



Financial Industry Business Ontology – Business Entities

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Preface

OMG

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Issues

The reader is encouraged to report any technical or editing issues/problems with this specification via the report form at:

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1 Scope

1.1 Overview

The FIBO Business Entities (BE) specification provides general and finance domain-specific concepts that define legal and business entities, including, but not limited to, any entity that may open an account, take out a loan, participate in any public or private offering of securities, or other business activities that require financial services (e.g., sole proprietorship, corporation, partnership, or trust, as well as governmental and not for profit organizations).

The Business Entities (BE) Specification is part of a family of specifications called the Financial Industry Business Ontology (FIBO). FIBO is a modularized formal model of the concepts represented by finance industry terms as used in official communications such as contracts, product/service specifications and governance and regulatory compliance reporting. The scope of finance industry encompasses a broad range of organizations that manage money, including credit unions, banks, credit card companies, insurance companies, consumer finance companies, stock brokerages, investment funds and some government sponsored enterprises. The high-level legal and business entities concepts required to support the definition of financial services entities and the relationships between them, as well as other business entities that may require financial services of any kind are provided in this specification.

The [Foundations] specification describes the modeling notation which has been employed and the requirements for presentation of this material to domain experts.

1.2 Scope of Financial Industry Business Ontologies for Business Entities

1.2.1 How This Specification Fits with the Overall FIBO

This specification describes a set of ontologies of and relating to business entities, including legal entities and specific forms of entity, within the overall framework and heading of the Financial Industry Business Ontology (FIBO). The ontology content described in this specification is developed and maintained using the same modeling framework as all FIBO ontologies. It uses, either by extension or by reference, a sub-set of the “Foundational” mid-level ontologies described in [Foundations].

1.2.2 Business Scope

The business scope of this specification is all terms relating to and descriptive and/or definitive of a range of business entities and legal entities that are considered by financial industry firms, regulators and other industry participants to be of relevance in the financial services domain.

The scope of the concepts in this specification are those common to:

- Legal entities.
- Formal organizations.
- Terms definitive of or descriptive of companies incorporated by the issuance of shares and other forms of incorporated entity.
- Terms which define the existence of other kinds of legal entity.
- Terms specific to trusts.
- Terms defining the relationships for example of ownership and control between and among the kinds of organization listed above.

- Entities defined not by their legal structure but according to their role or function, including but not limited to banks, non-profit entities, government bodies, non-government and quasi-non government organizations, international bodies and the like.

1.3 Definitions

The human readable definitions associated with every concept, property, and individual defined herein have been developed following guidelines specified in ISO 704 [ISO 704] for construction of definitions, similar to typical Aristotelian styling for definition development. They have been adapted from a number of standard business and financial industry references as well as from the relevant regulations, by a team of business subject matter experts. Source materials for these definitions are referenced to the degree possible. The process by which team development of FIBO content is accomplished has evolved significantly since the original FIBO Foundations [Foundations] RFC submission, and minutes from most of the working group sessions are available from the EDM Council wiki. Contributors from a variety of IT and business backgrounds, from a number of leading institutions and related consultancies have reviewed this material internally as a part of that process. Content was also derived from the original EDM Council Semantics Repository as appropriate.

1.3.1 Definitions Policy

In some cases, definitions have been obtained from third party sources. The policy for arriving at definitions for the FIBO industry terms was as follows (and remains so for future iterations and extensions):

1. In the absence of a definition endorsed by the subject matter experts for a term, “Barrons DICTIONARY OF FINANCE AND INVESTMENT TERMS, 8th Edition John Downes and Jordan Elliot Goodman” shall be used.
2. If a term and its acceptable definition is not in the Barrons Dictionary, then <http://www.investopedia.com/dictionary/> shall be the authoritative source, subject to licensing requirements being met.
3. If a term and its acceptable definition is not in either the Barrons Dictionary or the investopedia dictionary, then <http://www.bankersalmanac.com/addcon/dictionary/> shall be the authoritative source.
4. If a term has no acceptable definition in these Financial Industry sources or does not exist in these Financial Industry sources, then <http://www.merriam-webster.com> shall be the authoritative source.
5. When there is a conflict with the definition of a Financial Industry term with the same term in another Industry, the Financial Industry definition will be used within FIBO.

In all cases the source from which the definition was obtained, or from which it was adapted, is recorded in annotation metadata for that concept.

2 Conformance

2.1 Applications for which Conformance Points Exist

This clause defines conformance points for the following types of artifacts:

- Technical applications of FIBO such as logical data models, XML schemas, operational ontologies, code, and other technical artifacts
- Extensions of FIBO

- Representations of FIBO for business consumption
 - In diagrams
 - In spreadsheets or tables

Conformance of technical applications of FIBO is the most important conformance point, because it addresses the core issue of what it means to conform to the ontologies that FIBO defines.

Note that in addition to conformant applications, there are a number of scenarios in which someone may make use of the FIBO ontologies as a business conceptual model while applying their own design to meet their requirements. It is not possible to define specific conformance points for each of the possible ways in which one may legitimately develop a conventional database application or an operational OWL ontology that would be a good application.

2.2 Conformance Points

These consist of the generic FIBO conformance points defined in further detail in [Foundations], applied to the specific ontologies in this Specification.

This specification has the following conformance points:

2.2.1 Conformant Technical Applications

- If a technical application is FIBO Model Conformant[†] with the complete set of FIBO BE ontologies, then the application satisfies *Full FIBO BE Model Conformance*.
- If a technical application is FIBO Model Conformant with a particular FIBO BE ontology, then the application satisfies *FIBO BE Ontology Conformance* for that particular ontology. There is thus a separate conformance point for each ontology in Clause 9.

[†] “FIBO Model Conformant” is defined in [Foundations].

2.2.2 Conformant Extensions

- If an ontology is FIBO Extension Conformant[†] for an ontology in BE, and FIBO ODM Conformant[†], then it satisfies *FIBO BE Extension in ODM* for that ontology. If this holds for all the ontologies in BE, then it satisfies *FIBO BE-Full Extension in ODM*.
- If an ontology is FIBO Extension Conformant[†] for an ontology in BE, and FIBO OWL Conformant[†], then it satisfies *FIBO BE Extension in OWL* for that ontology. If this holds for all the ontologies in BE, then it satisfies *FIBO BE-Full Extension in OWL*.

[†] “FIBO Extension Conformant”, “FIBO ODM Conformant” and “FIBO OWL Conformant” are defined in [Foundations].

3 References

3.1 Normative References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.

Reference	Description
[Dublin Core]	DCMI Metadata Terms, Issued 2013-06-14 by the Dublin Core Metadata Initiative. Available at http://www.dublincore.org/documents/dcmi-terms/ .
[FIBO Foundations]	Financial Industry business Ontology (FIBO) – Foundations. Available at http://www.omg.org/spec/EDMC-FIBO/FND/ .
[ISO 1087]	ISO 1087-1:2000 Terminology — Vocabulary — Part 1: Theory and application
[MOF Core]	Meta Object Facility (MOF™) Core, v2.4.1. OMG Available Specification, formal/2011-08-07. Available at http://www.omg.org/spec/MOF/2.4.1/ .
[MOF XMI]	MOF 2/XMI (XML Metadata Interchange) Mapping Specification, v2.4.1. OMG Available Specification, formal/2011-08-09. Available at http://www.omg.org/spec/XMI/2.4.1/ .
[ODM]	Ontology Definition Metamodel™ (ODM™). Available at http://www.omg.org/spec/ODM/ .
[OMG AB Specification Metadata]	OMG Architecture Board recommendations for specification of ontology metadata, Available at http://www.omg.org/techprocess/ab/SpecificationMetadata/
[OWL 2]	OWL 2 Web Ontology Language Quick Reference Guide (Second Edition), W3C Recommendation 11 December 2012. Available at http://www.w3.org/TR/2012/REC-owl2-quick-reference-20121211/ .
[RDF 1.1]	RDF 1.1 Concepts and Abstract Syntax, W3C Last Call Working Draft. Latest version Available at http://www.w3.org/TR/2013/WD-rdf11-concepts-20130723/
[RDF Concepts]	Resource Description Framework (RDF): Concepts and Abstract Syntax. Graham Klyne and Jeremy J. Carroll, Editors. W3C Recommendation, 10 February 2004. Latest version is available at http://www.w3.org/TR/rdf-concepts/ .
[RDF Schema]	RDF Vocabulary Description Language 1.0: RDF Schema. Dan Brickley and R.V. Guha, Editors. W3C Recommendation, 10 February 2004. Latest version is available at http://www.w3.org/TR/rdf-schema/ .
[SKOS]	SKOS Simple Knowledge Organization System Reference, W3C Recommendation 18 August 2009. Available at http://www.w3.org/TR/2009/REC-skos-reference-20090818/ .
[UML2]	Unified Modeling Language™ (UML®), version 2.4.1. OMG Specification, formal/2011-08-06. Available at http://www.omg.org/spec/UML/2.4.1/ .

[Unicode]	<i>The Unicode Standard, Version 3</i> , The Unicode Consortium, Addison-Wesley, 2000. ISBN 0-201-61633-5, as updated from time to time by the publication of new versions. (See http://www.unicode.org/unicode/standard/versions/ for the latest version and additional information on versions of the standard and of the Unicode Character Database).
[UTF-8]	RFC 3629: UTF-8, a transformation format of ISO 10646. F. Yergeau. IETF, November 2003, http://www.ietf.org/rfc/rfc3629.txt
[W3C Datatypes in RDF and OWL]	XML Schema Datatypes in RDF and OWL, W3C Working Group Note 14 March 2006, Available at http://www.w3.org/TR/2006/NOTE-swbp-xsch-datatypes-20060314/ .
[XML Schema Datatypes]	XML Schema Part 2: Datatypes. W3C Recommendation 02 May 2000. Latest version is available at http://www.w3.org/TR/xmlschema-2/ .

3.2 Non-normative References

The following informative documents are referenced throughout this text or in parts of the Annexes.

Reference	Description
[ODM 1.1 RTF Report]	ODM 1.1 RTF Report, November 2013. Available from the ODM 1.1 RTF as document number ptc/13-08-01. Available at http://www.omg.org/cgi-bin/doc?ptc/13-08-01
[OMV]	Ontology Metadata Vocabulary (OMV) - http://omv2.sourceforge.net/ (a standard giving metadata for ontology-level information)
[W3C Organization Ontology]	W3C Organization Ontology. Available at: http://www.w3.org/TR/vocab-org/

4 Terms and Definitions

For the purposes of this specification, the following terms and definitions apply.

Content

Definition: Subject matter or meta-content.

Business conceptual model

Definition: A model which represents and only represents business subject matter without reference to the design of any solution or data model representation.

Ontology

Definition: A formalization of a conceptualization. For the purposes of this specification the formalization is in OWL, using ODM as a means to render this, and the conceptualization is that of business subject matter.

Operational Ontology

Definition: An ontology which is intended for use within some application.

Subject matter

Definition: Information about things in the universe of discourse; the essential facts, data, or ideas that constitute the basis of spoken, written, or artistic expression or representation; often : the substance as distinguished from the form especially of an artistic or literary production.

Taxonomy

Definition: A set of terms which stand in some classification relation to one another.

5 Symbols and Abbreviations

5.1 Symbols

There are no symbols introduced by this specification.

5.2 Abbreviations

The following abbreviations are used throughout this specification:

- LEI – Legal Entity Identifier
- OWL – Web Ontology Language
- ODM – Ontology Definition Metamodel
- RDF – Resource Definition Framework
- SME – Subject Matter Expert
- UML – Unified Modeling Language
- URI – Uniform Resource Identifier
- URL – Uniform Resource Locator
- XMI – XML Metadata Interchange
- XML – eXtensible Markup Language

Additional symbols and abbreviations that are used only in annexes to this specification are given in those annexes.

6 Additional Information

6.1 Audience

This specification has the following audiences:

- The standards community
- The finance industry business and regulatory community
- Information Technology (IT) architects
- Taxonomists and Ontologists

6.1.1 Standards Community

This audience is intended to be able to follow and validate the way in which this specification documents the models (ontologies) defined herein.

6.1.2 Finance Industry Business and Regulatory Community

As noted in the clause on conformance (Clause 2) this specification defines concepts, relationships among those concepts, logical sentences that refine the meaning of those concepts, and well-known individuals (such as for specific regulatory agencies, central banks, and registries) that instantiate those concepts for use by business subject matter experts. There may be technical details in some of the diagrams, as well as logic expressions in tables that are not targeted at this audience, but the concepts and annotations, including definitions, examples, explanatory notes, and so on, in the tables accompanying the diagrams should be consumable and relevant for this audience.

6.1.3 Information Technology (IT) Architects, Enterprise Architects, and Developers

These include but are not limited to:

- Tool vendors and developers
- Other content providers / enriched content providers
- Business Analysts – anyone who use the model on site, whether they are a modeler, a metadata analyst, etc.
- Technology Management

The bulk of the “Architecture” section is intended to be read and understood by these audiences and by the ‘Taxonomists and Ontologists’ audience.

6.1.4 Taxonomists and Ontologists

Much of the material in this specification is intended to be read and understood by those responsible for developing taxonomies and ontologies for the business. Such individuals must be familiar with first order logic, description logics, and the W3C family of specifications for the RDF [RDF Concepts] and OWL [OWL 2] languages. They should also be familiar with the Ontology Definition Metamodel [ODM] representation of these languages. The entire specification, including the details relevant to conformance (Clause 2), and as well as the architecture and overall approach (Clause 8), and especially the content of the ontologies (Clause 9), is important for this audience.

6.2 Acknowledgements

The following organization submitted this specification:

- Enterprise Data Management Council

The following companies have provided significant expertise and resources in the development of its content and architecture:

- Adaptive Inc.
- Australia and New Zealand Banking Group
- AVOX/DTCC
- Bank of America
- Barclays Capital

- BBH
- Bloomberg LP
- Business Semantics
- CIBC
- Citigroup Inc.
- Credit Suisse Group AG
- CUSIP
- The Federal National Mortgage Association (Fannie Mae)
- David Frankel Consulting
- FacetApp
- Fidelity
- GoldenSource Corporation
- HSBC Holdings plc
- JPMorgan Chase & Co.
- The Manufacturers Life Insurance Company
- Michigan State University
- Model Driven Solutions
- Model Systems
- Morgan Stanley
- MphasiS
- National Australia Bank
- No Magic
- Nomos Software
- Nordea Bank
- Oakland University
- OntoAge
- OpenFinance
- PricewaterhouseCoopers L.L.P
- Revelytix
- Sallie Mae
- SAP
- Semantic Arts
- State Street
- Sungard
- SWIFT
- Tahoe Blue
- Thematix Partners LLC
- Thomson Reuters
- UBS AG
- University of British Columbia
- University College Cork

- Wells Fargo
- Wizdom Systems, Inc.

6.3 Notation

The diagrams included herein are ODM-compliant UML diagrams, in other words, they conform to the UML Profiles for RDF and OWL specified in the OMG’s Ontology Definition Metamodel [ODM] Specification. This includes the set of UML stereotypes and graphical notation used in the diagrams provided.

The color scheme employed in these diagrams includes:

- Basic OWL Classes: white for classes defined within the current (local) ontology, amber for classes defined within an imported (referenced) ontology
- OWL Restriction Classes and other Class Expressions (unions, intersection, complements): green
- OWL Object Properties: blue
- OWL Data Properties: dark gray
- OWL Datatypes: pink
- OWL Individuals: light gray

Within the context of this specification (and the FIBO specifications on which it depends), a module is group of ontologies, organized as a subdomain with respect to the BE namespace and as a folder from a file management perspective. One or more ontologies are contained in each of the modules in this specification (e.g., Corporations, Legal Entities, Partnerships). For each module there is an “about” file, which provides metadata about the module, specified in tabular form. Each of the primary ontologies in a given module is defined as an ODM-compliant UML model as well as in OWL (aside from the “about” file, which is expressed in RDF/XML only). The normative ontology is expressed in ODM XMI (i.e., XMI that conforms to the ODM metamodels for RDF and OWL), ODM UML XMI (i.e., that conforms to the UML Profiles for RDF and OWL in the ODM specification), and in RDF/XML serialized OWL 2.

The notation used to represent description logic expressions (i.e., the expressions in the Parent columns in class tables containing ontology details) is consistent with the notation defined in the Description Logic Handbook [DL Handbook]. Some of the basics are described in Table 6.1. Note that this is not intended to be comprehensive, but includes the primary patterns that are used in the FIBO IND specification, for property restrictions in particular.

Table 6.1 - Description Logic Expressions Notation

Construct	Description	Notation
Boolean Connectives and Enumeration		
intersection	The intersection of two classes consists of exactly those individuals which are instances of both classes.	$C \cap D$
union	The union of two classes contains every individual which is contained in at least one of these classes.	$C \cup D$
enumeration	An enumeration defines a class by enumerating all its instances.	$\text{oneOf}(i_1, i_2, i_3, \dots, i_n)$
Property Restrictions		
universal quantification	Universal quantification is used to describe a class of individuals for which all related individuals must be instances of a given class (i.e., <code>allValuesFrom</code> in OWL).	$\forall R.C$, where R is the relation (property) and C is the class that constrains all values for related individuals

existential quantification	Existential quantification is used to define a class as the set of all individuals that are connected via a particular property to at least one individual which is an instance of a certain class (i.e., someValuesFrom in OWL).	$\exists R.C$, where R is the relation (property) and C is the class that constrains some values of related individuals
individual value	Individual value restrictions are used to describe classes of individuals that are related to one particular individual (i.e., hasValue in OWL).	$\forall R.I$, where R is the relation (property) and I is the individual
exact cardinality	Cardinality (number) restrictions define classes by restricting the cardinality on the sets of fillers for roles (relationships, or properties in OWL). Exact cardinality restrictions restrict the cardinality of possible fillers to exactly the number specified.	$= n R$ (for unqualified restrictions) $= n R.C$ (for qualified restrictions, i.e., including onClass or on DataRange)
maximum cardinality	Maximum cardinality restrictions restrict the cardinality of possible fillers to at most the number specified (inclusive).	$\leq n R$ (for unqualified restrictions) $\leq n R.C$ (for qualified restrictions)
minimum cardinality	Minimum cardinality restrictions restrict the cardinality of possible fillers to at least the number specified (inclusive).	$\geq n R$ (for unqualified restrictions) $\geq n R.C$ (for qualified restrictions)
Class Axioms		
equivalent classes	Two classes are considered equivalent if they contain exactly the same individuals.	$\equiv C$
disjoint classes	Disjointness means that membership in one class specifically excludes membership in another.	$\neg C$

Within the tabular representation for restrictions in the tables included herein, the identifiers for the restrictions shown in the diagrams are included parenthetically following the logic expressions. These are not part of the logic, but are included for comparison purposes. The identifiers are named based on the precedent set in the FIBO Foundations [FIBO Foundations] specification, which includes the namespace prefix for the ontology followed by a unique number.

Additionally, some restrictions are nested, whereby the content of an embedded (nested) restriction is also included parenthetically. In these cases, all of the identifiers will be included, also parenthetically, following the complete specification of the complex restriction. Note too that in the case of complex restrictions, where there are nested elements in parentheses, the “dot notation” used as a separator between a property and the role filler is replaced with the embedded parenthetical filler definition. A “role” from a description logic perspective is essentially a property in OWL, and the role “filler” is the class or individual that provides the value for that role in a given axiom (i.e., in a restriction or other logic expression).

For the vast majority of the property restrictions specified in FIBO, the restrictions are defined as necessary conditions for class membership, rather than sufficient conditions. As a result, the tables assume that necessary conditions is the default and only in cases where a restriction imposes sufficient conditions will that be stated.

7 Introduction

7.1 Audiences

Readers are encouraged to read sub clause 6.1 on the different intended audiences for this standard.

7.1.1 Audience for this sub clause

The audience for this sub clause is anyone who wishes to understand this standard, whether from a business or technical standpoint.

7.1.2 Reading this Standard

Technical audiences (in both conventional and semantic technology) are directed at the “Architecture” section (Clause 8).

Business audiences (financial industry participants, regulators and others) are directed at this Introduction.

The business content defined in this standard is intended to be presented both in a business-facing format and in a complete, technical format. The latter is intended for consumption by technical and standards audiences only. This specification defines the content of the standard and the ways in which it is to be presented to business readers.

7.2 Specification Overview

7.2.1 Non-Technical Overview

Audience: Business

This specification provides a model of business entities terms, definitions, and relationships. The model contains no technical design content and is a representation of the business entities concepts. This specification describes the technical arrangements by which this has been brought about, the requirements to be placed upon semantic modelers who are to extend this content locally or to propose updates to the model, and the requirements by which the content of this and future extensions are to be presented to business domain participants, so that they may understand and review the model content without the need for any formal technical training.

7.2.2 Technical Overview

Audience: Technical architects

The model content is developed and maintained using the Unified Modeling Language as a modeling tool framework, but with all model content built using the formal constructs of the Web Ontology Language (OWL). This is achieved using the OMG's Ontology Definition Metamodel (ODM) specification.

The use of the ODM specification in this specification is limited to a specific sub-set of OWL constructs, and is also limited to the range of UML base classes that is allowed for each of the OWL constructs that are used, as defined in the [FIBO Foundations] specification.

The model content is made available as serialized ODM UML in the form of XMI files (“ODM XMI”); as serialized UML in the form of XMI files (“UML XMI”) and as OWL files in the RDF/XML syntax. The deliverables are described in Annex A.

7.3 Business Usage Scenarios

7.3.1 Business Entities Usage Scenarios

A number of business scenarios are supported by this specification. These include:

- Legal Entity Identification
 - The ownership and control hierarchies which complement the (dumb) LEI will be maintained somewhere; the FIBO for Business Entities contains the semantics of these relationships and would form a conceptual model from which to build this supporting utility.
- Transaction tracking
- Counterparty Credit Risk

8 Architecture

8.1 Overview

The overarching approach to a modular ontology architecture is provided in the FIBO Foundations [FIBO Foundations] Specification. The Business Entities (BE) Specification leverages that modular approach and architecture. It extends the Foundations specification with a number of additional modules: (1) Corporations, (2) Functional Entities, (3) Legal Entities, (4) Ownership and Control, (5) Partnerships, (6) Private Limited Companies, (7) Sole Proprietorships, and (8) Trusts.

8.2 Dependencies on Other FIBO Specifications

As mentioned above, BE extends concepts defined in the [Foundations] specification. The Foundations ontologies include legal concepts like contracts, business concepts such as products and service provision, general concepts such as classification schemes, identification schemes, dates and times, etc. BE also depends on concepts for ISO 3166 Country Codes and Country Subdivisions from the Languages, Countries and Codes (LCC) Specification¹, which [Foundations] uses to specify currency codes. In addition, the BE specification depends on the OMG Architecture Board's Specification Metadata recommendation².

8.3 “About” BE Vocabularies

The “about” files for Business Entities (and for all FIBO specifications) provide content describing BE and each of the modules, complementing the content in this specification and in some cases duplicating it in the form of RDF/XML metadata. These files are designed to (1) describe the machine-readable content of the specification for people who download that content directly, via content negotiations, and import it into tools that can interpret and display those files, (2) for potential use in tagging the specification document on the OMG site, and (3) to provide a high-level ontology in the case of AboutBE-1.0.rdf that imports all of the others, including all of FND, to support ease of use.

8.4 Namespace Definitions

The namespaces and prefixes corresponding to external elements required for use in BE include all of those listed in the FIBO Foundations specification. Table 8.1 lists the prefixes and namespaces on which BE depends that are external to FIBO. Table 8.2 provides those required for use of the Business Entities specification. The relevant namespaces and prefixes required for use of the [Foundations] specification are provided therein and are not duplicated here. The prefixes provided in Tables 8.1 and 8.2 are considered normative, and their usage is required in any conformant extension.

¹ The LCC Specification is available at <http://www.omg.org/spec/LCC/>.

² The Specification Metadata recommendation is available at <http://www.omg.org/techprocess/ab/SpecificationMetadata.rdf>

Table 8.1 - Prefix and Namespaces for referenced/external vocabularies

Namespace Prefix	Namespace
rdf	http://www.w3.org/1999/02/22-rdf-syntax-ns#
rdfs	http://www.w3.org/2000/01/rdf-schema#
owl	http://www.w3.org/2002/07/owl#
xsd	http://www.w3.org/2001/XMLSchema#
dct	http://purl.org/dc/terms/
skos	http://www.w3.org/2004/02/skos/core#
sm	http://www.omg.org/techprocess/ab/SpecificationMetadata/
lcc-lr	http://www.omg.org/spec/LCC/Languages/LanguageRepresentation/
lcc-639-1	http://www.omg.org/spec/LCC/Languages/ISO639-1-LanguageCodes/
lcc-cr	http://www.omg.org/spec/LCC/Countries/CountryRepresentation/
lcc-3166-1	http://www.omg.org/spec/LCC/Countries/ISO3166-1-CountryCodes/

As described in the [Foundations] specification, the namespace approach taken for FIBO is based on OMG guidelines and is constructed as follows:

- A standard prefix <http://www.omg.org/spec/>
- The family name, EDMC-FIBO
- The abbreviation for the specification: in this case BE
- The module name
- The ontology name

Note that the URI/IRI strategy for the ontologies in FIBO takes a “slash” rather than “hash” approach, in order to accommodate server-side applications. Namespace prefixes are constructed as follows with the components separated by “-”:

- The specification family name `fibo`
- The specification abbreviation: `be`
- An abbreviation for the module name
- An abbreviation for the ontology name

The namespaces and prefixes corresponding to the FIBO Business Entities (BE) ontologies are summarized in Table 8.2. These are given by module, and within a module in alphabetical order, rather than with any intent to show imports relationships. The table includes the namespace definitions for the “about” files that are part of the machine-readable deliverables for the specification, but that are not required for imports closure over the primary ontologies.

Table 8.2 - Prefix and Namespaces for FIBO Business Entities

Namespace Prefix	Namespace
fibonacci-be	http://www.omg.org/spec/EDMC-FIBO/BE/AboutBE/
fibonacci-be-1.0	http://www.omg.org/spec/EDMC-FIBO/BE/1.0/AboutBE-1.0/
fibonacci-be-1.1	http://www.omg.org/spec/EDMC-FIBO/BE/1.1/AboutBE-1.1/
fibonacci-be-1.1-eu	http://www.omg.org/spec/EDMC-FIBO/BE/1.1/AboutBE-1.1/Europe/
fibonacci-be-1.1-na	http://www.omg.org/spec/EDMC-FIBO/BE/1.1/AboutBE-1.1/NorthAmerica/
fibonacci-be-corp-mod	http://www.omg.org/spec/EDMC-FIBO/BE/Corporations/AboutCorporations/
fibonacci-be-corp-corp	http://www.omg.org/spec/EDMC-FIBO/BE/Corporations/Corporations/
fibonacci-be-fct-mod	http://www.omg.org/spec/EDMC-FIBO/BE/FunctionalEntities/AboutFunctionalEntities/
fibonacci-be-fct-fct	http://www.omg.org/spec/EDMC-FIBO/BE/FunctionalEntities/FunctionalEntities/
fibonacci-be-fct-pub	http://www.omg.org/spec/EDMC-FIBO/BE/FunctionalEntities/Publishers/
fibonacci-be-ge-caj	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/NorthAmericanJurisdiction/CAGovernmentEntitiesAndJurisdictions/
fibonacci-be-ge-euj	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/EuropeanJurisdiction/EUGovernmentEntitiesAndJurisdictions/
fibonacci-be-ge-ge	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/GovernmentEntities/
fibonacci-be-ge-mod	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/AboutGovernmentEntities/
fibonacci-be-ge-ukj	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/EuropeanJurisdiction/UKGovernmentEntitiesAndJurisdictions/
fibonacci-be-ge-usj	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/NorthAmericanJurisdiction/USGovernmentEntitiesAndJurisdictions/
fibonacci-be-le-mod	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/AboutLegalEntities/
fibonacci-be-le-cb	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/CorporateBodies/
fibonacci-be-le-fbo	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/
fibonacci-be-le-lp	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

Namespace Prefix	Namespace
fibo-be-le-lei	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LEIEntities/
fibo-be-oac-mod	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/AboutBEOwnershipAndControl/
fibo-be-oac-pty	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/ControlParties/
fibo-be-oac-cctl	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/CorporateControl/
fibo-be-oac-cown	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/CorporateOwnership/
fibo-be-oac-exec	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/Executives/
fibo-be-oac-pty	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/OwnershipParties/
fibo-be-ptr-mod	http://www.omg.org/spec/EDMC-FIBO/BE/Partnerships/AboutPartnerships/
fibo-be-ptr-pty	http://www.omg.org/spec/EDMC-FIBO/BE/Partnerships/Partnerships/
fibo-be-plc-mod	http://www.omg.org/spec/EDMC-FIBO/BE/PrivateLimitedCompanies/AboutPrivateLimitedCompanies/
fibo-be-plc-pty	http://www.omg.org/spec/EDMC-FIBO/BE/PrivateLimitedCompanies/PrivateLimitedCompanies/
fibo-be-spa-mod	http://www.omg.org/spec/EDMC-FIBO/BE/SoleProprietorships/AboutSoleProprietorships/
fibo-be-spa-pty	http://www.omg.org/spec/EDMC-FIBO/BE/SoleProprietorships/SoleProprietorships/
fibo-be-tr-mod	http://www.omg.org/spec/EDMC-FIBO/BE/Trusts/AboutTrusts/
fibo-be-tr-pty	http://www.omg.org/spec/EDMC-FIBO/BE/Trusts/Trusts/

9 Model Content Reports

9.1 Overview

This clause defines the terms, definitions, relationships, and additional logic specified in the ontologies that make up the content of the Business Entities (BE) specification.

9.2 Module: Legal Entities

Table 9.1 - Logical Entities Module Metadata

Metadata Term	Value
sm:moduleName	Legal Entities
sm:moduleAbbreviation	FIBO-BE-LE
sm:moduleVersion	1
sm:moduleAbstract	<p>This module contains ontologies which define the basis for legal personhood and business entities generally. They include definition of the formal semantics of types of entities including those considered "Legal Entity" in the sense of the ISO Legal Entity Identifier (LEI) effort, relationships between entities, parts of organizations, membership, classification, address relations and so on.</p> <p>It depends on and extends a number of the FIBO Foundations modules, particularly those describing formal organizations, ownership, and control relationships, and therefore on the ontologies that they depend on, either directly or indirectly.</p>

9.2.1 Ontology: Legal Persons

This ontology defines legal personhood concepts. A legal person as defined here is any natural person or organization which is capable of accruing liability on its own part.

Table 9.2 - Legal Persons Ontology Metadata

Metadata Term	Value
sm:filename	Indicators
sm:fileAbbreviation	fibonacci-ind-ind-ind
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/IND/Indicators/Indicators/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/IND/20160801/Indicators/Indicators/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/

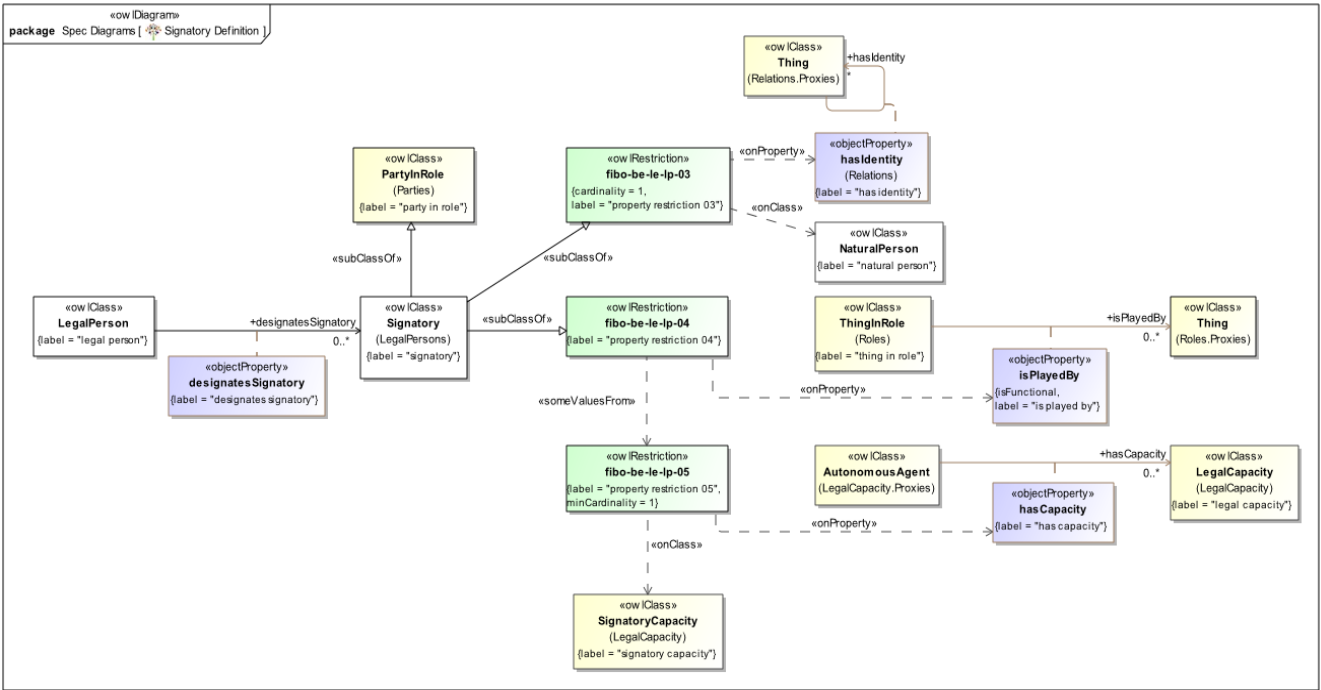


Figure 9.1 - Signatory Definition

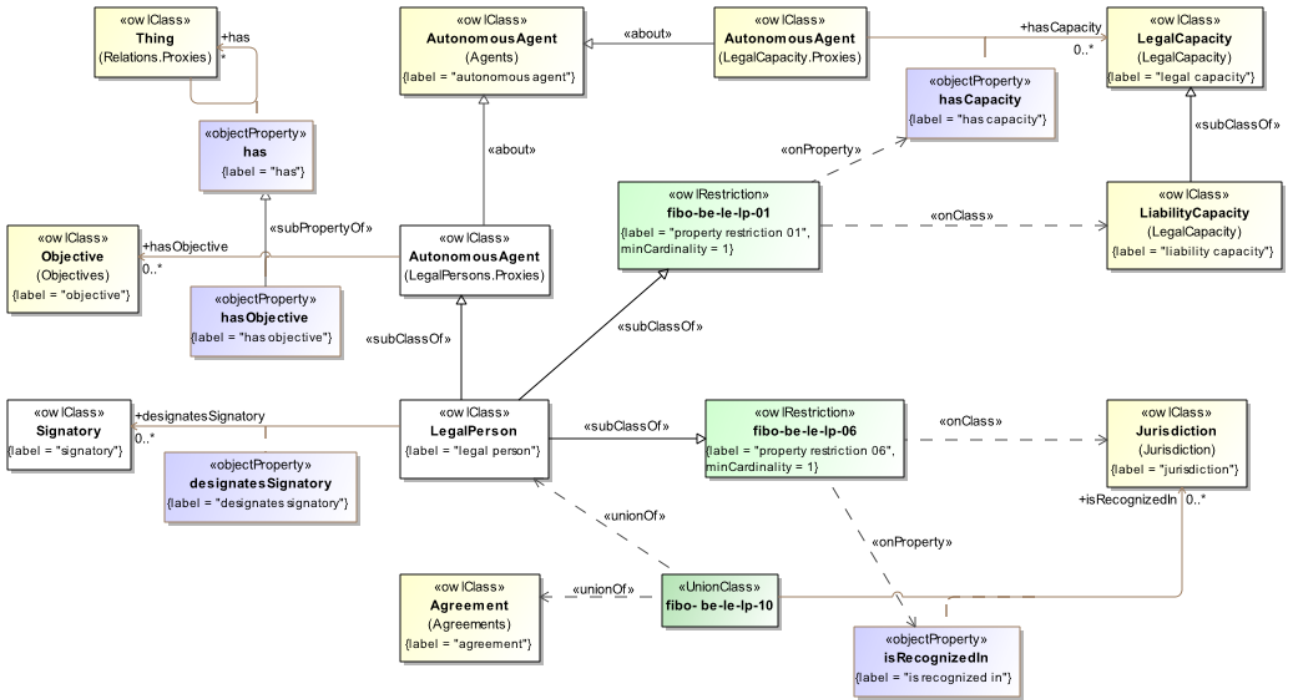


Figure 9.2 - Definition of Legal Person

A legal person is an agent that has liability capacity and is recognized as a legal person in some jurisdiction. A legal person may have an objective and may designate a signatory.

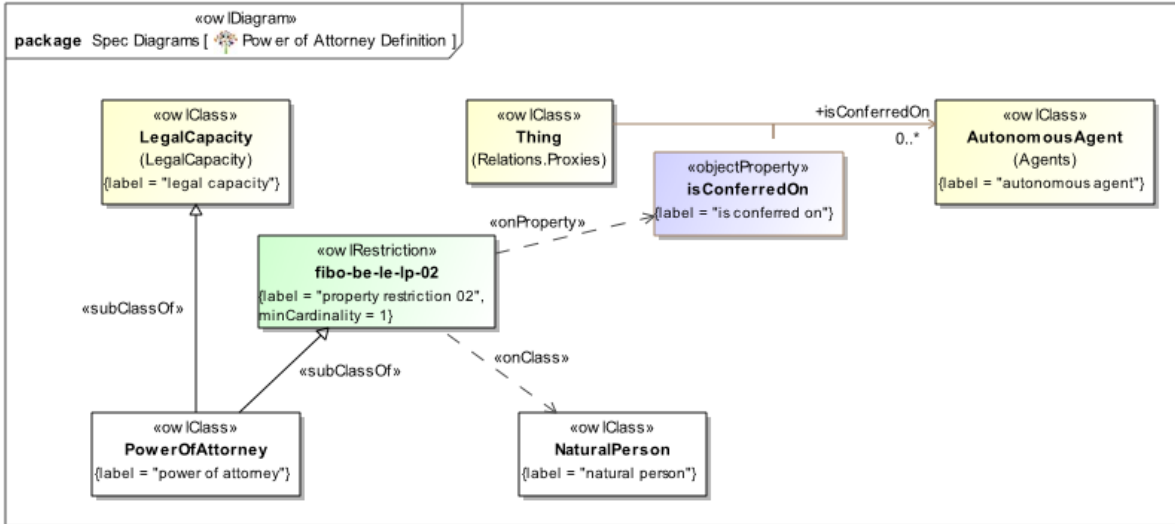


Figure 9.3 - Power of Attorney Definition

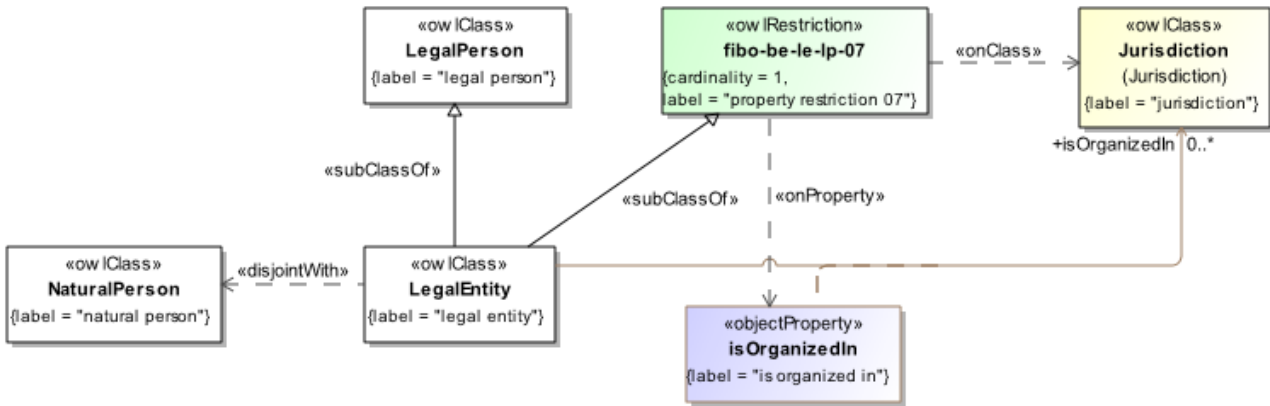


Figure 9.4 - Legal Entity Definition

A legal entity is a legal person that is organized in exactly one jurisdiction and that cannot be a natural person (i.e., it cannot be a human being).

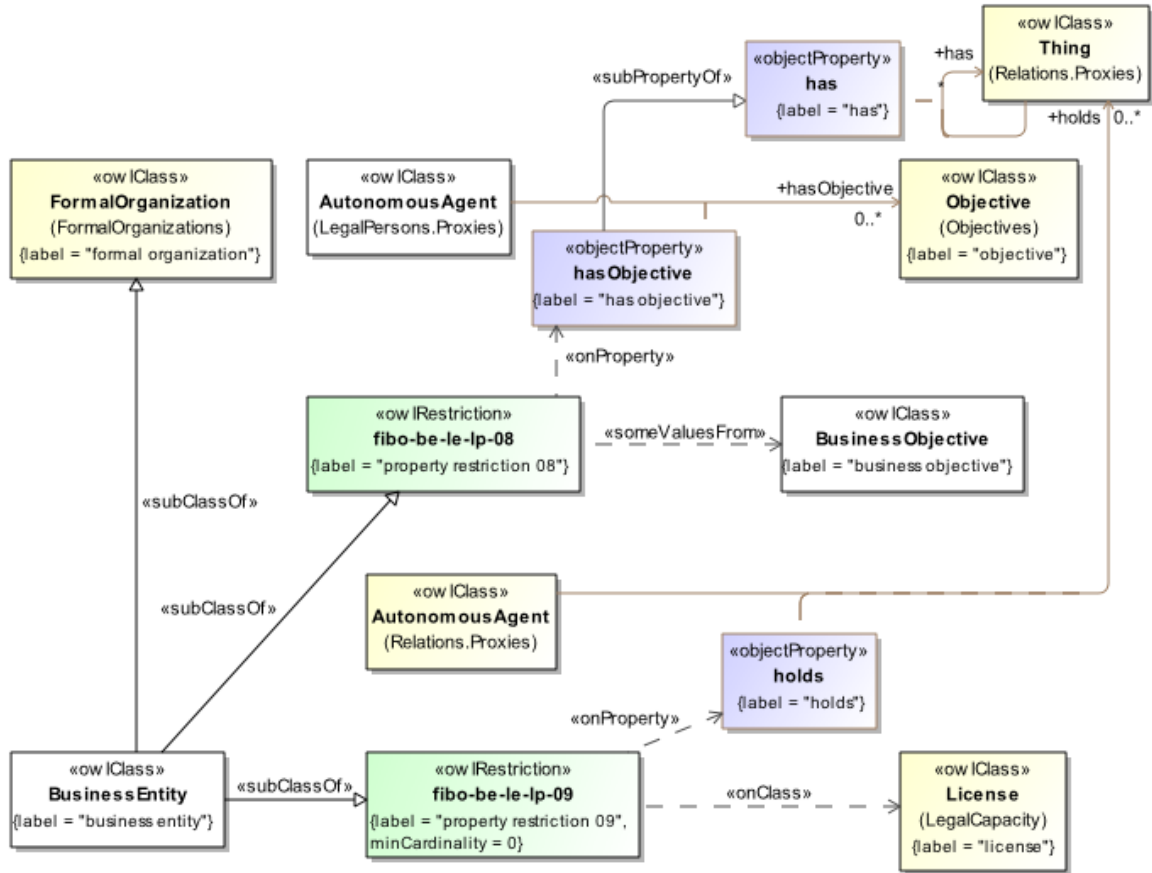


Figure 9.5 - Definition of Business Entity

A business entity is a formal organization that has at least one business objective and may hold any number of licenses. Examples of business entities include corporations, partnerships, sole proprietorships, certain kinds of limited liability organizations, certain kinds of trusts, and so forth.

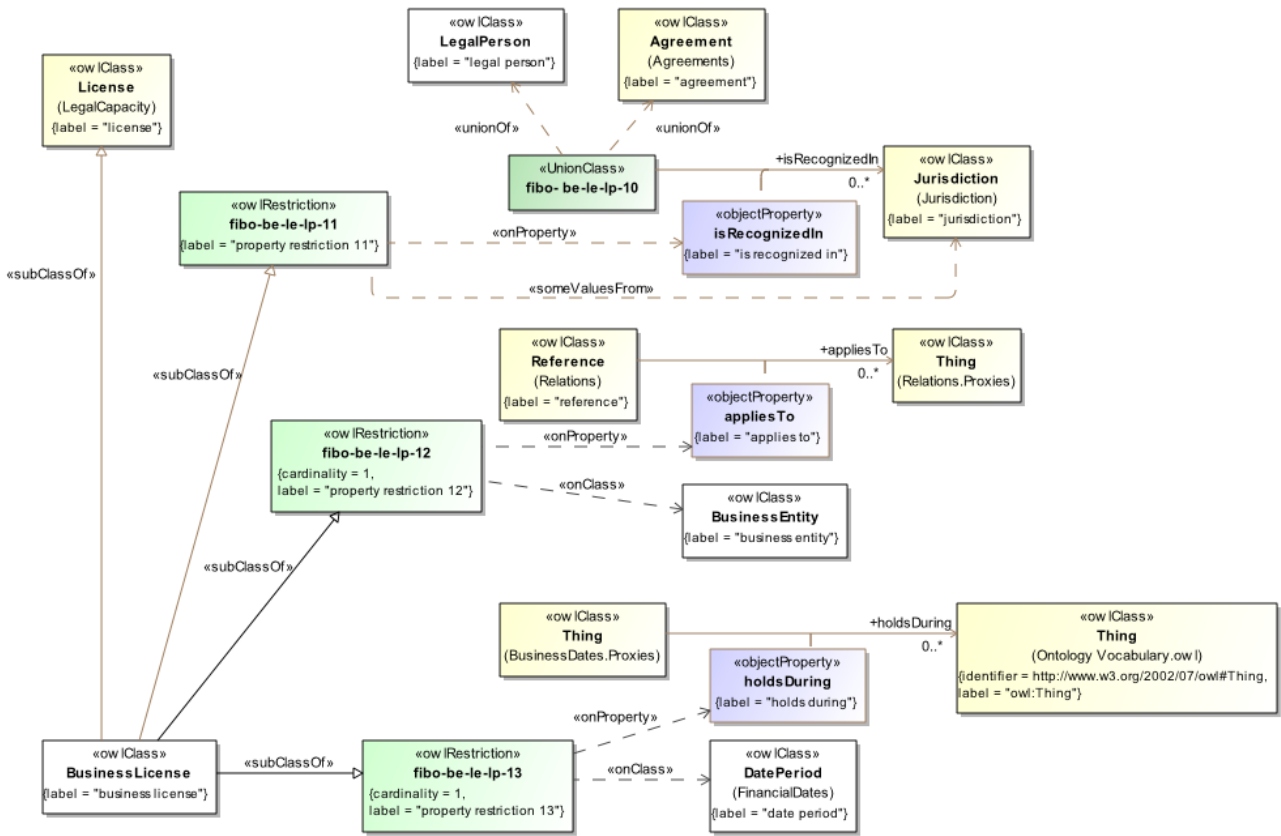


Figure 9.6 - Definition of Business License

A business license is a license that is recognized in some jurisdiction, applies to exactly one business entity, and holds during exactly one date period. It typically allows the business to conduct operations within the jurisdiction that recognizes it.

