDT supplementary component business value domain usage rule constraint is
5515 the formal expression of the usage rule. The constraint can be structured or
5516 unstructured. An unstructured constraint will be expressed as free form text.

5517 [D441] An unstructured BDT supplementary component business value domain
5518 usage rule constraint shall have a free form text expression that fully details
5519 the usage rule.

5520 A BDT supplementary component business value domain formal constraint is a
5521 constraint that is expressed in a formal language such as the UML OCL or OMG
5522 SBVR.

5523 [D442] A structured BDT supplementary component business value domain usage
5524 rule constraint shall have a formal constraint language expression.

5525 BDT supplementary component usage rule constraint types must also be specified.
5526 The constraint type value is taken from a constraint type code list.

5527 [D443] Every BDT supplementary component usage rule expressed as a formal
5528 constraint shall have a constraint type taken from a constraint type code list.

5529 [Note] –Constraint Type Code List

5530 UN/CEFACT will publish and make freely available a Formal Constraint Type Code
5531 List for use in support of this rule.

5532 BDT supplementary component usage rules will also have condition types that
5533 identify when the formal constraint should be applied.

5534 [D444] Every BDT supplementary component business value domain usage rule
5535 shall have a condition type.

5536 [D445] Every BDT supplementary component business value domain usage rule
5537 condition type shall be one of *pre-condition*, *post-condition*, or *invariant*.

5538 **8.7.8.7.4.1 Business Data Type Supplementary Component Business Value Domain** 5539 **Usage Rule Identification Metadata**

5540 Although the unique identifier is sufficient to differentiate one usage rule in a library
5541 for all other usage rules, a BDT supplementary component business value domain
5542 usage rule may also have an identification metadata class that provides additional
5543 information.

5544 [D446] A BDT supplementary component business value domain usage rule shall
5545 have zero or one identification metadata classes.

5546 The BDT supplementary component business value domain usage rule contains a
5547 unique name that semantically differentiates it from all other named usage rules for
5548 the BDT.

5549 [D447] A BDT supplementary component business value domain usage rule shall
5550 have zero or one names that is unique within the group of usage rules of a
5551 BDT.

5552 A BDT supplementary component business value domain usage rule may contain
5553 business terms. BDT supplementary component business value domain usage rule
5554 business terms are synonym terms under which the BDT supplementary component
5555 business value domain usage rule is commonly known and used in business.

5556 [D448] Each BDT supplementary component business value domain usage rule
5557 shall have zero or more business terms.

5558 **8.7.8.7.4.2 Business Data Type Supplementary Component Business Value Domain** 5559 **Usage Rule Identification Metadata Localized Information**

5560 The BDT supplementary component business value domain usage rule may have
5561 localized metadata that is used to provide other language expressions of its name
5562 and business term or terms.

5563 [D449] A BDT supplementary component business value domain usage rule shall
5564 have zero or more localized information classes

5565 [D450] Each occurrence of a BDT supplementary component business value
5566 domain usage rule localized information class shall contain:

- 5567 • **Language Code (mandatory):** A code which identifies the language.
5568 *Internet Engineering Task Force RFC 3066 of January 2001* shall be
5569 used as the authoritative source for code values.
- 5570 • **Name (optional):** The name of the usage rule in a language other
5571 than English.
- 5572 • **Business Term (optional, repetitive):** A synonym term in another
5573 language under which the usage rule is commonly known and used in
5574 a business expression in that language.

5575 [D451] BDT content component business value domain usage rule localized
5576 metadata shall be in the language identified by the language and locale
5577 code.

5578

9 Context

This section fully describes applicable rules and applications for the use of context in core component discovery, analysis, and use to include context categories and their values.

[Note] – Context Mechanism

The context mechanism is being more robustly defined in a separate UN/CEFACT Context Methodology specification. Once the final version of that specification is published, this section will be deprecated.

9.1 Overview

Whenever business collaboration takes place between specific trading partners, data is exchanged in the form of business messages. When used as such, that data exists in a particular business context. In its simplest form, this is the idea of context as used in this specification. The context in which the business collaboration takes place can be specified by a set of categories and their associated values.

