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Electronic Business Extensible Markup Language (ebXML)

Part 5: Core Components Specification (CCS)

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National foreword

This British Standard is the UK implementation of ISO 15000-5:2014.

The UK participation in its preparation was entrusted to Technical Committee ICT/-/4, eBusiness coordination committee.

A list of organizations represented on this committee can be obtained on request to its secretary.

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INTERNATIONAL STANDARD

ISO 15000-5

First edition
2014-04-15

Electronic Business Extensible Markup Language (ebXML) —

Part 5: Core Components Specification (CCS)

Commerce électronique en langage de balisage extensible (ebXML) — Partie 5: Spécification des composants principaux (CCS)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is Technical Committee ISO/TC 154, *Processes, data elements and documents in commerce, industry and administration*.

This first edition of ISO 15000-5 cancels and replaces ISO/TS 15000-5:2005. It also incorporates the Amendment ISO/TS 15000-5:2005/Amd 1:2011.

The following revisions have been made:

— removal of rules that were unclear or that were specific to the English language;

— clarification of rules that were ambiguous;

— updating of metamodels to reflect reality;

— removal of non-normative clauses.

ISO 15000 consists of the following parts, under the general title *Electronic Business Extensible Markup Language (ebXML)*:

— *Part 5: Core Components Specification (CCS)*

The following parts are under preparation:

— *Part 1: Collaboration-protocol profile and agreement specification (ebCPP)*[1)]

— *Part 2: Message service specification (ebMS)*[2)]

— *Part 3: Registry information model specification (ebRIM)*[3)]

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1) Revision of ISO/TS 15000-1:2004.

2) Revision of ISO/TS 15000-2:2004.

3) Revision of ISO/TS 15000-3:2004.

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— *Part 4: Registry services specification (ebRS)*[4)]

4) Revision of ISO/TS 15000-4:2004.

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Introduction

0.1 General

This International Standard describes and specifies a new approach to the well-understood problem of the lack of information interoperability between applications in the e-business arena. Traditionally, standards for the exchange of business data have been focused on static message definitions that have not enabled a sufficient degree of interoperability or flexibility. A more flexible and interoperable way of standardizing Business Semantics is required. The Core Component solution described in this International Standard presents a methodology for developing a common set of semantic building blocks that represent the general types of business data in use today and provides for the creation of new business vocabularies and restructuring of existing business vocabularies.

0.2 Overview

The Core Components Specification (CCS) described in this International Standard provides a way to identify, document and maximize the re-use of business information to support and enhance interoperability across Business Processes. CCS focuses both on human-readable and machine-processable representations of this information.

The Core Components approach described in this International Standard is more flexible than current standards in this area because the semantic standardization is done in a syntax-neutral fashion. Using Core Components as part of the ebXML framework will help to ensure that two trading partners using different syntaxes [e.g. Extensible Markup Language (XML) and United Nations/EDI for Administration, Commerce, and Transport (UN/EDIFACT)] are using Business Semantics in the same way on condition that both syntaxes have been based on the same Core Components. This enables clean mapping between disparate message definitions across syntaxes, industry and regional boundaries.

Business Process and Core Component solutions capture a wealth of information about the business reasons for variation in message semantics and structure. In the past, these variations have led to incompatible data models and a subsequent lack of interoperability. The core components mechanism will allow identification of similarities and differences between these models. Incompatibility becomes incremental rather than wholesale, i.e. the detailed points of difference are noted, rather than a whole model being dismissed as incompatible.

0.3 Key Concepts

The CCS key concepts are based two levels of abstraction: Core Components and Business Information Entities. These focus areas are discussed in Clauses 4 and 5: in each case, the concepts are introduced and a normative definition is given, as well as an example, where appropriate.

NOTE The term Core Component is used as a generic term that encompasses Basic Core Components, Association Core Components, Aggregate Core Components, and their associated Core Component Types. Equally, the term Business Information Entity is used as a generic term encompassing Basic Business Information Entities, Association Business Information Entities, and Aggregate Business Information Entities.