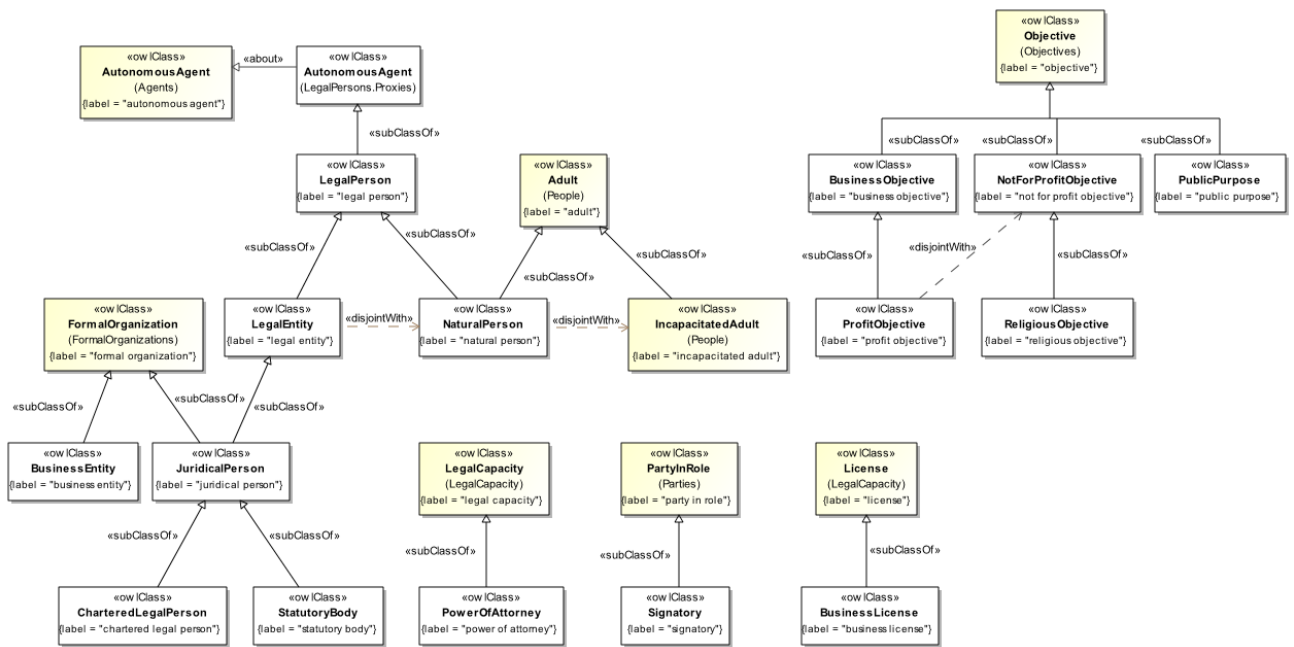


Figure 9.7 - Legal Persons Hierarchy

Table 9.3 - Legal Persons Concepts

Classes

Name	Annotations	Class Expressions
<p>BusinessEntity (business entity)</p>	<p><u>Definition</u>: an entity that is formed and administered as per commercial law in order to engage in business activities</p> <p><u>Explanatory note</u>: There are many types of business entities defined in the legal systems of various countries. These include corporations, cooperatives, partnerships, sole proprietorships, sole traders, limited liability companies, certain trusts and trust companies, and so forth. The rules vary by country and by state or province. Some of the more widely recognized types in the US, UK, and EU are defined in FIBO, by region. However, the regulations governing particular types of entity, even those described as roughly equivalent, differ from jurisdiction to jurisdiction.</p> <p><u>Adapted from</u>: http://en.wikipedia.org/wiki/Types_of_business_entity <u>Adapted from</u>: Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012</p>	<p><u>Parent Class</u>: FormalOrganization</p> <p><u>Property Restriction</u>: hasObjective.Business Objective (fibo-be-le-lp-08)</p> <p><u>Property Restriction</u>: ≥ 0 holds.License (fibo-be-le-lp-09)</p>
<p>BusinessLicense (business license)</p>	<p><u>Definition</u>: a license that allows the holder to conduct business or carry out a specific profession within some jurisdiction for some period of time</p> <p><u>Adapted from</u>: Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012</p>	<p><u>Parent Class</u>: License</p> <p><u>Property Restriction</u>: isRecognizedIn.Jurisdiction (fibo-be-le-lp-11)</p> <p><u>Property Restriction</u>: = 1 appliesTo.BusinessEntity (fibo-be-le-lp-12)</p> <p><u>Property Restriction</u>: = 1 holdsDuring.DatePeriod (fibo-be-le-lp-13)</p>
<p>BusinessObjective (business objective)</p>	<p><u>Definition</u>: an objective that reflects the strategic goals and direction of a business</p> <p><u>Explanatory note</u>: Business objectives allow an organization to define its goals and direction. A company uses strategy and tactics at every level of its operation to achieve its objectives. These define the way a company allocates its resources and the strengths, weaknesses and opportunities it may have. Companies usually do not alter their objectives once they are implemented, unless changes in circumstances arise. Setting a clear course for the organization is key to its success.</p> <p><u>Adapted from</u>: Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012</p>	<p><u>Parent Class</u>: Objective</p>

Name	Annotations	Class Expressions
CharteredLegalPerson (chartered legal person)	<p><u>Definition</u>: a legal person created by a royal charter or decree</p> <p><u>Example</u>: Anything with 'Royal Institute' in the name. Also universities are generally set up by royal charter in a monarchy or principality, (often pre-dating any Privy Council i.e. directly be the monarch in the case of older universities). The Bank of England and the British Broadcasting Council (BBC) are also incorporated through Royal Charter.</p>	<u>Parent Class</u> : JuridicalPerson
JuridicalPerson (juridical person, artificial person, juridical entity, juristic person)	<p><u>Definition</u>: an entity, as a firm, that is not a single natural person, as a human being, authorized by law with duties and rights, recognized as a legal authority having a distinct identity, a legal personality</p> <p><u>Definition origin</u>: Black's Law Dictionary Free Online, see http://thelawdictionary.org/juridical-person</p>	<u>Parent Class</u> : LegalEntity, FormalOrganization

Name	Annotations	Class Expressions
<p>LegalEntity (legal entity)</p>	<p><u>Definition</u>: a partnership, corporation, or other organization having the capacity to negotiate contracts, assume financial obligations, and pay off debts, organized under the laws of some jurisdiction</p> <p><u>Example</u>: Examples of eligible legal entities include, without limitation:</p> <ul style="list-style-type: none"> • all financial intermediaries; • banks and finance companies; • all entities that issue equity, debt, or other securities for other capital structures; • all entities listed on an exchange; • all entities that trade stock or debt, investment vehicles, including mutual funds, pension funds and alternative investment vehicles constituted as corporate entities or collective investment agreements (including umbrella funds as well as funds under an umbrella structure, hedge funds, private equity funds, etc.); • all entities under the purview of a financial regulator and their affiliates, subsidiaries, and holding companies; • counterparties to financial transactions. <p><u>Scope note</u>: The term ‘legal entities’ includes, but is not limited to, unique parties that are legally or financially responsible for the performance of financial transactions or have the legal right in their jurisdiction to enter independently into legal contracts, regardless of whether they are incorporated or constituted in some other way (e.g., trust, partnership, contractual). It excludes natural persons, but includes governmental organizations and supranationals.</p> <p><u>Adapted from</u>: Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012, definition of legal entity</p> <p><u>Adapted from</u>: ISO 17442, Financial services - Legal Entity Identifier (LEI), first edition, 2012-06-01, section 3.1</p>	<p><u>Parent Class</u>: LegalPerson</p> <p><u>Property Restriction</u>: = 1 isOrganizedIn.Jurisdiction (fibo-be-le-lp-07)</p> <p><u>Class Axiom</u>: NaturalPerson</p>
<p>LegalPerson (legal person)</p>	<p><u>Definition</u>: any entity which can incur legal obligation and can be sued at law</p> <p><u>Explanatory note</u>: To have legal personality means to be capable of having legal rights and duties within a certain legal system, such as to enter into contracts, sue, and be sued. Legal personality is a prerequisite to legal capacity, the ability of any legal person to amend (enter into, transfer, etc.) rights and obligations.</p> <p><u>Adapted from</u>: http://en.wikipedia.org/wiki/Legal_personalit</p>	<p><u>Parent Class</u>: AutonomousAgent</p> <p><u>Property Restriction</u>: ≥ 1 isRecognizedIn.Jurisdiction (fibo-be-le-lp-06)</p> <p><u>Property Restriction</u>: ≥ 1 hasCapacity.Liability Capacity (fibo-be-le-lp-01)</p>

Name	Annotations	Class Expressions
NaturalPerson (natural person)	<u>Definition:</u> A person of maturity who in the eyes of the law is able to assume obligations.	<u>Parent Class:</u> LegalPerson, Adult <u>Class Axiom:</u> IncapacitatedAdult
NotForProfitObjective (not for profit objective)	<u>Definition:</u> an objective that reflects the charitable, educational, religious, humanitarian, public services, or other not for profit goals of an organization <u>Explanatory note:</u> The objective of all business activities is not to earn profits for its owners. All of the money earned by or donated to a not for profit organization is used in pursuing the organization's objectives. <u>Adapted from:</u> Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012 <u>Adapted from:</u> http://www.investopedia.com/terms/n/not-for-profit.asp	<u>Parent Class:</u> Objective <u>Class Axiom:</u> ProfitObjective_
PowerOfAttorney (power of attorney)	<u>Definition:</u> Written legal authority given by one party (the principal) to another (the agent or attorney-in-fact) to act on the principals behalf. It may be a (1) General power Of attorney that authorizes the agent to act generally on behalf of the principal, or (2) Special power of attorney that is limited to a specific act or situation. Decisions made and actions taken by an attorney in fact (within the scope of his or her authority) are legally binding on the principal. A power of attorney can remain in force only so long as the principal is alive and does not become disabled or incapacitated. Although it is often conferred on the principals attorney, one does not need to be an attorney at law to be an attorney-in-fact. <u>Adapted from:</u> http://www.businessdictionary.com/definition/power-of-attorney.html	<u>Parent Class:</u> LegalCapacity <u>Property Restriction:</u> ≥ 1 isConferredOn.Natural Person (fibo-be-le-lp-02)
ProfitObjective (profit objective, for profit objective)	<u>Definition:</u> an objective that reflects pursuit of a financial benefit that may be realized when the amount of revenue gained from a business activity exceeds the expenses, costs and taxes needed to sustain that activity <u>Explanatory note:</u> Any profit that is gained goes to the business's owners, who may or may not decide to spend it on the business. <u>Adapted from:</u> Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012 <u>Adapted from:</u> http://www.investopedia.com/terms/p/profit.asp	<u>Parent Class:</u> BusinessObjective
PublicPurpose (public purpose, public interest)	<u>Definition:</u> an objective that reflects values generally thought to be shared by and that is intended to benefit the populace as a whole <u>Adapted from:</u> Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012 <u>Adapted from:</u> http://www.yourdictionary.com/public-purpose	<u>Parent Class:</u> Objective

Name	Annotations	Class Expressions
ReligiousObjective (religious objective)	<u>Definition</u> : a not for profit objective that reflects the religious goals of an organization	<u>Parent Class</u> : NotForProfitObjective
Signatory (signatory)	<u>Definition</u> : Some agent who has the capacity to sign contracts on the part of some legal person	<u>Parent Class</u> : PartyInRole <u>Property Restriction</u> : = 1 hasIdentity.NaturalPerson (fibo-be-le-lp-03) <u>Property Restriction</u> : isPlayedBy (\geq 1 hasCapacity.Signatory Capacity) (fibo-be-le-lp-04, fibo-be-le-lp-05)
StatutoryBody (statutory body)	<u>Definition</u> : a body set up by a government to consider evidence and make judgements in some field of activity <u>Adapted from</u> : http://www.collinsdictionary.com/dictionary/english/statutory-body	<u>Parent Class</u> : JuridicalPerson

Properties

Name	Annotations	Property Axioms
designatesSignatory (designates signatory)	<u>Definition</u> : designates a party able to sign contracts on the part of the legal person	<u>Parent Property</u> : designates <u>Domain</u> : LegalPerson <u>Range</u> : Signatory
hasObjective (has objective)	<u>Definition</u> : relates an agent to a specific objective (result) that the agent aims to achieve within a time frame and with available resources <u>Adapted from</u> : http://www.businessdictionary.com/definition/objective.html	<u>Parent Property</u> : has <u>Domain</u> : AutonomousAgent <u>Range</u> : Objective
isOrganizedIn (is organized in)	<u>Definition</u> : indicates the jurisdiction whose laws a legal entity is organized under	<u>Parent Property</u> : isRecognizedIn <u>Domain</u> : LegalEntity <u>Range</u> : Jurisdiction
isRecognizedIn (is recognized in)	<u>Definition</u> : indicates the jurisdiction in which a legal person is authorized to conduct business or an agreement may be acknowledged and possibly enforceable	<u>Domain</u> : (Agreement LegalPerson) <u>Range</u> : Jurisdiction

9.2.2 Ontology: Formal Business Organizations

This ontology defines formal business organizations and related concepts. The ontology covers parts of organizations, membership, classification, address relations and other properties which are applicable to formal business organizations generally. The concept of a formal business organization forms the basis for articulation of types of organization, both incorporated and non-incorporated, in other FIBO-BE ontologies.

Table 9.4 - Formal Business Organizations Ontology Metadata

Metadata Term	Value
sm:filename	FormalBusinessOrganizations
sm:fileAbbreviation	fibonacci-be-le-fbo
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/LegalEntities/FormalBusinessOrganizations/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

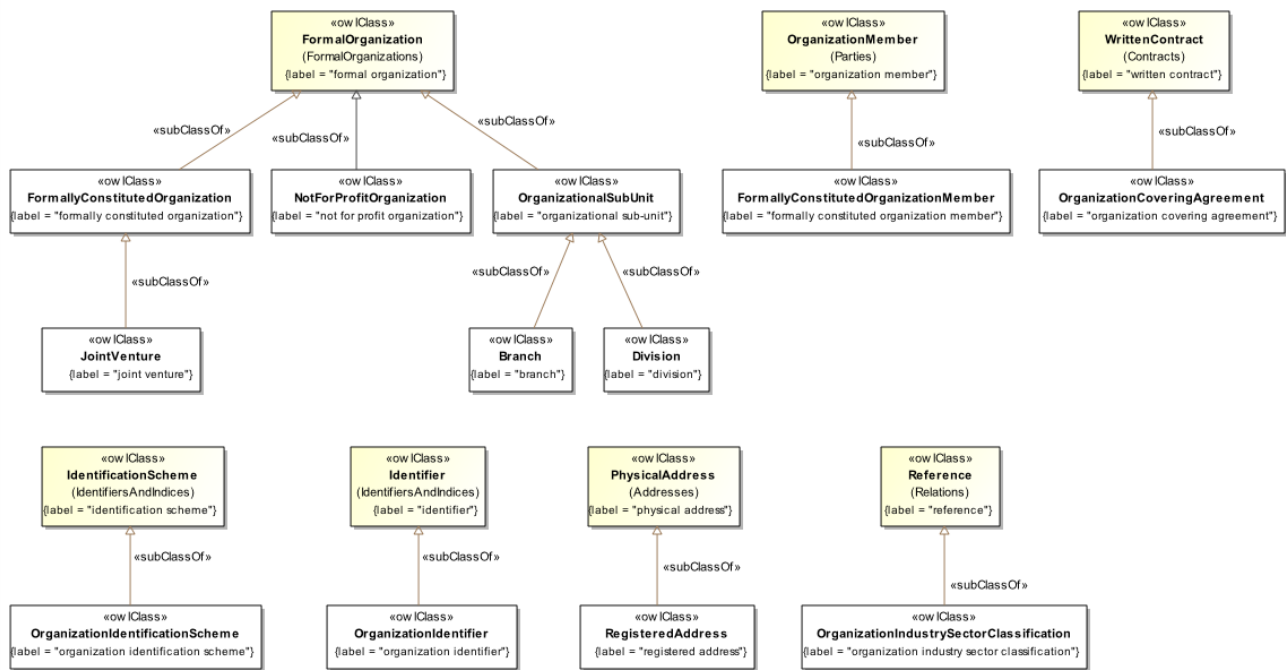


Figure 9.8 - Formal Business Organization Hierarchy

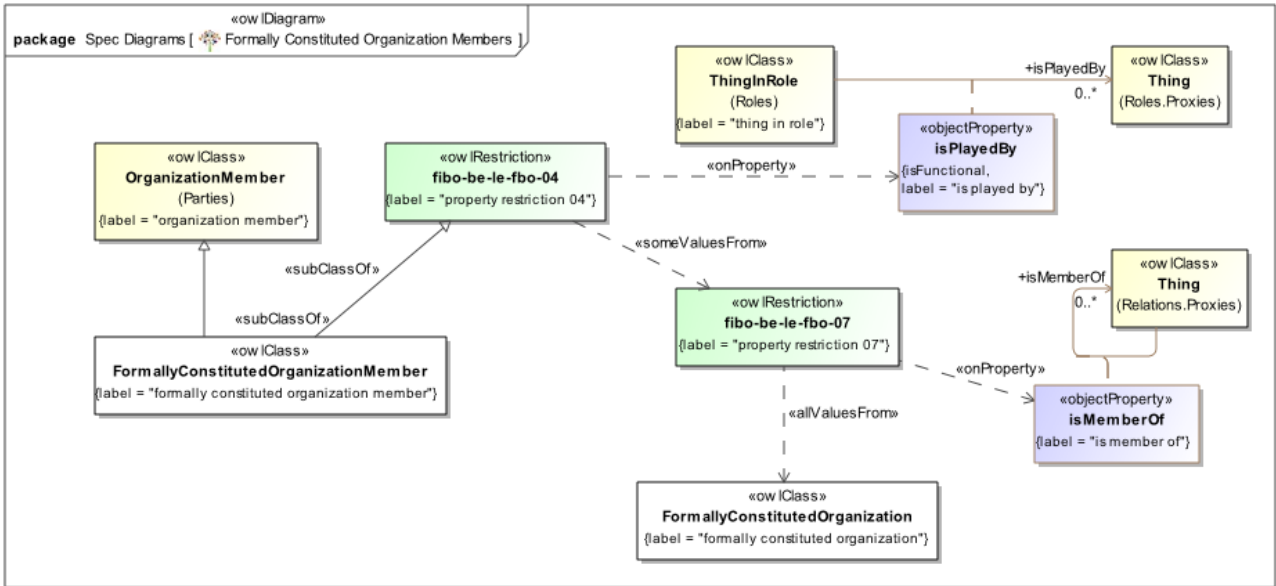


Figure 9.9 - Formally Constituted Organization Members

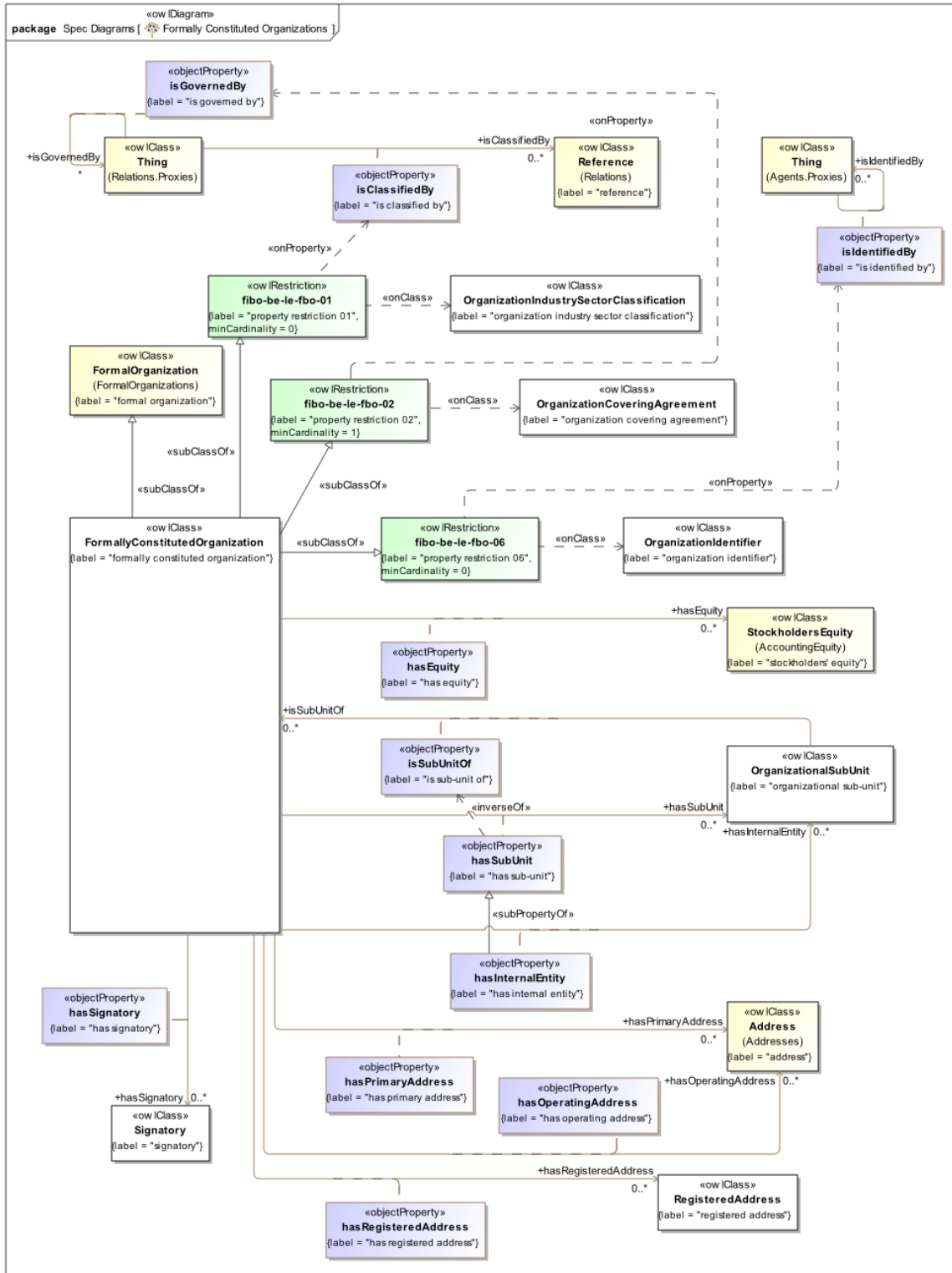


Figure 9.10 - Formally Constituted Organizations

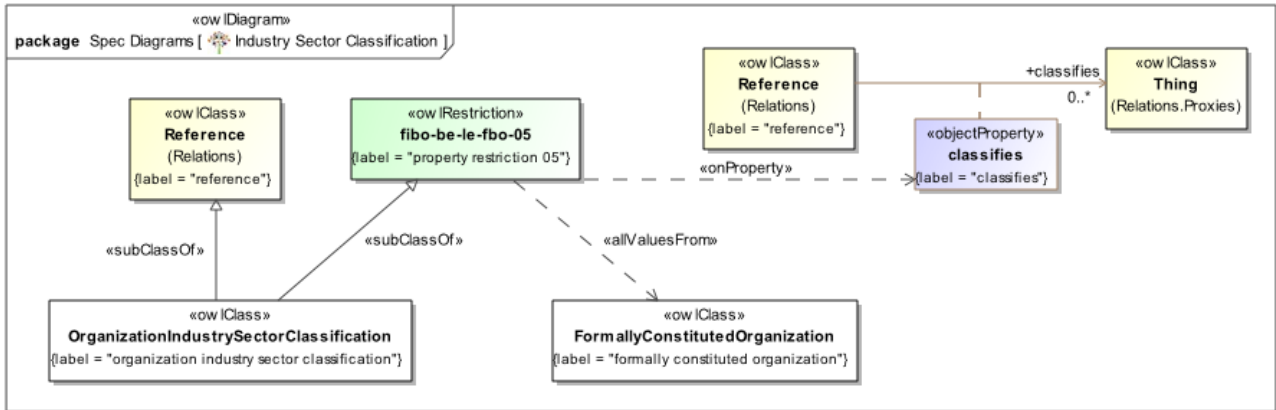


Figure 9.11 - Industry Sector Classification

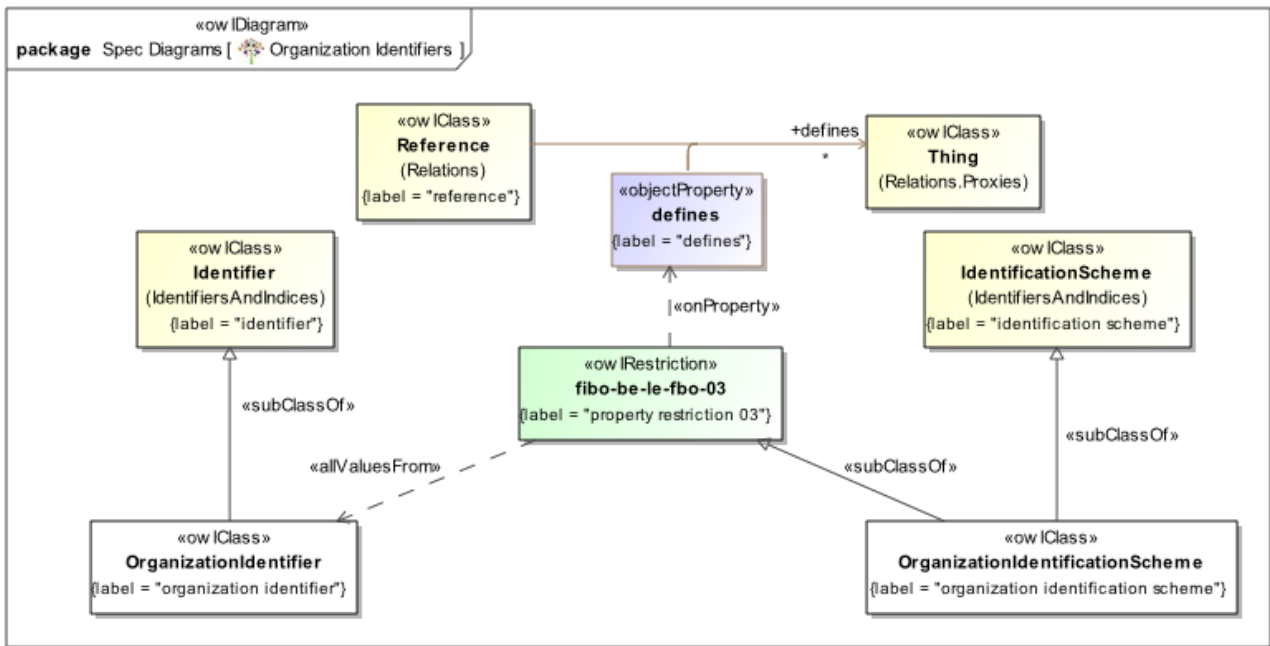


Figure 9.12 - Organization Identifiers

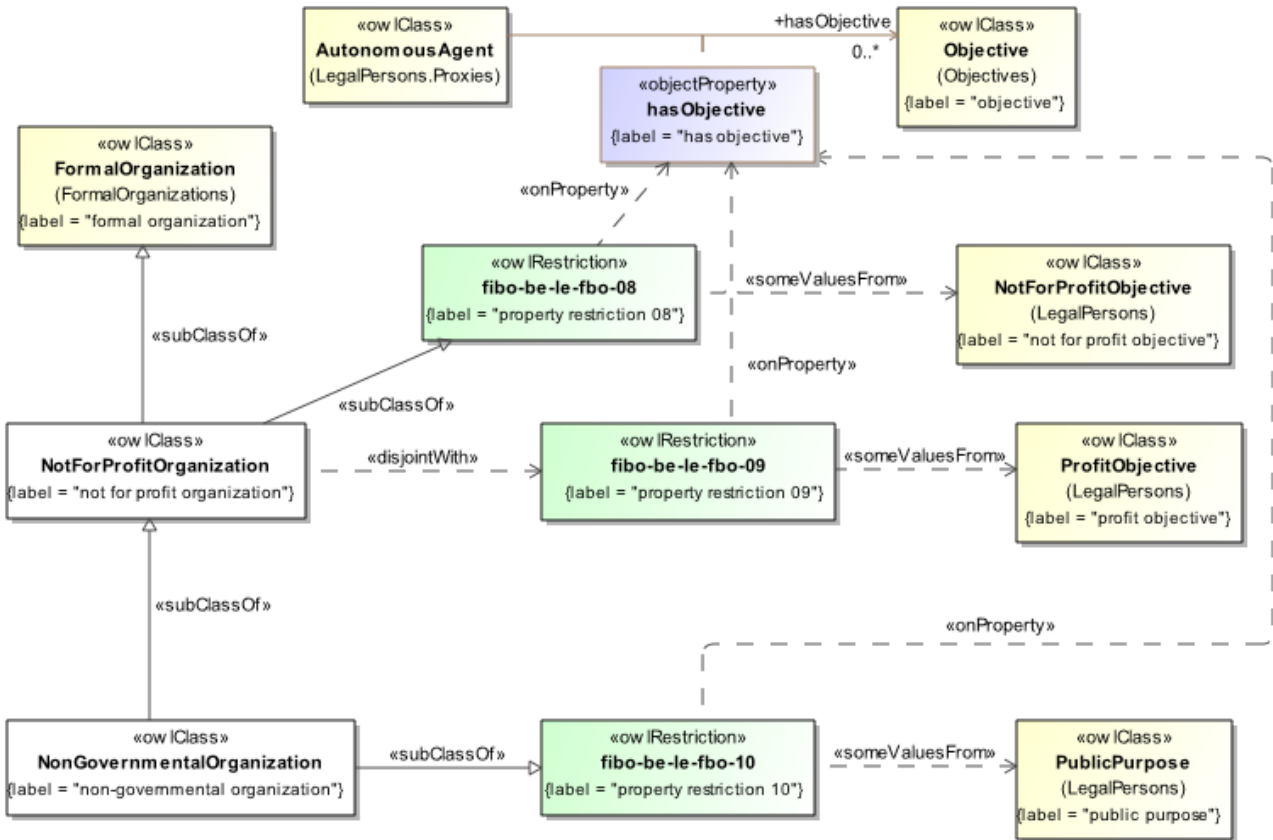


Figure 9.13 - Not for Profit Organizations

Table 9.5 - Formal Business Organizations Concepts

Classes

Name	Annotations	Class Expressions
Branch (branch)	<u>Definition:</u> A part of a business organization or company, identified as a branch.	<u>Parent Class:</u> OrganizationalSubUnit
Division (division)	<u>Definition:</u> a part of a company, such as a line of business, that may have separate accounting or reporting requirements	<u>Parent Class:</u> OrganizationalSubUnit

Name	Annotations	Class Expressions
FormallyConstitutedOrganization (formally constituted organization)	<u>Definition:</u> Any organization with some formal contractual agreement among its principals	<u>Parent Class:</u> FormalOrganization <u>Property Restriction:</u> ≥ 0 isClassifiedBy.Organization Industry SectorClassification (fibo-be-le-fbo-01) <u>Property Restriction:</u> ≥ 1 isGovernedBy.OrganizationCoveringAgreement (fibo-be-le-fbo-02) <u>Property Restriction:</u> ≥ 0 isIdentifiedBy.Organization Identifier (fibo-be-le-fbo-06)
FormallyConstitutedOrganizationMember (formally constituted organization member)	<u>Definition:</u> A member of some formally constituted organization.	<u>Parent Class:</u> OrganizationMember <u>Property Restriction:</u> isPlayedBy (isMemberOf. FormallyConstitutedOrganization) (fibo-be-le-fbo-04, fibo-be-le-fbo-07)
JointVenture (joint venture)	<u>Definition:</u> A formal venture between two or more business entities	<u>Parent Class:</u> FormallyConstitutedOrganization

Name	Annotations	Class Expressions
<p>NonGovernmentalOrganization (non-governmental organization, NGO)</p>	<p><u>Definition</u>: a not for profit organization that is a citizen-based group that functions independently of government</p> <p><u>Explanatory note</u>: NGOs are neither a part of a government nor a conventional for-profit business. Usually set up by ordinary citizens, NGOs may be funded by governments, foundations, businesses, or private persons.</p> <p><u>Explanatory note</u>: NGOs, sometimes called civil societies, are organized on community, national and international levels to serve specific social or political purposes, and are cooperative, rather than commercial, in nature.</p> <p><u>Explanatory note</u>: Some NGOs avoid formal funding altogether and are run primarily by volunteers. NGOs are highly diverse groups of organizations engaged in a wide range of activities, and take different forms in different parts of the world. Some may have charitable status, while others may be registered for tax exemption based on recognition of social purposes. Others may be fronts for political, religious, or other interests.</p> <p><u>Adapted from</u>: http://www.investopedia.com/ask/answers/13/what-is-non-government-organization.asp <u>Adapted from</u>: https://en.wikipedia.org/wiki/Non-governmental_organization</p>	<p><u>Parent Class</u>: NotForProfitOrganization</p> <p><u>Property Restriction</u>: hasObjective.PublicPurpose (fibo-be-le-fbo-10)</p>

Name	Annotations	Class Expressions
<p>NotForProfitOrganization (not for profit organization, non-profit organization)</p>	<p><u>Definition:</u> an organization that uses its surplus revenues to further achieve its purpose or mission, rather than distributing its surplus income to the organization's owners (directors, investors, or equivalents) as profit or dividends</p> <p><u>Explanatory note:</u> In the US, a nonprofit organization is an association that explicitly is not required to pay taxes on its income. Such organizations are qualified for this exemption due to their socially desirable objective (e.g. hospitals, charitable organizations, etc.), or because they meet some set of requirements as determined by the US Internal Revenue Service.</p> <p><u>Explanatory note:</u> The nonprofit landscape is highly varied, although many people have come to associate NPOs with charitable organizations. Although charities do comprise an often high profile or visible aspect of the sector, there are many other types of nonprofits. Overall, they tend to be either member-serving or community-serving. Member-serving organizations include mutual societies, cooperatives, trade unions, credit unions, industry associations, sports clubs, retired serviceman's clubs and other organizations that benefit a particular group of people - the members of the organization. Typically, community-serving organizations are focused on providing services to the community in general, either globally or locally: organizations delivering human services programs or projects, aid and development programs, medical research, education and health services, and so on.</p> <p><u>Adapted from:</u> Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012</p> <p><u>Adapted from:</u> https://en.wikipedia.org/wiki/Nonprofit_organization</p>	<p><u>Parent Class:</u> FormalOrganization</p> <p><u>Property Restriction:</u> hasObjective.NotForProfitObjective (fibo-be-le-fbo-08)</p> <p><u>Property Restriction:</u> (hasObjective.ProfitObjective) (fibo-be-le-fbo-09)</p>
<p>OrganizationCoveringAgreement (organization covering agreement)</p>	<p><u>Definition:</u> A formal agreement between the principals in a formal organization which covers the relationship between the principals, and between the principals and the entity.</p>	<p><u>Parent Class:</u> WrittenContract</p>
<p>OrganizationIdentificationScheme (organization identification scheme)</p>	<p><u>Definition:</u> A formal scheme defining identification codes for a business entity.</p>	<p><u>Parent Class:</u> IdentificationScheme</p> <p><u>Property Restriction:</u> defines.OrganizationIdentifier (fibo-be-le-fbo-03)</p>
<p>OrganizationIdentifier (organization identifier)</p>	<p><u>Definition:</u> A textual code which uniquely identifies a formal organization; Further Notes: Things which may identified by this kind of code Include but are not restricted to Legal Entity. At this most general level, this may be the identifier for a Fund, for a Legal Entity, for a Trust, or for the LEI scope of Artificial Person plus Trust.</p>	<p><u>Parent Class:</u> Identifier</p>

Name	Annotations	Class Expressions
OrganizationIndustrySectorClassification (organization industry sector classification)	<u>Definition:</u> The classification of an organization in terms of the industry sector in which it carries out business.	<u>Parent Class:</u> Reference <u>Property Restriction:</u> classifies.FormallyConstitutedOrganization (fibo-be-le-fbo-05)
OrganizationalSubUnit (organizational sub-unit)	<u>Definition:</u> an organization that is part of a larger formal organization and only has full recognition within the context of that formal organization; In other words, it is not a legal entity in its own right.	<u>Parent Class:</u> FormalOrganization
RegisteredAddress (registered address)	<u>Definition:</u> The address at which an entity is registered and at which legal papers may be served.	<u>Parent Class:</u> PostalAddress (PhysicalAddress)

Properties

Name	Annotations	Property Axioms
hasEquity (has equity)	<u>Definition:</u> the formally constituted organization has some form of stockholders equity	<u>Parent Property:</u> has <u>Domain:</u> FormallyConstitutedOrganization <u>Range:</u> StockholdersEquity
hasInternalEntity (has internal entity)	<u>Definition:</u> the organization has some part which is formally defined as an Internal Entity, for example for reporting, management or accounting purposes	<u>Parent Property:</u> hasSubUnit <u>Domain:</u> FormallyConstitutedOrganization <u>Range:</u> OrganizationalSubUnit
hasOperatingAddress (has operating address)	<u>Definition:</u> address at which the organization carries out its operations	<u>Parent Property:</u> has <u>Domain:</u> FormallyConstitutedOrganization <u>Range:</u> Address
hasPrimaryAddress (has primary address)	<u>Definition:</u> The main address at which communications to the organization may be addressed; its headquarters address.	<u>Parent Property:</u> has <u>Domain:</u> FormallyConstitutedOrganization <u>Range:</u> Address
hasRegisteredAddress (has registered address)	<u>Definition:</u> The organization has an address at which it is registered and at which legal papers may be served on it.	<u>Parent Property:</u> has <u>Domain:</u> FormallyConstitutedOrganization <u>Range:</u> RegisteredAddress
hasSignatory (has signatory)	<u>Definition:</u> has a party which is authorized to sign contracts on behalf of the entity	<u>Parent Property:</u> hasPartyInRole <u>Domain:</u> FormallyConstitutedOrganization <u>Range:</u> Signatory

Name	Annotations	Property Axioms
hasSubUnit (has sub-unit)	<u>Definition:</u> The company has a branch, which is part of that company. This may be in another country or in the country in which that company is registered (incorporated).	<u>Parent Property:</u> hasPart <u>Property Axiom:</u> inverse of isSubUnitOf <u>Domain:</u> FormallyConstitutedOrganization <u>Range:</u> OrganizationalSubUnit
isSubUnitOf (is sub-unit of)	<u>Definition:</u> The organization is a sub-unit of a formally constituted organization and has the role and function of being a formal part of that organization, such as a branch.	<u>Parent Property:</u> isPartOf <u>Domain:</u> OrganizationalSubUnit_ <u>Range:</u> FormallyConstitutedOrganization

9.2.3 Ontology: Corporate Bodies

This ontology defines the basic mechanisms that establish legal personhood for judicial or artificial persons, specifically those that are corporate bodies, including bodies incorporated by equity, by guarantee, and by agreement.

Table 9.6 - Corporate Bodies Ontology Metadata

Metadata Term	Value
sm:filename	CorporateBodies
sm:fileAbbreviation	fibonacci-be-le-cb
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/CorporateBodies/
owl:VersionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/LegalEntities/CorporateBodies/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

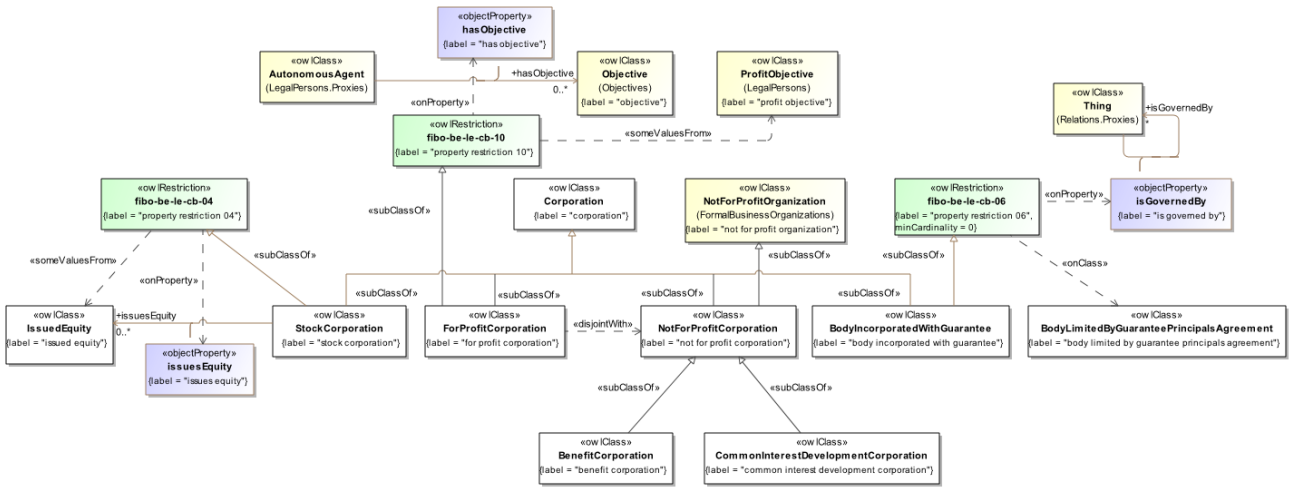


Figure 9.14 - Kinds of Corporations

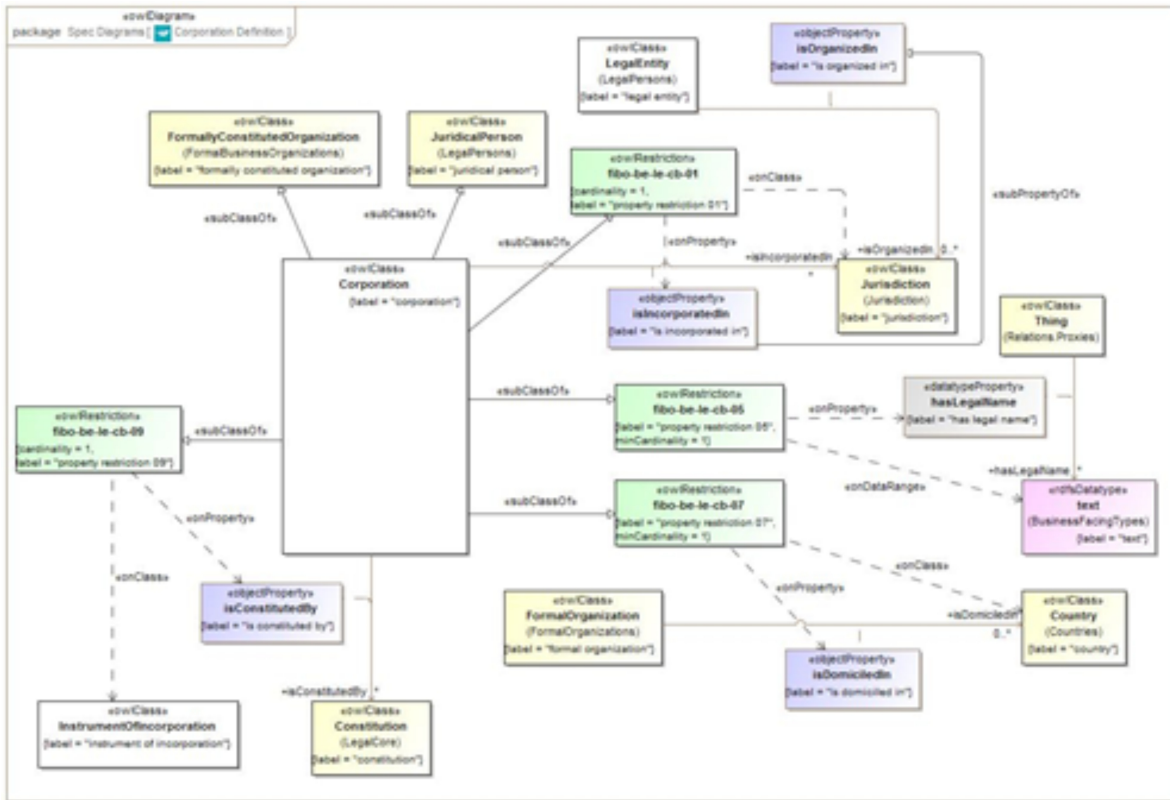


Figure 9.15 - Corporation Definition

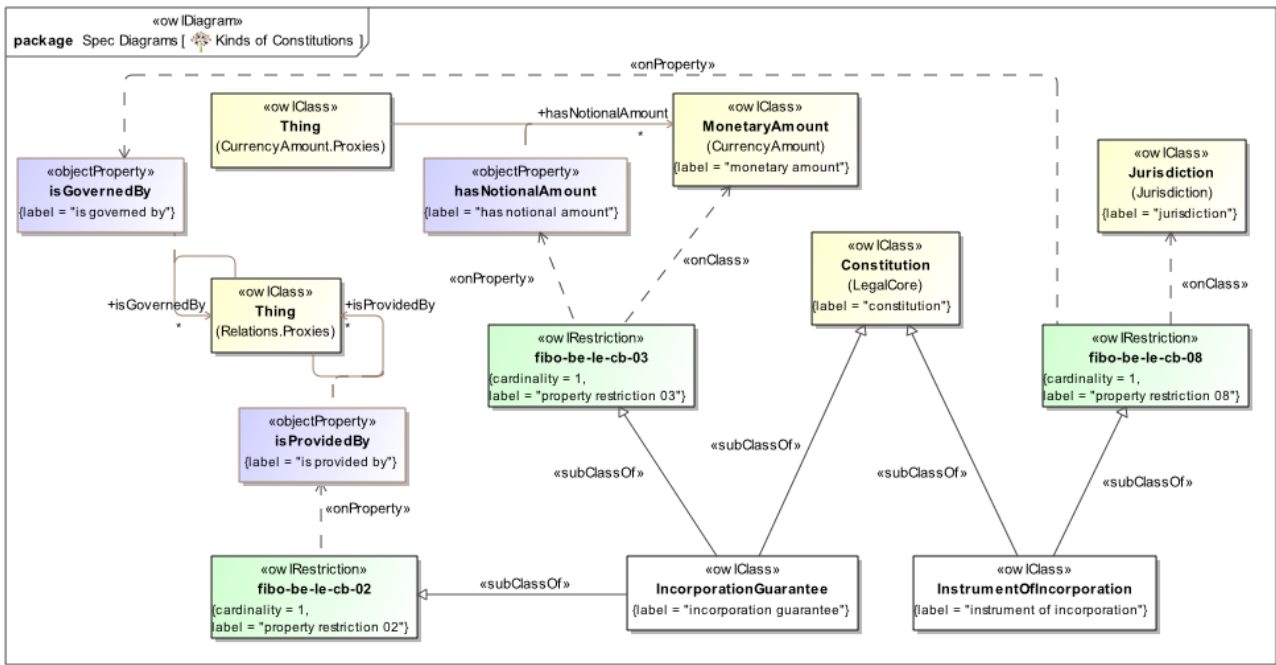


Figure 9.16 - Kinds of Constitutions

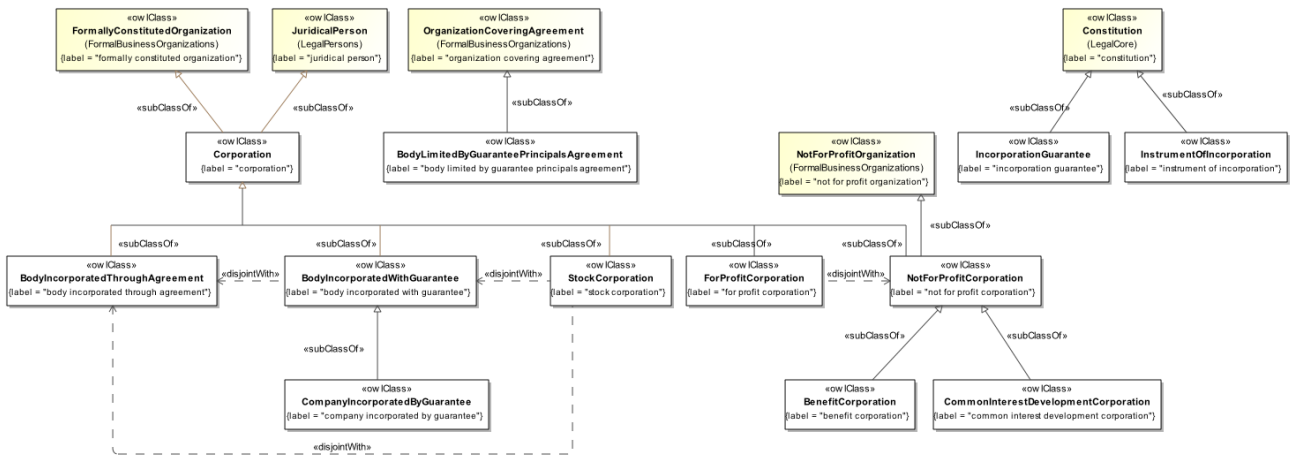


Figure 9.17 - Corporate Bodies Taxonomy

Table 9.7 - Corporate Bodies Concepts

Classes

Name	Annotations	Class Expressions
BenefitCorporation (benefit corporation)	<p><u>Definition:</u> a not for profit corporation set up under specific state legislation to provide some stated societal benefit, and with some corresponding relaxation of the obligation to maximize shareholder return</p> <p><u>Explanatory note:</u> This is a US-specific type of non-profit corporation defined in recent legislation in a number of states. In California, for example, benefit corporations may be defined as public benefit or mutual benefit corporations, depending on their purpose.</p> <p><u>Adapted from:</u> www.bcorporation.net</p> <p><u>See also:</u> http://www.business.ca.gov/Portals/0/Home/Docs/AB%202641%20SOS.pdf</p>	<p><u>Parent Class:</u> NotForProfitCorporation</p>
BodyIncorporatedThroughAgreement (body incorporated through agreement)	<p><u>Definition:</u> A body with legal personhood, incorporated through some agreement among the principals, and without equity or guarantee instruments which would isolate the principals from liability.</p>	<p><u>Parent Class:</u> Corporation</p>
BodyIncorporatedWithGuarantee (body incorporated with guarantee)	<p><u>Definition:</u> Incorporated entity without share capital, and in which the liability of its members is limited to the amount each one of them undertakes to contribute at the time the firm is wound up.</p>	<p><u>Parent Class:</u> Corporation</p> <p><u>Class Axiom:</u> BodyIncorporatedThroughAgreement</p> <p><u>Property Restriction:</u> ≥ 0</p> <p>isGovernedBy. BodyLimitedByGuarantee PrincipalsAgreement (fibo-be-le-cb-06)</p>
BodyLimitedByGuaranteePrincipalsAgreement (body limited by guarantee principals agreement)	<p><u>Definition:</u> The formal agreement between the principals of a body limited by guarantee.</p>	<p><u>Parent Class:</u> OrganizationCoveringAgreement</p>
CommonInterestDevelopmentCorporation (common interest development corporation)	<p><u>Definition:</u> a not for profit corporation set up under specific state legislation as a business entity for homeowners' associations</p> <p><u>Explanatory note:</u> A common interest development is typically a type of housing, composed of individually owned units, such as condominiums, townhouses, or single-family homes, that share ownership of common areas, such as swimming pools, landscaping, and parking. Common interest developments (also known as community interest developments or CIDs) are managed by homeowners' associations.</p> <p><u>Example:</u> http://www.dre.ca.gov/files/pdf/re39.pdf</p> <p><u>Adapted from:</u> http://www.nolo.com/dictionary/common-interest-development-term.html</p>	<p><u>Parent Class:</u> NotForProfitCorporation</p>