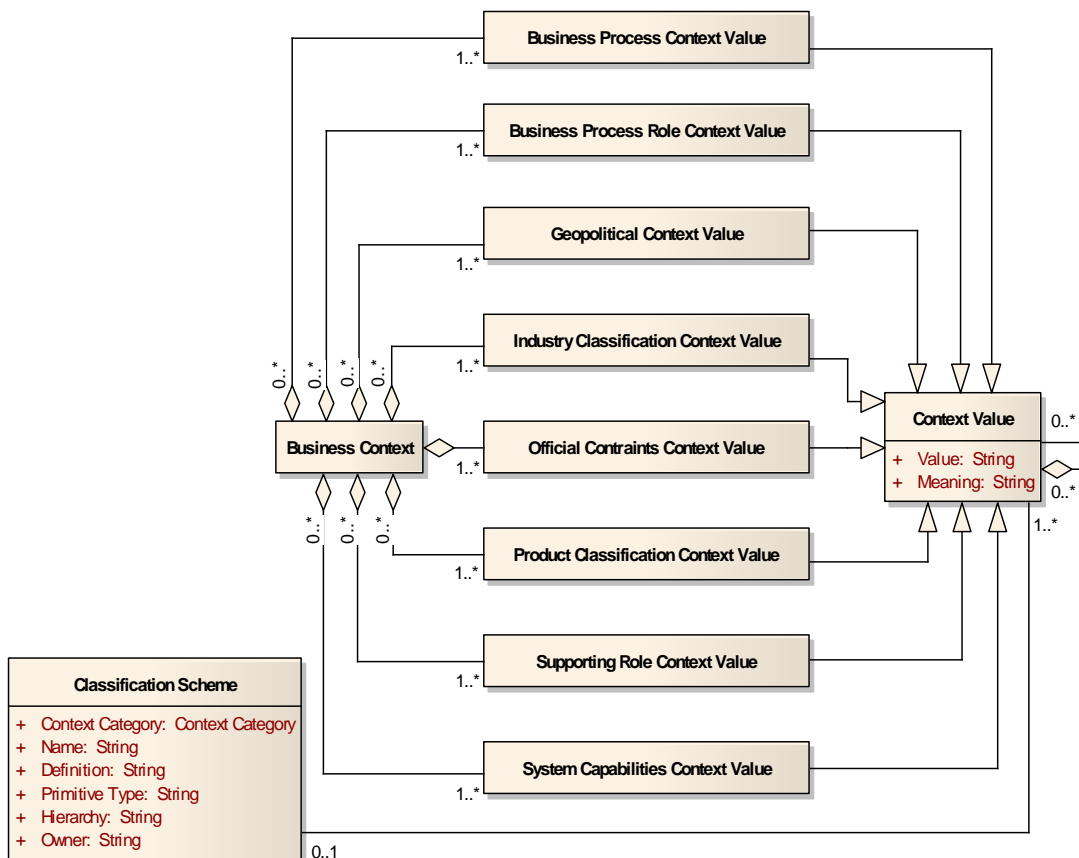


Figure 9-1. Core Components Context Definition Model

The CCs have no context independent of their use.

9.2 Business Context

5596

5597 [X1] Business context shall contain the combination of values for all approved
5598 context categories so as to define a unique and meaningful business
5599 context.

5600 In order to ensure uniqueness, every business context will have assigned a:

- 5601 • **Unique Identifier (mandatory):** The identifier that references the
5602 business context in a unique and unambiguous way.
- 5603 • **Version Identifier (mandatory):** An indication of the evolution over
5604 time of the business context instance.

5605 [X2] Each business context shall have a unique identifier within the library of
5606 which it is a part.

5607 [X3] Each business context shall have a unique version identifier within the
5608 library of which it is a part.

9.3 Context Values

5609

5610 Each business context will contain the combination of values for all approved context
5611 categories so as to define a meaningful business context. Each business context will
5612 contain a value for each defined context category in order to describe the business
5613 context in an unambiguous and formal way.

5614 [X4] When describing a specific business context, a value or set of values shall
5615 be assigned to each of the approved context categories.

5616 [X5] Context values shall be defined as one of the eight recognized
5617 types—business process context value, product context value, industry
5618 context value, geopolitical context value, official constraints context value,
5619 business process role context value, supporting role context value or system
5620 capabilities context value.

5621 [X6] Each context value shall include the following attributes:

- 5622 • **Value (mandatory):** Value describing a particular context.
- 5623 • **Meaning (mandatory):** Description of the meaning of the
5624 corresponding value.