0.4 Key Core Component Concepts

The central concept of this International Standard is the Core Component. The Core Component is a semantic building block, which is used as a basis to construct all electronic business messages.

There are four different categories of Core Components:

a) Basic Core Component;

b) Association Core Component;

c) Core Component Type;

d) Aggregate Core Component.

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These concepts are described below and their definitions are given in Clause 3.

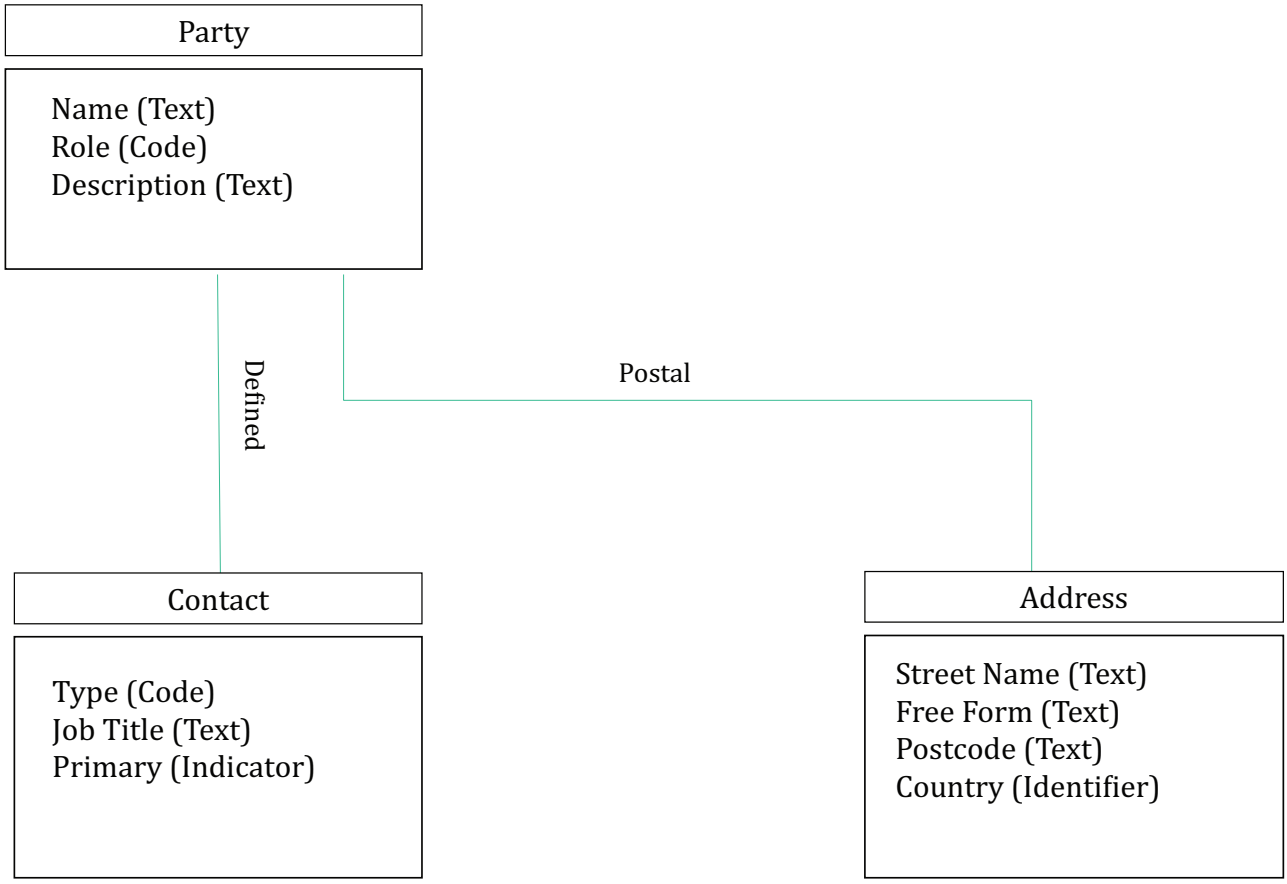

Figure 1 — Association Core Component

Figure 1 is an example of an Association Core Component and shows the following:

— three Aggregate Core Components: “Party. Details”; “Contact. Details” and “Address. Details”;

— each Aggregate Core Component has a number of Properties (i.e. business characteristics);

— the Aggregate Core Component “Party. Details” has five Properties (“Name”, “Role”, “Description”, “Defined. Contact” and “Postal. Address”);

— the Aggregate Core Component “Contact. Details” has three Properties (“Type”, “Job Title” and “Primary”);

— the Aggregate Core Component “Address. Details” has four Properties (“Street Name”, “Free Form”, “Postcode” and “Country”).

Ten of these Properties are Basic Core Components. They each represent a singular business characteristic and its set of allowed values is defined by a Data Type.

In the above example:

— “Name”, “Description”, “Job Title”, “Street Name”, “Free Form” and “Postcode” are of the Data Type Text;

— “Role” and “Type” are of the Data Type Code;

— “Primary” is of the Data Type Indicator;

— “Country” is of the Data Type Identifier.

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The other two Properties are Association Core Components. They each represent a set of complex business characteristics and in each case their structure is defined by another associated Aggregate Core Component. In the above example, "Party. Defined. Contact" and "Party. Postal. Address" are both Association Core Components. The structures of these associated Aggregate Core Components are defined by the Aggregate Core Components "Contact. Details" and "Address. Details", respectively.

Core Components (and Business Information Entities) have Properties that are defined by Data Types.

A Data Type represents the full range of values to be used for the representation of a particular Core Component Property. A Data Type is based on one of the Core Component Types, but can include restrictions of the set of values of the Content Component and/or Supplementary Component(s) of that Core Component Type.

The diagram in Figure 2 shows the relationships between the various Core Component elements.