Name	Annotations	Class Expressions
CompanyIncorporatedByGuarantee (company incorporated by guarantee)	<u>Definition origin:</u> www.investorwords.com	<u>Parent Class:</u> BodyIncorporatedWithGuarantee
Corporation (corporation)	<p><u>Definition:</u> a formal organization treated as an entity - an artificial person or legal entity distinct from its owners - created by or under the authority of the laws of a state or nation</p> <p><u>Explanatory note:</u> A corporation has three distinguishing characteristics: (1) separation of ownership from management and general liability, i.e., its liability to creditors is limited to its resources, unlike some partnerships and sole proprietorships, (2) the ability to negotiate contracts and own property, and (3) transferable ownership, irrespective of changes in membership or the lifetimes of its stockholders.</p> <p><u>Explanatory note:</u> A corporation is managed by or under the direction of a board of directors, which generally determines corporate policy. Officers manage the day-to-day affairs of the corporation.</p> <p><u>Adapted from:</u> Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012, definition of corporation</p> <p><u>Adapted from:</u> http://thelawdictionary.org/corporation/</p>	<p><u>Parent Class:</u> FormallyConstitutedOrganization</p> <p><u>Parent Class:</u> JuridicalPerson</p> <p><u>Property Restriction:</u> = 1 isConstitutedBy.InstrumentOf Incorporation (fibo-be-le-cb-09)</p> <p><u>Property Restriction:</u> ≥ 1 hasLegalName.text (fibo-be-le-cb-05)</p> <p><u>Property Restriction:</u> ≥ 1 isDomiciledIn.Country (fibo-be-le-cb-07)</p> <p><u>Property Restriction:</u> = 1 isIncorporatedIn.Jurisdiction (fibo-be-le-cb-01)</p>
ForProfitCorporation (for profit corporation)	<p><u>Definition:</u> a corporation whose objective is to make money, in other words, to ensure realization of a financial benefit such that the amount of revenue gained from a business activity exceeds the expenses, costs and taxes needed to sustain that activity</p> <p><u>Adapted from:</u> http://www.investopedia.com/terms/p/profit.asp</p>	<p><u>Parent Class:</u> Corporation</p> <p><u>Class Axiom:</u> NotForProfitCorporation</p> <p><u>Property Restriction:</u> hasObjective.ProfitObjective (fibo-be-le-cb-10)</p>
Incorporation Guarantee (incorporation guarantee)	<u>Definition:</u> A guarantee which is part of the means by which some incorporated entity is incorporated by guarantee.	<p><u>Parent Class:</u> Constitution</p> <p><u>Property Restriction:</u> = 1 hasNotionalAmount.Monetary Amount (fibo-be-le-cb-03)</p> <p><u>Property Restriction:</u> = 1 isProvidedBy (fibo-be-le-cb-02)</p>
InstrumentOfIncorporation (instrument of incorporation)	<u>Definition:</u> Some legal instrument by which some legal entity which is not a natural person is made to exist.	<p><u>Parent Class:</u> Constitution</p> <p><u>Property Restriction:</u> = 1 isGovernedBy.Jurisdiction (fibo-be-le-cb-08)</p>

Name	Annotations	Class Expressions
NotForProfit Corporation (not for profit corporation, non-profit corporation)	<p><u>Definition:</u> a corporation approved by its jurisdictional oversight and taxing authorities as operating for educational, charitable, social, religious, civic or humanitarian purposes</p> <p><u>Explanatory note:</u> A not for profit corporation is formed by incorporators, and has a board of directors and officers, but no shareholders. These incorporators, directors and officers may not receive a distribution of (any money from) profits, but officers and management may be paid reasonable salaries for services to the corporation.</p> <p><u>Adapted from:</u> http://legal-dictionary.thefreedictionary.com/nonprofit+corporation</p>	<p><u>Parent Class:</u> Corporation</p> <p><u>Parent Class:</u> NotForProfitOrganization</p>
StockCorporation (stock corporation)	<p><u>Definition:</u> a corporation that has shareholders (stockholders), each of whom receives a portion of the ownership of the corporation through shares of stock</p> <p><u>Explanatory note:</u> The shares in a stock corporation may receive a return on their investment in the form of dividends. Shares are used for voting on matters of corporate policy or to elect directors, at the corporation's annual meeting and at other meetings of the corporation.</p> <p><u>Adapted from:</u> http://biztaxlaw.about.com/od/glossarys/g/stockcorp.htm</p> <p><u>Adapted from:</u> http://www.oecd.org/daf/ca/CorporateGovernanceFactbook.pdf</p>	<p><u>Parent Class:</u> Corporation</p> <p><u>Class Axiom:</u> BodyIncorporatedThroughAgreement</p> <p><u>Class Axiom:</u> BodyIncorporatedWithGuarantee</p> <p><u>Property Restriction:</u> issuesEquity.IssuedEquity (fibo-be-le-cb-04)</p>

Properties

Name	Annotations	Property Axioms
isConstitutedBy (is constituted by)	<u>Definition:</u> the instrument by which an entity is incorporated	<p><u>Domain:</u> Corporation</p> <p><u>Range:</u> Constitution</p>
isIncorporatedIn (is incorporated in)	<u>Definition:</u> the legal jurisdiction under which the legal entity is incorporated	<p><u>Parent Property:</u> isOrganizedIn</p> <p><u>Domain:</u> Corporation</p> <p><u>Range:</u> Jurisdiction</p>
issuesEquity (issues equity)	<u>Definition:</u> relates a stock corporation to the equity (in the form of shares) it issues through incorporation and subsequent corporate actions	<p><u>Domain:</u> StockCorporation</p> <p><u>Range:</u> IssuedEquity</p>

9.2.4 Ontology: LEI Entities

This ontology defines concepts around contractually capable business entities. The terms defined here are those which are relevant to the Legal Entity Identifier (LEI) work. The term known as legal entity in that work is identified as a formal organization which is recognized in some jurisdiction as being capable of incurring some liability, whether or not is a legal person as understood by the legal community. This is labeled as contractually capable entity, to avoid confusion with the accepted legal term for Legal Entity. Such entities are recognized as requiring an LEI, but the identifier itself is allocated to the formal organization which is recognized as being contractually capable.

Table 9.8 - LEI Entities Ontology Metadata

Metadata Term	Value
sm:filename	LEIEntities
sm:fileAbbreviation	fibo-be-le-lei
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LEIEntities/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20150201/LegalEntities/LEIEntities/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/GovernmentEntities/

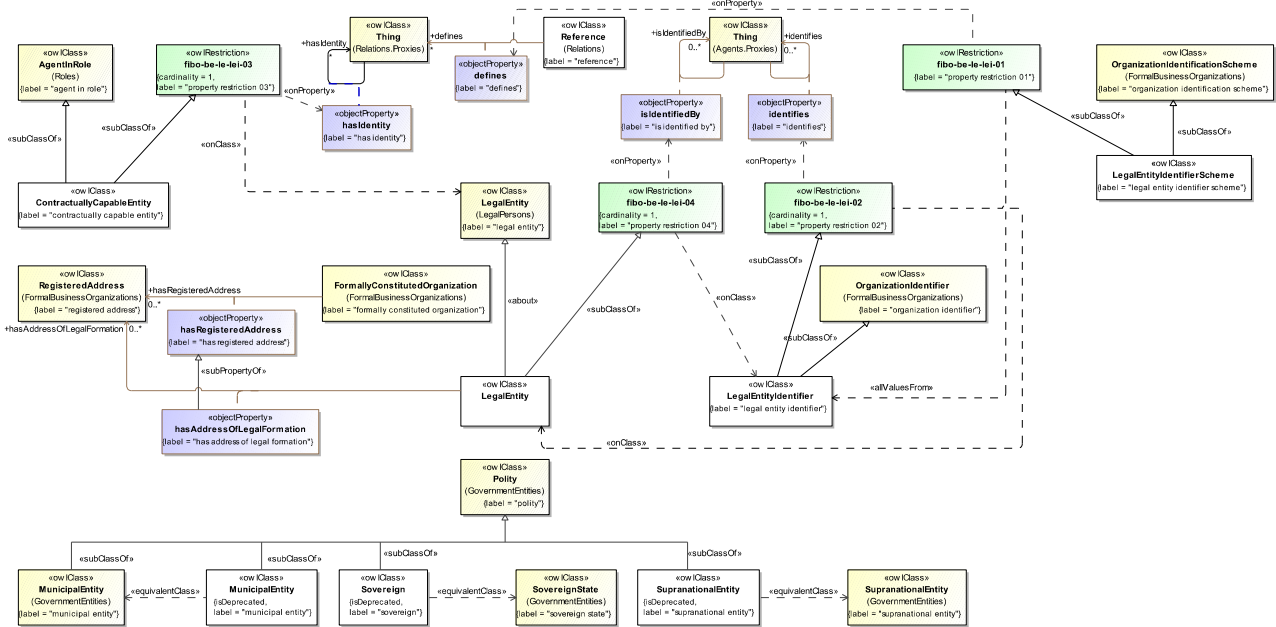


Figure 9.18 - LEI Entities

Table 9.9 - LEI Entities Concepts

Classes

Name	Annotations	Class Expressions
ContractuallyCapableEntity (contractually capable entity)	<u>Definition:</u> A unique entity that is legally or financially responsible for the performance of financial transactions, or has the legal right in its jurisdiction to enter independently into legal contracts, regardless of whether it is incorporated or constituted in some other way (e.g. trust, partnership, contractual). This excludes natural persons, but includes governmental organizations and supranationals. <u>Adapted from:</u> ISO 17442	<u>Parent Class:</u> AgentInRole <u>Property Restriction:</u> = 1 hasIdentity.LegalEntity (fibc-be-le-lei-03)
LegalEntity (<i>extends LegalEntity from Legal Persons</i>)		<u>Property Restriction:</u> = 1 isIdentifiedBy.LegalEntity Identifier (fibc-be-le-lei-04)
LegalEntityIdentifier (legal entity identifier)	<u>Definition:</u> an organization identifier that uniquely identifies a legal entity as defined in ISO 17442	<u>Parent Class:</u> OrganizationIdentifier <u>Property Restriction:</u> = 1 identifies.LegalEntity (fibc-be-le-lei-02)

Name	Annotations	Class Expressions
LegalEntityIdentifier Scheme (legal entity identifier scheme)	<u>Definition</u> : the scheme that defines the LEI	<u>Parent Class</u> : OrganizationIdentificationScheme <u>Property Restriction</u> : defines.LegalEntityIdentifier (fibo-be-le-lei-01)
MunicipalEntity (municipal entity) (deprecated)	<u>Definition</u> : Municipal entity in the sense of a legal entity, that is, what it is that incurs debt for a municipality, i.e., the Municipality in the sense of the legal entity, as distinct from the Municipal government. Draft definition: The legal entity which is a city or municipality. This has a Government which sets laws applicable within the geographical area corresponding to this legal entity. It is identified as a legal entity as well as the setter of laws because it is able to incur debt in its own right.	<u>Parent Class</u> : LegalEntity <u>Class Axiom</u> : Sovereign <u>Class Axiom</u> : SupranationalEntity
Sovereign (sovereign) (deprecated)	<u>Definition</u> : the legal person corresponding to a state or country	<u>Parent Class</u> : LegalEntity <u>Class Axiom</u> : SupranationalEntity
SupranationalEntity (supranational entity) (deprecated)	<u>Definition</u> : a governmental or non-governmental entity that is established by international law or treaty or incorporated at an international level; an international organization, or union, whereby member states transcend national boundaries or interests to share in the decision-making and vote on issues pertaining to the wider grouping <u>Explanatory note</u> : The European Union and the World Trade Organization are both supranationals. In the EU, each member votes on policy that will affect each member nation. The benefits of this construct for the EU are the synergies derived from social and economic policies along with a stronger presence on the international stage. <u>Adapted from</u> : ISO 17442, Financial services - Legal Entity Identifier (LEI), section 3.2 <u>Adapted from</u> : http://www.investopedia.com/terms/s/supranational.asp	<u>Parent Class</u> : LegalEntity

Properties

Name	Annotations	Property Axioms
hasAddressOfLegal Formation (has address of legal formation)	<u>Definition</u> : indicates the address of legal formation for the entity, in the jurisdiction in which the entity is established, used for registration purposes with respect to obtaining an LEI	<u>Parent Property</u> : hasRegisteredAddress <u>Domain</u> : LegalEntity <u>Range</u> : RegisteredAddress

9.3 Module: Corporations

Table 9.10 - Corporations Module Metadata

Metadata Term	Value
sm:moduleName	Corporations
sm:moduleAbbreviation	FIBO-BE-CORP
sm:moduleVersion	1.0
sm:moduleAbstract	This module includes ontologies describing the essential features of companies incorporated by the issuance of shares. The terms in these ontologies build on terms about incorporated bodies more generally, and include terms about shareholding, which form the basis of relationships of ownership and control of or among these kinds of entities.

9.3.1 Ontology: Corporations

This ontology defines the fundamental concepts for companies incorporated by the issuance of shares. Terms defined in this ontology are those which are applicable to all such entities. Many of these concepts form the basis of the relationships of ownership and control which obtain between entities of this type.

Table 9.11 - Corporations Ontology Metadata

Metadata Term	Value
sm:filename	Corporations
sm:fileAbbreviation	fibo-be-corp-corp
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/Corporations/Corporations/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/Corporations/Corporations/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/CorporateBodies/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

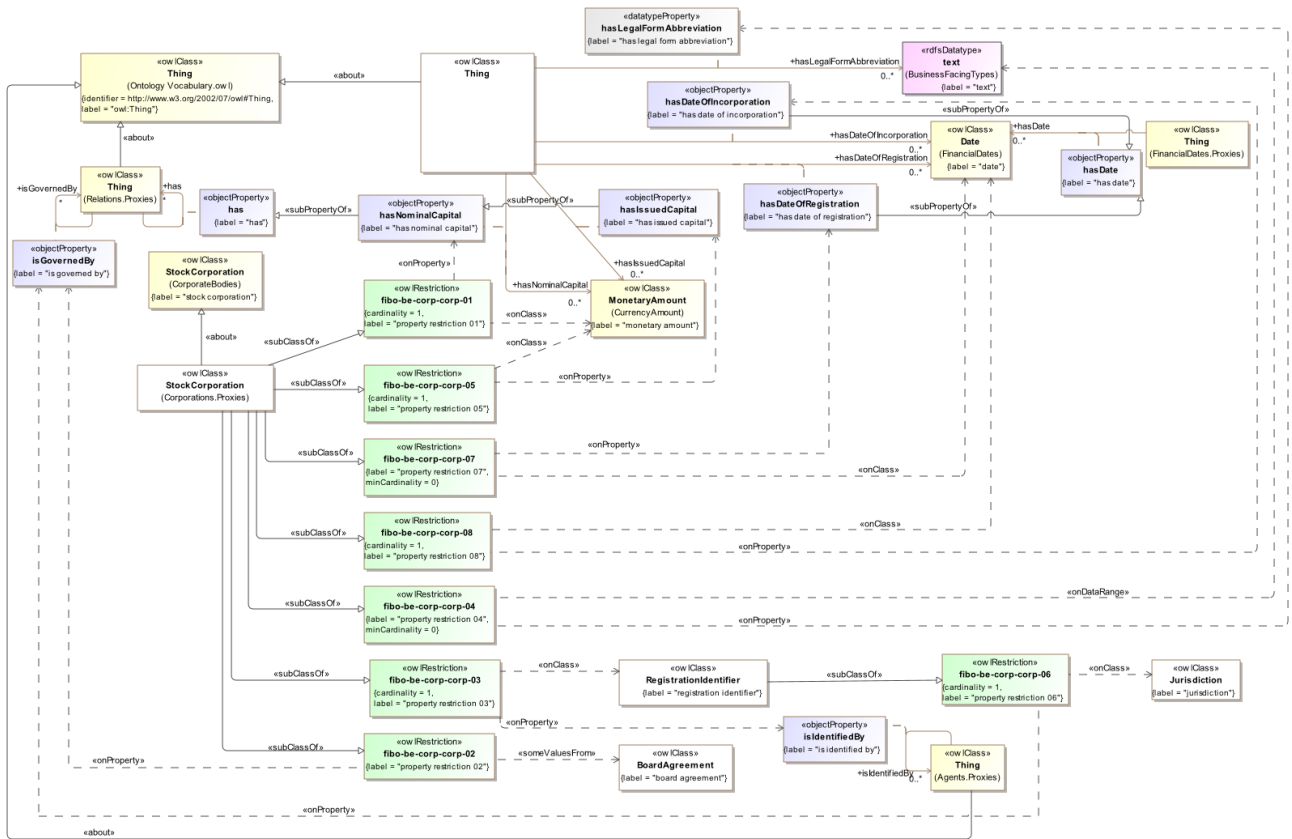


Figure 9.19 - Definition of Stock Corporation

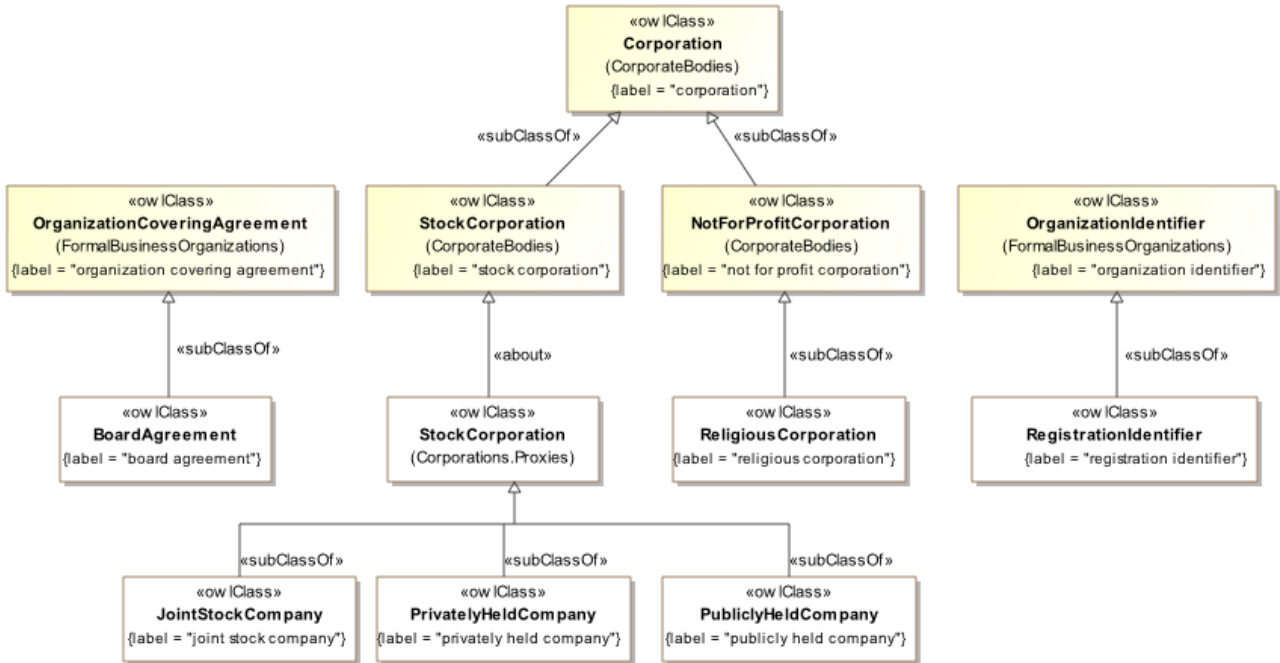


Figure 9.20 - Corporations Class Hierarchy

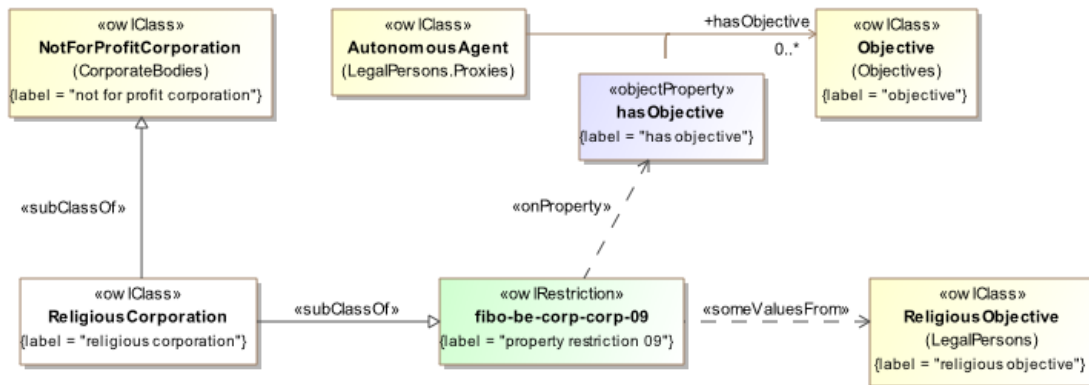


Figure 9.21 - Religious Corporation Definition

Table 9.12 - Corporations Concepts

Classes

Name	Annotations	Class Expressions
BoardAgreement (board agreement)	<u>Definition:</u> a formal, legally binding agreement between members of the Board of Directors of the organization	<u>Parent Class:</u> OrganizationCoveringAgreement
JointStockCompany (joint stock company)	<u>Definition:</u> 1. In the UK, the original (17th century) name for a corporation in which the liability of the owners is limited to the nominal value of the stock (shares) held by them. 2. In the US, a corporation with unlimited liability for the shareholders. Investors in a US joint stock company receive stock (shares) which can be transferred, and can elect a board of directors, but are jointly-and-severally liable for companys debts and obligations. A US joint stock company cannot hold title to a real property. <u>Definition origin:</u> http://www.businessdictionary.com/definition/joint-stock-company.html	<u>Parent Class:</u> StockCorporation_
PrivatelyHeldCompany (privately held company, closed corporation, privately held corporation)	<u>Definition:</u> A firm whose issued shares are all held by a family or a small group of investors and, therefore, cannot be bought by the public. <u>Definition origin:</u> http://www.businessdictionary.com/definition/closed-corporation.html	<u>Parent Class:</u> StockCorporation_
PubliclyHeldCompany (publicly held company)	<u>Definition:</u> a company whose shares are traded and held publicly	<u>Parent Class:</u> StockCorporation_
RegistrationIdentifier (registration identifier)	<u>Definition:</u> an identifier that is officially allocated to the organization at the time of registration in a jurisdiction in which said organization is organized or registered, used in that jurisdiction to identify the organization <u>Explanatory note:</u> This may be required for official communications and is publicly available. <u>Scope note:</u> In some jurisdictions, such as the State of California, registration identifiers are issued to corporations, including non-profit corporations, limited liability companies, certain partnerships, and foreign corporations doing business in California. The same or a very similar process is used for registration of corporations across the US. See http://www.business.ca.gov/StartaBusiness/DefiningaBusiness/Corporation.aspx for additional details.	<u>Parent Class:</u> OrganizationIdentifier_ <u>Property Restriction:</u> = 1 isGovernedBy.Jurisdiction (fibo-be-corp-corp-06)

Name	Annotations	Class Expressions
ReligiousCorporation (religious corporation)	<p><u>Definition</u>: a not for profit organization whose objective is specific to some fundamental set of beliefs and practices generally agreed upon by a number of people, and that is incorporated under the law</p> <p><u>Explanatory note</u>: Often religious corporations are recognized under the law on a sub-national level, for instance by a state or provincial government. The government agency responsible for regulating such corporations is usually the official holder of records, for instance a state department of corporations.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Religious_corporation</p>	<p><u>Parent Class</u>: NotForProfitCorporation_</p> <p><u>Property Restriction</u>: hasObjective.ReligiousObjective (fibo-be-corp-corp-09)</p>
StockCorporation (<i>extends stock corporation from Corporate Bodies</i>)		<p><u>Property Restriction</u>: isGovernedBy.Board Agreement (fibo-be-corp-corp-02)</p> <p><u>Property Restriction</u>: = 1 isIdentifiedBy.Registration Identifier (fibo-be-corp-corp-03)</p> <p><u>Property Restriction</u>: = 1 hasDateOfIncorporation.Date (fibo-be-corp-corp-08)</p> <p><u>Property Restriction</u>: ≥ 0 hasDateOfRegistration.Date (fibo-be-corp-corp-07)</p> <p><u>Property Restriction</u>: ≥ 0 hasLegalFormAbbreviation.text (fibo-be-corp-corp-04)</p> <p><u>Property Restriction</u>: = 1 hasNominalCapital.MonetaryAmount (fibo-be-corp-corp-01)</p> <p><u>Property Restriction</u>: = 1 hasIssuedCapital.MonetaryAmount (fibo-be-corp-corp-05)</p>

Properties

Name	Annotations	Property Axioms
hasDateOf Incorporation (has date of incorporation)	<p><u>Definition</u>: the formal date of incorporation as stated in filing documents</p>	<p><u>Parent Property</u>: hasDate <u>Range</u>: Date</p>
hasDateOf Registration (has date of registration)	<p><u>Definition</u>: a date on which the corporation has registered in some jurisdiction for regulatory and / or for tax purposes</p>	<p><u>Parent Property</u>: hasDate <u>Range</u>: Date</p>

Name	Annotations	Property Axioms
hasNominalCapital (has nominal capital, has authorized capital, has authorized stock, has nominal share capital, has registered capital)	<p><u>Definition:</u> Nominal capital is an alternate term for authorized share capital. The maximum value of securities that a company can legally issue. This number is specified in the memorandum of association (or articles of incorporation in the US) when a company is incorporated, but can be changed later with shareholders approval. Authorized share capital may be divided into (1) Issued capital - par value of the shares actually issued, (2) Paid up capital - money received from the shareholders in exchange for shares, and (3) Uncalled capital - money remaining unpaid by the shareholders for the shares they have bought.</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/authorized-share-capital.html</p>	<p><u>Parent Property:</u> has</p> <p><u>Range:</u> MonetaryAmount</p>
hasIssuedCapital (has issued capital, has subscribed capital, has subscribed share capital)	<p><u>Definition:</u> The total of a corporation's shares that are held by shareholders. A corporation can, at any time, issue new shares up to the full amount of authorized share capital.</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/issued-share-capital.html</p>	<p><u>Parent Property:</u> hasNominalCapital</p> <p><u>Range:</u> MonetaryAmount</p>
hasLegalForm Abbreviation (has legal form abbreviation)	<p><u>Definition:</u> The precise form of the incorporated company abbreviation as defined in the jurisdiction in which it is registered, for example LLC, LLP, Ltd, PLC, Corp.</p>	<p><u>Range:</u> text</p>

9.4 Module: Partnerships

Table 9.13 - Partnerships Module Metadata

Metadata Term	Value
sm:filename	Partnerships
sm:fileAbbreviation	fibonacci-be-ptr-ptr
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/Partnerships/Partnerships/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/Partnerships/Partnerships/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/ControlParties/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/

	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/CorporateBodies/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/OwnershipParties
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9.4.1 Ontology: Partnerships

This ontology defines partnerships and related concepts. The concepts distinguish general from limited partners, as well as the types of equity that they hold. Included are abstract definitions of partnership types based on whether they have general, limited or both kinds of partners. Both legally incorporated and non incorporated forms of partnerships are covered.

Table 9.14 - Partnerships Ontology Metadata

Metadata Term	Value
sm:filename	Partnerships
sm:fileAbbreviation	fibonacci-be-ptr-ptr
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/Partnerships/Partnerships/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/Partnerships/Partnerships/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/ControlParties/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/CorporateBodies/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/OwnershipParties

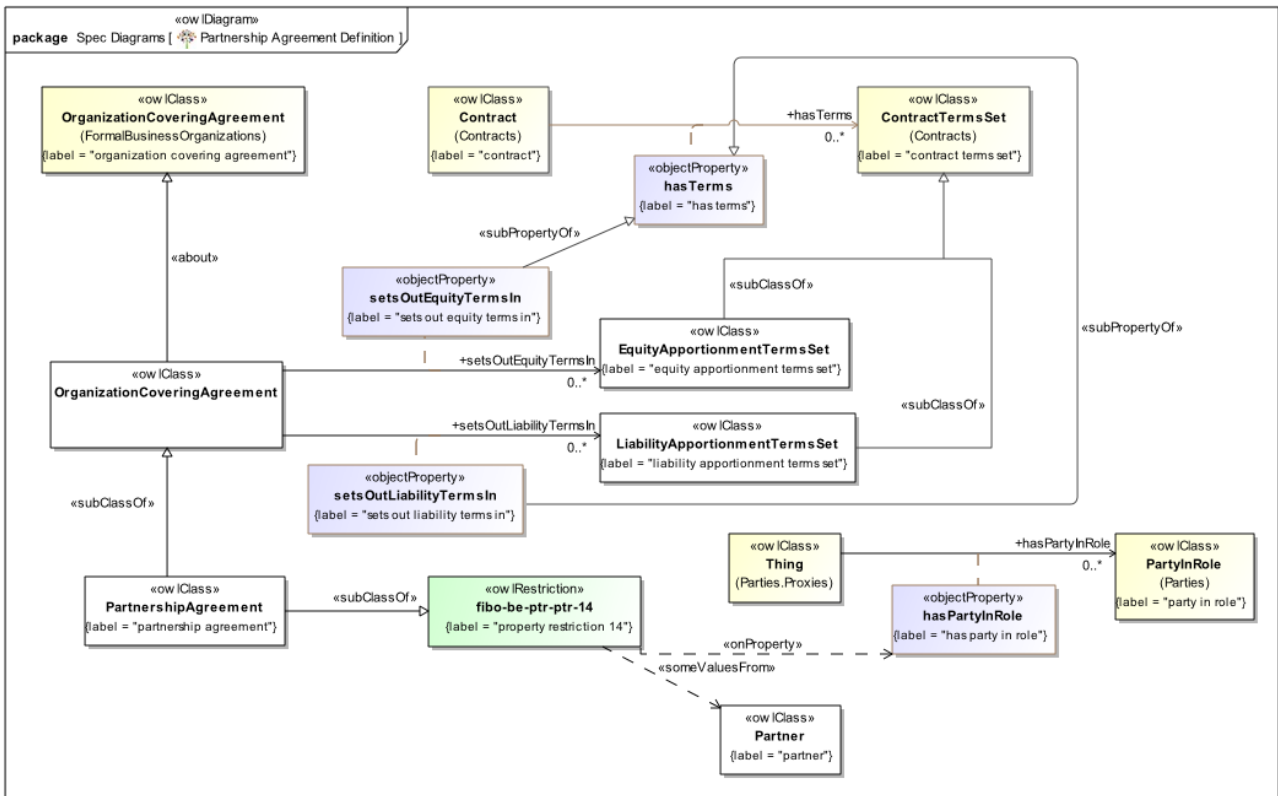


Figure 9.22 - Partnership Agreement Definition

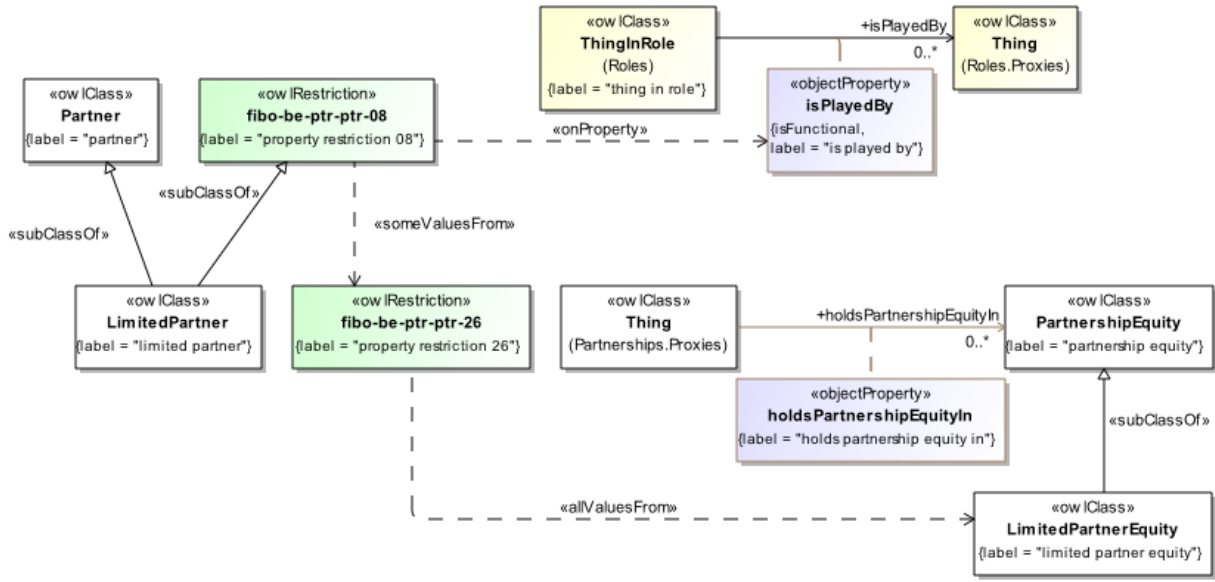


Figure 9.23 - Limited Partner Definition

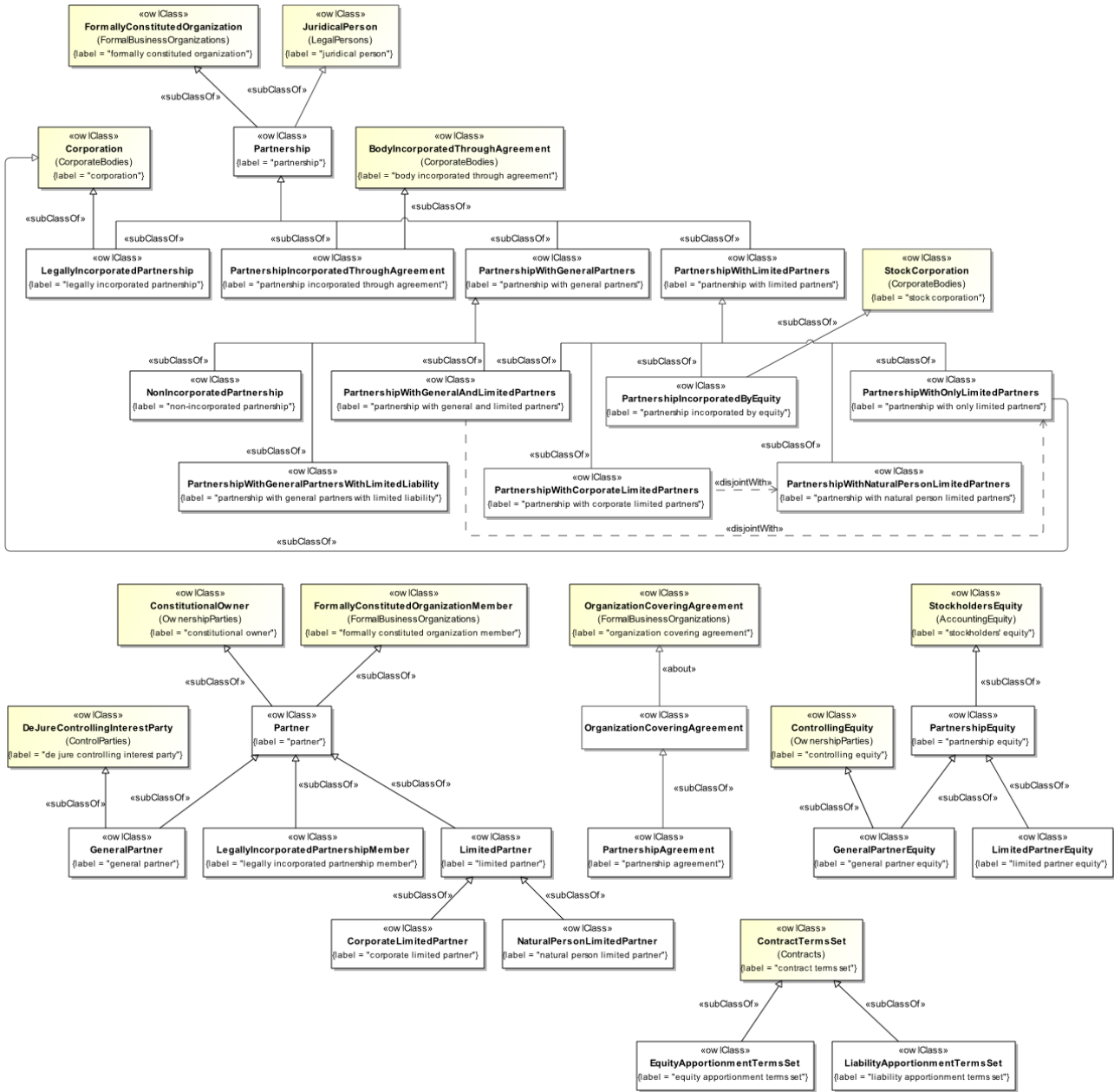


Figure 9.24 - Partnerships Class Hierarchy

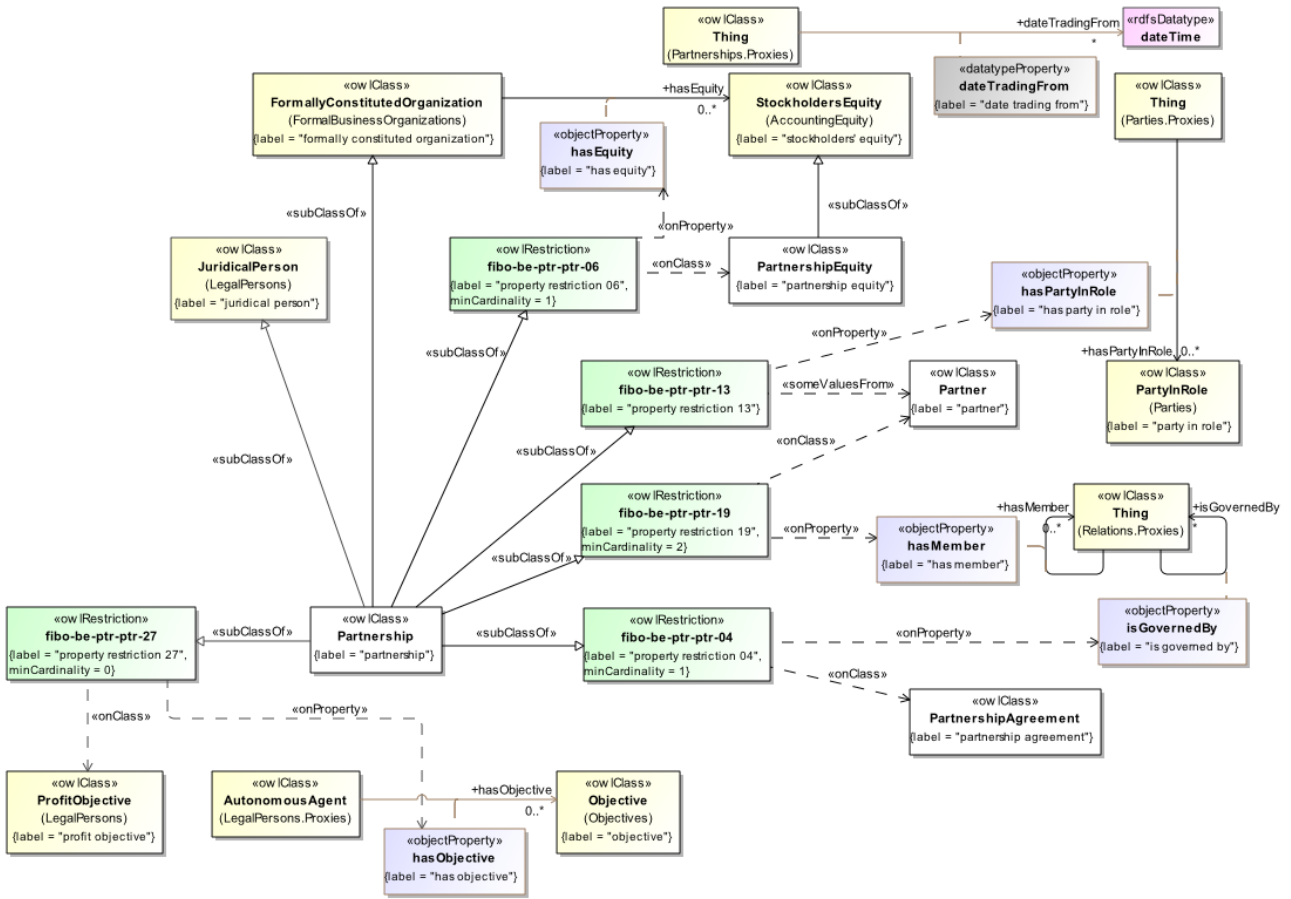


Figure 9.25 - Partnership Definition

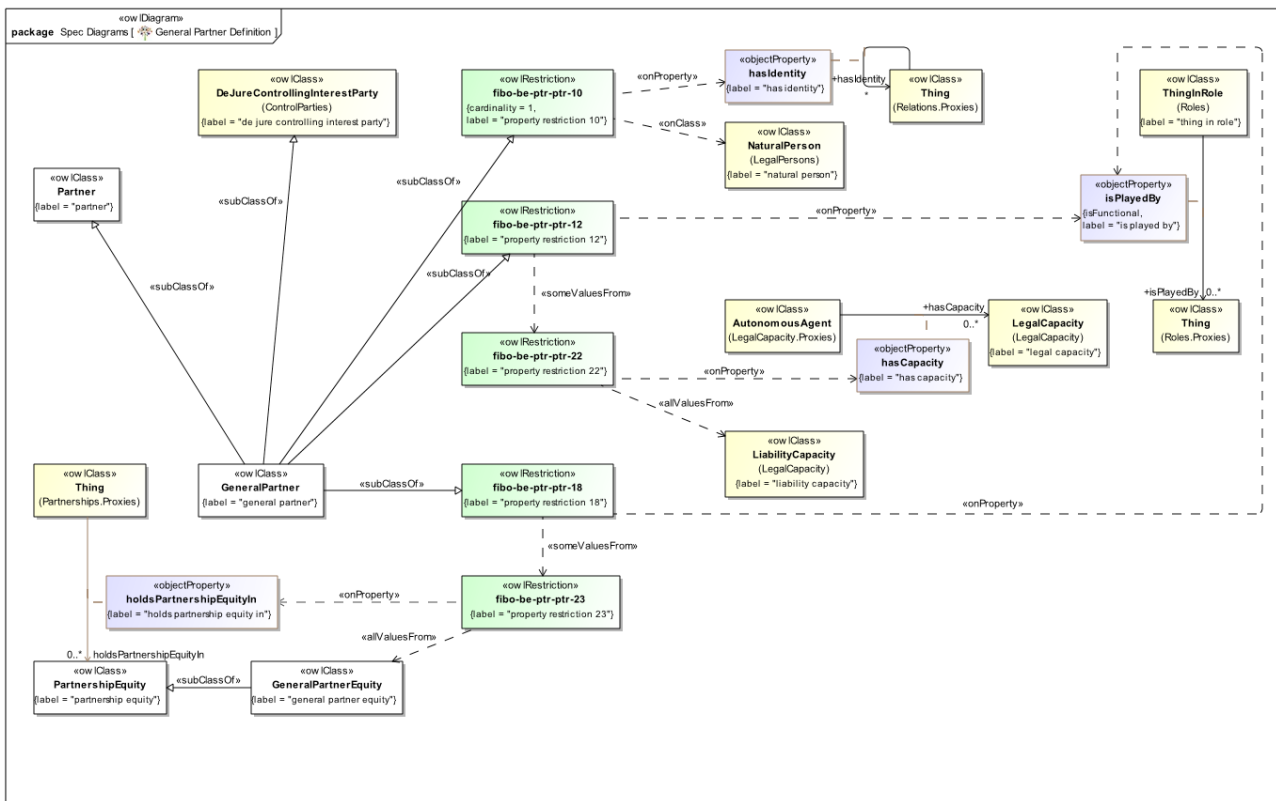


Figure 9.26 - General Partner Definition

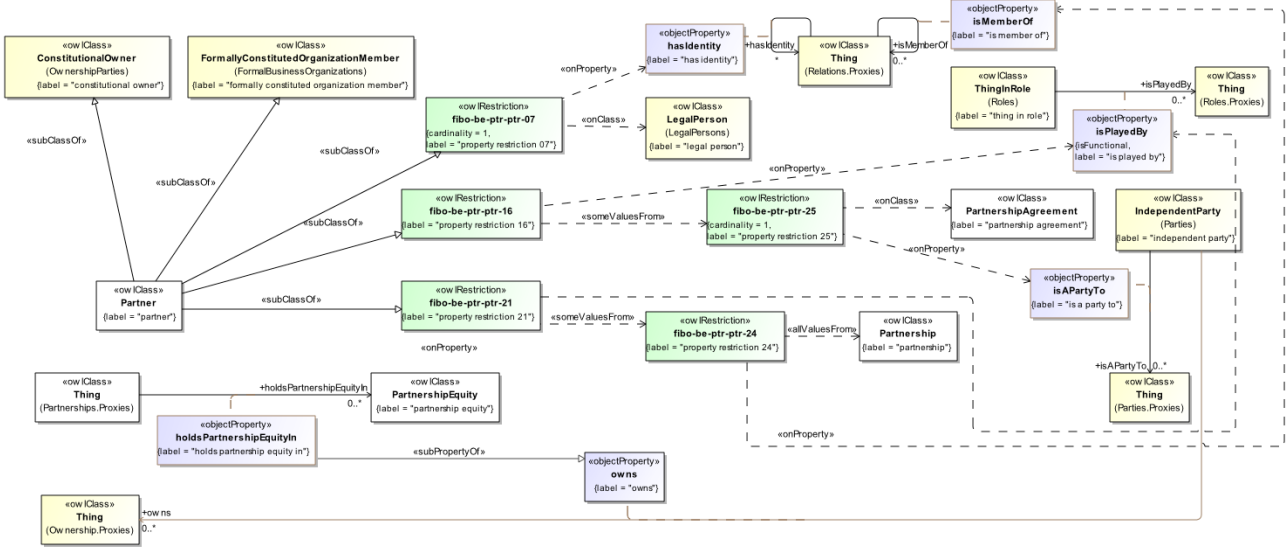


Figure 9.27 - Partner Definition

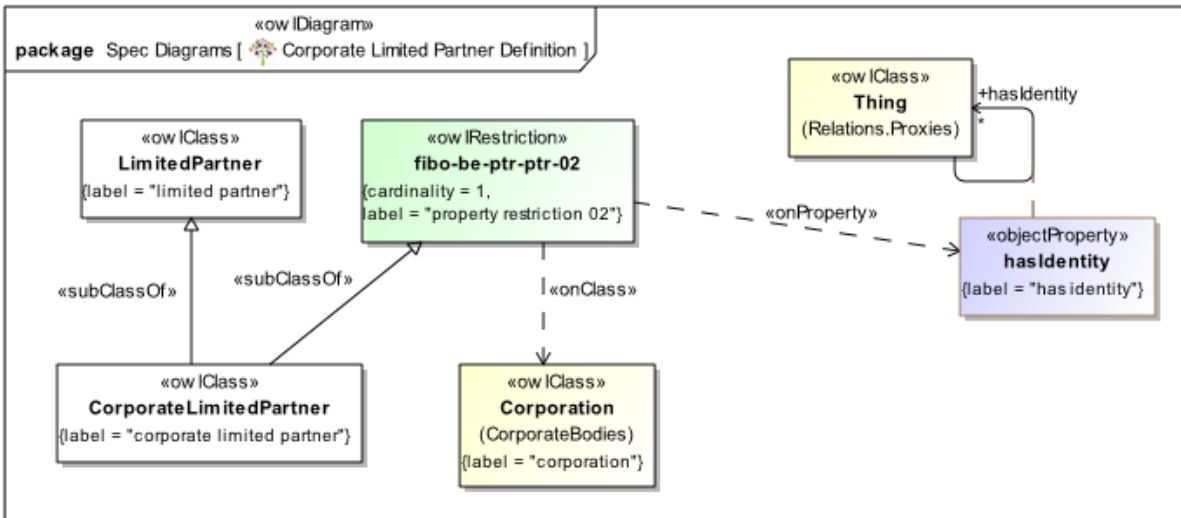


Figure 9.28 - Corporate Limited Partner Definition

Table 9.15 - Partnerships Concepts

Classes

Name	Annotations	Class Expressions
CorporateLimited Partner (corporate limited partner)	<u>Definition:</u> A limited partner in a partnership, who is and may only be a Corporate Legal Person (i.e., not a natural person)	<u>Parent Class:</u> LimitedPartner <u>Property Restriction:</u> = 1 hasIdentity.Corporation (fibo-be-ptr-ptr-02)
EquityApportionment TermsSet (equity apportionment terms set)	<u>Definition:</u> Terms setting out the apportionment of equity in some formal business organization.	<u>Parent Class:</u> ContractTermsSet_
GeneralPartner (general partner)	<u>Definition:</u> a partner in a partnership, who holds some part of the general partner equity and typically is jointly and severally liable with the other partners for the liabilities incurred by that partnership	<u>Parent Class:</u> Partner_ <u>Parent Class:</u> DeJureControllingInterestParty <u>Property Restriction:</u> = 1 hasIdentity.NaturalPerson (fibo-be-ptr-ptr-10) <u>Property Restriction:</u> isPlayedBy (holdsPartnershipEquityIn. GeneralPartnerEquity) (fibo-be-ptr-ptr-18, fibo-be-ptr-ptr-23) <u>Property Restriction:</u> isPlayedBy (hasCapacity. LiabilityCapacity) (fibo-be-ptr-ptr-12, fibo-be-ptr-ptr-22)
GeneralPartnerEquity (general partner equity)	<u>Definition:</u> Equity in a partnership held by general partners; this is typically accompanied by full liability capability on the part of the holders of the equity.	<u>Parent Class:</u> PartnershipEquity <u>Parent Class:</u> ControllingEquity <u>Property Restriction:</u> confers.ConstitutionalDeJureControl (fibo-be-ptr-ptr-11)
LegallyIncorporated Partnership (legally incorporated partnership)	<u>Definition:</u> Any partnership which is defined as a legal person within a given jurisdiction, for example a limited liability partnership (if that is a legal person).	<u>Parent Class:</u> Corporation <u>Parent Class:</u> Partnership <u>Property Restriction:</u> ≥ 2 hasMember.LegallyIncorporatedPartnershipMember (fibo-be-ptr-ptr-05)
LegallyIncorporated PartnershipMember (legally incorporated partnership member)	<u>Definition:</u> a party that is a member or partner in a legally incorporated partnership such as an LLC or LLP	<u>Parent Class:</u> Partner
LiabilityApportionmentTermsSet (liability apportionment terms set)	<u>Definition:</u> Terms setting out the apportionment of liabilities for debts or other liabilities accrued by some formal business organization.	<u>Parent Class:</u> ContractTermsSet_