5625 [Note] – Context Value

5626 The context value is derived from a business process model which presumably uses
5627 values that have their meaning defined somewhere. For example, if the value is
5628 taken from a code list (specified in the classification scheme), then the meaning of
5629 the code should be provided by the code list specification. As an alternative solution,
5630 the meaning could optionally be a uniform resource identifier that points to the
5631 definition.

9.4 Context Classification Scheme

5632

5633 Context values may belong to a particular classification scheme. The classification
5634 scheme defines all relevant information about the context value to allow it to be
5635 unambiguously understood and used. Context values that belong to a particular

5636 classification scheme that allows a hierarchy, may have a hierarchical contains
5637 relation with another context value belonging to the same classification scheme.

5638 [X7] Context classification schemes shall include the following attributes:

- 5639 • **Context category (mandatory):** Name used to identify the approved
5640 context category for which the classification scheme can be used.
- 5641 • **Name (mandatory):** Name under which the classification scheme is
5642 known.
- 5643 • **Definition (mandatory):** Definition of the classification scheme.
- 5644 • **Primitive Type (mandatory):** Primitive type that is used for the
5645 representation of a context value in the classification scheme.
- 5646 • **Hierarchy (mandatory):** Indicator describing whether the
5647 classification scheme supports a hierarchical description of the
5648 context.
- 5649 • **Owner (mandatory):** Organization that is responsible for the
5650 classification scheme.

5651 9.5 Categories

5652 Context categories exist to allow users to uniquely identify and distinguish between
5653 different business contexts. Eight context categories have been identified
5654 (Table 9-1). Each of the identified categories, unless otherwise stated, uses a
5655 standard classification to provide values for the category. Constraint rules, and
5656 therefore BIEs, are tied to a particular set of standard classifications for identifying
5657 and distinguishing contexts.

5658 **Table 9-1. Approved Context Categories**

Context Category	Description
Business Process	The business process name(s) as described using the <i>UN/CEFACT Catalogue of Common Business Processes</i> as extended by the user.
Product Classification	Factors influencing semantics that are the result of the goods or services being exchanged, handled, or paid for, etc. (e.g. the buying of consulting services as opposed to materials).
Industry Classification	Semantic influences related to the industry or industries of the trading partners (e.g., product identification schemes used in different industries).
Geopolitical	Geographical factors that influence business semantics (e.g., the structure of an address).
Official Constraints	Legal and governmental influences on semantics (e.g. hazardous materials information required by law when shipping goods).

Context Category	Description
Business Process Role	The actors conducting a particular business process, as identified in the <i>UN/CEFACT Catalogue of Common Business Processes</i> .
Supporting Role	Semantic influences related to non-partner roles (e.g., data required by a third-party shipper in an order response going from seller to buyer.).
System Capabilities	This context category exists to capture the limitations of systems (e.g. an existing back office can only support an address in a certain form).

5659 **9.5.1 Business Process Context**

5660 In describing a business situation, generally the most important aspect of that
5661 situation is the business activity being conducted. Business process context provides
5662 a way to unambiguously identify the business activity. To ensure consistency with
5663 business process activities, it is important to use a common point of reference. The
5664 definitive point of reference for international standards is the *UN/CEFACT Catalogue*
5665 *of Common Business Processes*.

5666 [X8] Assigned business process contexts shall be from the standard hierarchical
5667 classification: provided as part of the *UN/CEFACT Catalogue of Common*
5668 *Business Processes*.

5669 [X9] Business process context values may be expressed as a single business
5670 process, or as a hierarchical set of business processes.

5671 [X10] Business process context values may be taken from extensions to the
5672 business processes described in the *UN/CEFACT Catalogue of Common*
5673 *Business Processes* as provided for in that document.

5674 [X11] When business process extensions are used, they shall include full
5675 information for each value sufficient to unambiguously identify which
5676 extension is providing the value used.

5677 **9.5.2 Product Classification Context**

5678 The product classification context describes those aspects of a business situation
5679 related to the goods or services being exchanged by, or otherwise manipulated, or
5680 concerned, in the business process. Recognized code lists exist that provide
5681 authoritative sources of product classification contexts.

5682 [X12] A single value or set of values may be used in a product classification
5683 context.