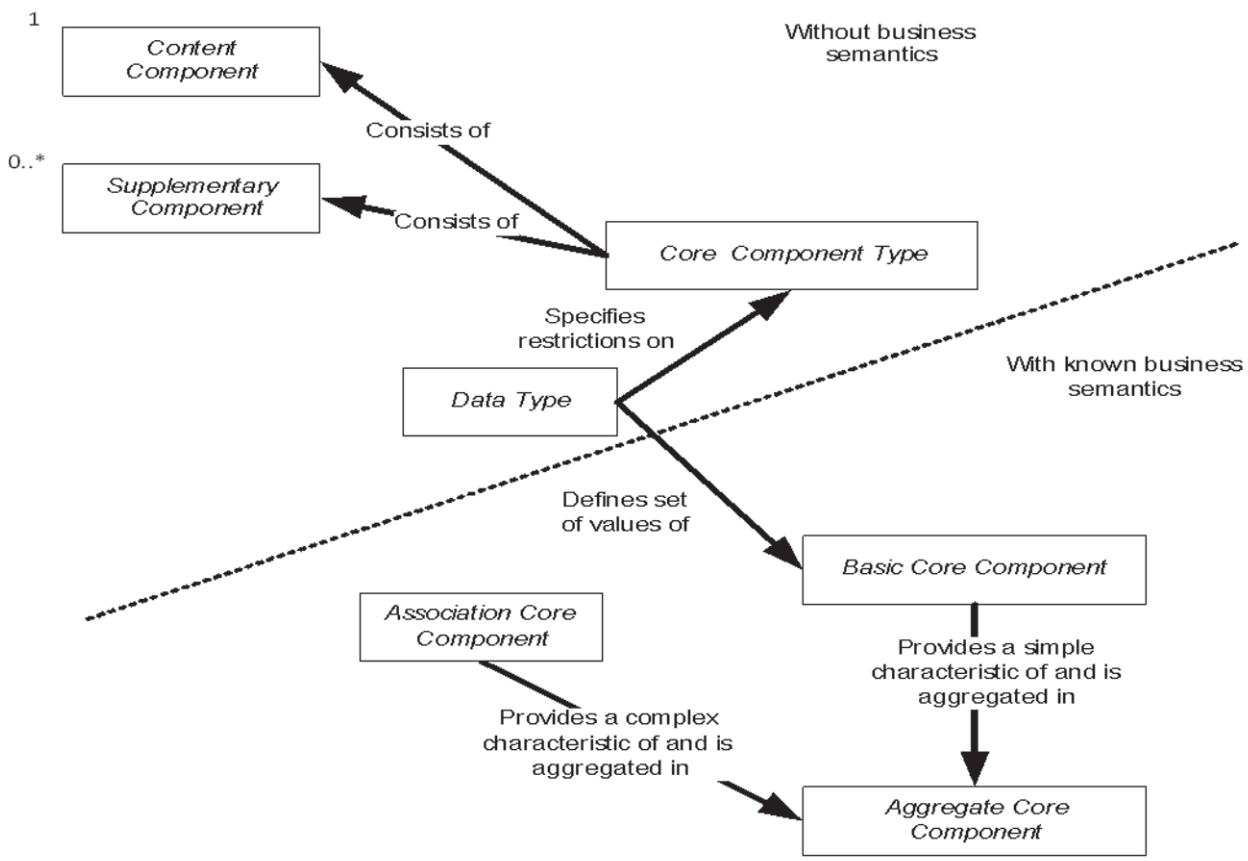

Figure 2 — Core Component Overview

0.5 Key Business Information Entity Concepts

The key differentiator between Core Components and Business Information Entities is the concept of Business Context. Business context is a mechanism for refining the semantic meaning of components according to the specific requirements of their context of use. Once Business Contexts are identified, Core Components can be designed to take into account any necessary qualification and refinement needed to support the use of their Core Component in the given Business Context. The Business Process definition provides a high level description of the use of a message and its contents.

When a Core Component is used in a real business circumstance it serves as the basis of a Business Information Entity. The Business Information Entity is the result of using a Core Component within a specific Business Context.

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A specific relationship exists between Core Components and Business Information Entities. Core Components and Business Information Entities are complementary in many respects. Core Components are intended to be the linchpin for creating interoperable Business Process models and business documents using a Controlled Vocabulary.

An Aggregate Business Information Entity is a piece of business data or a group of pieces of business data with a unique Business Semantic definition in a specific Business Context.

There are three different categories of Business Information Entities:

a) Basic Business Information Entity;

b) Association Business Information Entity;

c) Aggregate Business Information Entity.

The most primitive of these is the Basic Business Information Entity. A Basic Business Information Entity is a Basic Core Component used in a specific Business Context.

Whenever a Property of an Aggregate Business Information Entity is of a complex nature, and has the structure of another Aggregate Business Information Entity, an Association Business Information Entity is used to represent that Property. An Association Business Information Entity is based on an Association Core Component, but exists in a Business Context.