Name	Annotations	Class Expressions
LimitedPartner (limited partner)	<u>Definition:</u> A partner in a partnership whose liabilities are limited to the extent of their equity holding or guarantees	<u>Parent Class:</u> Partner_ <u>Property Restriction:</u> isPlayedBy (holdsPartnershipEquityIn.LimitedPartnerEquity) (fibo-be-ptr-08, fibo-be-ptr-26)
LimitedPartnerEquity (limited partner equity)	<u>Definition:</u> equity in a partnership held by limited partners; this is not accompanied by any liability capability on the part of the holders of this equity.	<u>Parent Class:</u> PartnershipEquity <u>Parent Class:</u> IssuedEquity
NaturalPersonLimitedPartner (natural person limited partner)	<u>Definition:</u> A limited partner in a partnership, who is and may only be a Natural Person i.e. a human being.	<u>Parent Class:</u> LimitedPartner <u>Property Restriction:</u> = 1 hasIdentity.NaturalPerson (fibo-be-ptr-09)
NonIncorporatedPartnership (non-incorporated partnership)	<u>Definition:</u> a partnership in which the partners are jointly and severally liable for liabilities incurred by the entity	<u>Parent Class:</u> PartnershipWithGeneralPartners
Partner (partner)	<u>Definition:</u> a member of a partnership <u>Scope note:</u> This term is not referred to directly in specific kinds of partnership. Nearly all partnerships have General Partners, while forms of (mostly legally incorporated) partnerships have in addition Limited Partners. This term is the common ancestor of both. <u>Definition origin:</u> http://www.investorwords.com/3608/partner.html	<u>Parent Class:</u> ConstitutionalOwner <u>Parent Class:</u> FormallyConstitutedOrganizationMember <u>Property Restriction:</u> = 1 hasIdentity.LegalPerson (fibo-be-ptr-07) <u>Property Restriction:</u> \exists isPlayedBy (\forall isMemberOf.Partnership) (fibo-be-ptr-21, fibo-be-ptr-24) <u>Property Restriction:</u> \exists isPlayedBy (= 1 isAPartyTo.PartnershipAgreement) (fibo-be-ptr-16, fibo-be-ptr-25)

Name	Annotations	Class Expressions
Partnership (partnership)	<u>Definition</u> : venture in which two or more legal entities carry out some business activities under a common identity	<p><u>Parent Class</u>: JuridicalPerson</p> <p><u>Parent Class</u>: FormallyConstituted Organization</p> <p><u>Property Restriction</u>: ≥ 2 hasMember.Partner (fibo-be-ptr-ptr-19)</p> <p><u>Property Restriction</u>: \exists hasPartyInRole.Partner (fibo-be-ptr-ptr-13)</p> <p><u>Property Restriction</u>: ≥ 1 isGovernedBy.PartnershipAgreement (fibo-be-ptr-ptr-04)</p> <p><u>Property Restriction</u>: ≥ 1 hasEquity.PartnershipEquity (fibo-be-ptr-ptr-06)</p> <p><u>Property Restriction</u>: ≥ 0 hasObjective.ProfitObjective (fibo-be-ptr-ptr-27)</p>
PartnershipAgreement (partnership agreement, articles of partnership)	<p><u>Definition</u>: a document setting up a partnership, giving the details of the business and the amount each partner is contributing to it.</p> <p><u>Definition origin</u>: http://www.investorguide.com/definition/partnership-agreement.html</p>	<p><u>Parent Class</u>: OrganizationCovering Agreement</p> <p><u>Property Restriction</u>: \exists hasPartyInRole.Partner (fibo-be-ptr-ptr-14)</p>
PartnershipEquity (partnership equity)	<u>Definition</u> : equity in some partnership	<p><u>Parent Class</u>: StockholdersEquity</p> <p><u>Property Restriction</u>: ≥ 1 representsAnInterestIn.Partnership (fibo-be-ptr-ptr-03)</p>

Name	Annotations	Class Expressions
PartnershipIncorporatedByEquity (partnership incorporated by equity)	<u>Definition</u> : a partnership incorporated via the issuance of equity, with limited partners (i.e., partners whose liability is limited) that are necessarily not natural persons (i.e., cannot be individuals)	<u>Parent Class</u> : PartnershipWithLimitedPartners <u>Parent Class</u> : StockCorporation
PartnershipIncorporatedThroughAgreement (partnership incorporated through agreement)	<u>Definition</u> : a partnership which has legal personhood, but for which there is not some issuance of limited partner equity	<u>Parent Class</u> : BodyIncorporatedThroughAgreement <u>Parent Class</u> : Partnership
PartnershipWithCorporateLimitedPartners (partnership with corporate limited partners)	<u>Definition</u> : A partnership with limited partners (partners whose liability is limited) and where those partners are necessarily non natural persons (i.e., cannot be individuals).	<u>Parent Class</u> : PartnershipWithLimitedPartners <u>Class Axiom</u> : \neg PartnershipWithNaturalPersonLimitedPartners <u>Property Restriction</u> : ≥ 1 hasMember: CorporateLimitedPartner (fibo-be-ptr-ptr-15)
PartnershipWithGeneralAndLimitedPartners (partnership with general and limited partners)	<u>Definition</u> : a partnership having both limited partners and general partners	<u>Parent Class</u> : PartnershipWithGeneralPartners <u>Parent Class</u> : PartnershipWithLimitedPartners_ <u>Class Axiom</u> : \neg PartnershipWithOnlyLimitedPartners
PartnershipWithGeneralPartners (partnership with general partners)	<u>Definition</u> : a partnership that has two or more general partners	<u>Parent Class</u> : Partnership <u>Property Restriction</u> : ≥ 2 hasMember: GeneralPartner (fibo-be-ptr-ptr-01)
PartnershipWithGeneralPartnersWithLimitedLiability (partnership with general partners with limited liability)	<u>Definition</u> : a partnership that has general partners, whose general partners have limited liability <u>Scope note</u> : This is therefore necessarily a legal person (no-one else has liability); example in some US states is a limited liability limited partnership.	<u>Parent Class</u> : PartnershipWithGeneralPartners
PartnershipWithLimitedPartners (partnership with limited partners)	<u>Definition</u> : a partnership having limited partners, that is partners whose liabilities are limited to the extent of their equity or guarantees	<u>Parent Class</u> : Partnership <u>Property Restriction</u> : ≥ 1 hasMember: LimitedPartner (fibo-be-ptr-ptr-17)
PartnershipWithNaturalPersonLimitedPartners (partnership with natural person limited partners)	<u>Definition</u> : a partnership with limited partners (partners whose liability is limited) and where those partners are necessarily natural persons (i.e., cannot be corporates) <u>Scope note</u> : Example in US, a Limited Liability Partnership	<u>Parent Class</u> : PartnershipWithLimitedPartners <u>Property Restriction</u> : ≥ 1 hasMember: NaturalPersonLimitedPartner (fibo-be-ptr-ptr-20)

Name	Annotations	Class Expressions
PartnershipWithOnlyLimitedPartners (partnership with only limited partners)	<u>Definition</u> : a partnership having limited partners but no general partners	<u>Parent Class</u> : PartnershipWithLimitedPartners <u>Parent Class</u> : Corporation
holdsPartnershipEquityIn (holds partnership equity in)	<u>Definition</u> : relates a partner to the equity that partner holds in the partnership	<u>Parent Property</u> : owns <u>Range</u> : PartnershipEquity
setsOutEquityTermsIn (sets out equity terms in)	<u>Definition</u> : has terms setting out the apportionment of equity in some formal business organization	<u>Parent Property</u> : hasTerms <u>Domain</u> : OrganizationCoveringAgreement <u>Range</u> : EquityApportionmentTermsSet
setsOutLiabilityTermsIn (sets out liability terms in)	<u>Definition</u> : has terms setting out the apportionment of liabilities for debts or other liabilities accrued by some formal business organization	<u>Parent Property</u> : hasTerms <u>Domain</u> : OrganizationCoveringAgreement <u>Range</u> : LiabilityApportionmentTermsSet
dateTradingFrom (date trading from)	<u>Definition</u> : date on which the partnership started trading	<u>Range</u> : dateTime

9.5 Module: Trusts

Table 9.16 - Trusts Module Metadata

Metadata Term	Value
sm:moduleName	Trusts
sm:moduleAbbreviation	FIBO-BE-TR
sm:moduleVersion	1.0
sm:ModuleAbstract	<p>This module contains ontologies which define types of trust and the facts about them. Trusts are defined as a kind of formally constituted organization with specific parties as set down in law for trusts (trustor, trustee and beneficiary), each of these being signatories to a trust agreement. Types of trusts include trusts as used for trust funds, which when modeled, will belong in this module.</p> <p>It depends on and extends a number of the FIBO Foundations modules, particularly those describing formal organizations, ownership, and control relationships, and therefore on the ontologies that they depend on, either directly or indirectly.</p>

9.5.1 Ontology: Trusts

This ontology defines the fundamental common terms for trusts. Trusts are entities set up in terms of the applicable local statutes governing trusts, and have as a minimum three specific, defined parties, known in many jurisdictions as trustor (sometimes sponsor), trustee and beneficiary. The terms in this ontology may be extended as necessary to represent specific types of trust, for example in the funds arena.

Table 9.17 - Trusts Ontology Metadata

Metadata Term	Value
sm:filename	Trusts
sm:fileAbbreviation	fibo-be-tr-tr
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/Trusts/Trusts/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20150201/Trusts/Trusts/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

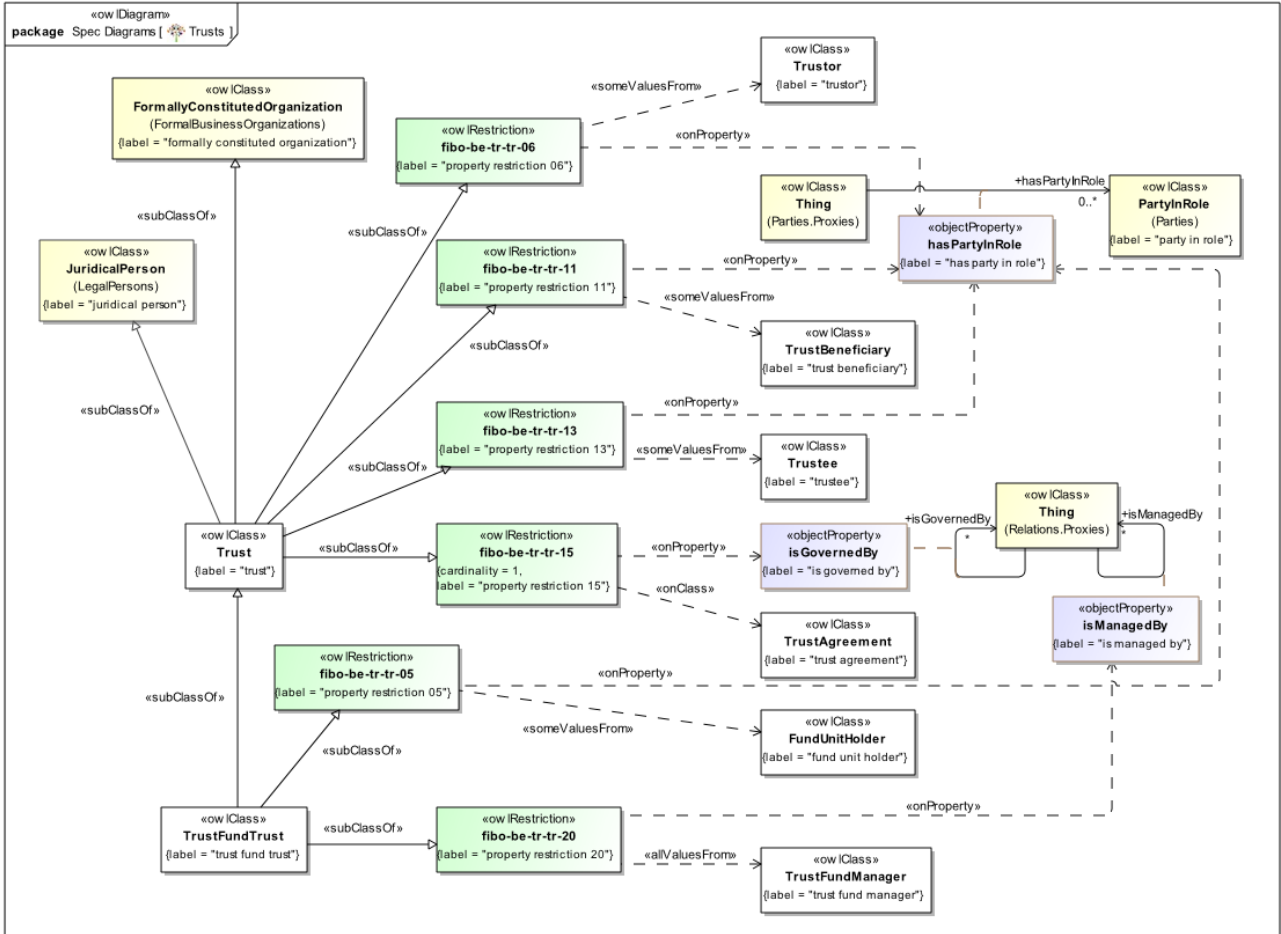


Figure 9.29 - Trusts

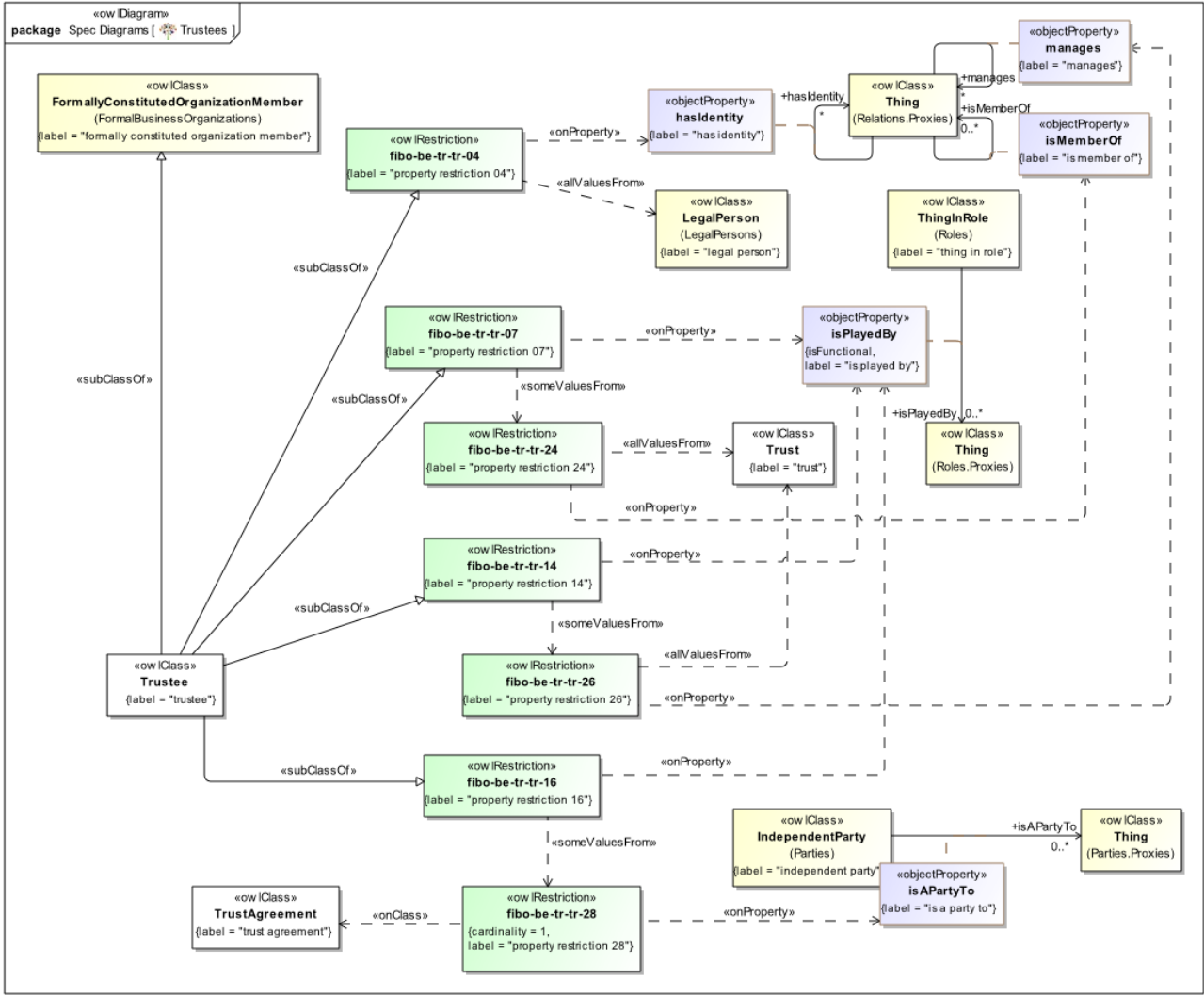


Figure 9.30 - Trustees

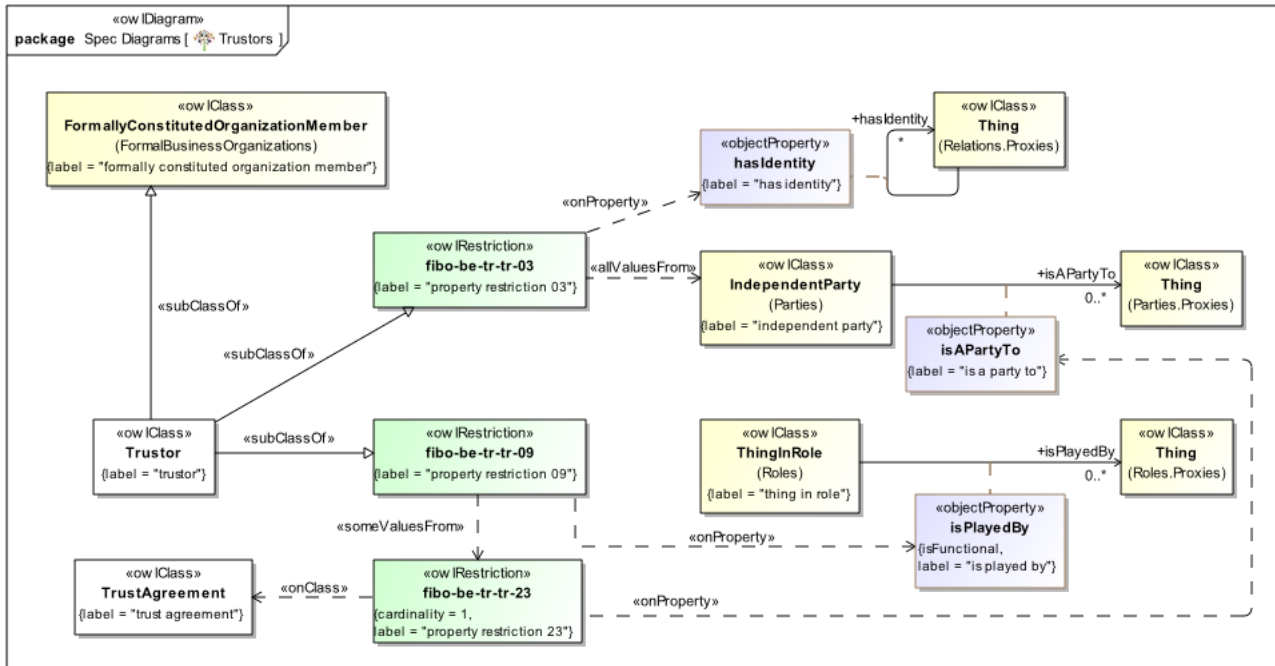


Figure 9.31 - Trustors

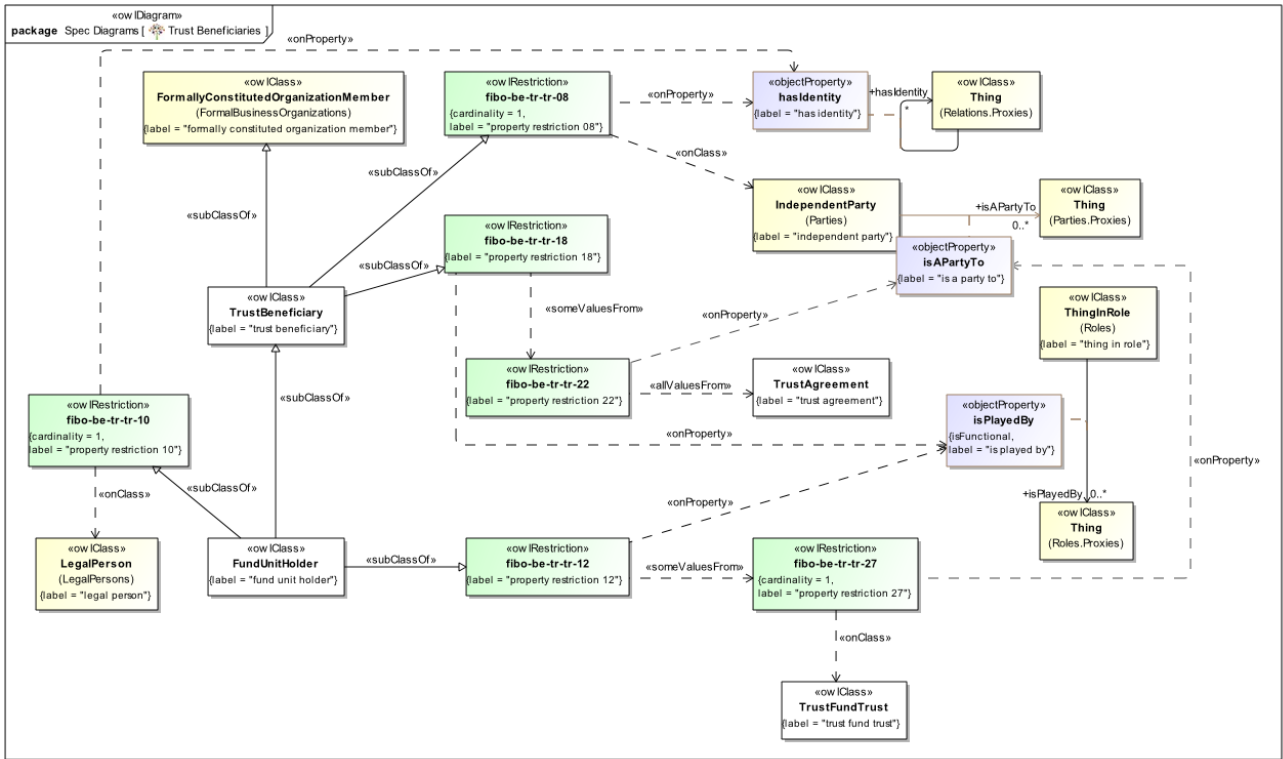


Figure 9.32 - Trust Beneficiaries

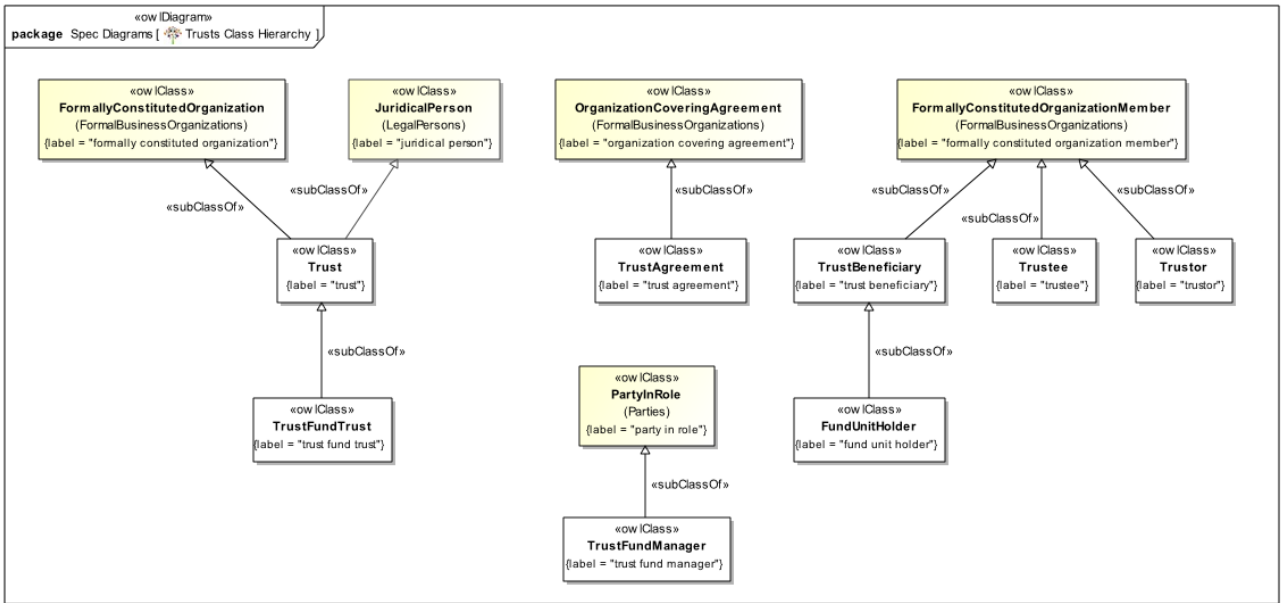


Figure 9.33 - Trust Class Hierarchy

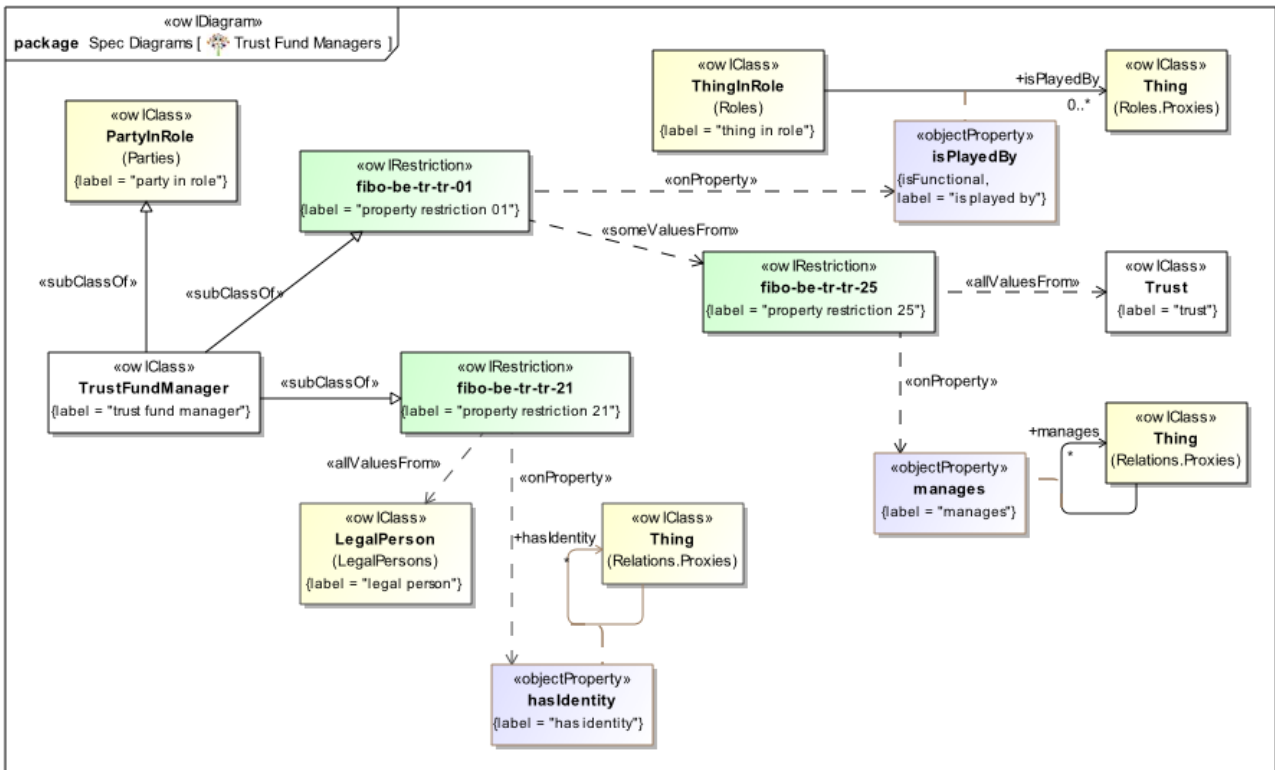


Figure 9.34 - Trust Fund Managers

Table 9.18 - Trusts Concepts

Classes

Name	Annotations	Class Expressions
<p>FundUnitHolder (fund unit holder)</p>	<p><u>Definition</u>: a party that holds some unit in a fund</p>	<p><u>Parent Class</u>: TrustBeneficiary</p> <p><u>Property Restriction</u>: = 1 hasIdentity.LegalPerson (fibo-be-tr-tr-10)</p> <p><u>Property Restriction</u>: isPlayedBy (= 1 isAPartyTo.TrustFundTrust) (fibo-be-tr-tr-12, fibo-be-tr-tr-27)</p>
<p>Trust (trust)</p>	<p><u>Definition</u>: A fiduciary relationship in which one party, known as a trustor, gives another party, the trustee, the right to hold title to property or assets for the benefit of a third party, the beneficiary.</p>	<p><u>Parent Class</u>: JuridicalPerson</p> <p><u>Parent Class</u>: FormallyConstitutedOrganization</p> <p><u>Property Restriction</u>: = 1 isGovernedBy.TrustAgreement (fibo-be-tr-tr-15)</p> <p><u>Property Restriction</u>: hasPartyInRole.Trustor (fibo-be-tr-tr-06)</p> <p><u>Property Restriction</u>: hasPartyInRole.Trustee (fibo-be-tr-tr-13)</p> <p><u>Property Restriction</u>: hasPartyInRole.TrustBeneficiary (fibo-be-tr-tr-11)</p>
<p>TrustAgreement (trust agreement, trust deed, trust document, trust instrument)</p>	<p><u>Definition</u>: Formal agreement through which a trustor vests the ownership rights (title) to one or more assets to one or more trustees for conservation and protection on behalf of one or more beneficiaries of the trust. It normally states the (1) purpose for which the trust was established and fulfillment of which will terminate the trust, (2) details of the assets placed in the trust, (3) powers and limitations of the trustees, their reporting requirements, and other associated provisions, and (4) may also specify the trustees' compensation, if any. A trust agreement involving real estate requires its exact description and the trustor's express, written consent to create the trust to be valid. A will admitted to probate may also act like a trust agreement.</p> <p><u>Definition origin</u>: http://www.businessdictionary.com/definition/trust-agreement.html</p>	<p><u>Parent Class</u>: OrganizationCoveringAgreement_</p> <p><u>Property Restriction</u>: hasPartyInRole.Trustor (fibo-be-tr-tr-17)</p> <p><u>Property Restriction</u>: hasPartyInRole.Trustee (fibo-be-tr-tr-02)</p> <p><u>Property Restriction</u>: hasPartyInRole.TrustBeneficiary (fibo-be-tr-tr-19)</p>

Name	Annotations	Class Expressions
TrustBeneficiary (trust beneficiary)	<p><u>Definition:</u> Person or organization for whose present or future interest (benefit) an annuity, assignment (such as a letter of credit), contract, insurance policy, judgment, promise, trust, will, etc., is made</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/beneficiary.html</p>	<p><u>Parent Class:</u> FormallyConstitutedOrganizationMember_</p> <p><u>Property Restriction:</u> = 1 hasIdentity.IndependentParty (fibo-be-tr-tr-08)</p> <p><u>Property Restriction:</u> isPlayedBy (isAPartyTo. TrustAgreement) (fibo-be-tr-tr-18, fibo-be-tr-tr-22)</p>
Trustee (trustee)	<p><u>Definition:</u> An individual or organization which holds or manages and invests assets for the benefit of another. The trustee is legally obliged to make all trust-related decisions with the beneficiary's interests in mind, and may be liable for damages in the event of not doing so. Trustees may be entitled to a payment for their services, if specified in the trust deed. In the specific case of the bond market, a trustee administers a bond issue for a borrower, and ensures that the issuer meets all the terms and conditions associated with the borrowing.</p> <p><u>Definition origin:</u> http://www.investorwords.com/5086/trustee.html</p>	<p><u>Parent Class:</u> FormallyConstitutedOrganizationMember_</p> <p><u>Property Restriction:</u> hasIdentity.LegalPerson (fibo-be-tr-tr-04)</p> <p><u>Property Restriction:</u> isPlayedBy (= 1 isAPartyTo. TrustAgreement) (fibo-be-tr-tr-16, fibo-be-tr-tr-28)</p> <p><u>Property Restriction:</u> isPlayedBy (isAMemberOf.Trust) (fibo-be-tr-tr-07, fibo-be-tr-tr-24)</p> <p><u>Property Restriction:</u> isPlayedBy (manages.Trust) (fibo-be-tr-tr-14, fibo-be-tr-tr-26)</p>
TrustFundManager (trust fund manager)	<p><u>Definition:</u> A trust fund manager acts on behalf of the Trustee to manage the assets of the Trust.</p>	<p><u>Parent Class:</u> PartyInRole</p> <p><u>Property Restriction:</u> hasIdentity.LegalPerson (fibo-be-tr-tr-21)</p> <p><u>Property Restriction:</u> isPlayedBy (manages.Trust) (fibo-be-tr-tr-01, fibo-be-tr-tr-25)</p>
TrustFundTrust (trust fund trust)	<p><u>Definition:</u> A trust which forms the basis for a fund.</p>	<p><u>Parent Class:</u> Trust_</p> <p><u>Property Restriction:</u> isManagedBy.TrustFundManager (fibo-be-tr-tr-20)</p> <p><u>Property Restriction:</u> hasPartyInRole.FundUnitHolder (fibo-be-tr-tr-05)</p>

Name	Annotations	Class Expressions
Trustor (trustor)	<p><u>Definition</u>: Entity that establishes a trust and place property under the protection and management of one or more trustees for the immediate or eventual benefit of ascertainable one or more beneficiaries. It is not always necessary to identify the trustor who may be also be a trustee and/or one of the beneficiaries. In legal parlance, a trustor is called a settlor in the UK and a grantor in the US, whereas in common usage he or she may also be called a creator, donor, initiator, owner, or Trust maker.</p> <p><u>Definition origin</u>: http://www.businessdictionary.com/definition/trustor.html</p>	<p><u>Parent Class</u>: FormallyConstitutedOrganizationMember</p> <p><u>Property Restriction</u>: hasIdentity.IndependentParty (fibo-be-tr-tr-03)</p> <p><u>Property Restriction</u>: isPlayedBy (= 1 isAPartyTo.TrustAgreement) (fibo-be-tr-tr-09, fibo-be-tr-tr-23)</p>

9.6 Module: Ownership and Control

Table 9.19 - Interest Rates Publishers Ontology Metadata

Metadata Term	Value
sm:moduleName	Ownership and Control
sm:moduleAbbreviation	FIBO-BE-OAC
sm:moduleVersion	1.0
sm:moduleAbstract	This module contains ontologies that define various types and aspects of ownership and control as they apply among and between business entities. The ontologies in this module include the definition of types of party as defined in the roles of ownership and control along with the capacities which define those parties, and separately the relationships of ownership and control directly between organizations, which arise from the existence of those roles. Specific types of ownership and control relationships that are unique to incorporated companies are defined in addition to the more general terms to which these relate. Also included is an ontology of the types of control relationships that exist by virtue of the powers conferred upon corporate officers, board members and other executive roles.

9.6.1 Ontology: Ownership Parties

This ontology defines concepts relating to types of organization owning parties. The concepts defined here are party in role concepts, which define the nature of some entity such as an organization or a legal person, in some role such as that of owning equity in the entity. These roles are defined in terms of the ownership enjoyed by the party, with distinctions between constitutional ownership i.e. ownership defined in terms of stockholder equity, and investment ownership more generally.