5684 [X13] If a hierarchical system of values is used for product classification context,
5685 then these values may be at any level of the hierarchy.

5686 [X14] If more than one classification system is being employed, an additional
5687 value specifying which classification scheme has supplied the values used
5688 shall be conveyed.

- 5689 [X15] Product classification context code values shall be taken from recognized
5690 code lists to include:
- 5691 • Universal Standard Product and Service Specification (UNSPSC)
5692 - Custodian: GS1
 - 5693 • Standard International Trade Classification (SITC Rev .3)
5694 - Custodian: United Nations Statistics Division (UNSD)
 - 5695 • Harmonized Commodity Description and Coding System (HS)
5696 - Custodian: World Customs Organization (WCO)
 - 5697 • Classification Of the purposes of non Profit Institutions serving
5698 households (COPI)
5699 - Custodian: UNSD (This provides a mapping between the first
5700 three.)

5701 **9.5.3 Industry Classification Context**

5702 The industry classification context provides a description of the industry or sub-
5703 industry in which the business process takes place.

5704 [X16] An industry classification context may contain a single value or set of values
5705 at any appropriate level of the value hierarchy.

5706 [X17] The industry classification context value hierarchy must be identified.

5707 [X18] Industry classification context code values shall be taken from recognized
5708 code lists to include:

- 5709 • International Standard Industrial Classification (ISIC)
5710 - Custodian: UNSD
- 5711 • Universal Standard Product and Service Specification (UNSPSC) Top-
5712 level Segment [digits 1 and 2] used to define industry.
5713 - Custodian: ECCMA

5714 [Note] – Industry Classification Schemes

5715 There are many other industry classification schemes that may be used for industry
5716 classification context.

5717 **9.5.4 Geopolitical Context**

5718 Geopolitical contexts allow description of those aspects of the business context that
5719 are related to region, nationality, or geographically based cultural factors.

5720 [X19] Geopolitical context shall consist of appropriate continent, economic region,
5721 country, and region identifiers.

5722 [X20] Geopolitical context may associate one or more values with any component.

5723 [X21] Geopolitical context shall employ the following values:

- 5724 • Continent
- 5725 • Country – ISO 3166.1

- 5726 • Country Sub-entity - ISO 3166.2
- 5727 • Economic Region
- 5728 • Global
- 5729 • Multi lateral Organizations
- 5730 [X22] At any level of geopolitical context, a value may be a single value, a named
5731 aggregate or cross-border value.
- 5732 [X23] Geopolitical context values shall be structured as follows:
- 5733 • **Single Value:** A single value indicating a single continent,
5734 economic region, country, or region, depending on position within the
5735 hierarchy.
- 5736 • **Named Aggregate:** A related group of values (which may
5737 themselves be single values, named aggregates, or cross-border pairs
5738 of values), which have been related and assigned a name. A named
5739 aggregate contains at least two values.
- 5740 • **Cross-Border:** One or more pairs of values, designated **To**, **From**,
5741 or **Bi-directional**, indicating the direction of cross-border Context.
5742 Values may be named aggregates or single values.
- 5743 [X24] Points in geopolitical context values shall be specified by either a single
5744 value, or combination of values.
- 5745 [X25] The full path of the geopolitical context value must be used to understand
5746 the hierarchy when complex constructs are employed.
- 5747 [X26] A specific level in the geopolitical context value is understood to inherit all of
5748 the properties within its specific path except where otherwise specified.
- 5749 [X27] Geopolitical context values shall be taken from ISO 3166.1 and 3166.2.

5750 **9.5.5 Official Constraints Context**

5751 The official constraints context category describes those aspects of the business
5752 situation that result from legal or regulatory requirements and similar official
5753 categories. This category contains two distinct parts:

- 5754 • Regulatory and Legislative. These are normally unilateral in nature
5755 and include such things as customs authority regulations.
- 5756 • Conventions and Treaties. These are normally bi- or multilateral
5757 agreements and as such are different from regulatory and legislative
5758 constraints.
- 5759 [X28] The official constraints context shall consist of at least two values:
- 5760 • Identification of the legal or other classification used to identify the
5761 context values.
- 5762 • Identification of the official constraint itself. These values may
5763 represent a hierarchical structure depending on the official constraints
5764 system being referenced.