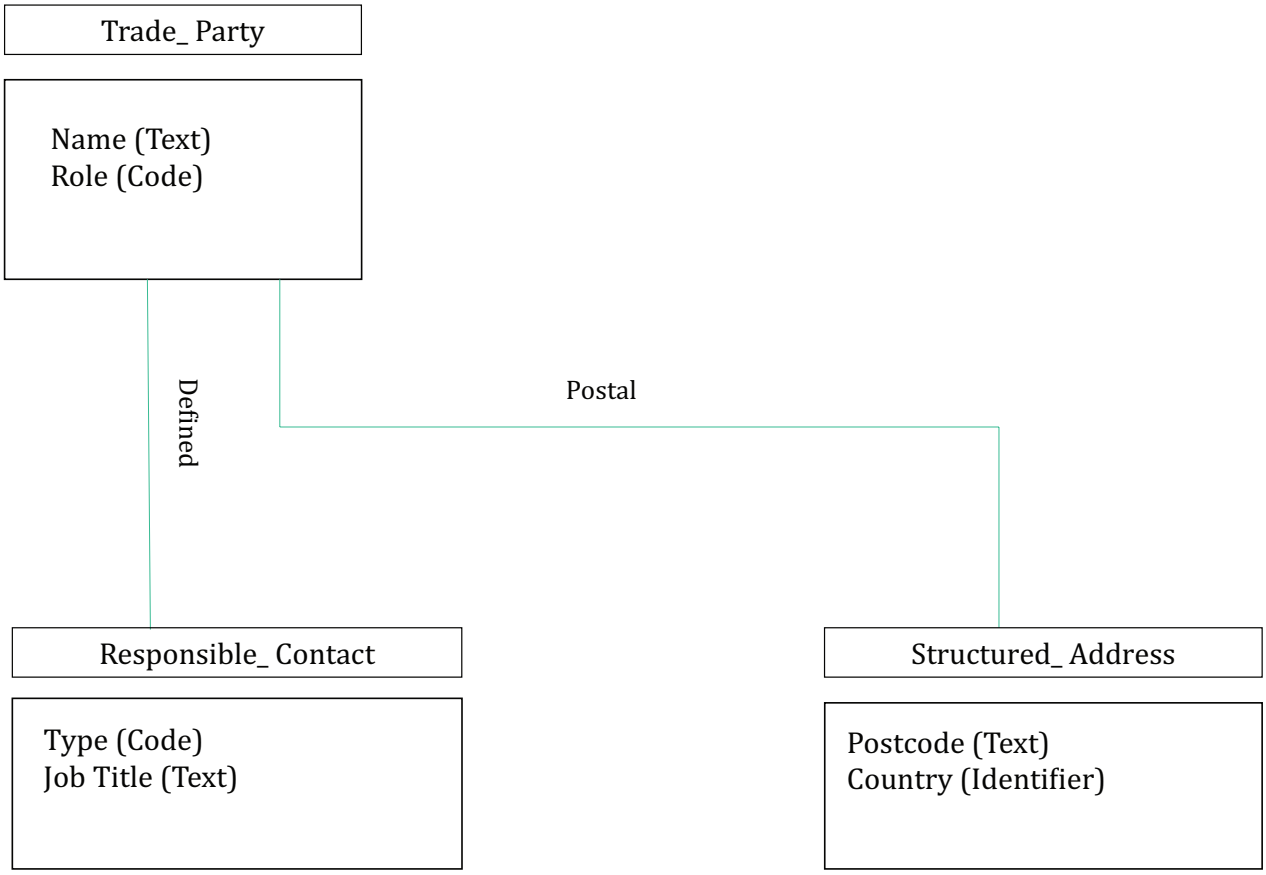

Figure 3 — Association Business Information Entity

Figure 3 is an example of Association Business Information Entity and shows the following:

— three Aggregate Business Information Entities: "Trade_Party.Details", "Responsible_Contact.Details" and "Structured Address. Details";

— each Aggregate Core Component has a number of Properties (i.e. business characteristics);

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— the Aggregate Business Information Entity “Trade_ Party. Details” has four Properties (“Name”, “Role”, “Defined. Responsible_ Contact” and “Postal. Structured_ Address”);

— the Aggregate Business Information Entity “Responsible_ Contact. Details” has two Properties (“Type” and “Job Title”);

— the Aggregate Business Information Entity “Structured_ Address. Details” has two Properties (“Postcode” and “Country”).

Six of these Properties are Basic Business Information Entities: they each represent a singular business characteristic and in each case their set of allowed values is defined by their Data Type:

— “Name”, “Job Title” and “Postcode” are of the Data Type Text;

— “Role” and “Type” are of the Data Type Code;

— “Country” is of the Data Type Identifier.

Two of the Properties are Association Business Information Entities: they each represent a set of complex business characteristics and in each case their structure is defined by another associated Aggregate Business Information Entity:

— “Trade_ Party. Defined. Responsible_ Contact” and “Trade_ Party. Postal. Structured_ Address” are both Association Business Information Entities;

— the structures of these Associated Aggregate Business Information Entities are defined by the Aggregate Business Information Entities “Responsible_ Contact. Details” and “Structured_ Address. Details”, respectively.

The features of the relationship between Core Components and Business Information Entities are described in the Figure 4.