Table 9.20 - Ownership Parties Ontology Metadata

Metadata Term	Value
sm:filename	OwnershipParties
sm:fileAbbreviation	fibonacci-be-oac-opty
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/OwnershipParties/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/OwnershipAndControl/OwnershipParties/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/CorporateBodies/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/

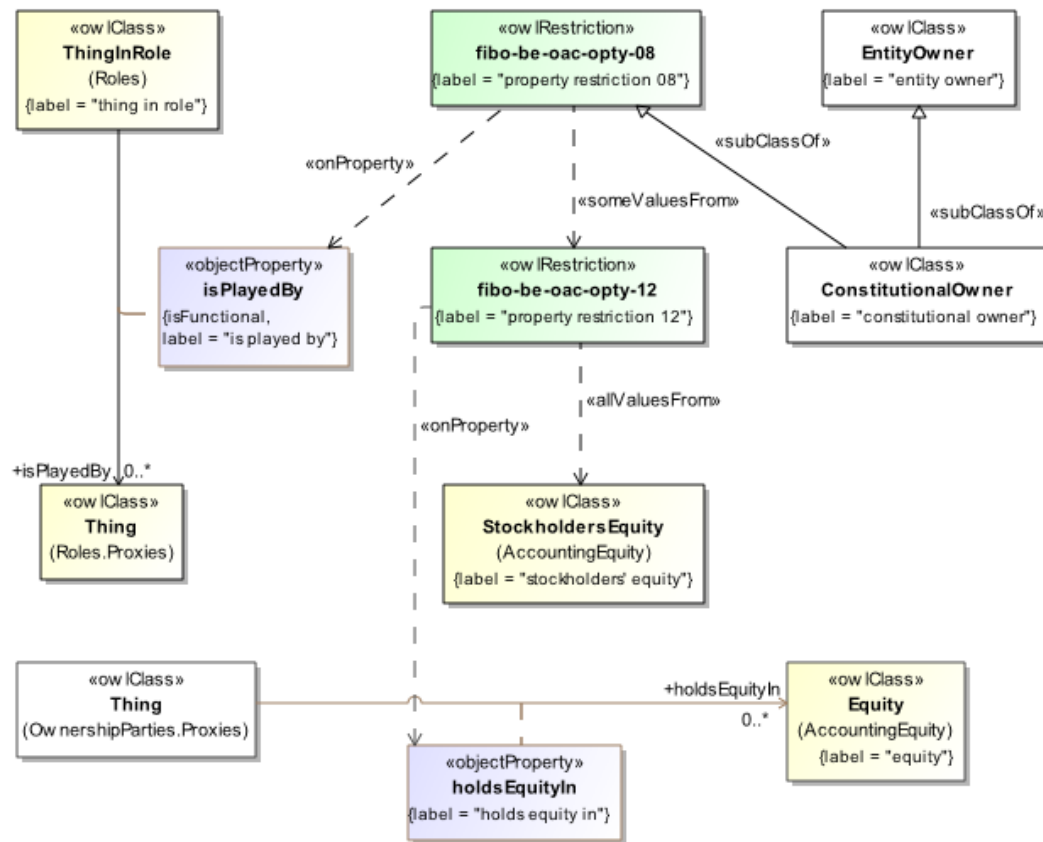


Figure 9.35 - Constitutional Ownership

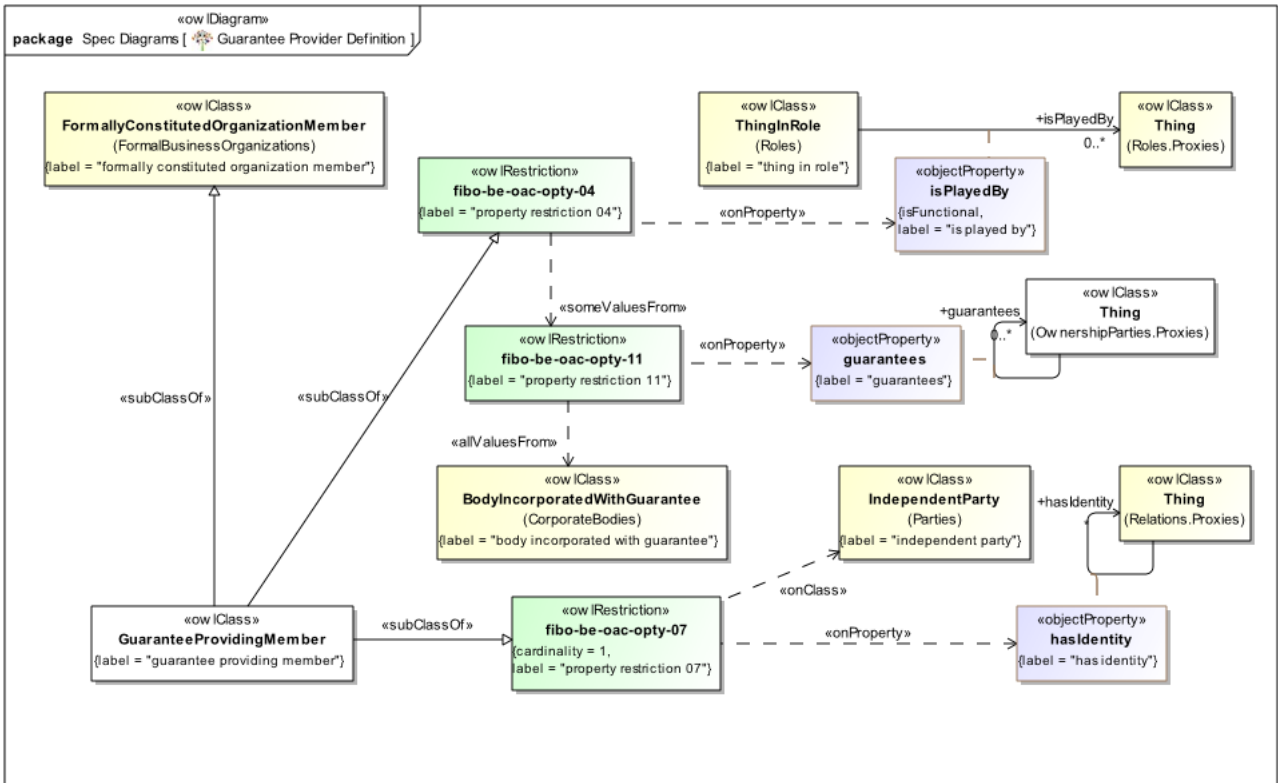


Figure 9.36 - Guarantee Provider Definition

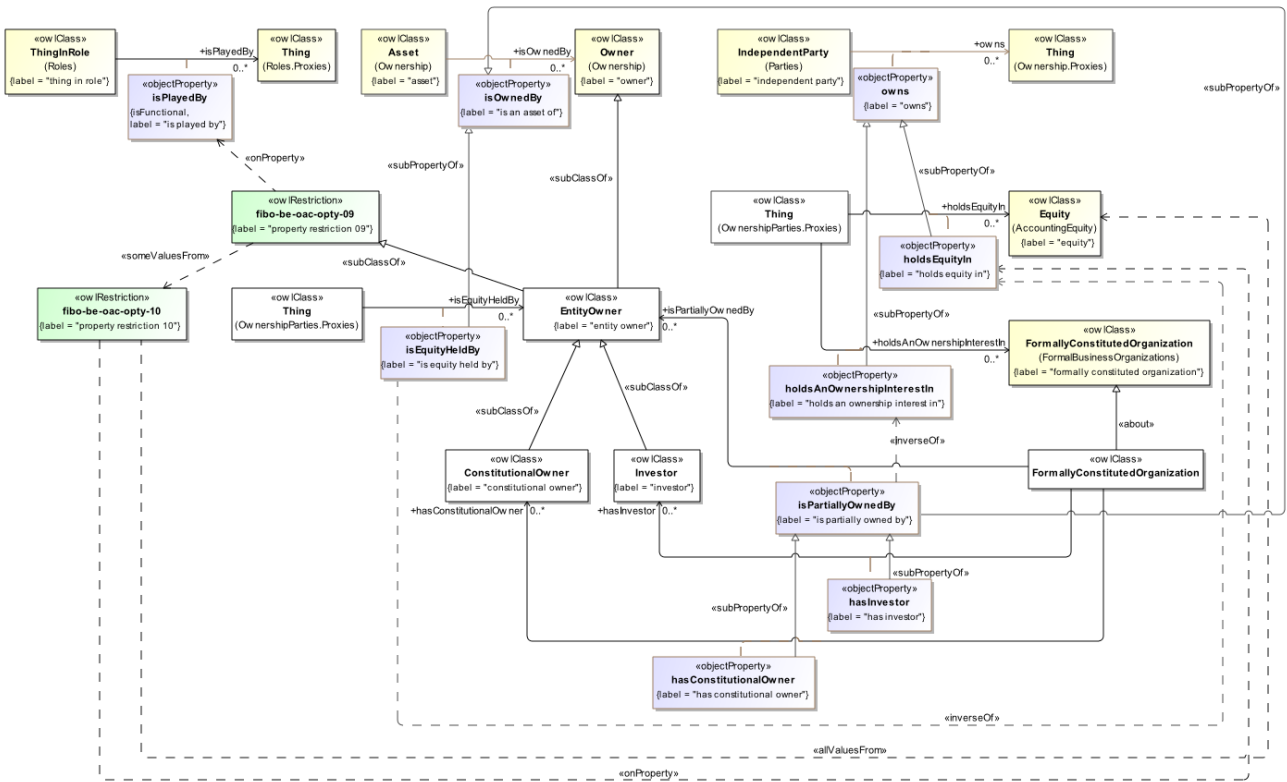


Figure 9.37 - Entity Ownership

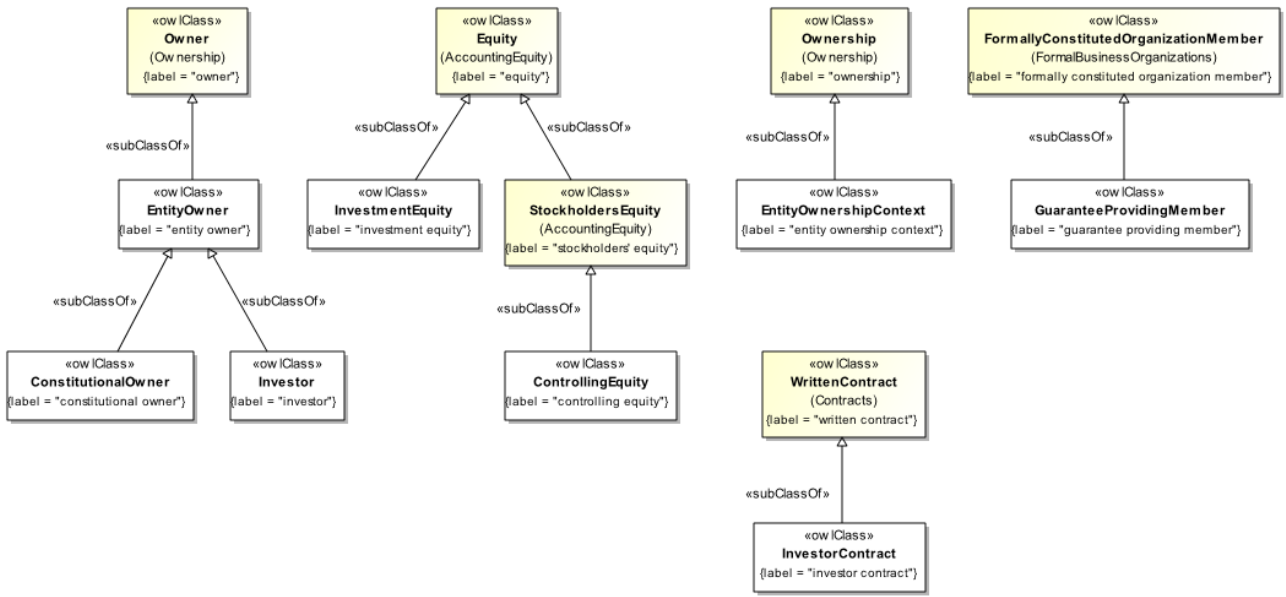


Figure 9.38 - Ownership Parties Class Hierarchy

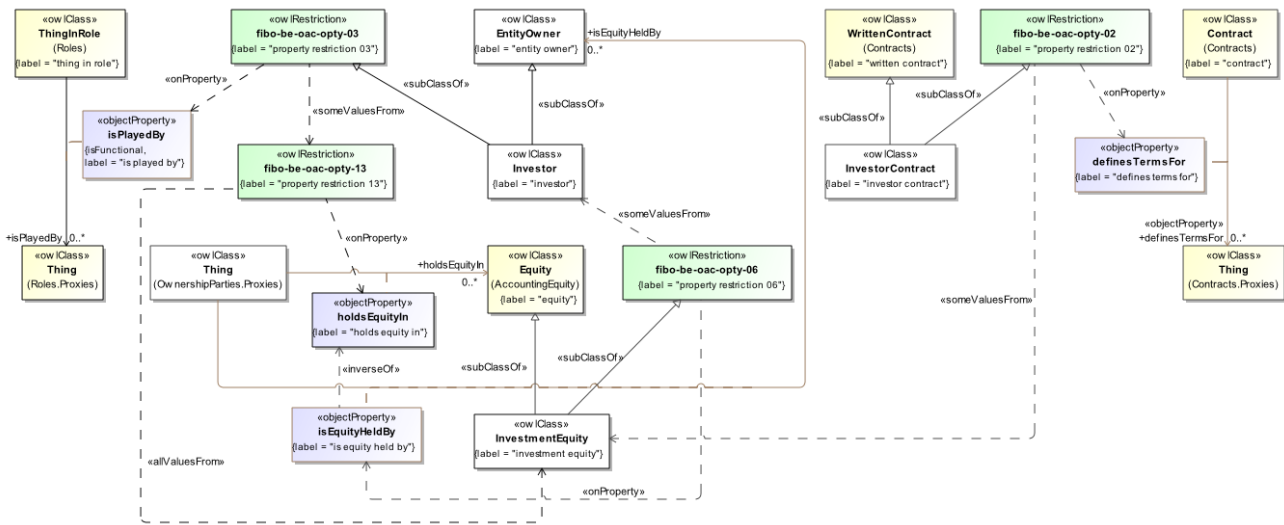


Figure 9.39 - Investor Ownership

Table 9.21 - Ownership Parties Concepts

Classes

Name	Annotations	Class Expressions
ConstitutionalOwner (constitutional owner)	<u>Definition</u> : a party that holds an equity stake in some entity, in the form of stockholders' equity	<u>Parent Class</u> : EntityOwner <u>Property Restriction</u> : isPlayedBy (holdsEquityIn.Stockholders Equity) (fibo-be-oac-opty-08, fibo-be-oac-opty-12)
ControllingEquity (controlling equity)		<u>Parent Class</u> : StockholdersEquity <u>Property Restriction</u> : confers.DeJureControl (fibo-be-oac-opty-05)
EntityOwner (entity owner)	<u>Definition</u> : a party that has some ownership interest in some entity	<u>Parent Class</u> : Owner <u>Property Restriction</u> : isPlayedBy (holdsEquityIn.Equity) (fibo-be-oac-opty-09, fibo-be-oac-opty-10)

Name	Annotations	Class Expressions
InvestmentEquity (investment equity)	<u>Definition</u> : equity that represents an ownership interest in some entity, but may or may not take the form of stockholder's equity	<u>Parent Class</u> : Equity <u>Property Restriction</u> : isEquityHeldBy.Investor (fibo-be-oac-opty-06)
Investor (investor)	<u>Definition</u> : a party that owns some stake in some organization by way of investment	<u>Parent Class</u> : EntityOwner <u>Property Restriction</u> : isPlayedBy (holdsEquityIn.InvestmentEquity) (fibo-be-oac-opty-03, fibo-be-oac-opty-13)
InvestorContract (investor contract)	<u>Definition</u> : Contract setting out the terms under which some investor invests in the entity and setting out the rights which are conferred on that investor.	<u>Parent Class</u> : WrittenContract <u>Property Restriction</u> : definesTermsFor.InvestmentEquity (fibo-be-oac-opty-02)

Properties

Name	Annotations	Property Axioms
guarantees (guarantees)	<u>Definition</u> : provides a formal assurance or promise, esp. that certain conditions shall be fulfilled relating to a product, service, or transaction <u>Adapted from</u> : https://www.google.com/#q=guarantees	
hasConstitutionalOwner (has constitutional owner)	<u>Definition</u> : links a constitutional interest/position in something (e.g., a formal business organization) to the party that holds or owns it, in whole or in part	<u>Parent Property</u> : isPartiallyOwnedBy <u>Domain</u> : FormallyConstitutedOrganization <u>Range</u> : ConstitutionalOwner
hasInvestor (has investor)	<u>Definition</u> : links an investment interest in something (e.g., a formal business organization) to the party that holds or owns it, in whole or in part	<u>Parent Property</u> : isPartiallyOwnedBy <u>Domain</u> : FormallyConstitutedOrganization <u>Range</u> : Investor
holdsAnOwnershipInterestIn (holds an ownership interest in)	<u>Definition</u> : links a party to some organization it holds an ownership interest in	<u>Parent Property</u> : owns <u>Range</u> : FormallyConstitutedOrganization
holdsEquityIn (holds equity in)	<u>Definition</u> : links a party to some equity it holds	<u>Parent Property</u> : owns <u>Range</u> : Equity
isEquityHeldBy (is equity held by)	<u>Definition</u> : links some equity to the party that holds it	<u>Parent Property</u> : isOwnedBy <u>Property Axiom</u> : inverse of holdsEquityIn <u>Range</u> : EntityOwner

Name	Annotations	Property Axioms
isPartiallyOwnedBy (is partially owned by)	<u>Definition</u> : links an interest or position in something (e.g., a formal business organization) to the party that holds or owns it, in whole or in part	<u>Parent Property</u> : isOwnedBy <u>Property Axiom</u> : inverse of holdsAnOwnershipInterestIn <u>Domain</u> : FormallyConstitutedOrganization <u>Range</u> : EntityOwner

9.6.2 Ontology: Control Parties

This ontology defines concepts relating to types of controlling parties. The concepts defined here are party in role concepts, which define the nature of some entity such as an organization or a legal person, in some role such as that of owning a controlling interest in the entity or of controlling that entity. These roles are defined in terms of the types of control enjoyed by the party, for example de facto or de jure control. An important feature of this ontology is the distinction between the holding of a controlling interest (such as voting shares), and the de facto existence of control of one body by another as asserted in company filings or as a conclusion drawn from computational analysis of controlling interests.

Table 9.22 - Control Parties Ontology Metadata

Metadata Term	Value
sm:filename	ControlParties
sm:fileAbbreviation	fibonacci-be-oac-cpty
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/ControlParties/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/OwnershipAndControl/ControlParties/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/ http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/OwnershipParties/

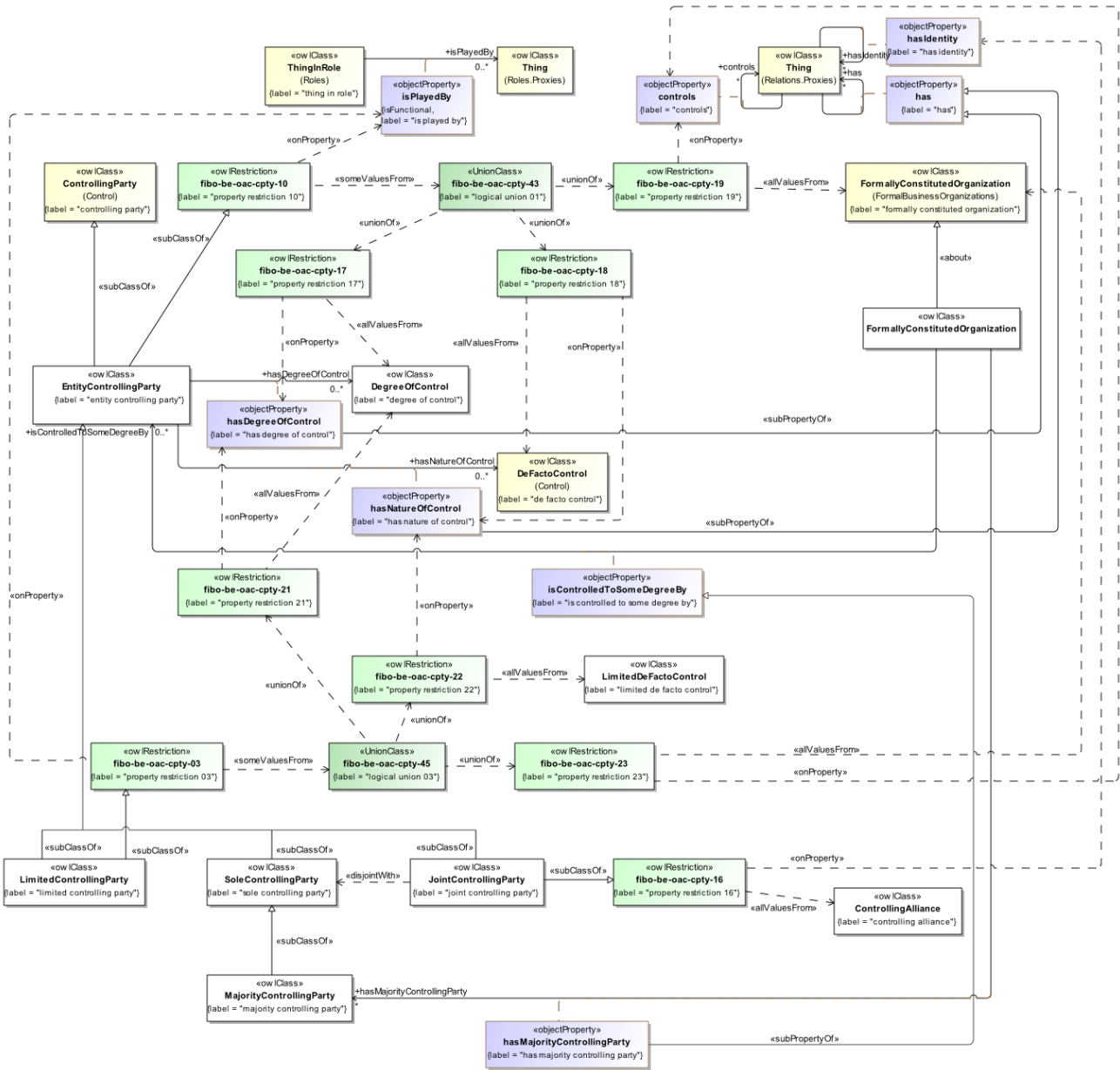


Figure 9.40 - Entity Controlling Parties

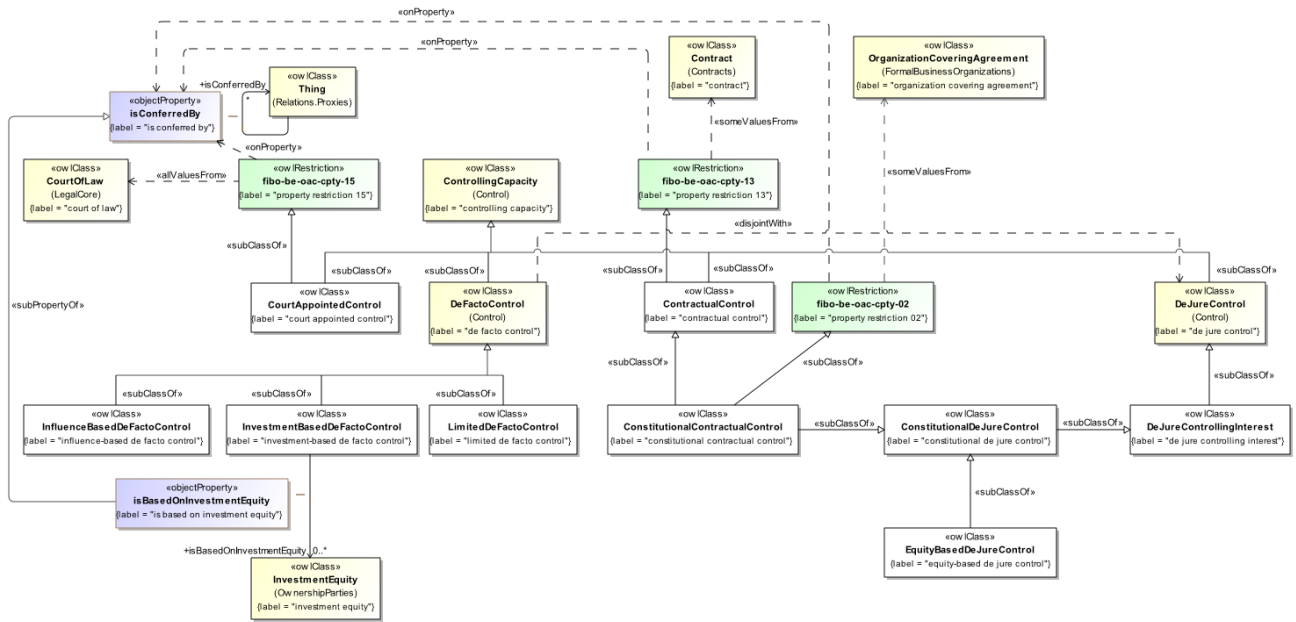


Figure 9.41 - Controlling Capacities

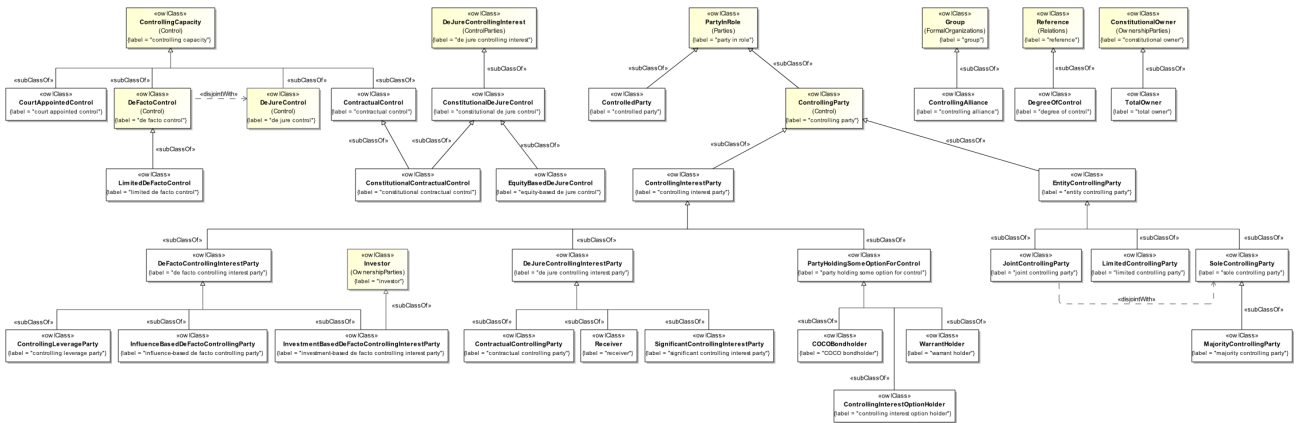


Figure 9.42 - Control Parties Class Hierarchy

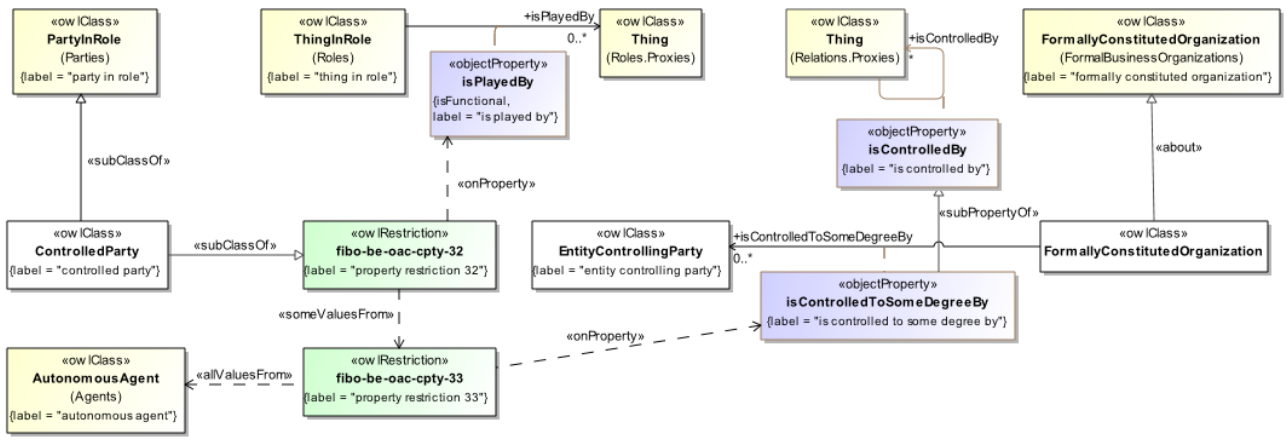


Figure 9.43 - Controlled Parties

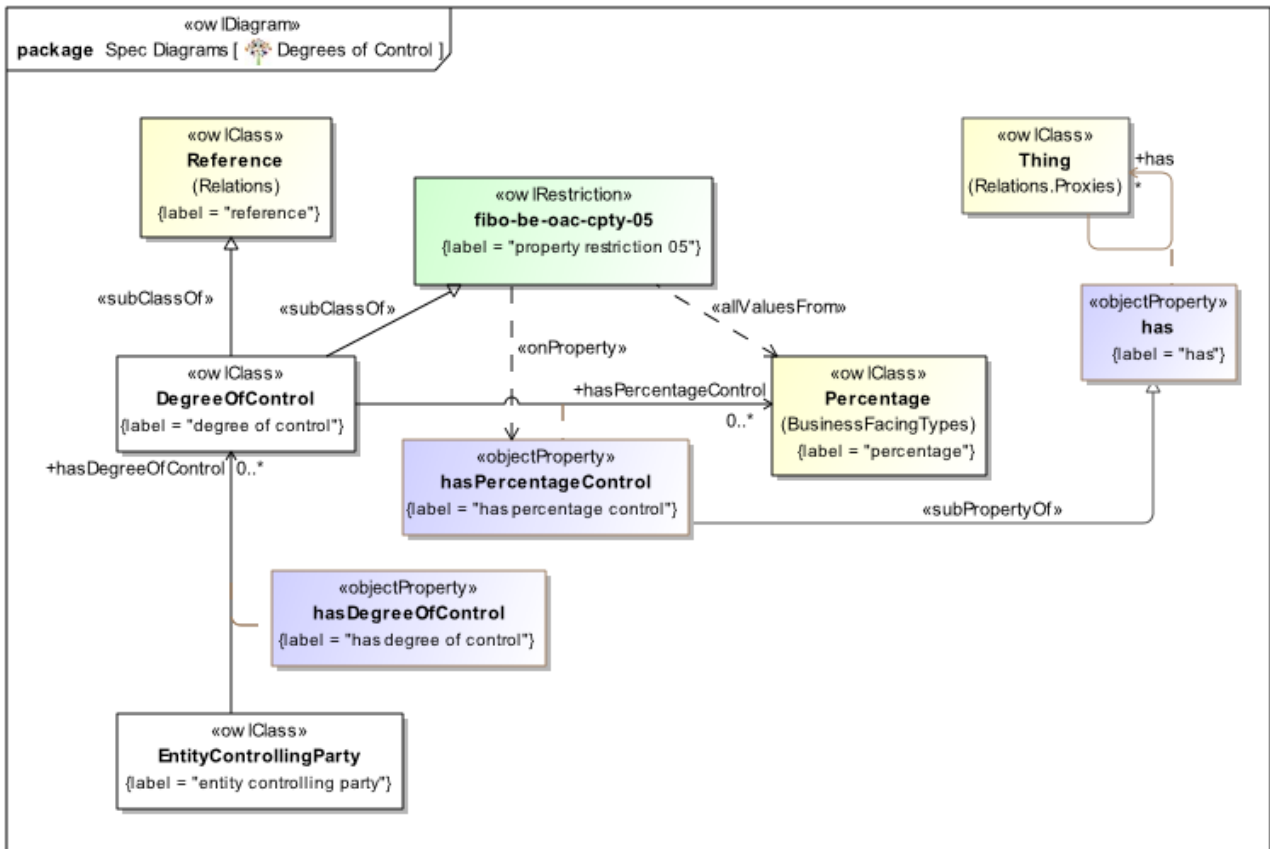


Figure 9.44 - Degrees of Control

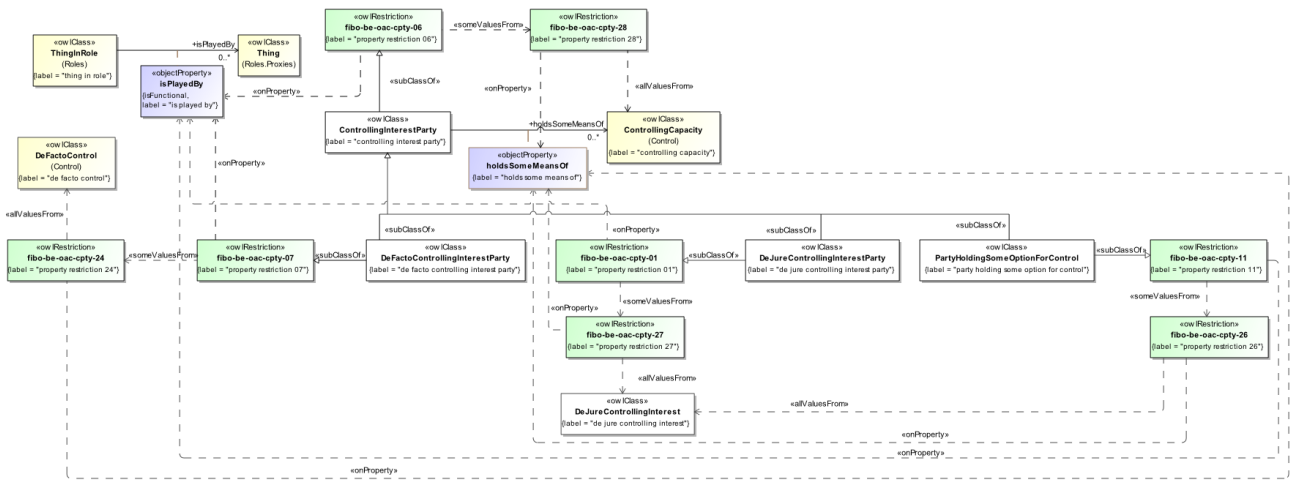


Figure 9.45 - Controlling Interest Parties

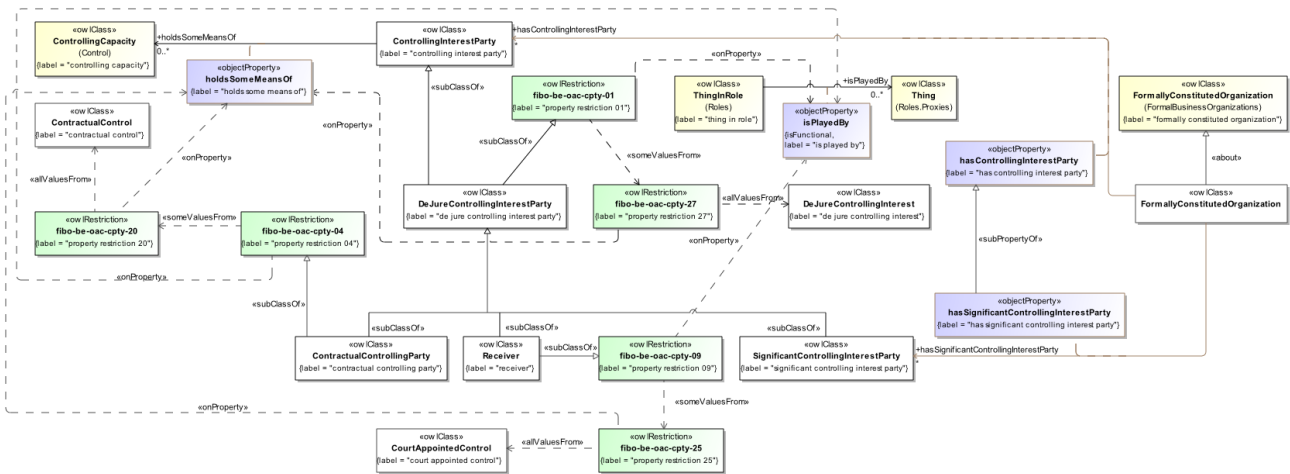


Figure 9.46 - De Jur Controlling Interest Parties

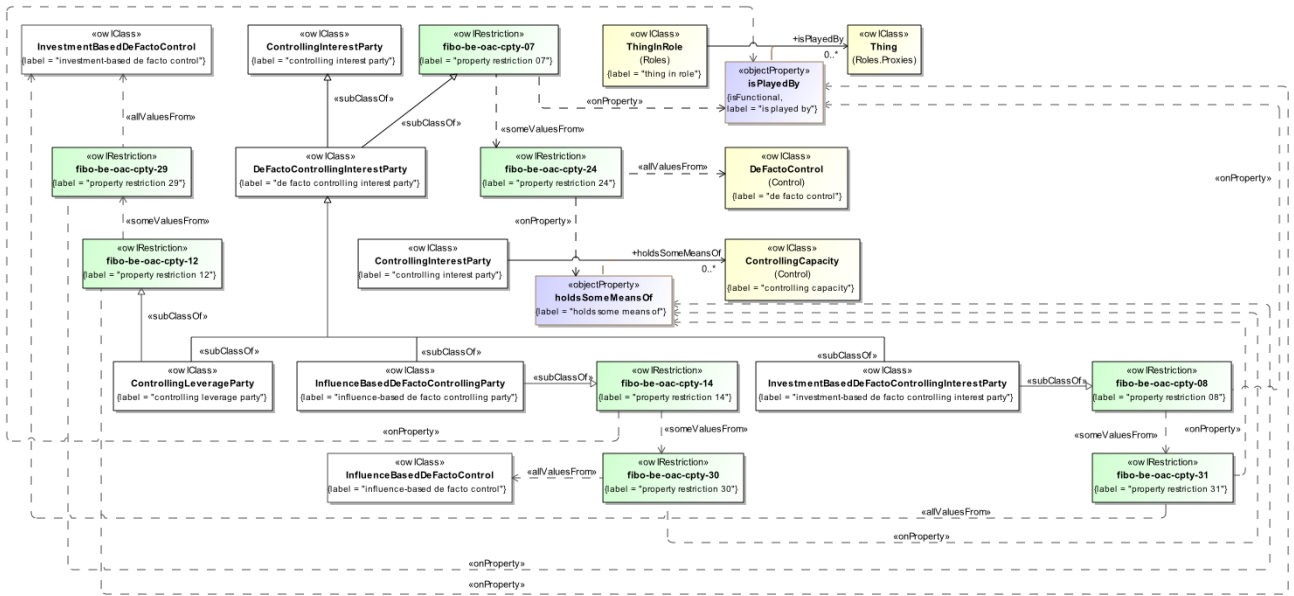


Figure 9.47 - De Facto Controlling Interest Parties

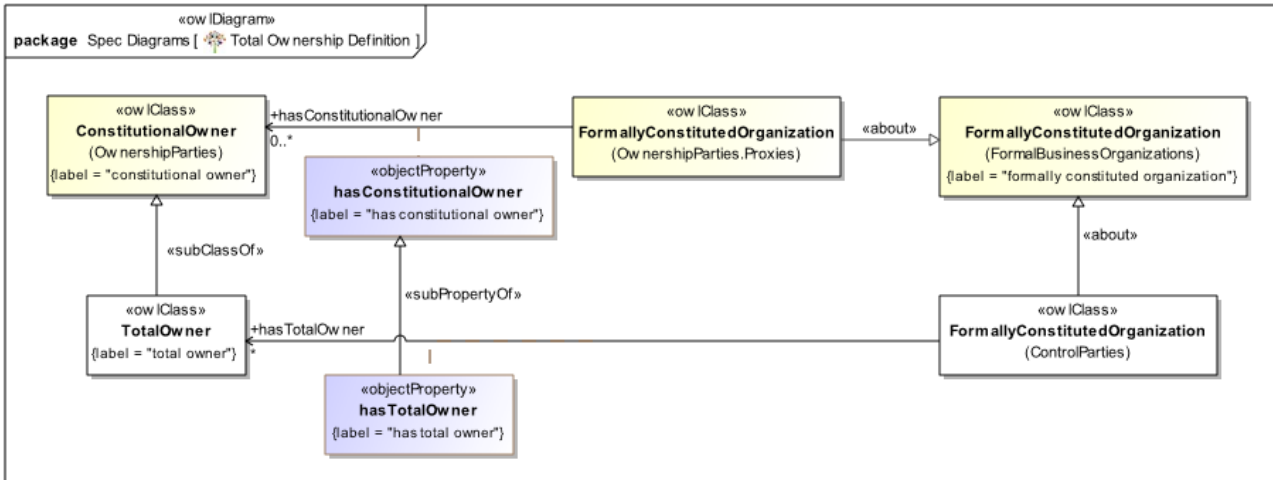


Figure 9.48 - Total Ownership Definition

Table 9.23 - Control Parties Concepts

Classes

Name	Annotations	Class Expressions
COCOBondholder (COCO bondholder)	<u>Definition:</u> Holder of bank bonds which convert to equity holdings in a bank.	<u>Parent Class:</u> PartyHoldingSomeOptionForControl
Constitutional ContractualControl (constitutional contractual control)	<u>Definition:</u> Some control set out in some contract among the principals of an organization.	<u>Parent Class:</u> ConstitutionalDeJureControl <u>Parent Class:</u> ContractualControl <u>Property Restriction:</u> isConferredBy.OrganizationCoveringAgreement (fibo-be-oac-cpty-02)
ConstitutionalDeJure Control (constitutional de jure control)	<u>Definition:</u> Control which is based in some instrument which has constitutional standing (is constitutive of the entity) such as voting shares, general partner equity etc.	<u>Parent Class:</u> DeJureControllingInterest
ContractualControl (contractual control)	<u>Definition:</u> Control vested in an entity by virtue of the terms in some contract between that entity and others.	<u>Parent Class:</u> ControllingCapacity <u>Property Restriction:</u> isConferredBy.Contract (fibo-be-oac-cpty-13)

Name	Annotations	Class Expressions
ContractualControlling Party (contractual controlling party)	<u>Definition:</u> A party which exercises some control which is set out in some contract.	<u>Parent Class:</u> DeJureControllingInterestParty <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.ContractualControl) (fibo-be-oac-cpty-04, fibo-be-oac-cpty-20)
ControlledParty (controlled party)	<u>Definition:</u> Some party which is controlled in some way and to some degree by some other party.	<u>Parent Class:</u> PartyInRole_ <u>Property Restriction:</u> isPlayedBy (isControlledToSomeDegreeBy.AutonomousAgent) (fibo-be-oac-cpty-32, fibo-be-oac-cpty-33)
ControllingAlliance (controlling alliance)	<u>Definition:</u> Some group of entities which have formed some alliance or agreement in terms of which they jointly exercise control over some entity.	<u>Parent Class:</u> Group_
ControllingInterest OptionHolder (controlling interest option holder)	<u>Definition:</u> A party which holds some option which may be exercised to confer on that party some de jure controlling interest at some time in the future and at the discretion of that holder.	<u>Parent Class:</u> PartyHoldingSomeOptionForControl
ControllingInterestParty (controlling interest party)	<u>Definition:</u> Some party which holds some form of controlling interest in some other party in some context.	<u>Parent Class:</u> ControllingParty <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.ControllingCapacity) (fibo-be-oac-cpty-06, fibo-be-oac-cpty-28)
ControllingLeverage Party (controlling leverage party)	<u>Definition:</u> A party which exercises control as a result of some investment in an equity.	<u>Parent Class:</u> DeFactoControllingInterestParty <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.InvestmentBasedDeFactoControl) (fibo-be-oac-cpty-12, fibo-be-oac-cpty-29)
CourtAppointedControl (court appointed control)	<u>Definition:</u> Control conferred on some entity by act of some court, for example in the context of receivership	<u>Parent Class:</u> ControllingCapacity <u>Property Restriction:</u> isConferredBy.CourtOfLaw (fibo-be-oac-cpty-15)
DeFactoControlling InterestParty (de facto controlling interest party)	<u>Definition:</u> A party which exercises some control over an entity other than via some constitutional instrument such as shares. <u>Example:</u> a silent partner, i.e. where someone has made a large investment, which is bilateral (not part of the constitutional framework of the company) <u>Scope note:</u> divides further into financial leverage via loans; non fiscal types of leverage (influence)	<u>Parent Class:</u> ControllingInterestParty <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.DeFactoControl) (fibo-be-oac-cpty-07, fibo-be-oac-cpty-24)

Name	Annotations	Class Expressions
DegreeOfControl (degree of control)	<u>Definition:</u> the degree of control one entity has over another	<u>Parent Class:</u> Reference <u>Property Restriction:</u> hasPercentageControl.Percentage (fibo-be-oac-cpty-05)
DeJureControllingInterest (de jure controlling interest)	<u>Definition:</u> controlling interest that is formalized by some formal legal construct	<u>Parent Class:</u> DeJureControl
DeJureControllingInterestParty (de jure controlling interest party)	<u>Definition:</u> An entity that may exercise de jure controlling interest	<u>Parent Class:</u> ControllingInterestParty <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.DeJureControllingInterest) (fibo-be-oac-cpty-01, fibo-be-oac-cpty-27)
EntityControllingParty (entity controlling party)	<u>Definition:</u> Some party which is able to direct the activities of some business entity. <u>Scope note:</u> It is assumed that since control follows from some form of ownership or contractual instrument, that the range of entities which may fulfil this party role is the same as that for entity ownership, namely a logical union of natural persons, legal persons and formal organizations.	<u>Parent Class:</u> ControllingParty <u>Property Restriction:</u> isPlayedBy ((controls.FormallyConstitutedOrganization) (hasDegreeOfControl.DegreeOfControl) (hasNatureOfControl.DeFactoControl)) (fibo-be-oac-cpty-10, fibo-be-oac-cpty-43, fibo-be-oac-cpty-19, fibo-be-oac-cpty-17, fibo-be-oac-cpty-18)
EquityBasedDeJureControl (equity-based de jure control)	<u>Definition:</u> De Jure controlling interest in an entity which is based on the holding of some form of equity in that entity.	<u>Parent Class:</u> ConstitutionalDeJureControl
InfluenceBasedDeFactoControl (influence-based de facto control)	<u>Definition:</u> Some influence and control over some entity other than by means of investment in that entity.	<u>Parent Class:</u> DeFactoControl
InfluenceBasedDeFactoControllingParty (influence-based de facto controlling party)	<u>Definition:</u> A party which exercises some influence and control over the entity other than by means of investment.	<u>Parent Class:</u> DeFactoControllingInterestParty <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.InfluenceBasedDeFactoControl) (fibo-be-oac-cpty-14, fibo-be-oac-cpty-30)
InvestmentBasedDeFactoControl (investment-based de facto control)	<u>Definition:</u> Control which arises through some investment in some entity, other than as the holding of constitutional equity (shares etc.) in that entity.	<u>Parent Class:</u> DeFactoControl
InvestmentBasedDeFactoControllingInterestParty (investment-based de facto controlling interest party)	<u>Definition:</u> A party which exercises some degree of de facto control based on some investment which they hold in the entity.	<u>Parent Class:</u> DeFactoControllingInterestParty <u>Parent Class:</u> Investor <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.InvestmentBasedDeFactoControl) (fibo-be-oac-cpty-08, fibo-be-oac-cpty-31)

Name	Annotations	Class Expressions
JointControllingParty (joint controlling party)	<u>Definition:</u> Some group of entities which collectively are able to direct the affairs of some business organization	<u>Parent Class:</u> EntityControllingParty <u>Class Axiom:</u> SoleControllingParty <u>Property Restriction:</u> hasIdentity.ControllingAlliance (fibo-be-oac-cpty-16)
LimitedDeFactoControl (limited de facto control)	<u>Definition:</u> The ability to direct the affairs of some entity within prescribed limits. Those limits are described in terms of activities which the entity holding such control may cause the controlled entity to carry out	<u>Parent Class:</u> DeFactoControl
LimitedControllingParty (limited controlling party)	<u>Definition:</u> Some individual entity which is able to direct the affairs of some business organization to a specific degree.	<u>Parent Class:</u> EntityControllingParty <u>Property Restriction:</u> isPlayedBy ((controls.FormallyConstitutedOrganization) (hasDegreeOfControl.DegreeOfControl) (hasNatureOfControl.LimitedDeFactoControl)) (fibo-be-oac-cpty-03, fibo-be-oac-cpty-45, fibo-be-oac-cpty-23, fibo-be-oac-cpty-21, fibo-be-oac-cpty-22)
MajorityControllingParty (majority controlling party)	<u>Adapted from:</u> http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=156b3a57ae63855b0de1b32e322c998a&ty=HTML&h=L&r=PART&n=17y2.0.1.1.8#17:2.0.1.1.8.0.17.2	<u>Parent Class:</u> SoleControllingParty
PartyHoldingSomeOptionForControl (party holding some option for control)	<u>Definition:</u> Some party holding the option to exercise some de jure controlling interest	<u>Parent Class:</u> ControllingInterestParty <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.DeJureControllingInterest) (fibo-be-oac-cpty-11, fibo-be-oac-cpty-26)
Receiver (receiver)	<u>Definition:</u> A party appointed by some court for the purposes of winding up the affairs of some entity which is no longer solvent.	<u>Parent Class:</u> DeJureControllingInterestParty <u>Property Restriction:</u> isPlayedBy (holdsSomeMeansOf.CourtAppointedControl) (fibo-be-oac-cpty-09, fibo-be-oac-cpty-25)
SignificantControllingInterestParty (significant controlling interest party)	<u>Definition:</u> A person which owns a significant voting stake in this entity of between some lower significant threshold and 50 percent, but not 50 percent or more.	<u>Parent Class:</u> DeJureControllingInterestParty
SoleControllingParty (sole controlling party)	<u>Definition:</u> an individual entity that directs the affairs of some formal business organization	<u>Parent Class:</u> EntityControllingParty
TotalOwner (total owner)	<u>Definition:</u> Entity having 100 percent ownership in the entity so owned.	<u>Parent Class:</u> ConstitutionalOwner
WarrantHolder (warrant holder)	<u>Definition:</u> A holder of some warrant which when exercised would confer upon that party some de jure controlling interest in some entity.	<u>Parent Class:</u> PartyHoldingSomeOptionForControl

Properties

Name	Annotations	Property Axioms
hasControllingInterestParty (has controlling interest party)	<u>Definition</u> : indicates an entity that has the ability to exercise some control over a formal business organization	<u>Parent Property</u> : hasPartyInRole <u>Domain</u> : FormallyConstitutedOrganization <u>Range</u> : ControllingInterestParty
hasDegreeOfControl (has degree of control)	<u>Definition</u> : has degree of control, (partial, majority, or complete) either alone or with other parties, with respect to some activity	<u>Parent Property</u> : has <u>Domain</u> : EntityControllingParty <u>Range</u> : DegreeOfControl
hasMajorityControllingParty (has majority controlling party)	<u>Definition</u> : The parent of the company, if there is one.	<u>Parent Property</u> : isControlledToSomeDegreeBy <u>Domain</u> : FormallyConstitutedOrganization <u>Range</u> : MajorityControllingParty
hasNatureOfControl (has nature of control)	<u>Definition</u> : has nature or kind of control, de facto or limited de facto control	<u>Parent Property</u> : has <u>Domain</u> : EntityControllingParty <u>Range</u> : DeFactoControl
hasPercentageControl (has percentage control)	<u>Definition</u> : indicates the percentage (out of 100) control that one party has over another	<u>Parent Property</u> : has <u>Domain</u> : DegreeOfControl <u>Range</u> : Percentage
hasSignificantControllingInterestParty (has significant controlling interest party)	<u>Definition</u> : identifies an entity that owns a significant percentage of the equity in this company, but less than 50 percent	<u>Parent Property</u> : hasControllingInterestParty <u>Domain</u> : FormallyConstitutedOrganization <u>Range</u> : SignificantControllingInterestParty
hasTotalOwner (has total owner)	<u>Definition</u> : indicates the party that wholly controls the organization, i.e., one that owns 100 percent interest	<u>Parent Property</u> : hasConstitutionalOwner <u>Domain</u> : FormallyConstitutedOrganization <u>Range</u> : TotalOwner
holdsSomeMeansOf (holds some means of)	<u>Definition</u> : Some means of control held by the party.	<u>Domain</u> : ControllingInterestParty <u>Range</u> : ControllingCapacity
isBasedOnInvestmentEquity (is based on investment equity)	<u>Definition</u> : indicates investment-based de facto control, which is based on the holding of some investment equity by some party	<u>Parent Property</u> : isConferredBy <u>Domain</u> : InvestmentBasedDeFactoControl <u>Range</u> : InvestmentEquity

Name	Annotations	Property Axioms
isControlledToSome DegreeBy (is controlled to some degree by)	<u>Definition</u> : identifies a party that has some degree of control over a formal business organization	<u>Parent Property</u> : isControlledBy <u>Domain</u> : FormallyConstitutedOrganization <u>Range</u> : EntityControllingParty

9.6.3 Ontology: Corporate Ownership

This ontology defines concepts relating to corporation-specific ownership. Roles are defined in terms of the ownership enjoyed by the party, and are the specific examples of these concepts as they apply to companies incorporated by the issuance of shares.