5765 Because there is no known global classification of all official constraints contexts as
5766 used here, any implementation must provide a set of recognized official constraints
5767 classifications for use within the appropriate core components registry
5768 implementation.

5769 [X29] Individual core component implementations shall register used official
5770 constraint classification schemes with the appropriate supporting core
5771 components registry implementation.

5772 **9.5.6 Business Process Role Context**

5773 The business process role context describes those aspects of a business situation
5774 that are specific to an actor or actors within the business process. Its values are
5775 taken from the set of role values provided by the *UN/CEFACT Catalogue of*
5776 *Common Business Processes*. A business process role context is specified by using
5777 a value or set of values from this source.

5778 [X30] Business process role context values shall be taken from an approved list
5779 provided by the business process model library being employed.

5780 [X31] The *UN/CEFACT Catalogue of Common Business Processes* shall be the
5781 definitive source of business process role context values for all UN/CEFACT
5782 BIEs.

5783 **9.5.7 Supporting Role Context**

5784 The supporting role context identifies those parties that are not active participants in
5785 the business process being conducted but who are interested in it. A supporting role
5786 context is specified with a value or set of values from a standard classification.

5787 [X32] Supporting role context values shall be taken from the UN/EDIFACT code
5788 list for DE 3035 party roles.

5789 [Note] – Code List Duplication

5790 Users are cautioned that duplication exists in the current version of the required code
5791 list. UN/CEFACT will review this code list to clarify duplicates and identify non-
5792 Supporting Role Context values.

5793 **9.5.8 System Capabilities Context**

5794 This category identifies a system, a class of systems or standard in the business
5795 situation. The System capabilities context requires a least one pair of values: an
5796 identification of the classification scheme being used and a value from that scheme.
5797 A valid system capabilities context may include more than one such pair of values.

5798 [X33] Systems capabilities context values shall consist of pairs of values. Each
5799 pair shall be comprised of an identification of the referenced classification
5800 scheme and the value(s) being employed.

5801 [Note] – Information Systems Classification

5802 There is no known classification of all types of information systems and standards. It
5803 is recommended that a mechanism for the registration of system and standard
5804 names be provided by the ebXML registry, as valid values for the system capabilities
5805 context.

5806 **9.6 Context Values**

5807 A specific business context is formally described using a set of context values. Every
5808 context category must have a valid value, even if this value is **In All Contexts** or
5809 **None**. The value **None** is appropriate for official constraints context because there will
5810 be instances where there are no official constraints.

5811 [X34] The **In All Contexts** value shall be a valid value for every context category
5812 except for official constraints context.

5813 [X35] The value **None** shall be a valid value for official constraints context.

5814 **10 Definition of Terms**

5815 **Aggregate Business Information Entity (ABIE)** – A collection of related pieces of
5816 business information that together convey a distinct business meaning in a specific
5817 business context. Expressed in modelling terms, it is the representation of an object
5818 class, in a specific business context.

5819 **Aggregate Business Information Entity Property** – A business information entity
5820 property for which the permissible values are expressed as a complex structure,
5821 represented by an aggregate business information entity.

5822 **Aggregate Core Component (ACC)** – A collection of related pieces of business
5823 information that together convey a distinct business meaning, independent of any
5824 specific business context. Expressed in modelling terms, it is the representation of
5825 an object class, independent of any specific business context.

5826 **Aggregate Core Component Property** – A unique property of the Aggregate core
5827 component that is related to the concept of the aggregate core component. An
5828 aggregate core component property is either an ASCC or a BCC.

5829 **Aggregation** – A a special form of Association that specifies a whole-part
5830 relationship between the aggregate (whole) and a component part.

5831 **Artefact** – A piece of information that is produced, modified, or used by a process.
5832 An artefact can be a model, a model element, or a document. A document can
5833 include other documents. CCTS artefacts include all registry classes and all
5834 subordinate named constructs of a registry class.

5835 **Associated Aggregate Business Information Entity** – An aggregate business
5836 information entity that is either a `uml aggregationkind=shared` Or
5837 `aggregationkind=composite` association to an associating aggregate business
5838 information entity. An associated aggregate business information entity is the child in
5839 a parent child association between aggregate business information entities.

5840 **Associated Aggregate Core Component** – An aggregate core component that is a
5841 `uml aggregationkind=shared` association to an associating aggregate core component.
5842 An associated aggregate core component is the child in a parent child association
5843 between aggregate core components.