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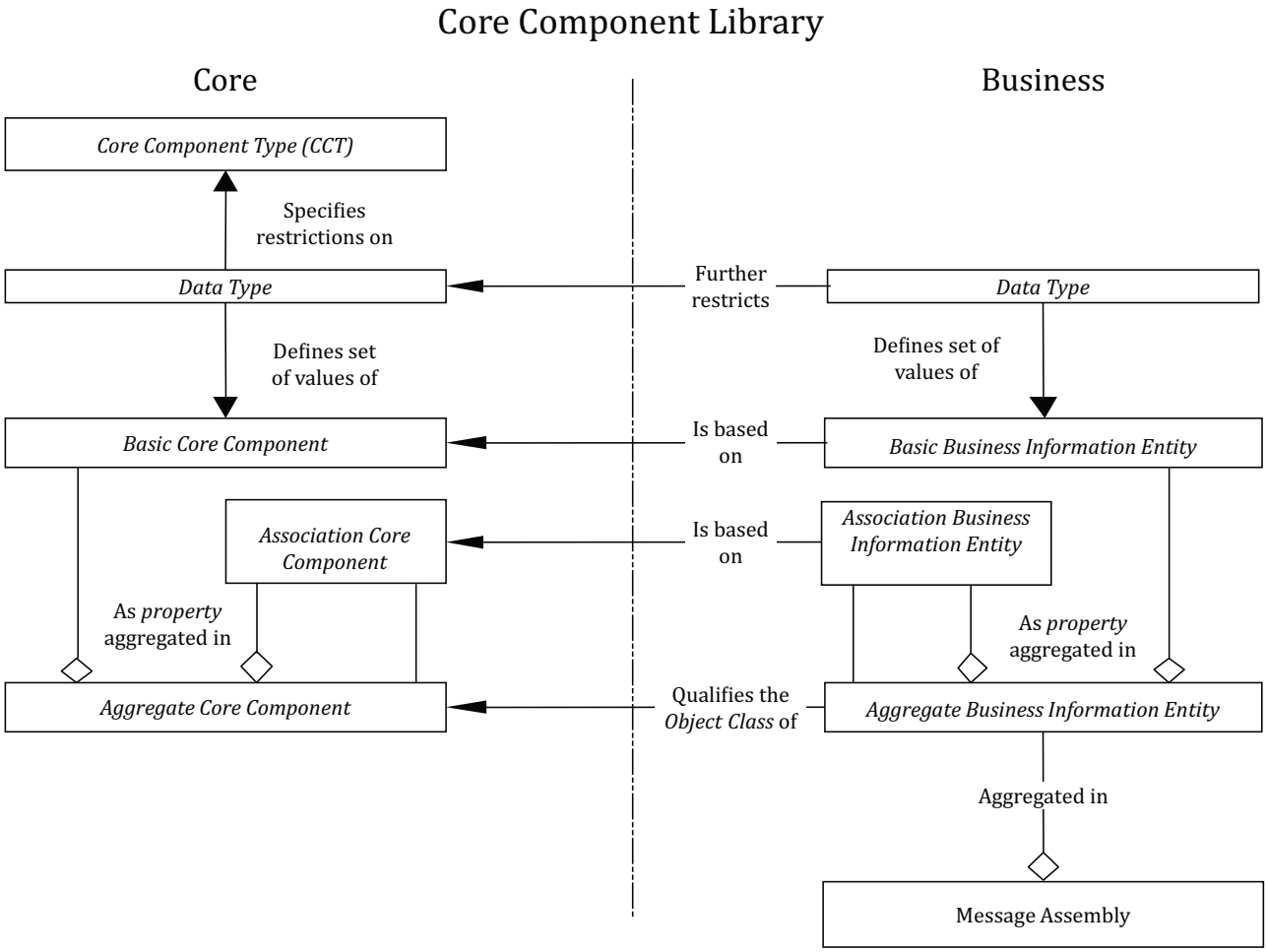

Figure 4 — Relationships between Core Components and Business Information Entities

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