Table 9.24 - Control Parties Ontology Metadata

Metadata Term	Value
sm:filename	CorporateOwnership
sm:fileAbbreviation	fibonacci-be-oac-cown
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/CorporateOwnership/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/OwnershipAndControl/CorporateOwnership/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/BE/Corporations/Corporations/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/OwnershipParties/

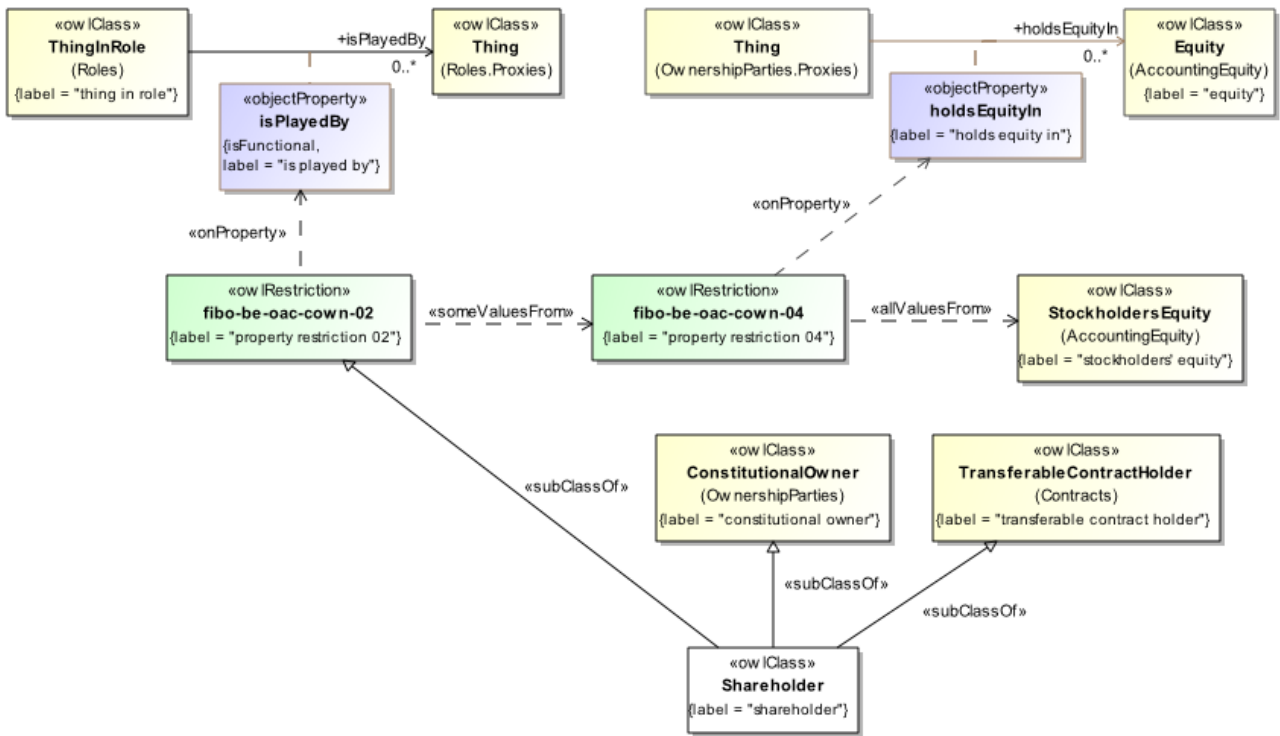


Figure 9.49 - Definition of Shareholder

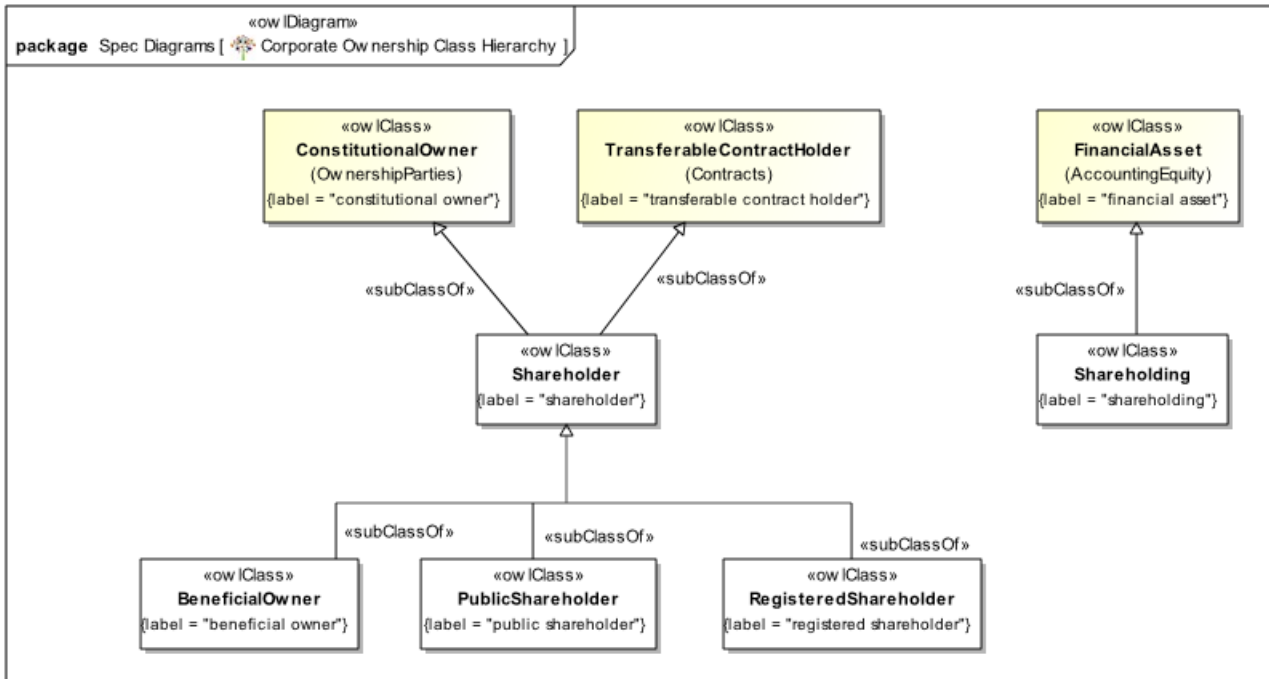


Figure 9.50 - Corporate Ownership Class Hierarchy

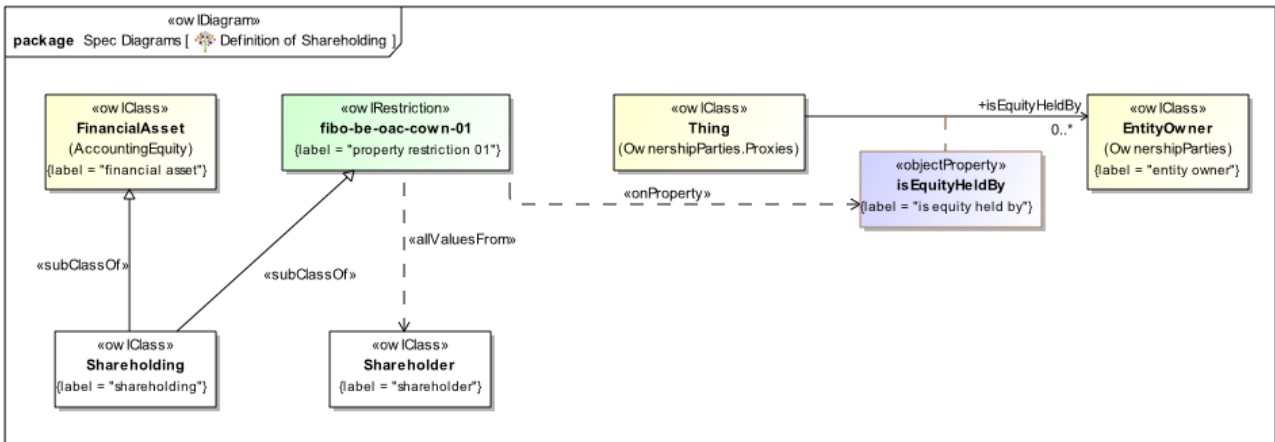


Figure 9.51 - Definition of Shareholding

Table 9.25 - Corporate Ownership Concepts

Classes

Name	Annotations	Class Expressions
BeneficialOwner (beneficial owner, actual owner)	<p><u>Definition:</u> Entity that enjoys the possession and/or benefits of ownership (such as receipt of income) of a property even though its ownership (title) is in the name of another entity (called a nominee or registered owner). Use of a nominee (who may be an agent, custodian, or a trustee) does not change the position regarding tax reporting and tax liability, and the beneficial-owner remains responsible.</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/beneficial-owner.html</p>	<u>Parent Class:</u> Shareholder
PublicShareholder (public shareholder)	<u>Definition:</u> a shareholder that holds publicly issued shares in a listed company	<u>Parent Class:</u> Shareholder
RegisteredShareholder (registered shareholder)	<u>Definition:</u> a shareholder that is registered on the shareholder registry for a company	<u>Parent Class:</u> Shareholder
Shareholder (shareholder)	<p><u>Definition:</u> An individual, group, or organization that owns one or more shares in a company, and in whose name the share certificate is issued. It is legal for a company to have only one shareholder. Also called (in the US) stockholder.</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/shareholder.html</p>	<u>Parent Class:</u> TransferableContractHolder <u>Parent Class:</u> ConstitutionalOwner <u>Property Restriction:</u> isPlayedBy (holdsEquityIn. StockholdersEquity) (fibo-be-oac-cown-02, fibo-be-oac-cown-04)
Shareholding (shareholding)	<p><u>Definition:</u> Legal power of stockholders (shareholders) varies in proportion to their shareholdings. Typically, ten percent and below stockholding provides no protection. Fifteen percent stockholding may give the power to petition courts against changing the shares class rights. Up to 49.9 percent stockholding normally gives power to demand calling of an extraordinary general meeting. Fifty percent and over stockholding gives power to fire a director and force out minority stockholders by acquiring their shares as per the rules of the firm. Holder of 75 percent of the stock has the power to change the articles and memorandum of association and the firms name, reduce the share capital, allow the firm to buy its own shares from other stockholders, and to shut down the business. One hundred percent stockholding of course gives total power under the corporate legislation.</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/company-shareholdings.html</p>	<u>Parent Class:</u> FinancialAsset <u>Property Restriction:</u> isEquityHeldBy.Shareholder (fibo-be-oac-cown-01)

9.6.4 Ontology: Corporate Control

This ontology defines concepts relating to corporation-specific control. These concepts are based on the general types of control (both de facto control and controlling interests), as defined in the ControlParties ontology, and are the specific examples of these concepts as they apply to companies incorporated by the issuance of shares.

Table 9.26 - Corporate Control Ontology Metadata

Metadata Term	Value
sm:filename	CorporateControl
sm:fileAbbreviation	fibonacci-be-oac-cctl
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/CorporateControl/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/OwnershipAndControl/CorporateControl/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/ControlParties/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/ http://www.omg.org/spec/EDMC-FIBO/BE/Corporations/Corporations/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/CorporateOwnership/ http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/OwnershipParties/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

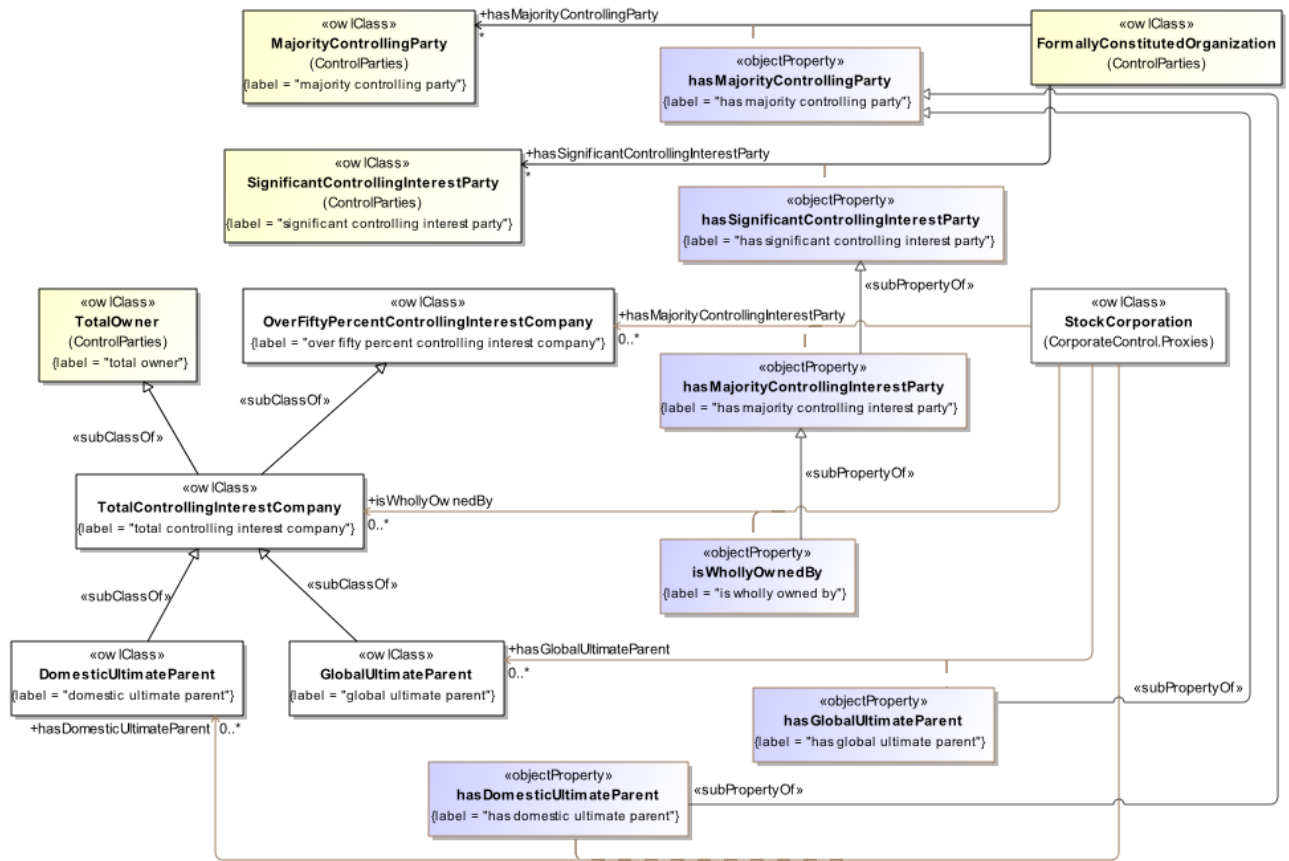


Figure 9.52 - Parent Companies

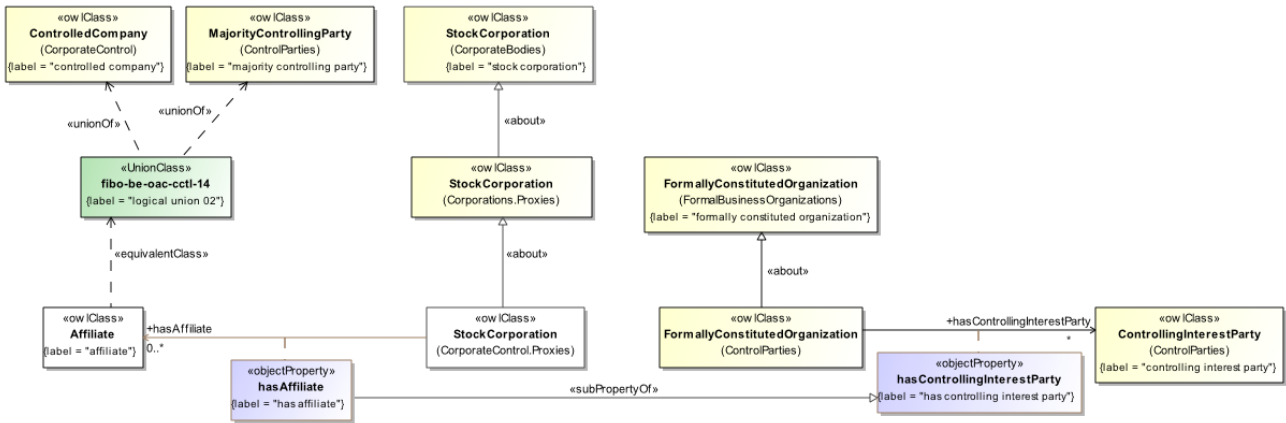


Figure 9.53 - Affiliates

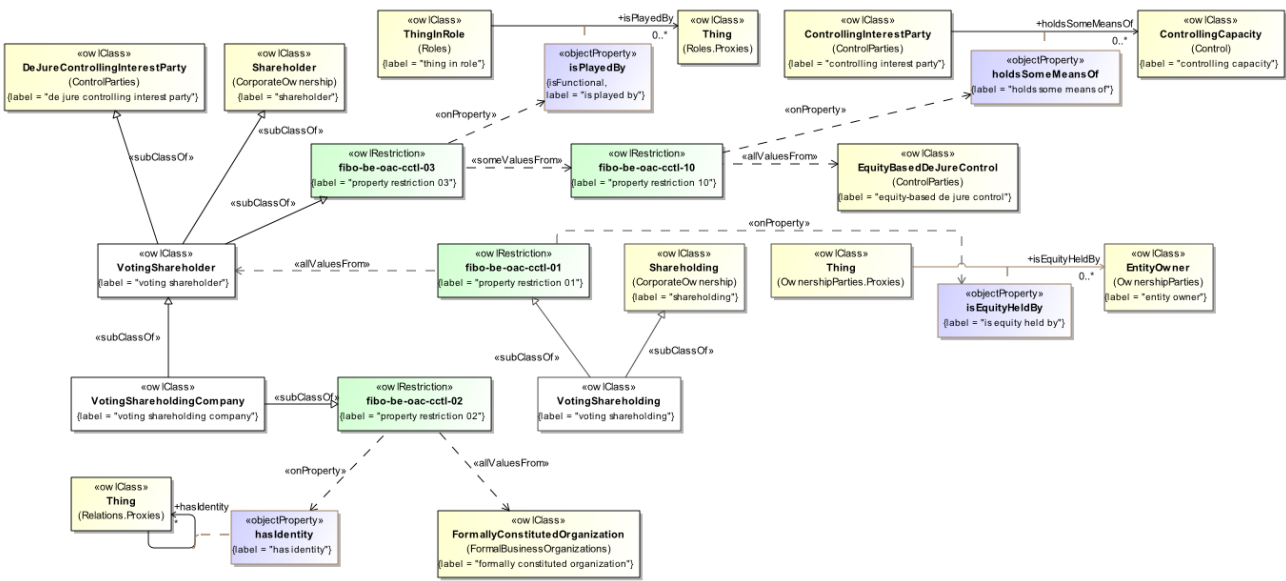


Figure 9.54 - Extended Voting Shareholder Definition

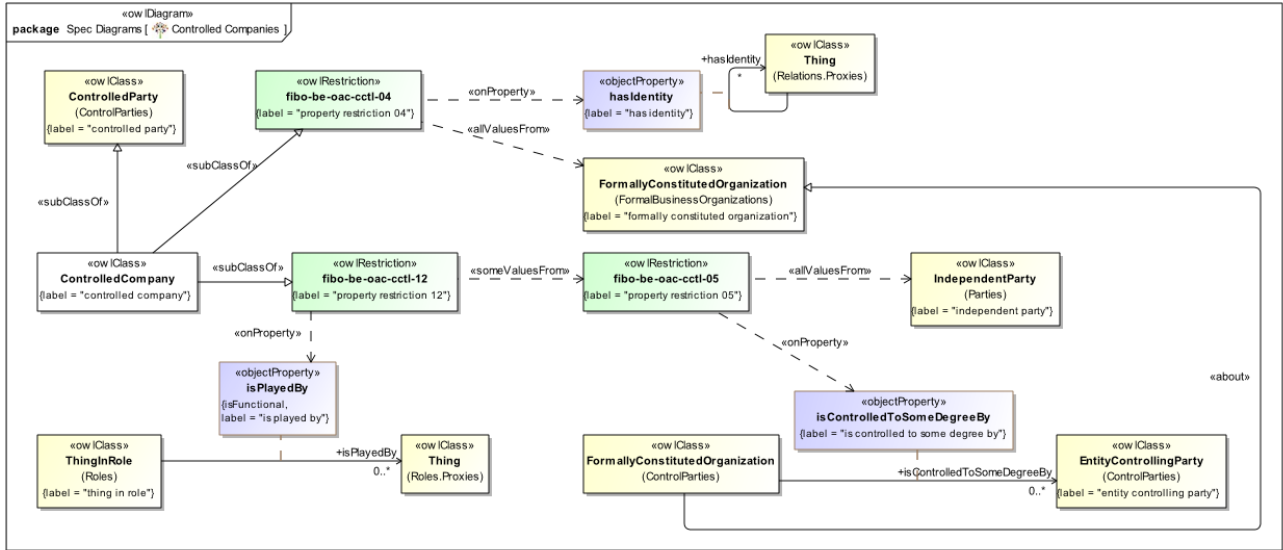


Figure 9.55 - Controlled Companies

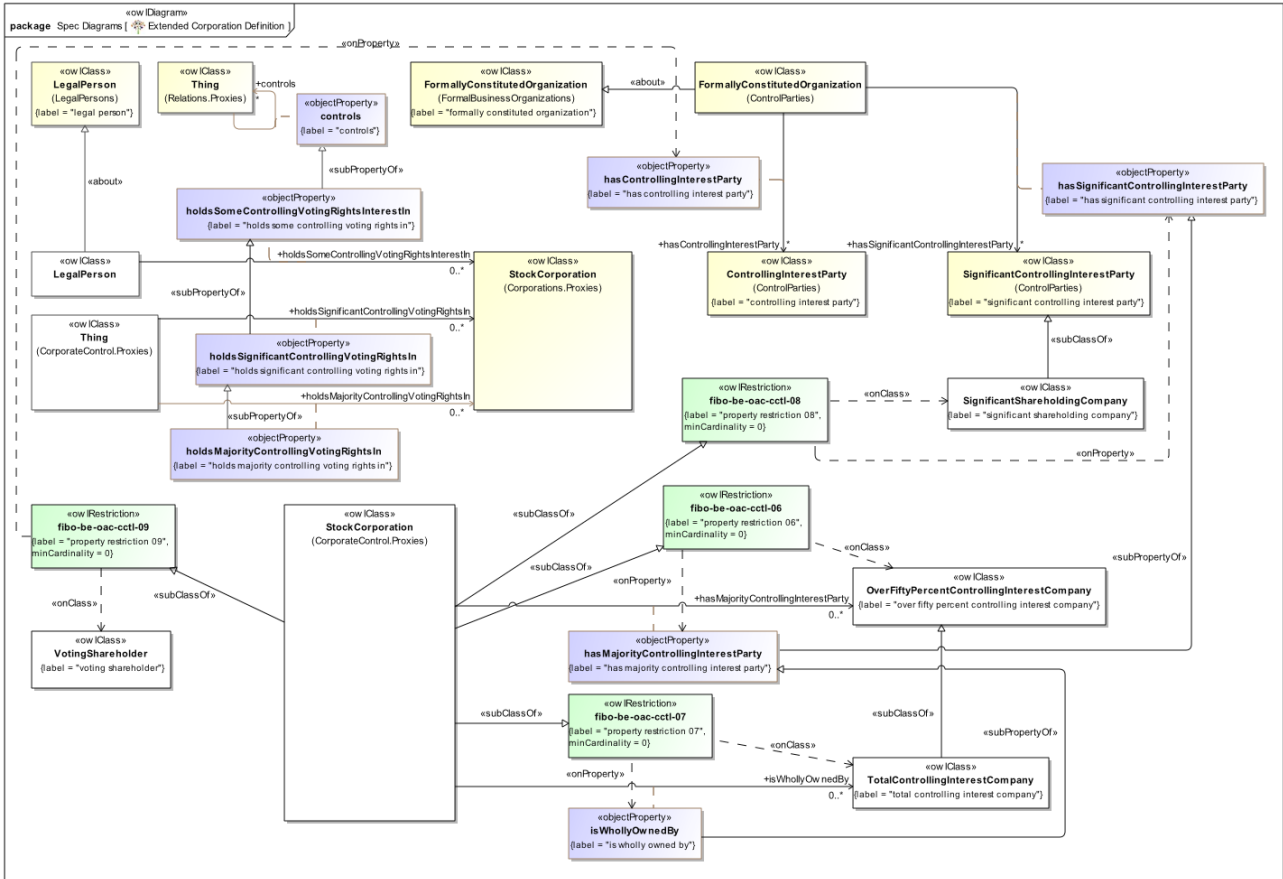


Figure 9.56 - Extended Corporation Definition

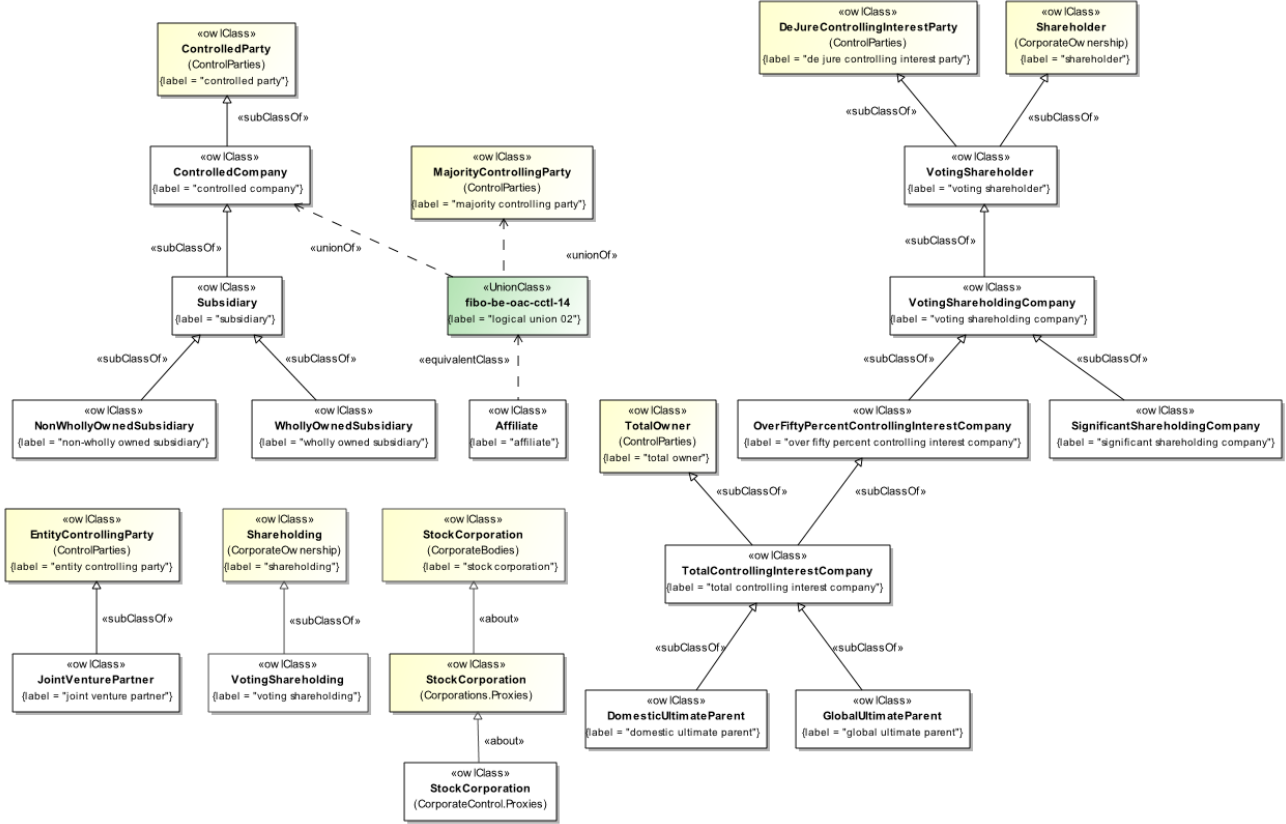


Figure 9.57 - Corporate Control Class Hierarchy

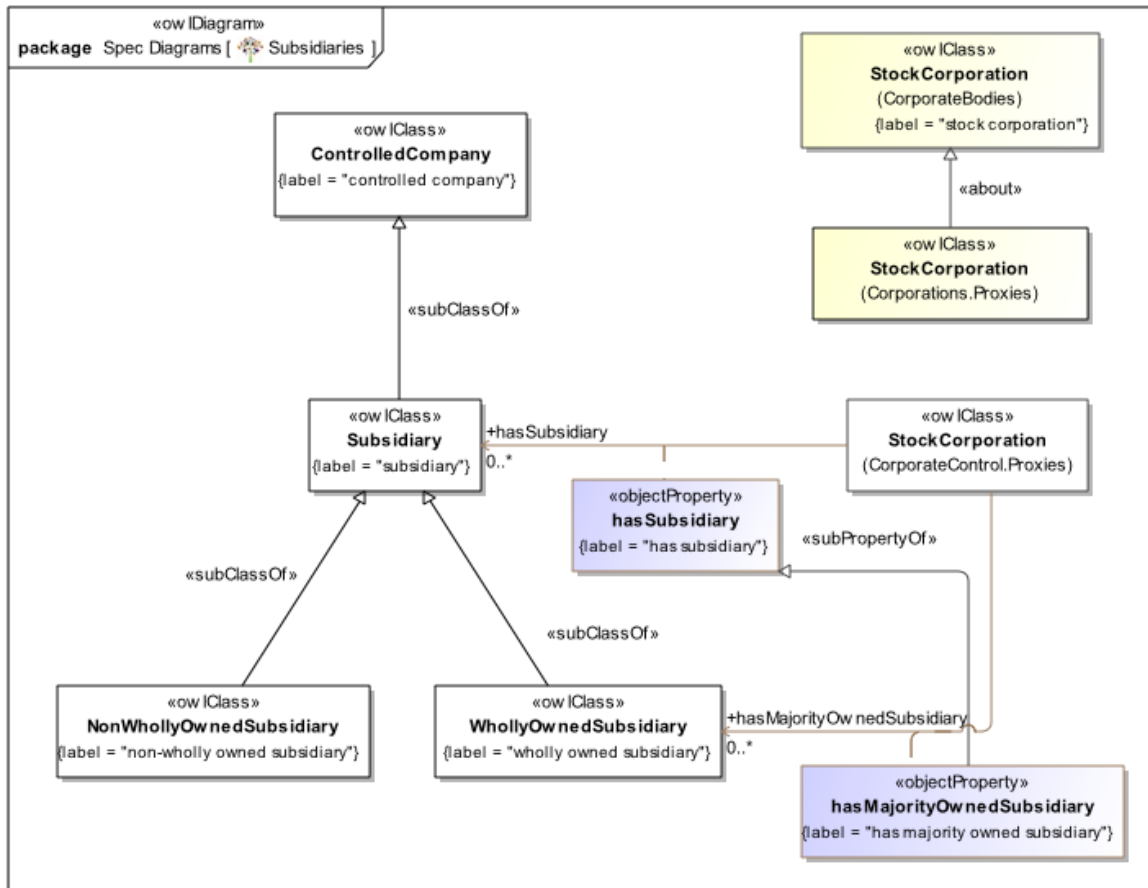


Figure 9.58 - Subsidiaries

Table 9.27 - Corporate Control Concepts

Classes

Name	Annotations	Class Expressions
Affiliate (affiliate)	<u>Definition</u> : an affiliate of, or a person affiliated with, a specific person is a person that directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, the person specified	<u>Class Axiom</u> : (MajorityControllingParty ControlledCompany) (fibo-be-oac-cctl-14)
ControlledCompany (controlled company)	<u>Definition</u> : a company over which another organization has some degree of control by way of ownership of voting shares	<u>Parent Class</u> : ControlledParty_ <u>Property Restriction</u> : hasIdentity. FormallyConstitutedOrganization (fibo-be-oac-cctl-04) <u>Property Restriction</u> : isPlayedBy (isControlledToSomeDegreeBy. IndependentParty) (fibo-be-oac-cctl-05)
DomesticUltimateParent (domestic ultimate parent)	<u>Definition</u> : an organization that is recognized as the ultimate parent of a given company within the country or jurisdiction of incorporation; this relationship may or may not be present, i.e., in the case of a company that has no parent	<u>Parent Class</u> : TotalControllingInterestCompany
GlobalUltimateParent (global ultimate parent)	<u>Definition</u> : an organization that is recognized as the ultimate parent of the company; this relationship may or may not be present, i.e., in the case of a company that has no parent	<u>Parent Class</u> : TotalControllingInterestCompany
JointVenturePartner (joint venture partner)	<u>Definition</u> : a party in the role of joint venture partner to some venture	<u>Parent Class</u> : EntityControllingParty
NonWhollyOwned Subsidiary (non-wholly owned subsidiary)	<u>Definition</u> : a subsidiary which is not a wholly owned subsidiary	<u>Parent Class</u> : Subsidiary
OverFiftyPercent ControllingInterest Company (over fifty percent controlling interest company)		<u>Parent Class</u> : VotingShareholdingCompany
SignificantShareholding Company (significant shareholding company)	<u>Definition</u> : a company that owns a significant voting stake in another company	<u>Parent Class</u> : SignificantControllingInterestParty <u>Parent Class</u> : VotingShareholdingCompany

Name	Annotations	Class Expressions
StockCorporation (<i>extends StockCorporation from Corporate Bodies</i>)	<u>Explanatory note</u> : The restrictions defined herein extend the definition of stock corporation to link it to external entities that hold shares in it.	<p>Property Restriction: ≥ 0 hasControllingInterestParty.VotingShareholder (fibo-be-oac-cctl-09)</p> <p>Property Restriction: ≥ 0 hasSignificantControllingInterestParty.SignificantShareholdingCompany (fibo-be-oac-cctl-08)</p> <p>Property Restriction: ≥ 0 hasMajorityControllingInterestParty.OverFiftyPercentControllingInterestCompany (fibo-be-oac-cctl-06)</p> <p>Property Restriction: ≥ 0 isWhollyOwnedBy.TotalControllingInterestCompany (fibo-be-oac-cctl-07)</p>
Subsidiary (subsidiary)		<u>Parent Class</u> : ControlledCompany
TotalControllingInterestCompany (total controlling interest company, parent company)	<u>Definition</u> : an organization having 100 percent ownership one or more organizations it holds voting shares in <u>Explanatory note</u> : By virtue of holding 100 percent of the share ownership, the total controlling interest company also holds 100 percent of the controlling equity, if there is a difference. Therefore, it is both a total owner and a total controlling party.	<u>Parent Class</u> : TotalOwner <u>Parent Class</u> : OverFiftyPercentControllingInterestCompany
VotingShareholder (voting shareholder)	<u>Definition</u> : a party owning voting shares in some company limited by the issue of shares	<u>Parent Class</u> : Shareholder <u>Parent Class</u> : DeJureControllingInterestParty <u>Property Restriction</u> : isplayedBy (holdsSomeMeansOf.EquityBasedDeJureControl) (fibo-be-oac-cctl-03, fibo-be-oac-cctl-10)
VotingShareholding (voting shareholding)	<u>Definition</u> : a holding of some voting share	<u>Parent Class</u> : Shareholding <u>Property Restriction</u> : isEquityHeldBy.VotingShareholder (fibo-be-oac-cctl-01)
VotingShareholdingCompany (voting shareholding company)	<u>Definition</u> : a formal business organization that holds voting shares in some incorporated company	<u>Parent Class</u> : VotingShareholder <u>Property Restriction</u> : hasIdentity.FormallyConstitutedOrganization (fibo-be-oac-cctl-02)
WhollyOwnedSubsidiary (wholly owned subsidiary)		<u>Parent Class</u> : Subsidiary

Properties

Name	Annotations	Property Axioms
hasAffiliate (has affiliate)	<u>Definition</u> : has a party which directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with the company	<u>Parent Property</u> : hasControllingInterestParty <u>Domain</u> : StockCorporation <u>Range</u> : Affiliate
hasDomesticUltimateParent (has domestic ultimate parent)	<u>Definition</u> : relates an organization to another recognized as its ultimate parent, within its country or jurisdiction of incorporation, if it has one <u>Adapted from</u> : consensus definition of ultimate parent, with the split between domestic and global parent	<u>Parent Property</u> : hasMajorityControllingParty <u>Domain</u> : StockCorporation <u>Range</u> : DomesticUltimateParent
hasGlobalUltimateParent (has global ultimate parent)	<u>Definition</u> : relates an organization to another recognized as its ultimate parent, if it has one <u>Adapted from</u> : consensus definition of ultimate parent, with the split between domestic and global parent	<u>Parent Property</u> : hasMajorityControllingParty <u>Domain</u> : StockCorporation <u>Range</u> : GlobalUltimateParent
hasMajorityControllingInterestParty (has majority controlling interest party)	<u>Definition</u> : relates a company to an organization that has a majority ownership and control over it, i.e., its parent organization, if there is one	<u>Parent Property</u> : hasSignificantControllingInterestParty <u>Domain</u> : StockCorporation <u>Range</u> : OverFiftyPercentControllingInterestCompany
hasMajorityOwnedSubsidiary (has majority owned subsidiary)	<u>Definition</u> : relates a company to one of its majority-owned subsidiaries, i.e., a subsidiary of which it owns more than 50 percent (50 percent plus one share) of the outstanding shares	<u>Parent Property</u> : hasSubsidiary <u>Domain</u> : StockCorporation <u>Range</u> : WhollyOwnedSubsidiary
hasSubsidiary (has subsidiary)	<u>Definition</u> : relates a company to one of its subsidiaries, that is an affiliate controlled by the company directly, or indirectly through one or more intermediaries	<u>Domain</u> : StockCorporation <u>Range</u> : Subsidiary
holdsMajorityControllingVotingRightsIn (holds majority controlling voting rights in)	<u>Definition</u> : relates a legal person to a company in which the party holds fifty percent or more of the controlling voting rights	<u>Parent Property</u> : holdsSignificantControllingVotingRightsIn <u>Range</u> : StockCorporation
holdsSignificantControllingVotingRightsIn (holds significant controlling voting rights in)	<u>Definition</u> : relates a legal person to a company in which the party holds a significant proportion of the controlling voting rights	<u>Parent Property</u> : holdsSomeControllingVotingRightsIn <u>Range</u> : StockCorporation

Name	Annotations	Property Axioms
holdsSomeControllingVotingRightsIn (holds some controlling voting rights in)	<u>Definition</u> : relates a legal person to a company in which that party holds some controlling voting rights	<u>Parent Property</u> : controls <u>Domain</u> : LegalPerson <u>Range</u> : StockCorporation
isWhollyOwnedBy (is wholly owned by)	<u>Definition</u> : relates a company to an organization that has 100 percent ownership and control over it	<u>Parent Property</u> : hasMajorityControllingInterestParty <u>Domain</u> : StockCorporation <u>Range</u> : TotalControllingInterestCompany

9.6.5 Ontology: Executives

This ontology defines concepts relating to executives and their formal capacities. The concepts defined in this ontology cover types of corporate officers, board members and the like, along with the capacities in terms of which those party roles are defined, and the kinds of entity (principally natural persons) that are able to perform in those roles.

Table 9.28 - Executives Ontology Metadata

Metadata Term	Value
sm:filename	Executives
sm:fileAbbreviation	fibonacci-be-oac-exec
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/Executives/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20150201/OwnershipAndControl/Executives/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/ControlParties/ http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/CorporateControl/ http://www.omg.org/spec/EDMC-FIBO/BE/Corporations/Corporations/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/CorporateBodies/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