5844 **Associating Aggregate Business Information Entity** – An aggregated business
5845 information entity that is either a `uml aggregationkind=shared` Or
5846 `aggregationkind=composite` association to an associated aggregate business
5847 information entity. An associating aggregate business information entity is the parent
5848 in a parent child association between aggregate business information entities.

5849 **Associating Aggregate Core Component** – An aggregated core component that
5850 has a `uml aggregationkind=shared` association to an associated aggregate core
5851 component. An associating aggregate core component is the parent in a parent child
5852 association between aggregate core components.

5853 **Association Business Information Entity (ASBIE)** – A business information entity
5854 which defines the role of a specific aggregate business information entity (known as
5855 the associated ABIE) associated to another aggregate business information entity

5856 (known as the associating ABIE). An association business information entity
5857 functions as an ABIE property of the associating ABIE.

5858 **Association Business Information Entity Property** – A business information entity
5859 property for which the permissible values are expressed as a complex structure,
5860 represented by an aggregate business information entity.

5861 **Association Core Component (ASCC)** – a core component which defines the role
5862 of a specific aggregate core component (known as the associated ACC) associated
5863 to another aggregate core component (known as the associating ACC). An
5864 association core component functions as an ACC property of the associating ACC.

5865 **Association Core Component Property** – A core component property for which the
5866 permissible values are expressed as a complex structure, represented by an
5867 aggregate core component.

5868 **Attribute** – A named value or relationship that exists for some or all instances of
5869 some entity and is directly associated with that instance.

5870 **Based On** – Use of an artifact that has been restricted according to the requirements
5871 of a specific business context.

5872 **Basic Business Information Entity (BBIE)** – A business information entity that
5873 represents a singular business characteristic of a specific aggregate business
5874 information entity in a given business context. A basic business information entity is
5875 based on a basic core component and has a basic business information entity
5876 property that is based on a business data type which defines its value domain.

5877 **Basic Business Information Entity Property** – A business information entity
5878 property for which the permissible values are expressed by simple values,
5879 represented by a data type.

5880 **Basic Core Component (BCC)** – A core component which constitutes a singular
5881 business characteristic of a specific aggregate core component. It has a unique
5882 business semantic definition. A basic core component represents a basic core
5883 component property and is therefore of a core data type which defines its value
5884 domain. Basic core components function as properties of aggregate core
5885 components.

5886 **Basic Core Component (BCC) Property** – A core component property for which
5887 the permissible values are expressed by simple values, represented by a data type.

5888 **Business Context** – The formal description of a specific business circumstance as
5889 identified by the values of a set of context categories, allowing different business
5890 circumstances to be uniquely distinguished.

5891 **Business Data Type** – A data type consisting of one and only one business data
5892 type content component that carries the actual content plus zero or more business
5893 data type supplementary components giving essential extra definition to the CDT
5894 content component. Business data types have business semantics.

5895 **Business Data Type Content Component** – Defines the primitive type used to
5896 express the content of a core data type.

5897 **Business Data Type Content Component Restriction** – The formal definition of a
5898 format restriction that applies to the possible values of a core data type content
5899 component.

- 5900 **Business Data Type Supplementary Component** – Gives additional meaning to
5901 the business data type content component.
- 5902 **Business Data Type Supplementary Component Restrictions** – The formal
5903 definition of a format restriction that applies to the possible values of a business data
5904 type supplementary component.
- 5905 **Business Domain** – A distinct group of profit making enterprises, such as chemical
5906 domain, oil and gas domain, automotive domain.
- 5907 **Business Information Entity (BIE)** – A business information entity is a context
5908 specific instantiation of a core component that constitutes a piece of business data or
5909 a group of pieces of business data with a unique business semantic definition in a
5910 specific business context.
- 5911 **Business Information Entity (BIE) Property** – A business characteristic belonging
5912 to the Object Class in its specific business context that is represented by an
5913 aggregate business information entity.
- 5914 **Business Libraries** – A collection of approved process models specific to a line of
5915 business (e.g., shipping, insurance).
- 5916 **Business Process** – The business process as described using the *UN/CEFACT*
5917 *Catalogue of Common Business Processes*.
- 5918 **Business Process Context** – The business process name(s) as described using
5919 the *UN/CEFACT Catalogue of Common Business Processes* as extended by the
5920 user.
- 5921 **Business Process Role Context** – The actors conducting a particular business
5922 process, as identified in the *UN/CEFACT Catalogue of Common Business*
5923 *Processes*.
- 5924 **Business Semantic(s)** – A precise meaning of words from a business perspective.
- 5925 **Business Term** – This is a synonym of the dictionary entry name under which the
5926 artefact is commonly known and used in business. A CCTS artefact may have
5927 several business terms.
- 5928 **Cardinality** – An indication of the minimum and maximum occurrences for a
5929 characteristic: not applicable (0..0), optional (0..1), optional repetitive (0..*)
5930 mandatory (1..1), mandatory repetitive (1..*), fixed (n..n) where n is a non-zero
5931 positive integer.
- 5932 **Catalogue of Business Information Entities** – This represents the approved set of
5933 Business Information Entities from which to choose when applying the core
5934 component discovery process
- 5935 **CCL** – see core component library.
- 5936 **Classification Scheme** – This is an officially supported scheme to describe a given
5937 context category.
- 5938 **Composition** – A composition is a strong form of aggregation association that
5939 requires that the component part only belongs to a single parent object, and only
5940 exists as long as that parent object exists.
- 5941 **Context** – Defines the circumstances in which a business process may be used.
5942 This is specified by a set of context categories known as business context.

- 5943 **Context Category** – A group of one or more related values used to express a
5944 characteristic of a business circumstance.
- 5945 **Controlled Vocabulary** – A supplemental vocabulary used to uniquely define
5946 potentially ambiguous words or business terms. This ensures that every word within
5947 any of the core component names and definitions is used consistently,
5948 unambiguously and accurately.
- 5949 **Core Component (CC)** – A core component is a semantic building block for creating
5950 clear and meaningful data models, vocabularies, and information exchange
5951 packages. Core components are used as the basis for creating business information
5952 entities.
- 5953 **Core Component Library** – The core component library is the part of the
5954 registry/repository in which core components shall be stored as registry classes. The
5955 core component library will contain all the registry classes.
- 5956 **Core Component Property** – A business characteristic belonging to the object class
5957 represented by a basic core component property or an association core component
5958 property.
- 5959 **Core Data Type (CDT)** – A data type consisting of one and only one core data type
5960 content component that carries the actual content, plus one or more core data type
5961 supplementary components giving essential extra definition to the core data type
5962 content component. Core data types do not have business semantics.
- 5963 **Core Data Type Content Component** – Defines the primitive type used to express
5964 the content of a core data type.
- 5965 **Core Data Type Supplementary Component** – Gives additional meaning to the
5966 business data type content component.
- 5967 **Data Type Term** – A component of the name of the data type dictionary entry name
5968 which represents the value domain. A data type term is taken from a common list
5969 that is also used to determine allowed representation terms. Whereas representation
5970 terms are never qualified, as they represent the data type, data type terms can be
5971 qualified to reflect restrictions on the value domain.
- 5972 **Definition** – This is the unique semantic meaning of a core component, business
5973 information entity, business context or data type.
- 5974 **Dictionary** – A collection of dictionary entry names for CCTS components.
- 5975 **Dictionary Entry Name** – This is the official name of a CCTS component.
- 5976 **Facet** – A facet is a constraining value that represents a component restriction of a
5977 BDT content or supplementary component so as to define its allowed value space.
- 5978 **Formal Constraint Language** – A normative expression from a recognized
5979 constraint language specification such as the Unified Modeling Language Object
5980 Constraint Language.
- 5981 **Geopolitical Context** – Geographic factors that influence business semantics (e.g.,
5982 the structure of an address).
- 5983 **Industry Classification Context** – Semantic influences related to the industry or
5984 industries of the trading partners (e.g., product identification schemes used in
5985 different industries).