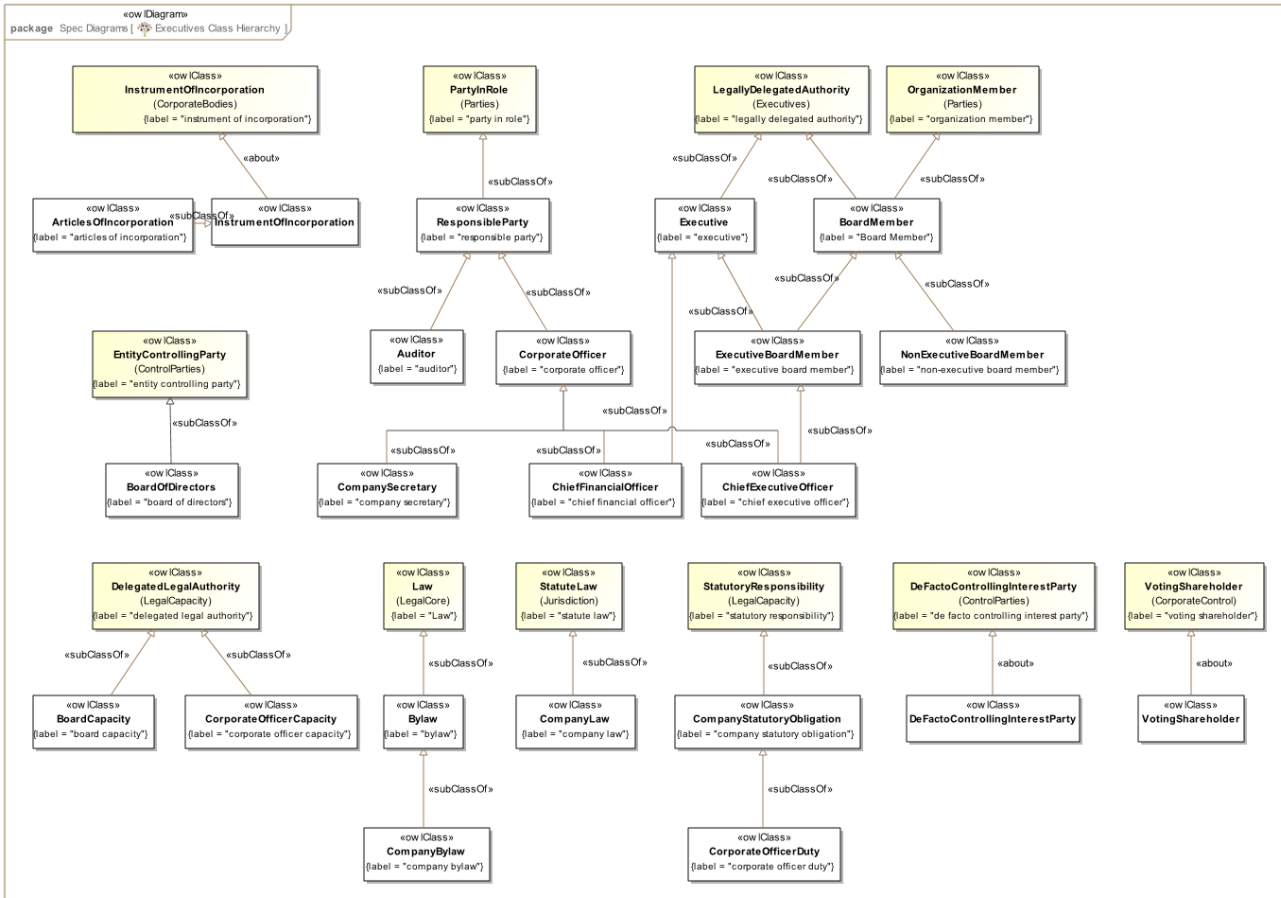


Figure 9.59 - Executives Class Hierarchy

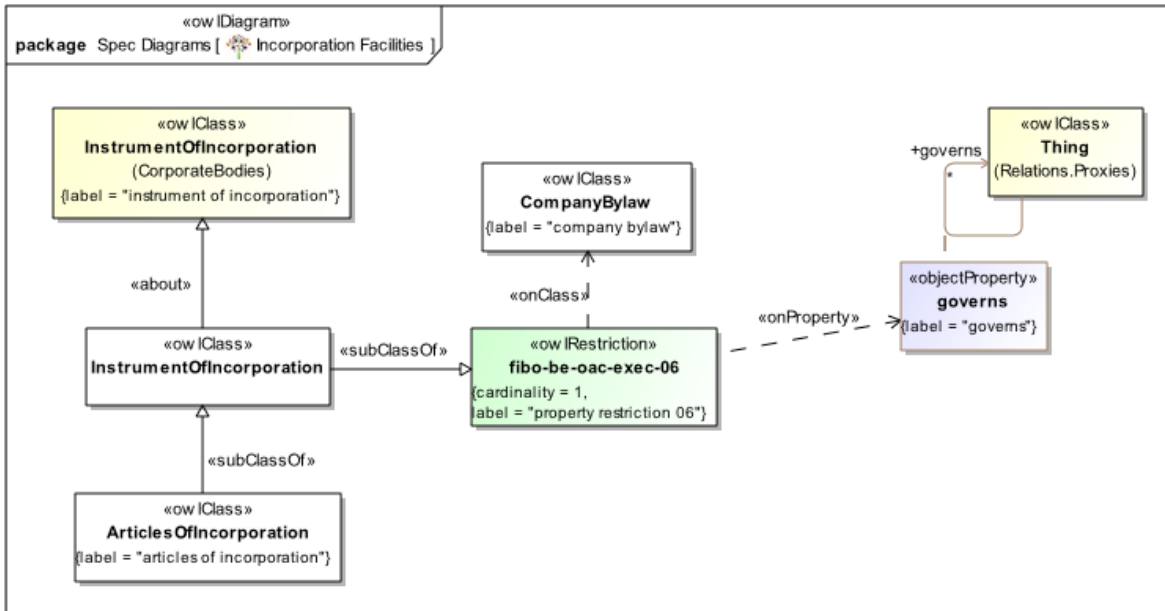


Figure 9.60 - Incorporation Facilities

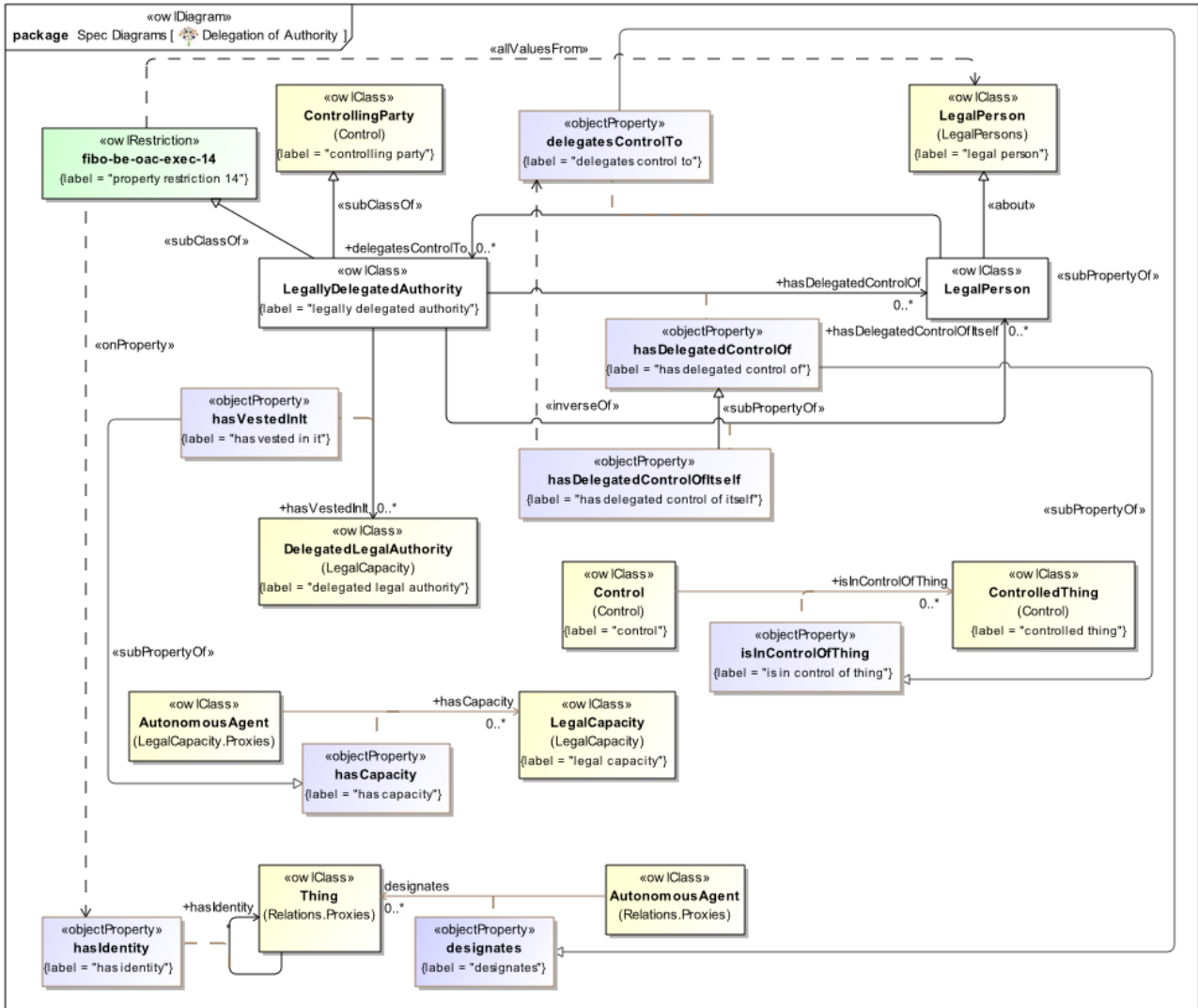


Figure 9.61 - Delegation of Authority

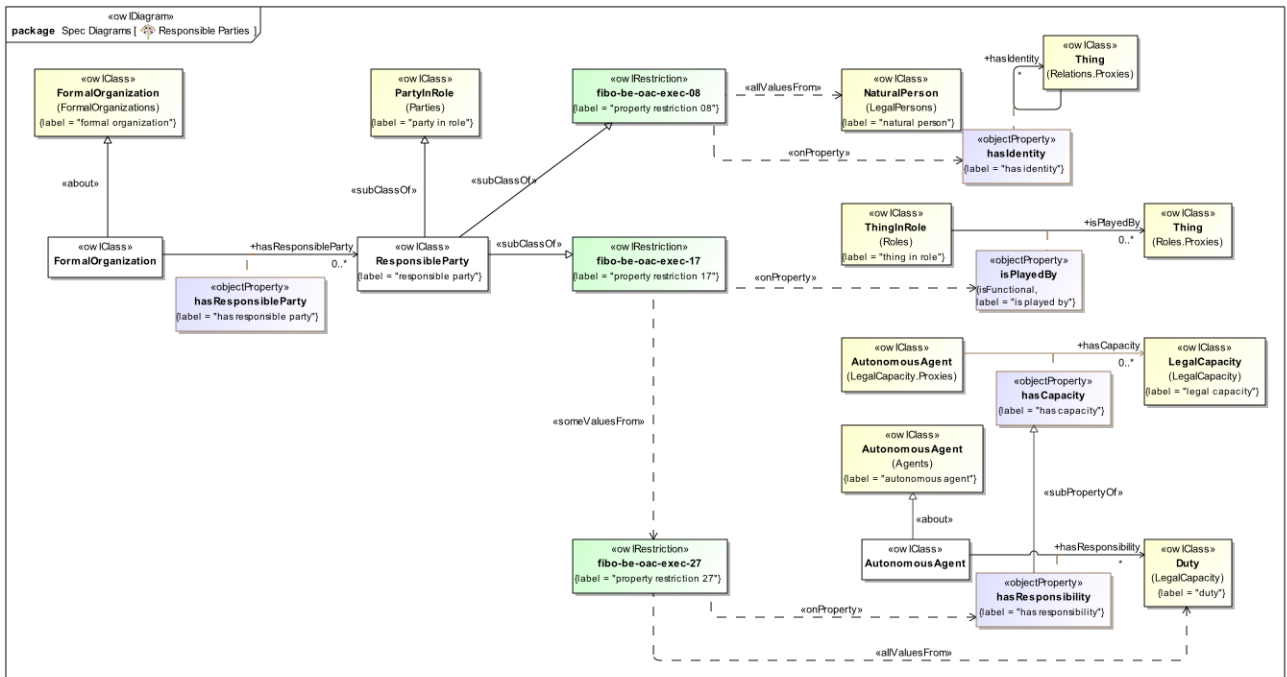


Figure 9.62 - Responsible Parties

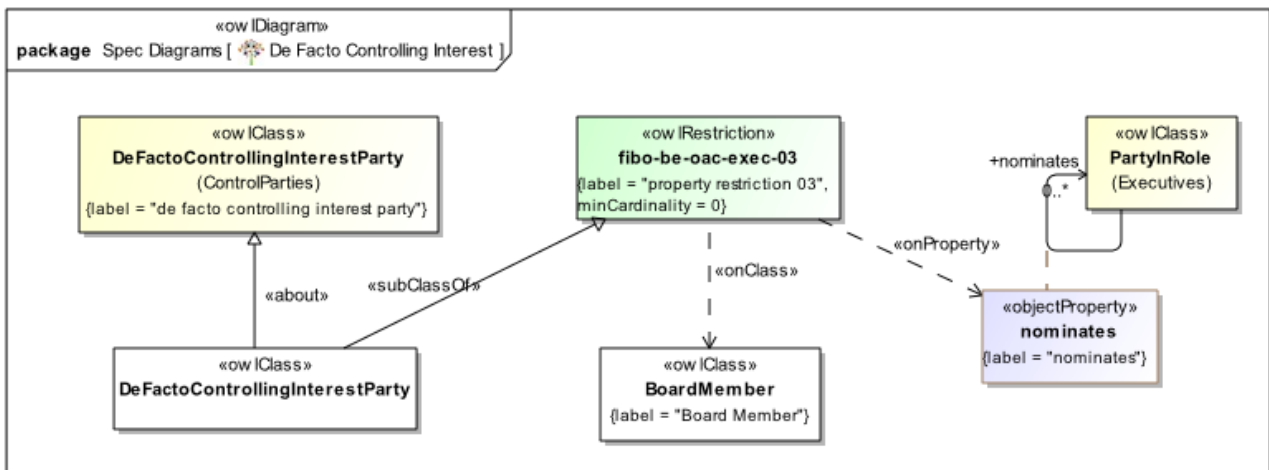


Figure 9.63 - De Facto Controlling Interest

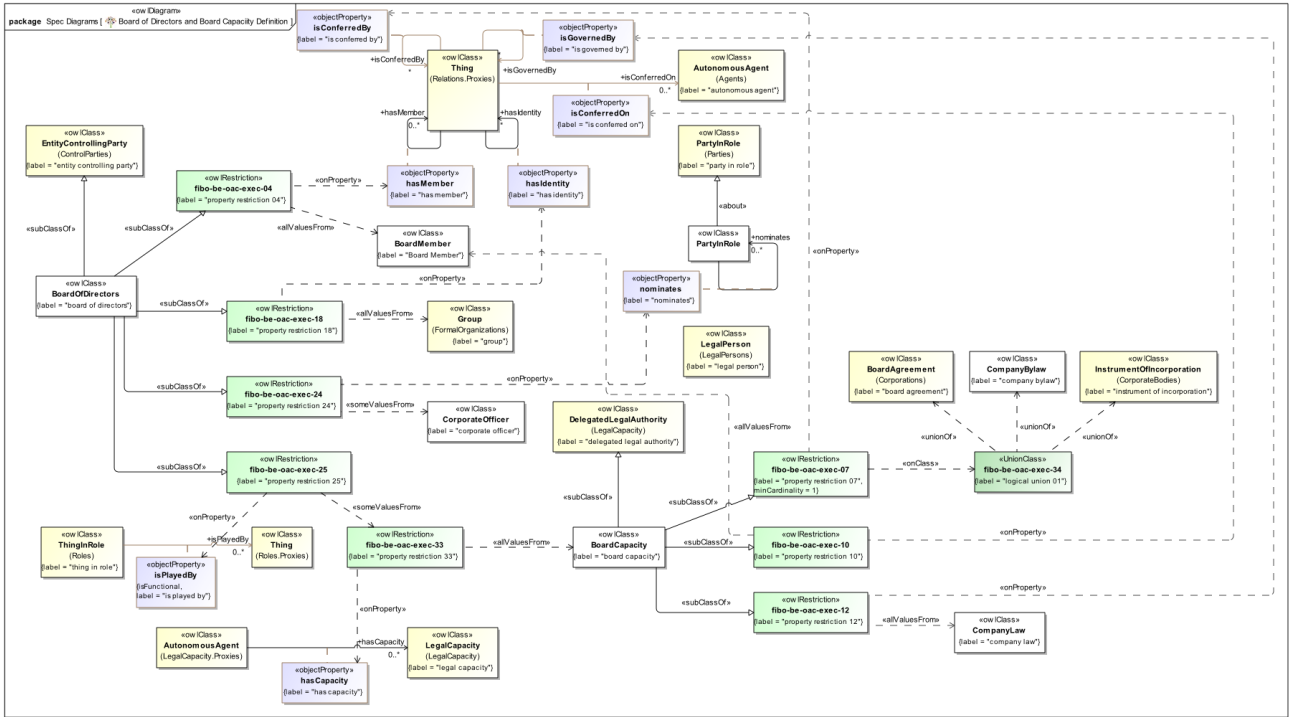


Figure 9.64 - Board of Directors and Board Capacity Definition

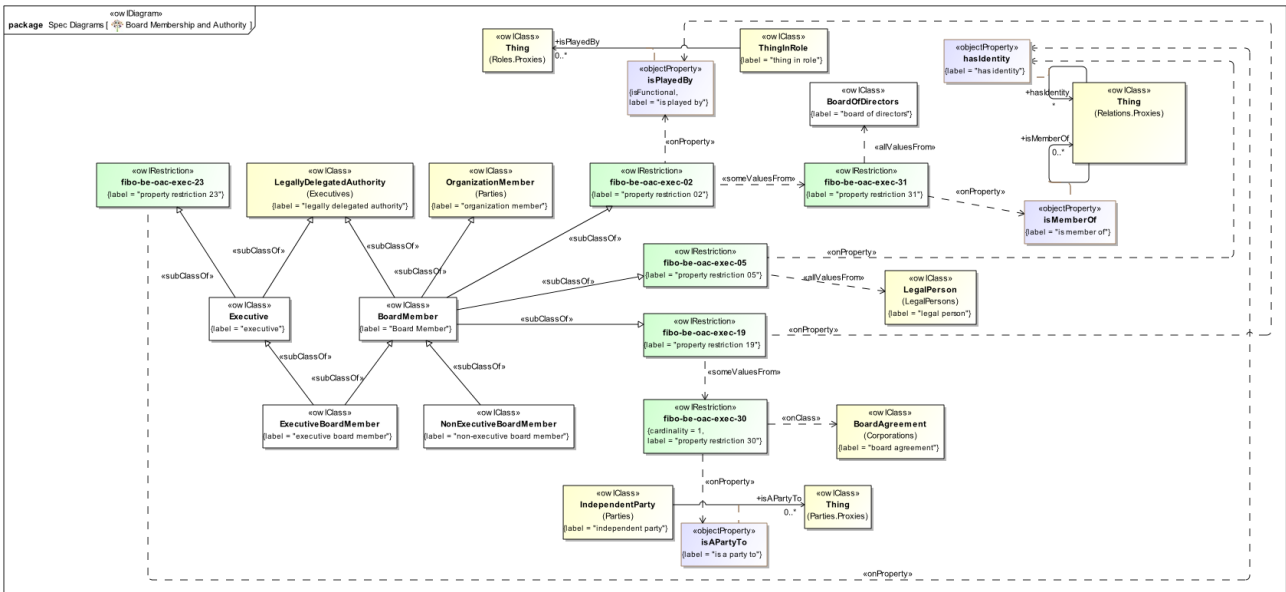


Figure 9.65 - Board Membership and Authority

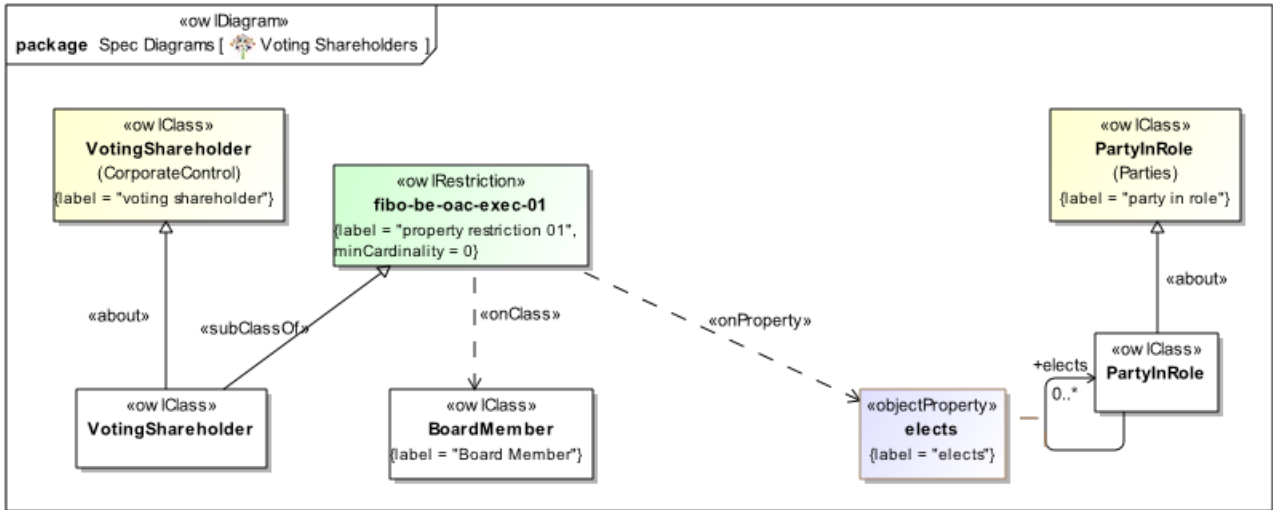


Figure 9.66 - Voting Shareholders

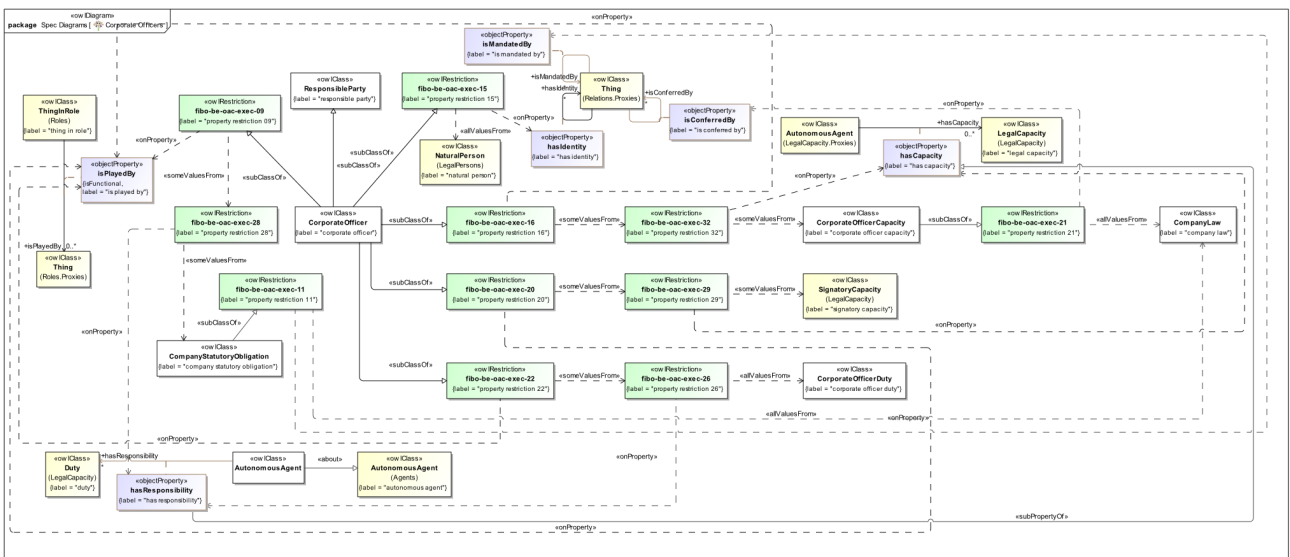


Figure 9.67 - Corporate Officers

Table 9.29 - Executives Concepts

Classes

Name	Annotations	Class Expressions
DeFactoControllingInterestParty (<i>extended definition of DeFactoControllingInterestParty from ControlParties</i>)	<u>Explanatory note:</u> a control owner (i.e., control person, per SEC regulations) may have some means or right that allows them to exercise control over board composition, other than through proxy assignment or vote. Not all control persons have this facility, as it is not inherent to having a significant (for example, 20 percent or more) ownership stake.	<u>Property Restriction:</u> ≥ 0 nominates.BoardMember (fibo-be-oac-exec-03)
VotingShareholder (<i>extended definition of VotingShareholder from Corporate Control</i>)	<u>Explanatory note:</u> A voting shareholder may exercise control over board composition by (1) attending a shareholder meeting and voting directly, (2) assigning a proxy to vote on their behalf, either as specified in the recommendations made in the proxy card or as indicated in a manner that deviates from those recommendations but is detailed on the proxy card, (3) by rejection of the proxy, either implicitly or explicitly, or (4) through a direct ballot that they create themselves.	<u>Property Restriction:</u> ≥ 0 elects.BoardMember (fibo-be-oac-exec-01)
ArticlesOfIncorporation (articles of incorporation, articles of association)	<u>Definition:</u> The articles of association are a contract (1) between the members (stockholders, subscribers) and the organization and (2) among the members themselves. It sets out the rights and duties of directors and stockholders individually and in meetings. Certain statutory clauses (such as those dealing with allotment, transfer, and forfeiture of shares) must be included; the other clauses are chosen by the stockholders to make up the bylaws of the organization. A court, however, may declare a clause ultra vires if it is deemed unfair, unlawful, or unreasonable. A copy of the articles is lodged with the appropriate authority such as the registrar of companies. Articles are public documents and may be inspected by anyone (usually on payment of a fee) either at the premises of the organization or at the registrar's office. Lenders to the organization take special interest in its provisions that impose a ceiling on the borrowings beyond which the organization's management must get shareholders' approval before taking on more debt. The usual American term is articles of incorporation. <u>Definition origin:</u> http://www.businessdictionary.com/definition/articles-of-association.html	<u>Parent Class:</u> InstrumentOfIncorporation

Name	Annotations	Class Expressions
Auditor (auditor)	<p><u>Definition</u>: an individual qualified (at the state level) to conduct audits. An auditor may be an internal auditor (an individual whose primary job function is to audit his or her own company) or an external auditor (an individual from outside the company, who typically is employed by an auditing firm who handles many different clients).</p> <p><u>Definition origin</u>: http://www.investorwords.com/326/auditor.html</p>	<p><u>Parent Class</u>: ResponsibleParty</p>
BoardCapacity (board capacity)	<p><u>Definition</u>: the capacity that resides in the board of directors of a company</p>	<p><u>Parent Class</u>: DelegatedLegalAuthority</p> <p><u>Property Restriction</u>: isConferredOn.BoardMember (fibo-be-oac-exec-10)</p> <p><u>Property Restriction</u>: ≥ 1 isConferredBy (InstrumentOfIncorporation CompanyBylaw BoardAgreement) (fibo-be-oac-exec-07, fibo-be-oac-exec-34)</p> <p><u>Property Restriction</u>: isGovernedBy.CompanyLaw (fibo-be-oac-exec-12)</p>
BoardMember (Board Member)	<p><u>Definition</u>: a person who is a member of the board of directors of a corporation</p>	<p><u>Parent Class</u>: OrganizationMember</p> <p><u>Parent Class</u>: LegallyDelegatedAuthority</p> <p><u>Property Restriction</u>: hasIdentity.LegalPerson (fibo-be-oac-exec-05)</p> <p><u>Property Restriction</u>: isPlayedBy (isMemberOf. BoardOfDirectors) (fibo-be-oac-exec-02, fibo-be-oac-exec-31)</p> <p><u>Property Restriction</u>: isPlayedBy (= 1 isAPartyTo. BoardAgreement) (fibo-be-oac-exec-19, fibo-be-oac-exec-30)</p>

Name	Annotations	Class Expressions
BoardOfDirectors (board of directors)	<p><u>Definition:</u> Governing body (called the board) of an incorporated firm. Its members (directors) are elected normally by the subscribers (stockholders) of the firm (generally at an annual general meeting or AGM) to govern the firm and look after the subscribers' interests. The board has the ultimate decision-making authority and, in general, is empowered to (1) set the company's policy, objectives, and overall direction, (2) adopt bylaws, (3) name members of the advisory, executive, finance, and other committees, (4) hire, monitor, evaluate, and fire the managing director and senior executives, (5) determine and pay the dividend, and (6) issue additional shares. Though all its members might not be engaged in the company's day-to-day operations, the entire board is held liable (under the doctrine of collective responsibility) for the consequences of the firm's policies, actions, and failures to act. Members of the board usually include senior-most executives (called inside directors or executive directors) as well as experts or respected persons chosen from the wider community (called outside directors or non-executive directors).</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/board-of-directors.html</p>	<p><u>Parent Class:</u> EntityControllingParty</p> <p><u>Property Restriction:</u> hasMember.BoardMember (fibo-be-oac-exec-04)</p> <p><u>Property Restriction:</u> hasIdentity.Group (fibo-be-oac-exec-18)</p> <p><u>Property Restriction:</u> isPlayedBy (hasCapacity.BoardCapacity) (fibo-be-oac-exec-33)</p> <p><u>Property Restriction:</u> nominates.CorporateOfficer (fibo-be-oac-exec-24)</p>
Bylaw (bylaw, byelaws, delegated legislation)	<p><u>Definition:</u> Corporate bylaws are typically called Articles of Association in the United Kingdom, or Articles of Incorporation in the United States. In government usage, the term bylaws is used to describe laws, orders, regulations, rules, etc., made by a ministry, local authority (a municipality, for example), or public corporation, in accordance with the powers conferred by or delegated under a statute (called the parent act).</p> <p><u>Adapted from:</u> http://www.businessdictionary.com/definition/bylaw.html</p>	<p><u>Parent Class:</u> Law</p>
ChiefExecutive Officer (chief executive officer, CEO)	<p><u>Definition:</u> Top executive responsible for a firm's overall operations and performance. He or she is the leader of the firm, serves as the main link between the board of directors (the board) and the firm's various parts or levels, and is held solely responsible for the firm's success or failure. One of the major duties of a CEO is to maintain and implement corporate policy, as established by the board. Also called President or managing director, he or she may also be the chairman (or chairperson) of the board.</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/chief-executive-officer-CEO.html</p>	<p><u>Parent Class:</u> CorporateOfficer</p> <p><u>Parent Class:</u> ExecutiveBoardMember</p>

Name	Annotations	Class Expressions
ChiefFinancial Officer (chief financial officer, CFO)	<p><u>Definition:</u> Senior-most executive responsible for financial control and planning of a firm or project. He or she is in charge of all accounting functions including (1) credit control, (2) preparing budgets and financial statements, (3) coordinating financing and fund raising, (4) monitoring expenditure and liquidity, (5) managing investment and taxation issues, (6) reporting financial performance to the board, and (7) providing timely financial data to the CEO. Also called chief finance officer, comptroller, controller, or finance controller.</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/chief-financial-officer-CFO.html</p>	<p><u>Parent Class:</u> CorporateOfficer</p> <p><u>Parent Class:</u> Executive</p>
CompanyBylaw (company bylaw, corporate bylaw)	<p><u>Definition:</u> The official rules and regulations which govern a corporation's management. Drawn up at the time of incorporation, along with the charter.</p> <p><u>Definition origin:</u> http://www.investorwords.com/660/bylaws.html</p>	<p><u>Parent Class:</u> Bylaw</p>
CompanyLaw (company law, corporate law)	<p><u>Definition:</u> Legislation under which the formation, registration or incorporation, governance, and dissolution of a firm is administered and controlled..</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/company-law.html</p>	<p><u>Parent Class:</u> StatuteLaw</p>
CompanySecretary (company secretary, corporate secretary)	<p><u>Definition:</u> Officer appointed by the directors of a firm as responsible for ensuring that firm's legal obligations under the corporate legislation are complied with. His or her formal duties include (1) calling meetings, (2) recording minutes of the meetings, (3) keeping statutory record books, (4) proper payment of dividend and interest payments, and (5) proper drafting and execution of agreements, contracts, and resolutions. A company secretary is not automatically an employee of the firm and, if employed with executive responsibilities, not be its director shareholder. If a firm has only two directors, one may act as its secretary; but a sole director may not. A firm (such as of accountants) may not act as a company secretary for any firm. Called corporate secretary in the US.</p> <p><u>Definition origin:</u> http://www.businessdictionary.com/definition/company-secretary.html</p>	<p><u>Parent Class:</u> CorporateOfficer</p>

Name	Annotations	Class Expressions
CompanyStatutory Obligation (company statutory obligation)	<u>Definition</u> : an obligation defined in company law (statute)	<u>Parent Class</u> : StatutoryResponsibility <u>Property Restriction</u> : isMandatedBy.CompanyLaw (fibo-be-oac-exec-11)
CorporateOfficer (corporate officer)	<u>Definition</u> : The executives of a corporation charged with certain operational responsibilities. Typically appointed by the board of directors, the corporate officers usually include the Chief Executive Officer (CEO), Chief Financial Officer (CFO), President, and in some corporations the Chief Operating Officer. <u>Definition origin</u> : http://www.investorwords.com/15091/corporate_officers.html	<u>Parent Class</u> : ResponsibleParty <u>Property Restriction</u> : hasIdentity.NaturalPerson (fibo-be-oac-exec-15) <u>Property Restriction</u> : isPlayedBy (hasResponsibility.CorporateOfficerDuty) (fibo-be-oac-exec-22, (fibo-be-oac-exec-26) <u>Property Restriction</u> : isPlayedBy (hasResponsibility.CompanyStatutoryObligation) (fibo-be-oac-exec-09, fibo-be-oac-exec-28) <u>Property Restriction</u> : isPlayedBy (hasCapacity.CorporateOfficerCapacity) (fibo-be-oac-exec-16, fibo-be-oac-exec-32) <u>Property Restriction</u> : isPlayedBy (hasCapacity.SignatoryCapacity) (fibo-be-oac-exec-20, fibo-be-oac-exec-29)
CorporateOfficer Capacity (corporate officer capacity)	<u>Definition</u> : the capacity vested in a public officer of a company <u>Scope note</u> : Originally framed with reference to incorporated company, this term and its related terms have been re-framed as applying to any Body Corporate. May be specialized for Incorporated Companies and other Bodies Corporate at some future point.	<u>Parent Class</u> : DelegatedLegalAuthority <u>Property Restriction</u> : isConferredBy.CompanyLaw (fibo-be-oac-exec-21)
CorporateOfficer Duty (corporate officer duty)	<u>Definition</u> : some duty incumbent upon some officer of a company	<u>Parent Class</u> : CompanyStatutoryObligation
Executive (executive)	<u>Definition</u> : person appointed and given the responsibility to manage the affairs of an organization and the authority to make decisions within specified boundaries <u>Definition origin</u> : http://www.businessdictionary.com/definition/executive.html	<u>Parent Class</u> : LegallyDelegatedAuthority <u>Property Restriction</u> : hasIdentity.NaturalPerson (fibo-be-oac-exec-23)
ExecutiveBoard Member (executive board member, inside director)	<u>Definition</u> : An individual performing the role of a board member of a company who also has executive responsibilities in the company.	<u>Parent Class</u> : Executive <u>Parent Class</u> : BoardMember

Name	Annotations	Class Expressions
InstrumentOf Incorporation (<i>extends the definition of InstrumentOf Incorporation from Corporate Bodies</i>)	<u>Explanatory note</u> : extends the definition of an instrument of incorporation to constrain corporate bylaws	<u>Property Restriction</u> : = 1 governs.CompanyBylaw (fibo-be-oac-exec-06)
LegallyDelegated Authority (legally delegated authority)	<u>Definition</u> : a party having some legal control of some entity	<u>Parent Class</u> : ControllingParty <u>Property Restriction</u> : hasIdentity.LegalPerson (fibo-be-oac-exec-14)
NonExecutiveBoard Member (non-executive board member, outside director)	<u>Definition</u> : Some person performing the role of a Board Member of a company, and having no executive responsibilities towards the running of the company.	<u>Parent Class</u> : BoardMember
ResponsibleParty (responsible party)	<u>Definition</u> : a party to which some responsibility has been given	<u>Parent Class</u> : PartyInRole <u>Property Restriction</u> : hasIdentity.NaturalPerson (fibo-be-oac-exec-08) <u>Property Restriction</u> : isPlayedBy (hasResponsibility.Duty) (fibo-be-oac-exec-17)

Properties

Name	Annotations	Property Axioms
delegatesControlTo (delegates control to)	<u>Definition</u> : indicates a party to which this legal person has delegated some authority or control <u>Adapted from</u> : consensus definition of ultimate parent, with the split between domestic and global parent	<u>Parent Property</u> : designates <u>Domain</u> : LegalPerson <u>Range</u> : LegallyDelegatedAuthority
elects (elects)	<u>Definition</u> : chooses someone to hold office or some other position by voting <u>Example</u> : the election of officers of an association, the election of directors by the shareholders <u>Adapted from</u> : http://www.businessdictionary.com/definition/elect.html <u>Adapted from</u> : http://www.investorwords.com/9558/election.html	<u>Domain</u> : PartyInRole <u>Range</u> : PartyInRole
hasDelegatedControlOf (has delegated control of)	<u>Definition</u> : indicates a legal person that has delegated some authority or control to this party	<u>Parent Property</u> : isInControlOfThing <u>Domain</u> : LegallyDelegatedAuthority <u>Range</u> : LegalPerson

Name	Annotations	Property Axioms
hasDelegatedControlOfItself (has delegated control of itself)	<u>Definition</u> : indicates a legal person that has delegated some authority or control to this party, and as a result this party therefore has control over itself	<u>Parent Property</u> : hasDelegatedControlOf <u>Domain</u> : LegallyDelegatedAuthority <u>Range</u> : LegalPerson <u>Property Axiom</u> : inverse of delegatesControlTo
hasResponsibleParty (has responsible party)	<u>Definition</u> : some party that has some defined responsibility with respect to the formal organization	<u>Parent Property</u> : hasPartyInRole <u>Domain</u> : FormalOrganization <u>Range</u> : ResponsibleParty
hasResponsibility (has responsibility)	<u>Definition</u> : identifies a particular burden of obligation upon one who is responsible <u>Adapted from</u> : http://dictionary.reference.com/browse/responsibility	<u>Parent Property</u> : hasCapacity <u>Domain</u> : AutonomousAgent <u>Range</u> : Duty
hasVestedInIt (has vested in it)	<u>Definition</u> : indicates the delegated legal authority that is vested in the controlling party	<u>Parent Property</u> : hasCapacity <u>Domain</u> : LegallyDelegatedAuthority <u>Range</u> : DelegatedLegalAuthority
nominates (nominates)	<u>Definition</u> : appoints or proposes for appointment to an office or place <u>Explanatory note</u> : Note that nominates is defined as a relation between two parties-in-role (the range of which could be a corporation or partnership in the case of an auditor), whereas appoints between independent parties. <u>Definition origin</u> : http://www.merriam-webster.com/dictionary/nominate	<u>Domain</u> : PartyInRole <u>Range</u> : PartyInRole

9.7 Module: Functionally Defined Business Entities

Table 9.30 - Functionally Defined Business Entities Module Metadata

Metadata Term	Value
sm:moduleName	Functional Entities
sm:moduleAbbreviation	FIBO-BE-FCT
sm:moduleVersion	1.0
sm:moduleAbstract	This module includes ontologies describing entities which are defined according to their function, as opposed to their form. These include special purpose vehicles, banks, business versus non-profit etc., as well as entities described in terms of their function in some process, such as clearing houses, settlement entities and the like.

9.7.1 Ontology: Functional Entities

This ontology defines the fundamental concepts for entities defined by their function, such as the relationship to the various forms which one or another functionally-defined entity may take. It also includes a number of basic types of entity defined by function, such as business and non-profit. The concepts in this ontology are intended to be extensible in other ontologies which may be dedicated to specific kinds of functionally-defined business entity or organization.

Table 9.31 - Functional Entities Ontology Metadata

Metadata Term	Value
sm:filename	FunctionalEntities
sm:fileAbbreviation	fibonacci-be-fct-fct
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/FunctionalEntities/FunctionalEntities/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160801/FunctionalEntities/FunctionalEntities/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/Corporations/Corporations/

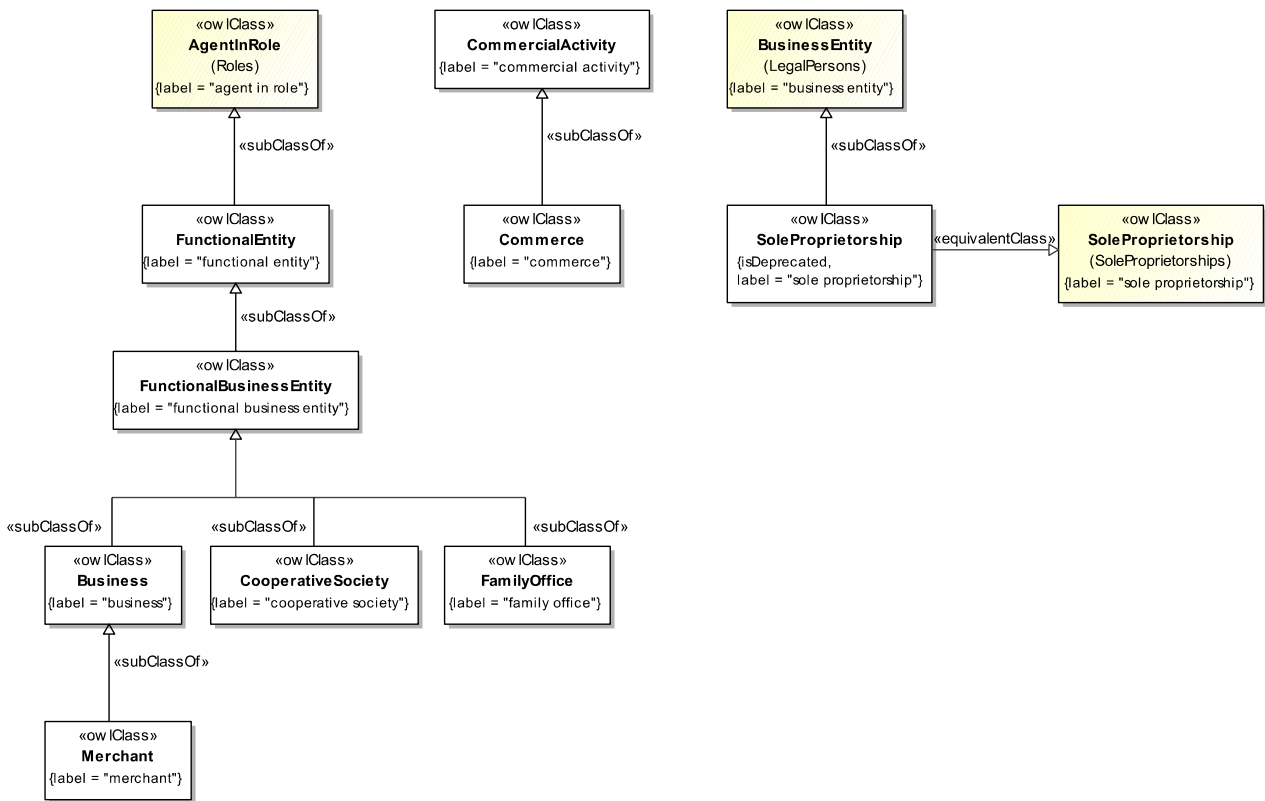


Figure 9.68 - Functional Entities Class Hierarchy

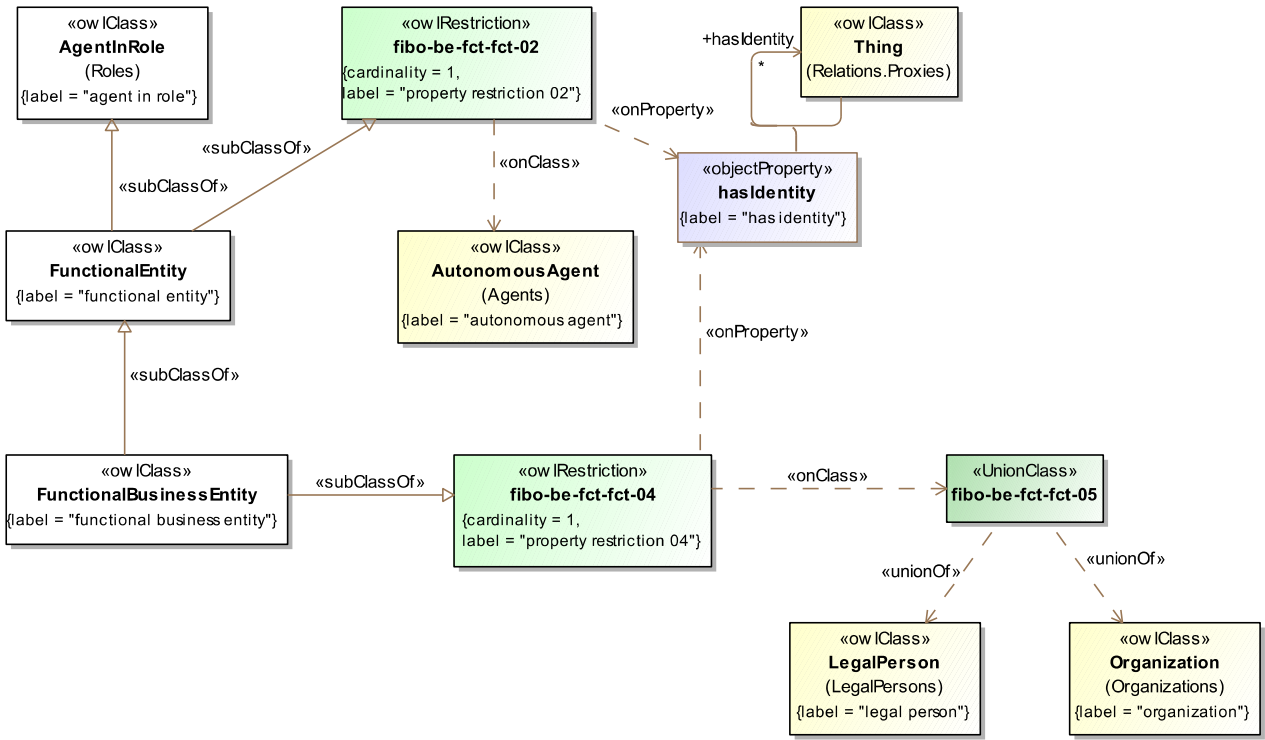


Figure 9.69 - Functional Entities

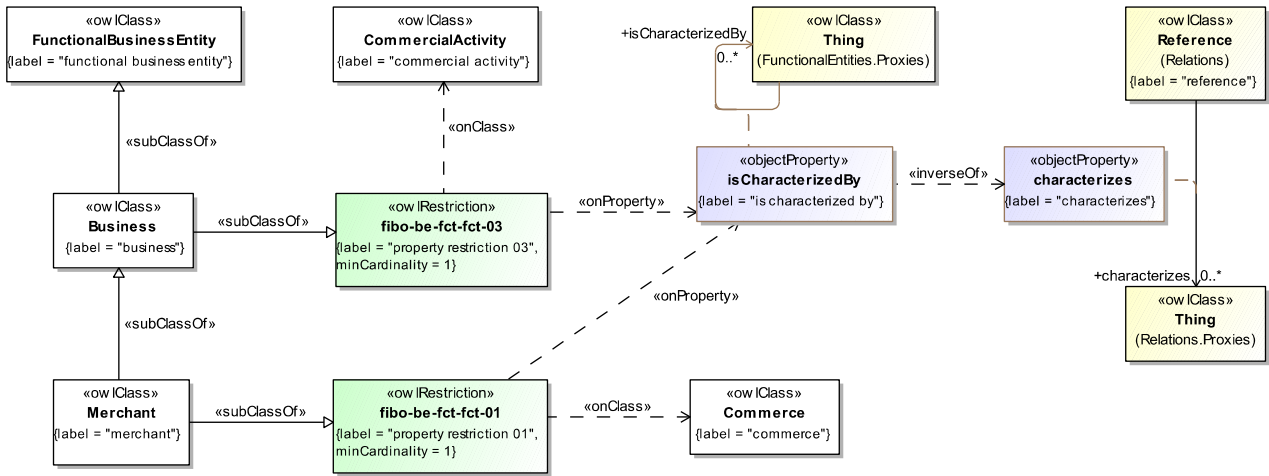


Figure 9.70 - Businesses

Table 9.32 - Functional Entities Concepts

Classes

Name	Annotations	Class Expressions
Business (business)	<p><u>Definition</u>: An organization or economic system where goods and services are exchanged for one another or for money. Every business requires some form of investment and enough customers to whom its output can be sold on a consistent basis in order to make a profit. Businesses can be privately owned, not-for-profit or state-owned. An example of a corporate business is PepsiCo, while a mom-and-pop catering business is a private enterprise.</p> <p><u>Definition origin</u>: http://www.businessdictionary.com/definition/business.html</p>	<p><u>Parent Class</u>: FunctionalBusinessEntity</p> <p><u>Property Restriction</u>: ≥ 1 isCharacterizedBy.CommercialActivity (fibo-be-fct-fct-06)</p>
Commerce (commerce)	<p><u>Definition</u>: the commercial activity of buying and selling goods</p>	<p><u>Parent Class</u>: CommercialActivity</p>
CommercialActivity (commercial activity)	<p><u>Definition</u>: the context of carrying out trade and other commercial, i.e., for-profit activities</p> <p><u>Explanatory note</u>: This is the context which distinguishes businesses or commercial organizations from organizations in general, the latter including government, trans-national and non profit organizations. Note that these distinctions are usually made with reference to these kinds of context and are not necessarily reflected in the structure of those organizations.</p>	
CooperativeSociety (cooperative society)	<p><u>Definition</u>: a commercial enterprise owned and managed by and for the benefit of customers or workers</p>	<p><u>Parent Class</u>: FunctionalBusinessEntity</p>
FamilyOffice (family office)	<p><u>Definition</u>: a family office as defined in the relevant legislation</p>	<p><u>Parent Class</u>: FunctionalBusinessEntity</p>
FunctionalEntity (functional entity)	<p><u>Definition</u>: any independent party (i.e., person, business entity, governmental entity, or other organization) defined in terms of its function</p>	<p><u>Parent Class</u>: AgentInRole</p> <p><u>Property Restriction</u>: = 1 hasIdentity.AutonomousAgent (fibo-be-fct-fct-02)</p>
FunctionalBusinessEntity (functional business entity)	<p><u>Definition</u>: a business entity defined in terms of its function</p> <p><u>Explanatory note</u>: The key distinguishing feature of a functional business entity is that it may itself be constituted as some kind of business or legal entity, but the definition of this entity does not depend on it always having one specific legal structure (for example, always being a limited company). This would define for example a bank, a special purpose vehicle, most government bodies and so on.</p>	<p><u>Parent Class</u>: FunctionalEntity</p> <p><u>Property Restriction</u>: = 1 hasIdentity.Autonomous Agent (fibo-be-fct-fct-03)</p>

Name	Annotations	Class Expressions
Merchant (merchant)	<u>Definition</u> : a business entity engaged in a trading activity	<u>Parent Class</u> : Business <u>Property Restriction</u> : ≥ 1 isCharacterizedBy.Commerce (fibo-be-fct-fct-02)
SoleProprietorship (sole proprietorship, proprietorship, sole trader) (deprecated)	<u>Definition</u> : a business structure in which an individual and his/her company are considered a single entity for tax and liability purposes <u>Explanatory note</u> : A sole proprietorship is a company which is not registered with the state as a limited liability company or corporation. The owner does not pay income tax separately for the company, but he/she reports business income or losses on his/her individual income tax return. The owner is inseparable from the sole proprietorship, so he/she is liable for any business debts. <u>Definition origin</u> : investorwords.com	<u>Parent Class</u> : Business <u>Property Restriction</u> : = 1 hasIdentity.NaturalPerson (fibo-be-fct-fct-01)

Properties

Name	Annotations	Property Axioms
isCharacterizedBy (is characterized by)	<u>Definition</u> : that context in which a contextually defined thing is defined	<u>Property Axiom</u> : inverse of characterizes

9.7.2 Ontology: Publishers

This ontology defines the fundamental concepts for publishers of information, including entities whose primary function is to publish, and entities (whether or not they are publishers in that sense) which are in the role of the publisher of some information. This ontology also includes the published information itself, i.e., the publication.

Table 9.33 - Publishers Ontology Metadata

Metadata Term	Value
sm:filename	Publishers
sm:fileAbbreviation	fibo-be-fct-pub
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/FunctionalEntities/Publishers/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/FunctionalEntities/Publishers/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/BE/FunctionalEntities/FunctionalEntities/ http://www.omg.org/spec/EDMC-FIBO/FND/

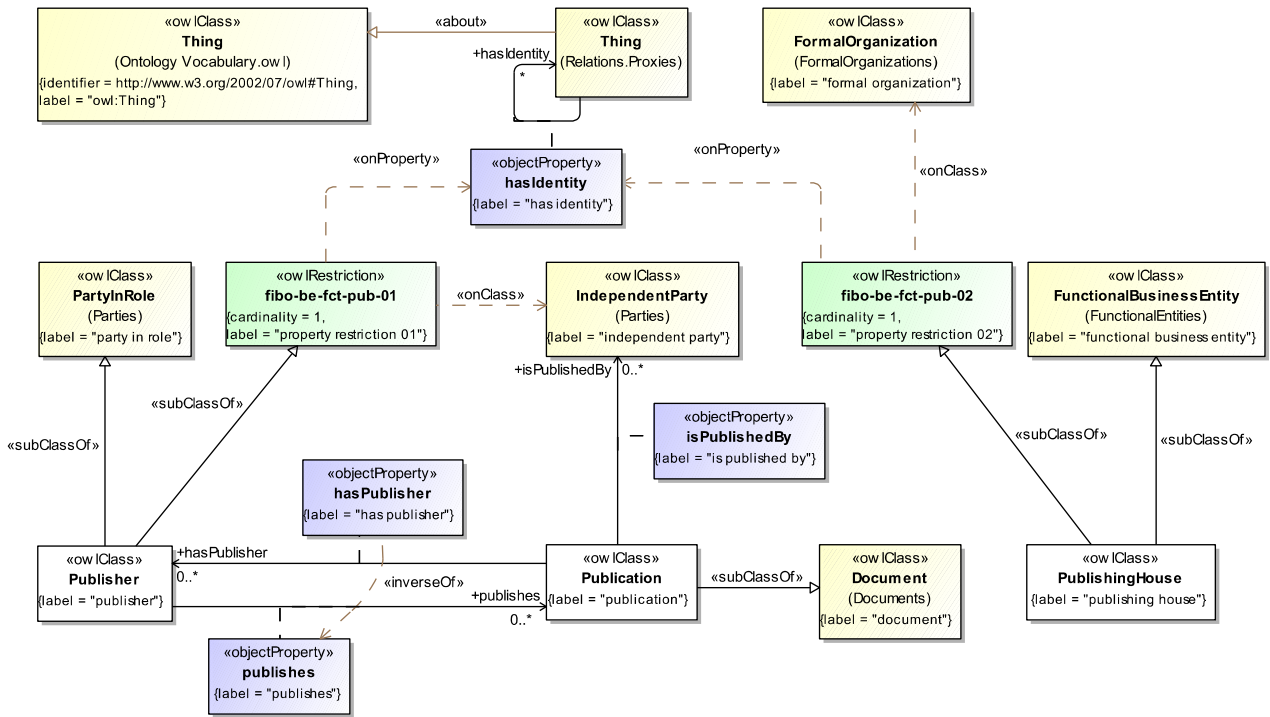


Figure 9.71 - Definition of Publisher, Publication, and Publishing House

Table 9.34 - Publishers Concepts

Classes

Name	Annotations	Class Expressions
Publication (publication)	<p><u>Definition</u>: anything made public by print (such as a newspaper, magazine, pamphlet, letter, telegram, via computer modem or program, or in a poster, brochure or pamphlet), orally, or by broadcast (radio, television)</p> <p><u>Adapted from</u>: http://legal-dictionary.thefreedictionary.com/Publication</p>	<u>Parent Class</u> : Document
Publisher (publisher)	<p><u>Definition</u>: a party responsible for the printing or distribution of digital or printed information</p> <p><u>Explanatory note</u>: Typically this role is filled by some entity whose function is that of a publishing house (sometimes also referred to as a publisher, in that different sense). Publishers may also include banks, government agencies and the like.</p> <p><u>Adapted from</u>: http://www.businessdictionary.com/definition/publisher.html</p>	<p><u>Parent Class</u>: PartyInRole</p> <p><u>Property Restriction</u>: = 1 hasIdentity.IndependentParty (fibo-be-fct-pub-01)</p>
PublishingHouse (publishing house)	<p><u>Definition</u>: some organization whose principal role is to publish information</p> <p><u>Scope note</u>: Publishing house in the sense intended here includes any organization whose role is to make information publicly available whether by disseminating it directly or indirectly and regardless of the type of information. These include organizations whose primary function is that of a market data vendor.</p>	<p><u>Parent Class</u>: FunctionalBusinessEntity</p> <p><u>Property Restriction</u>: = 1 hasIdentity.Formal Organization (fibo-be-fct-pub-02)</p>

Properties

Name	Annotations	Property Axioms
hasPublisher (has publisher)	<u>Definition</u> : some person or organization whose role it has been to publish this information	<p><u>Domain</u>: Publication</p> <p><u>Range</u>: Publisher</p> <p><u>Inverse</u>: publishes</p>
isPublishedBy (is published by)	<u>Definition</u> : identifies the independent party (i.e., the individual or organization) that disseminates the material	<p><u>Domain</u>: Publication</p> <p><u>Range</u>: IndependentParty</p>
publishes (publishes)	<p><u>Definition</u>: prepares and issues material for public consumption</p> <p><u>Definition origin</u>: http://www.thefreedictionary.com/publish</p>	<p><u>Domain</u>: Publisher</p> <p><u>Range</u>: Publication</p>

9.8 Module: Sole Proprietorships

Metadata defining the primary metadata elements for the Sole Proprietorships module are given in Table 9.35.