- 5986 **Invariant** – a form of constraint whose value must remain true throughout execution
5987 of a process.
- 5988 **Library** – a collection of CCTS components for a specific purpose, organization or
5989 group of organizations.
- 5990 **Message Assembly** – The process whereby business information entities are
5991 assembled into a usable message for exchanging business information.
- 5992 **Naming Convention** – The set of rules that together comprise how the dictionary
5993 entry name for CCTS artefacts is constructed.
- 5994 **Object Class** – The logical data grouping (in a logical data model) to which a data
5995 element belongs (ISO11179). The object class is the part of a core component or
5996 business information entity dictionary entry name that represents an activity or
5997 object... The object class is represented by an object class term. Object classes
5998 have explicit boundaries and meaning and their properties and behaviour follow the
5999 same rules
- 6000 **Object Class Term** – A component of the name of a core component or business
6001 information entity which represents the object class to which it belongs.
- 6002 **Official Constraints Context** – Legal and governmental influences on semantics
6003 (e.g. hazardous materials information required by law when shipping goods).
- 6004 **Package – A package is a collection of semantically unique Business**
6005 **Information Entities in a given context.**
- 6006 **Pre-Condition** – A condition that must be true just prior to execution of a process.
- 6007 **Post-Condition** – A condition that must be true just after execution of a process.
- 6008 **Primitive Type** – A primitive type, also known as a base type or built-in type, is the
6009 basic building block for the representation of a value as expressed by more complex
6010 data types.
- 6011 **Product Classification Context** – Factors influencing semantics that are the result
6012 of the goods or services being exchanged, handled, or paid for, etc. (e.g. the buying
6013 of consulting services as opposed to materials).
- 6014 **Property Term** – A semantically meaningful name that represents a distinguishing
6015 characteristic of the object class. Property terms occur naturally in the definition of
6016 the artefact to which it belongs...
- 6017 **Qualified Business Data Type** – A qualified business data type contains restrictions
6018 on a business data type content or business data type supplementary component(s).
- 6019 **Qualifier Term** – A word or group of words that help define and differentiate an item
6020 (e.g. a business information entity or a business data type) from its associated items
6021 (e.g. from a core component, a core data type, another business information entity or
6022 another business data type).
- 6023 **Registry** – An information system that manages and references artifacts that are
6024 stored in a repository. The term registry implies a combination of registry/repository.

6025 **Registry class** – The formal definition of all the common information necessary to
6026 be recorded in the registry by a registry artefact – a core component, a business
6027 information entity, or a data type.

6028 **Repository** – an information system that stores artifacts.

6029 **Representation Term** – The type of valid values for a basic core component or
6030 basic business information entity.

6031 **Restriction** – restriction is the process of deriving a new data structure from an
6032 existing data structure under the following rules:

- 6033 • you can reduce the cardinality range of any field from the existing data
6034 structure;
- 6035 • you can restrict the range of allowed values for any field with a simple
6036 data type (e.g. string, number);
- 6037 • you can add a semantic restriction which narrows the business scope
6038 of any field.

6039 All valid instances of a new restricted data structure must also be valid instances of
6040 the existing data structure from which the new data structure was derived.

6041 **Supporting Role Context** – Semantic influences related to non-partner roles (e.g.,
6042 data required by a third-party shipper in an order response going from seller to
6043 buyer.).

6044 **System Capabilities Context** – This context category exists to capture the
6045 limitations of systems (e.g. an existing back office can only support an address in a
6046 certain form).

6047 **UMM Information Entity** – A UMM information entity realizes structured business
6048 information that is exchanged by partner roles performing activities in a business
6049 transaction. Information entities include or reference other information entities
6050 through associations.”

6051 **Unique Identifier** – The identifier that references a registry class instance in a
6052 universally unique and unambiguous way.

6053 **Usage Rules** – Usage rules describe a constraint that describes specific conditions
6054 that are applicable to a component in the model. Usage rules are at least expressed
6055 as free form text and may also be expressed in a formal language.

6056 **User Community** – A user community is a group of practitioners, with a publicized
6057 contact address, who may define Context profiles relevant to their area of business.
6058 Users within the community do not create, define or manage their individual context
6059 needs but conform to the community’s standard. Such a community should liaise
6060 closely with other communities and with general standards-making bodies to avoid
6061 overlapping work. A community may be as small as two consenting organizations.

6062 **Value Domain** – A set of allowed values.

6063 **Version** – An indication of the evolution over time of an instance of a core
6064 component, data type, business context, or business information entity.

6065 **XML schema** – A generic term used to identify the family of grammar based XML
6066 document structure validation languages to include the more formal W3C XML
6067 Schema Definition Language, ISO 8601 Document Type Definition, or Schematron.

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6068

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