Table 9.35 - Sole Proprietorships Module Metadata

Metadata Term	Value
sm:moduleName	Sole Proprietorships
sm:moduleAbbreviation	FIBO-BE-SPS
sm:moduleVersion	1.0
sm:moduleAbstract	This module includes ontologies describing business entities or financial ventures that are carried out by a single person who is directly responsible for all liabilities of that venture.

9.8.1 Ontology: Sole Proprietorships

This ontology defines the fundamental concepts for representing sole proprietorships -- i.e., organizations that are owned by an individual that is responsible for the liabilities of the organization.

Metadata defining the primary metadata elements for the Sole Proprietorships ontology are given in Table 9.36.

Table 9.36 - Sole Proprietorships Ontology Metadata

Metadata Term	Value
sm:filename	SoleProprietorships.rdf
sm:fileAbbreviation	fibonacci-be-sps-sps
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/SoleProprietorships/SoleProprietorships/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/SoleProprietorships/SoleProprietorships/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

Figure 9.72 provides an overview of the concepts defined in the Sole Proprietorships ontology.

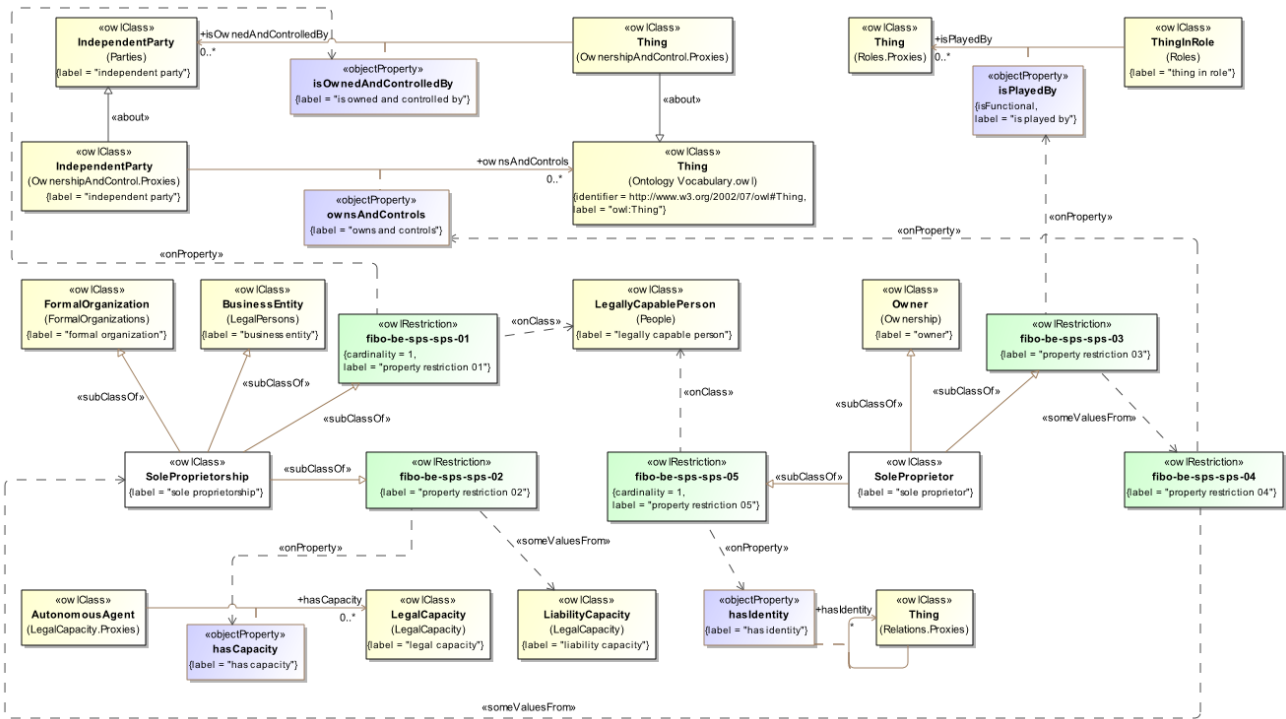


Figure 9.72 - Sole Proprietorships Concepts

Detailed content of the Sole Proprietorships ontology is provided in Table 9.37.

Table 9.37 - Sole Proprietorships Details

Classes

Name	Annotations	Class Expressions
SoleProprietor (sole proprietor, sole owner, sole trader)	<p><u>Definition:</u> a party that owns a business, has the rights to all profits from that business and is considered a single entity (unincorporated) together with that business for tax and liability purposes</p> <p><u>Explanatory note:</u> A sole proprietor has unlimited liability with respect to any business debts.</p> <p><u>Adapted from:</u> Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012</p>	<p><u>Parent Class:</u> Owner</p> <p><u>Property Restriction:</u> = 1 hasIdentity.LegallyCapable Person (fibo-be-sps-sps-05)</p> <p><u>Property Restriction:</u> isPlayedBy (ownsAndControls. SoleProprietorship) (fibo-be-sps-sps-03, fibo-be-sps-sps-04)</p>

Name	Annotations	Class Expressions
SoleProprietorship (sole proprietorship)	<p><u>Definition</u>: an unincorporated business owned by a single person</p> <p><u>Adapted from</u>: Barron's Dictionary of Business and Economics Terms, Fifth Edition, 2012</p>	<p><u>Parent Class</u>: BusinessEntity, FormalOrganization</p> <p><u>Property Restriction</u>: hasCapacity.LiabilityCapacity (fibo-be-sps-sps-02)</p> <p><u>Property Restriction</u>: = 1 isOwnedAndControlledBy.LegallyCapablePerson (fibo-be-sps-sps-01)</p>

9.9 Module: Private Limited Companies

Metadata defining the primary metadata elements for the Private Limited Companies module are given in Table 9.38, below.

Table 9.38 - Private Limited Companies Module Metadata

Metadata Term	Value
sm:moduleName	Private Limited Companies
sm:moduleAbbreviation	FIBO-BE-PLC
sm:moduleVersion	1.0
sm:moduleAbstract	This module includes ontologies describing business entities representing private limited companies -- i.e., a hybrid business entity having certain characteristics of both a corporation and a partnership or sole proprietorship.

9.9.1 Ontology: Private Limited Companies

This ontology defines the fundamental concepts for representing private limited companies -- i.e., companies that have characteristics of corporations and of partnerships but are neither.

Metadata defining the primary metadata elements for the Private Limited Companies ontology are given in Table 9.39.

Table 9.39 - Private Limited Companies Ontology Metadata

Metadata Term	Value
sm:filename	PrivateLimitedCompanies.rdf
sm:fileAbbreviation	fibo-be-plc-plc
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/PrivateLimitedCompanies/PrivateLimitedCompanies/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160201/PrivateLimitedCompanies/PrivateLimitedCompanies/
sm:dependsOn	http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/FormalBusinessOrganizations/

Figure 9.73 provides an overview of the concepts defined in the Private Limited Companies ontology.

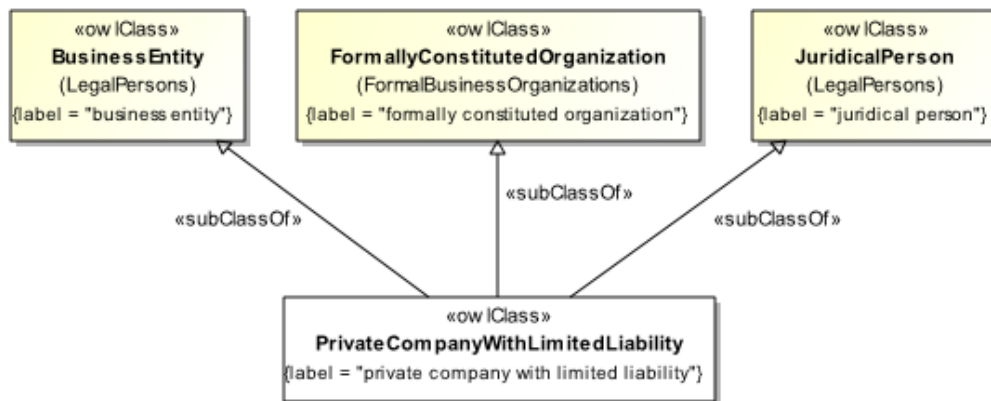


Figure 9.73 - Private Limited Companies Concepts

Detailed content of the Private Limited Companies ontology is provided in Table 9.40.

Table 9.40 - Private Limited Company Details

Classes

Name	Annotations	Class Expressions
<p>PrivateCompanyWithLimitedLiability (private company with limited liability)</p>	<p><u>Definition</u>: a hybrid business entity having certain characteristics of both a corporation and a partnership or sole proprietorship (depending on how many owners there are)</p> <p><u>Explanatory note</u>: A private company with limited liability, although a business entity, is not a corporation. The primary characteristic this legal form shares with a corporation is limited liability, and the primary characteristic it shares with a partnership is the availability of pass-through income taxation. It is often more flexible than a corporation, and it is well-suited for companies with a single owner.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Limited_liability_company#Overview</p>	<p><u>Parent Class</u>: BusinessEntity, JuridicalPerson, FormallyConstitutedOrganization</p>

9.10 Module: Government Entities

Metadata defining the primary metadata elements for the Government Entities module are given in Table 9.41.

Table 9.41 - Government Entities Module Metadata

Metadata Term	Value
sm:moduleName	Government Entities
sm:moduleAbbreviation	FIBO-BE-GE
sm:moduleVersion	1
sm:moduleAbstract	This module includes ontologies describing polities, government entities and their relations.

9.10.1 Ontology: Government Entities

This ontology defines the fundamental concepts for representing polities and government entities and their relations.

Metadata defining the primary metadata elements for the Government Entities ontology are given in Table 9.42.

Table 9.42 - Government Entities Ontology Metadata

Metadata Term	Value
sm:filename	GovernmentEntities.rdf
sm:fileAbbreviation	fibonacci-be-ge-ge
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/GovernmentEntities/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160801/GovernmentEntities/GovernmentEntities/
sm:dependsOn	http://www.omg.org/spec/LCC/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/FunctionalEntities/FunctionalEntities/ http://www.omg.org/spec/EDMC-FIBO/BE/OwnershipAndControl/Executives/

Figure 9.74 provides an overview of the concepts defined in the Government Entities ontology.

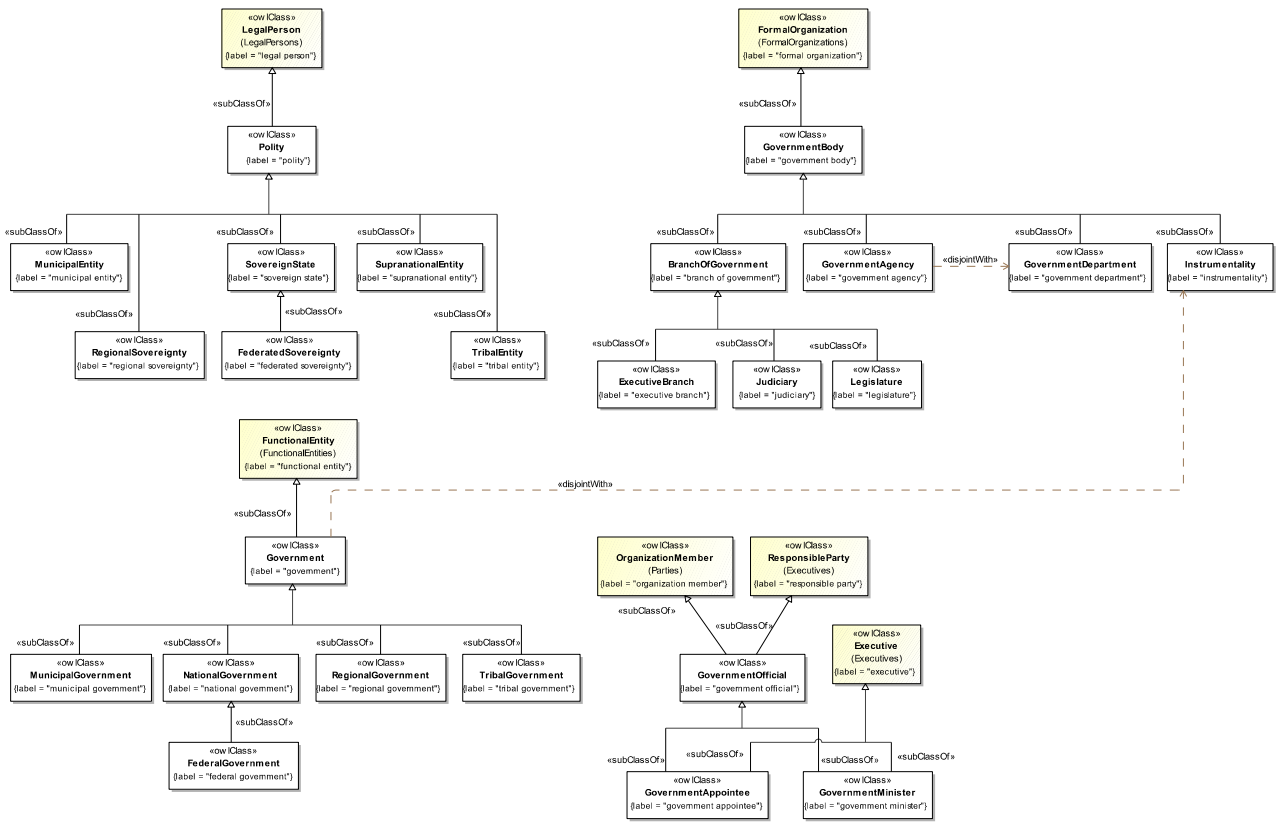


Figure 9.74 - Government Entities Concept Hierarchy

Figure 9.75 depicts a more detailed view of the polities in this ontology, i.e., the legal entities that represent governments under various circumstances.

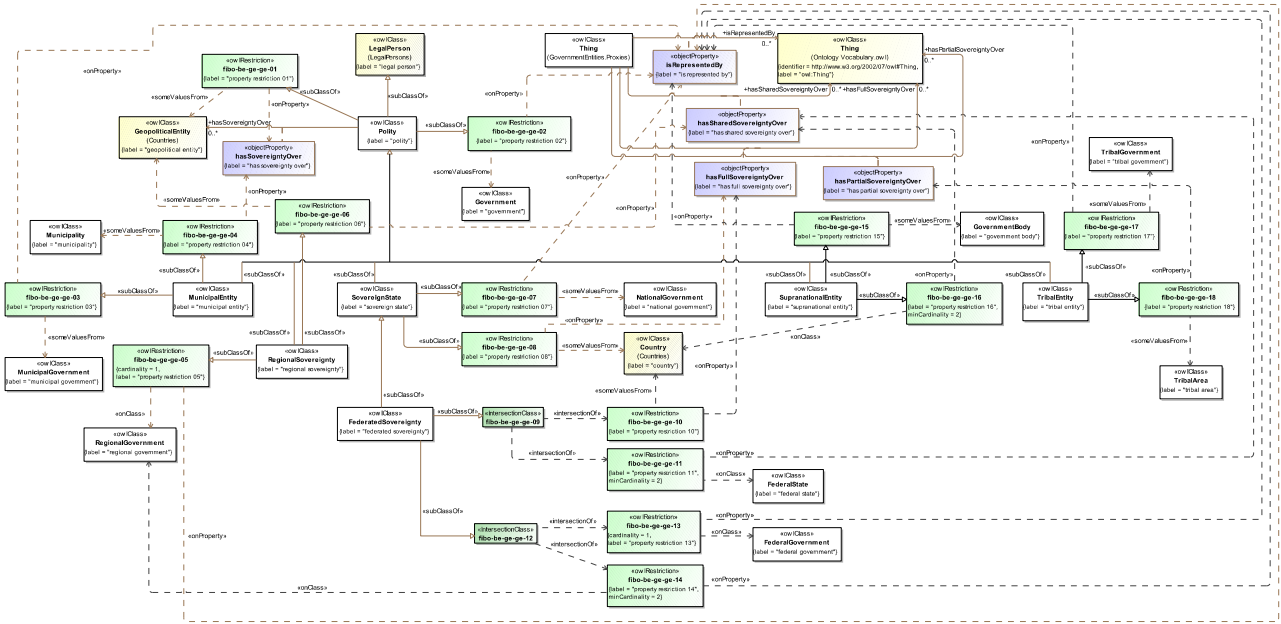


Figure 9.75 - Definition of Polity

Figure 9.76 provides detailed definitions for the government bodies, including branches of government, government agencies, departments, and instrumentalities, as specified herein.

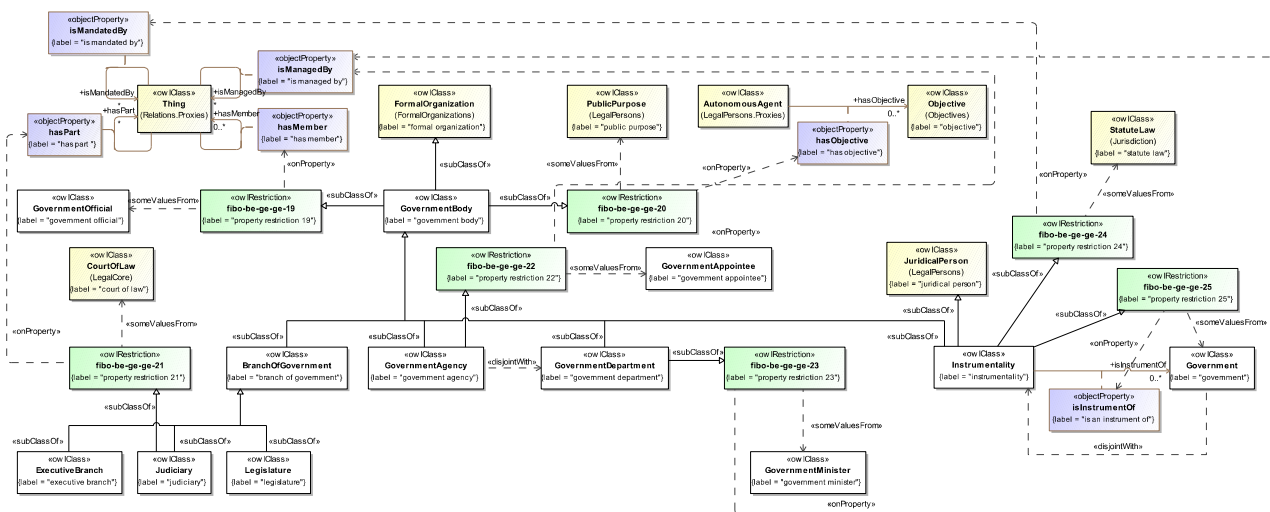


Figure 9.76 - Definition of Government Body

Figure 9.77 specifies the definition of government, covering national, regional and municipal governments as well as tribal governments, for use in defining jurisdictions, regulations, and other related concepts.

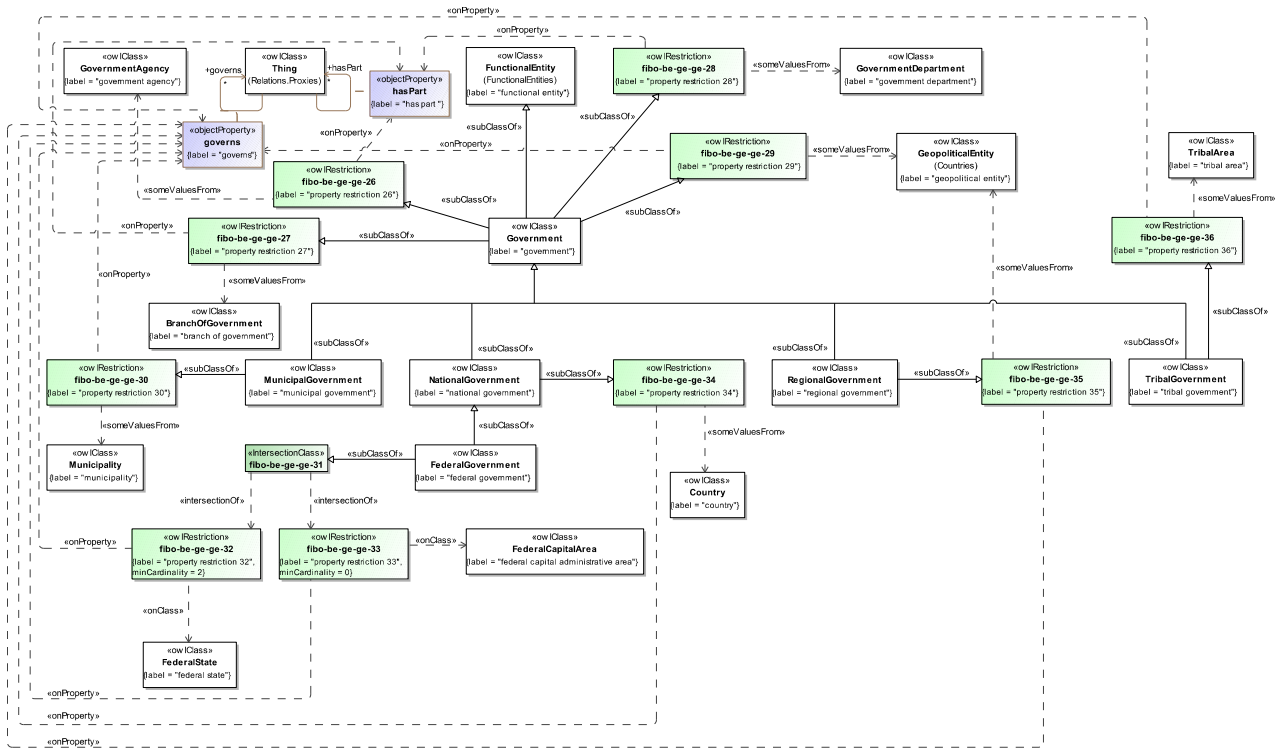


Figure 9.77 - Definition of Government

Finally, 9.78 provides the definition of government official, including government appointees and ministers.

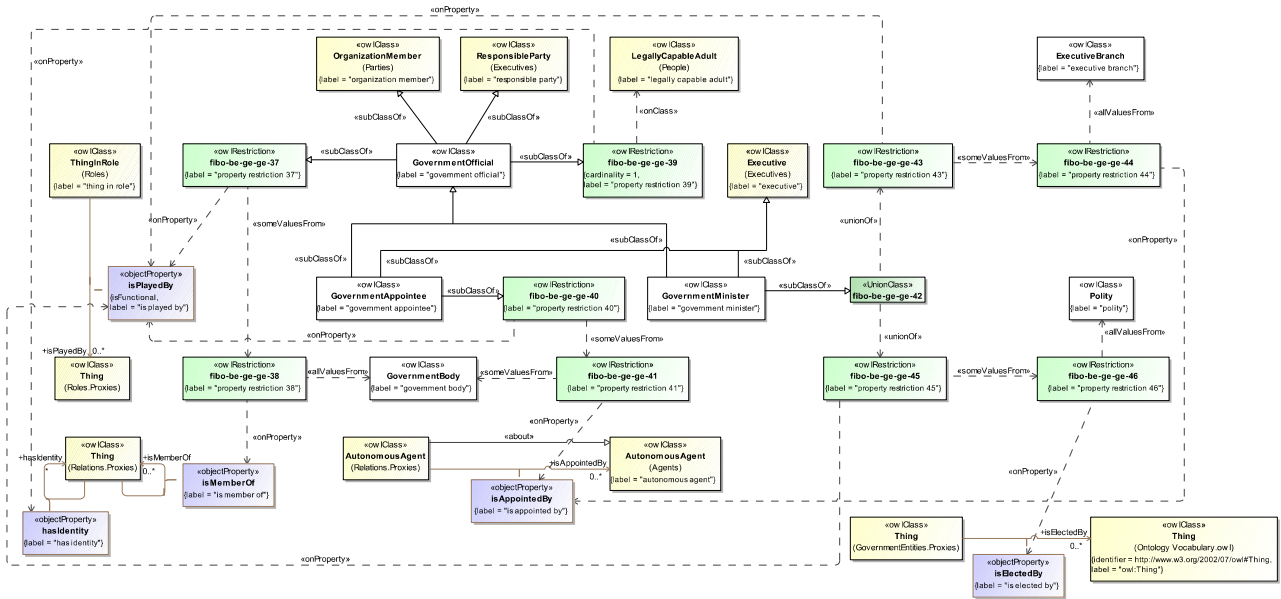


Figure 9.78 - Definition of Government Official

Detailed content of the Government Entities ontology is provided in Table 9.43.

Table 9.43 - Government Entities Details

Classes

Name	Annotations	Class Expressions
BranchOfGovernment (branch of government)	<p><u>Definition:</u> a division of the government of a state, with separate and independent powers and areas of responsibility so that the powers of one branch are not in conflict with the powers associated with the other branches</p> <p><u>Adapted from:</u> https://www.usa.gov/branches-of-government</p> <p><u>Adapted from:</u> https://en.wikipedia.org/wiki/Separation_of_powers</p>	<u>Parent Class:</u> GovernmentBody

Name	Annotations	Class Expressions
ExecutiveBranch (executive branch)	<p><u>Definition</u>: the branch of government that has its authority and responsibility for the daily administration of the state</p> <p><u>Explanatory note</u>: The executive branch executes, or enforces the law.</p> <p><u>Adapted from</u>: https://www.usa.gov/branches-of-government</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Executive_(government)</p>	<p><u>Parent Class</u>: BranchOfGovernment</p>
FederalGovernment (federal government)	<p><u>Definition</u>: a union of states under a central government distinct from the individual governments of the separate states</p> <p><u>Explanatory note</u>: A federation is a political entity characterized by a union of partially self-governing states or regions under a central (federal) government. In a federation, the self-governing status of the component states, as well as the division of power between them and the central government, are typically constitutionally entrenched and may not be altered by a unilateral decision of either party, the states or the federal political body.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Federation</p>	<p><u>Parent Class</u>: NationalGovernment</p> <p><u>Class Axiom</u>: $((\geq 0 \text{ governs.FederalCapitalArea}) \cap (\geq 2 \text{ governs.FederalState}))$ (fibo-be-ge-ge-31, fibo-be-ge-ge-32, fibo-be-ge-ge-33)</p>
FederatedSovereignty (federated sovereignty)	<p><u>Definition</u>: a political entity characterized by a union of partially self-governing states or regions under a central (federal) government</p> <p><u>Explanatory note</u>: Federal entity in the sense of a legal entity, that is, what it is that incurs debt for a federal government, i.e., the Federal entity in the sense of the legal entity, as distinct from the Federal government. It is identified as a legal entity because it is able to incur debt in its own right.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Federation</p>	<p><u>Parent Class</u>: SovereignState</p> <p><u>Class Axiom</u>: $((\exists \text{ hasFullSovereigntyOver.Country}) \cap (\geq 2 \text{ hasSharedSovereigntyOver.FederalState}))$ (fibo-be-ge-ge-09, fibo-be-ge-ge-10, fibo-be-ge-ge-11)</p> <p><u>Class Axiom</u>: $((\geq 2 \text{ isRepresentedBy.RegionalGovernment}) \cap (= 1 \text{ isRepresentedBy.FederalGovernment}))$ (fibo-be-ge-ge-12, fibo-be-ge-ge-13, fibo-be-ge-ge-14)</p>

Name	Annotations	Class Expressions
Government (government)	<p><u>Definition</u>: the system by which a state or community is controlled</p> <p><u>Explanatory note</u>: In the Commonwealth of Nations, the word government is also used more narrowly to refer to the collective group of people that exercises executive authority in a state. This usage is analogous to what is called an 'administration' in American English. Furthermore, especially in American English, the concepts of the state and the government may be used synonymously to refer to the person or group of people exercising authority over a politically organized territory.</p>	<p><u>Parent Class</u>: FunctionalEntity</p> <p><u>Class Axiom</u>: \neg Instrumentality</p> <p><u>Property Axiom</u>: \exists hasPart.GovernmentAgency (fibo-be-ge-ge-26)</p> <p><u>Property Axiom</u>: \exists hasPart.BranchOfGovernment (fibo-be-ge-ge-27)</p> <p><u>Property Axiom</u>: \exists hasPart.GovernmentDepartment (fibo-be-ge-ge-28)</p> <p><u>Property Axiom</u>: \exists governs.GeopoliticalEntity (fibo-be-ge-ge-29)</p>
GovernmentAgency (government agency)	<p><u>Definition</u>: a permanent or semi-permanent organization, often an appointed commission, in the machinery of government that is responsible for the oversight and administration of specific functions</p> <p><u>Explanatory note</u>: There is a notable variety of agency types. Although usage differs, a government agency is normally distinct both from a department or ministry, and other types of public body established by government. The functions of an agency are normally executive in character, since different types of organizations (such as commissions) are most often constituted in an advisory role; this distinction is often blurred in practice however.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Government_agency</p>	<p><u>Parent Class</u>: GovernmentBody</p> <p><u>Class Axiom</u>: \neg GovernmentDepartment</p> <p><u>Property Axiom</u>: \exists isManagedBy.GovernmentAppointee (fibo-be-ge-ge-22)</p>
GovernmentAppointee (government appointee)	<p><u>Definition</u>: an individual appointed by government decree to lead, or participate in some capacity in a government body</p>	<p><u>Parent Class</u>: GovernmentOfficial, Executive</p> <p><u>Property Axiom</u>: \exists isPlayedBy (\exists isAppointedBy.GovernmentBody) (fibo-be-ge-ge-40, fibo-be-ge-ge-41)</p>

Name	Annotations	Class Expressions
GovernmentBody (government body)	<p><u>Definition</u>: a formal organization that is an agency, instrumentality, or other body of supranational, national, federal, state, or local government, including certain multijurisdictional agencies and departments that carry out the business of government</p> <p><u>Explanatory note</u>: Identifying government bodies is a pre-requisite for identifying government officials. This information is needed to help ensure compliance with applicable laws relating to bribery or corruption, including the U.S. Foreign Corrupt Practices Act (FCPA), the UK Bribery Act 2010 (UKBA), the U.S. Bank Bribery Act (Bribery Act), and other anti-bribery and corruption laws in the jurisdictions where financial institutions conduct business.</p> <p><u>Adapted from</u>: http://definitions.uslegal.com/g/government-entity</p>	<p><u>Parent Class</u>: FormalOrganization</p> <p><u>Property axiom</u>: \exists hasMember.GovernmentOfficial (fibo-be-ge-ge-19)</p> <p><u>Property Axiom</u>: \exists hasObjective.PublicPurpose (fibo-be-ge-ge-20)</p>
GovernmentDepartment (government department)	<p><u>Definition</u>: a specialized organization responsible for a sector of government public administration</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Ministry</p>	<p><u>Parent Class</u>: GovernmentBody</p> <p><u>Property Axiom</u>: \exists isManagedBy.GovernmentMinister (fibo-be-ge-ge-23)</p>
GovernmentMinister (government minister)	<p><u>Definition</u>: a person appointed or elected to a high office in the government</p> <p><u>Example</u>: Minister of Finance, Secretary of State, Attorney General of California</p> <p><u>Adapted from</u>: http://www.thefreedictionary.com/government+minister</p>	<p><u>Parent Class</u>: GovernmentOfficial, Executive</p> <p><u>Property Axiom</u>: $(\exists \text{ isPlayedBy } (\exists \text{ isElectedBy.Polity})) \cup (\exists \text{ isPlayedBy } (\exists \text{ isAppointedBy.ExecutiveBranch}))$ (fibo-be-ge-ge-42, fibo-be-ge-ge-43, fibo-be-ge-ge-44, fibo-be-ge-ge-45, fibo-be-ge-ge-46)</p>
GovernmentOfficial (government official)	<p><u>Definition</u>: a person elected or appointed to administer some aspect of a government</p> <p><u>Adapted from</u>: http://www.thefreedictionary.com/government+officials</p>	<p><u>Parent Class</u>: OrganizationMember, ResponsibleParty</p> <p><u>Property Axiom</u>: = 1 hasIdentity.LegallyCapableAdult (fibo-be-ge-ge-39)</p> <p><u>Property Axiom</u>: $\exists \text{ isPlayedBy } (\forall \text{ isMemberOf.GovernmentBody})$ (fibo-be-ge-ge-37, fibo-be-ge-ge-38)</p>
Instrumentality (instrumentality)	<p><u>Definition</u>: an organization that serves a public purpose and is closely tied to a government, but is not a government agency</p> <p><u>Explanatory note</u>: Many instrumentalities are private companies, and some are chartered directly by state or federal government. Instrumentalities are subject to a unique set of laws that shape their activities.</p> <p><u>Adapted from</u>: http://www.investopedia.com/terms/i/instrumentality.asp</p>	<p><u>Parent Class</u>: GovernmentBody, JuridicalPerson</p> <p><u>Property Axiom</u>: \exists isMandatedBy.StatuteLaw (fibo-be-ge-ge-24)</p> <p><u>Property Axiom</u>: \exists isInstrumentOf.Government (fibo-be-ge-ge-25)</p>

Name	Annotations	Class Expressions
Judiciary (judiciary)	<p><u>Definition</u>: a branch of government that comprises the system of courts that interprets and applies the law in the name of the supranational, national, federal, or regional government, depending on its jurisdiction</p> <p><u>Explanatory note</u>: The judiciary also provides a mechanism for the resolution of disputes. Under the doctrine of the separation of powers, the judiciary generally does not make law (that is, in a plenary fashion, which is the responsibility of the legislature) or enforce law (which is the responsibility of the executive), but rather interprets law and applies it to the facts of each case.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Judiciary</p>	<p><u>Parent Class</u>: BranchOfGovernment</p> <p><u>Property Axiom</u>: \exists hasPart.CourtOfLaw (fibo-be-ge-21)</p>
Legislature (legislature)	<p><u>Definition</u>: the law-making body of a political unit, usually a national government, that has power to enact, amend, and repeal public policy</p> <p><u>Explanatory note</u>: Laws enacted by legislatures are known as legislation. Legislatures observe and steer governing actions and usually have exclusive authority to amend the budget or budgets involved in the process.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Legislature</p>	<p><u>Parent Class</u>: BranchOfGovernment</p>
MunicipalEntity (municipal entity, municipality)	<p><u>Definition</u>: a polity that typically represents a city, township, or other administrative subdivision having corporate status and powers of self-government or jurisdiction</p> <p><u>Explanatory note</u>: Municipal entity in the sense of a legal entity, that is, what it is that incurs debt for a municipality, as distinct from the Municipal government. A municipal entity has a Government which sets laws applicable within the geographical area corresponding to its jurisdiction.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Municipality</p>	<p><u>Parent Class</u>: Polity</p> <p><u>Property Axiom</u>: \exists isRepresentedBy.MunicipalGovernment (fibo-be-ge-03)</p> <p><u>Property Axiom</u>: \exists hasSovereigntyOver.Municipality (fibo-be-ge-04)</p>
MunicipalGovernment (municipal government)	<p><u>Definition</u>: the government of a municipality</p> <p><u>Adapted from</u>: http://www.thefreedictionary.com/municipal+government</p>	<p><u>Parent Class</u>: Government</p> <p><u>Property Axiom</u>: \exists governs. Municipality (fibo-be-ge-30)</p>

Name	Annotations	Class Expressions
NationalGovernment (national government)	<p><u>Definition</u>: a government and the politicians that that run a country as a whole (as opposed to local government)</p> <p><u>Adapted from</u>: http://dictionary.reference.com/browse/national+government</p> <p><u>Adapted from</u>: http://www.collinsdictionary.com/dictionary/english/national-government</p>	<p><u>Parent Class</u>: Government</p> <p><u>Property Axiom</u>: \exists governs.Country (fibo-be-ge-ge-34)</p>
Polity (polity)	<p><u>Definition</u>: a legal person that is a supranational entity, crown, state, or subordinate civil authority, such as a province, prefecture, county, municipality, city, or district representing the people of that entity</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Polity</p>	<p><u>Parent Class</u>: LegalPerson</p> <p><u>Property Axiom</u>: \exists hasSovereigntyOver.GeopoliticalEntity (fibo-be-ge-ge-01)</p> <p><u>Property Axiom</u>: \exists isRepresentedBy.Government (fibo-be-ge-ge-02)</p>
RegionalGovernment (regional government, local government)	<p><u>Definition</u>: an administrative body for a small geographic area, such as a county, smaller town, or other similar community</p> <p><u>Explanatory note</u>: A local government will typically only have control over their specific geographical region, and cannot pass or enforce laws that will affect a wider area. Local governments can elect officials, enact taxes, and do many other things that a national government would do, just on a smaller scale.</p> <p><u>Adapted from</u>: http://www.businessdictionary.com/definition/local-government.html</p>	<p><u>Parent Class</u>: Government</p> <p><u>Property Axiom</u>: \exists governs.GeopoliticalEntity (fibo-be-ge-ge-35)</p>
RegionalSovereignty (regional sovereignty)	<p><u>Definition</u>: the legal person that corresponds to an administrative division, administrative unit, administrative entity or country subdivision (or, sometimes, geopolitical division or subnational entity), that has the capacity to incur debt, issue contracts, and enter into relations with other similar entities</p> <p><u>Explanatory note</u>: A country may be divided into provinces, which, in turn, are divided into counties, which, in turn, may be divided in whole or in part into municipalities; and so on.</p> <p><u>Adapted from</u>: http://en.wikipedia.org/wiki/Administrative_division</p>	<p><u>Parent Class</u>: Polity</p> <p><u>Property Axiom</u>: $= 1$ isRepresentedBy.RegionalGovernment (fibo-be-ge-ge-05)</p> <p><u>Property Axiom</u>: \exists hasSharedSovereigntyOver.GeopoliticalEntity (fibo-be-ge-ge-06)</p>

Name	Annotations	Class Expressions
SovereignState (sovereign state)	<p><u>Definition</u>: a nonphysical juridical entity that is represented by one centralized government that has sovereignty over a geographic area</p> <p><u>Explanatory note</u>: A legal entity that is represented by one centralized government, has a permanent population, defined territory, and the capacity to enter into relations with other sovereign states.</p> <p><u>Adapted from</u>: http://www.businessdictionary.com/definition/sovereign-authority.html</p>	<p><u>Parent Class</u>: Polity</p> <p><u>Property Axiom</u>: \exists isRepresentedBy.NationalGovernment (fibo-be-ge-ge-07)</p> <p><u>Property Axiom</u>: \exists hasFullSovereigntyOver.Country (fibo-be-ge-ge-08)</p>
SupranationalEntity (supranational entity)	<p><u>Definition</u>: a type of multinational political union where negotiated power is delegated to an authority by governments of member states</p> <p><u>Explanatory note</u>: A supranational union is a supranational polity which lies somewhere between a confederation that is an association of States and a federation that is a state. Unlike states in a federal super-state, member states retain ultimate sovereignty, although some sovereignty is shared with, or ceded to, the supranational body.</p> <p><u>Adapted from</u>: Kiljunen, Kimmo (2004). The European Constitution in the Making. Centre for European Policy Studies. pp. 21-26. ISBN 978-92-9079-493-6</p>	<p><u>Parent Class</u>: Polity</p> <p><u>Property Axiom</u>: \exists isRepresentedBy.GovernmentBody (fibo-be-ge-ge-15)</p> <p><u>Property Axiom</u>: \exists hasSharedSovereigntyOver.Country (fibo-be-ge-ge-16)</p>
TribalArea (tribal area)	<p><u>Definition</u>: a designation for an area of land managed by a group of indigenous people (tribe) rather than by the sovereign state or regional governmental entity in which the tribal area is geographically located</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/Indian_reservation</p>	<p><u>Parent Class</u>: GeopoliticalEntity</p>
TribalEntity (tribal entity)	<p><u>Definition</u>: a legal entity that represents fundamental unit of sovereign tribal (indigenous) government</p> <p><u>Explanatory note</u>: Any indigenous group or community which is recognized as having rights and obligations independent of the central government.</p> <p><u>Adapted from</u>: https://en.wikipedia.org/wiki/List_of_federally_recognized_tribes_by_state</p>	<p><u>Parent Class</u>: Polity</p> <p><u>Property Axiom</u>: \exists isRepresentedBy.TribalGovernment (fibo-be-ge-ge-17)</p> <p><u>Property Axiom</u>: \exists hasPartialSovereigntyOver.TribalArea (fibo-be-ge-ge-18)</p>
TribalGovernment (tribal government)	<p><u>Definition</u>: a government representing a group of indigenous people that has legal authority to govern those people, including authority to legislate the existence of tribal entities</p> <p><u>Adapted from</u>: http://www.businessdictionary.com/definition/local-government.html</p>	<p><u>Parent Class</u>: Government</p> <p><u>Property Axiom</u>: \exists governs.TribalArea (fibo-be-ge-ge-36)</p>

Properties

Name	Annotations	Property Axioms
hasFullSovereigntyOver (has full sovereignty over)	<u>Definition</u> : relates a polity to a geopolitical entity where the polity has absolute, supreme and ultimate dominion and authority of a political state subject to no higher power, expressed within its territory in full self-government and in complete freedom from any outside influence	<u>Parent Property</u> : hasSovereigntyOver
hasJurisdiction (has jurisdiction)	<u>Definition</u> : relates a polity or government entity to one or more jurisdictions, over which it has some level of legal authority	<u>Parent Property</u> : controls <u>Range</u> : Jurisdiction
hasPartialSovereigntyOver (has partial sovereignty over)	<u>Definition</u> : relates a polity to a geopolitical entity where the polity exercises partial dominion and authority of a political state	<u>Parent Property</u> : hasSovereigntyOver
hasSharedSovereigntyOver (has shared sovereignty over)	<u>Definition</u> : relates a polity to a geopolitical entity where the polity exercises shared dominion and authority of a political state	<u>Parent Property</u> : hasSovereigntyOver
hasSovereigntyOver (has sovereignty over)	<u>Definition</u> : relates a polity to a geopolitical entity where the polity exercises dominion and authority of a political state <u>Adapted from</u> : http://www.businessdictionary.com/definition/sovereignty.html	<u>Parent Property</u> : has Domain: Polity Range: GeopoliticalEntity
isElectedBy (is elected by)	<u>Definition</u> : identifies an official or government chosen to hold office by voting	<u>Property Axiom</u> : inverse of elects
isInstrumentOf (is an instrument of)	<u>Definition</u> : relates an instrumentality of some government to the government that it supports	Domain: Instrumentality Range: Government
isJurisdictionOf (is jurisdiction of)	<u>Definition</u> : relates a jurisdiction to a polity or other government entity or court that has some level of legal authority over it	<u>Parent Property</u> : isControlledBy Domain: Jurisdiction <u>Property Axiom</u> : inverse of hasJurisdiction
isRepresentedBy (is represented by)	<u>Definition</u> : relates a system of governance to its chosen representatives <u>Adapted from</u> : http://dictionary.reference.com/browse/representative	

10 Jurisdiction-Specific Ontologies

10.1 Overview

This section defines the terms, definitions, relationships, and additional logic that extend the Business Entities specification with respect to jurisdiction-specific individuals. Note that these are provided as starting points, and are not intended to be comprehensive. Having said this, the definitions provided in this section reflect some of the more important jurisdiction-specific entities identified by contributing subject matter experts (SMEs).

10.2 Jurisdiction-Specific Government Entities

The ontologies identified herein incorporate individuals representing the legal entities, governments, and jurisdictions of government entities for use in other FIBO BE ontologies as well as across FIBO specifications that depend on the BE specification. They are introduced in the context of continent-specific sub-modules, (e.g., Europe, North America, Asia) setting a precedent for how jurisdiction-specific individuals will be managed in the FIBO family of ontologies in general. Country-level content is provided for North America in the FIBO BE 1.1 Specification, specifically for the United States and Canada, and for the United Kingdom with respect to Europe, only, at this time. Extensions to support other North American countries, European countries, and other continents may be added as time and requirements dictate in future revisions of the BE specification.

The ontologies themselves are documented with respect to metadata only, given that they reflect individuals only, and due to the number of individuals represented in each of them. The corresponding machine-readable files are considered to be a normative part of this specification, however.

10.2.1 North American Government Entities and Jurisdictions

10.2.1.1 Ontology: Canadian Government Entities and Jurisdictions

This ontology provides the set of basic federal government, provincial, and territory level entities and jurisdictions for use in other Canada-specific FIBO ontologies.

Metadata defining the primary metadata elements for the Canadian Government Entities and Jurisdictions ontology are given in Table 10.1.

Table 10.1 - Canadian Government Entities and Jurisdictions Ontology Metadata

Metadata Term	Value
sm:filename	CAGovernmentEntitiesAndJurisdictions.rdf
sm:fileAbbreviation	fib-be-ge-caj
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/NorthAmericanJurisdiction/CAGovernmentEntitiesAndJurisdictions/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160801/GovernmentEntities/NorthAmericanJurisdiction/CAGovernmentEntitiesAndJurisdictions/
sm:dependsOn	http://www.omg.org/spec/LCC/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/

	http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LEIEntities/ http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/GovernmentEntities/
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10.2.1.2 Ontology: U.S. Government Entities and Jurisdictions

This ontology provides the set of basic federal government, state, and territory level entities and jurisdictions for use in other US-specific FIBO ontologies.

Metadata defining the primary metadata elements for the U.S. Government Entities and Jurisdictions ontology are given in Table 10.2.

Table 10.2 - U.S. Government Entities and Jurisdictions Ontology Metadata

Metadata Term	Value
sm:filename	USGovernmentEntitiesAndJurisdictions.rdf
sm:fileAbbreviation	fibonacci-be-ge-usj
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/NorthAmericanJurisdiction/USGovernmentEntitiesAndJurisdictions/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160801/GovernmentEntities/NorthAmericanJurisdiction/USGovernmentEntitiesAndJurisdictions/
sm:dependsOn	http://www.omg.org/spec/LCC/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LEIEntities/ http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/GovernmentEntities/

10.2.2 European Government Entities and Jurisdictions

10.2.2.1 Ontology: European Union Government Entities and Jurisdictions

This ontology provides the set of basic European Union specific government level entities and jurisdictions for use in other FIBO ontologies.

Metadata defining the primary metadata elements for the European Union Government Entities and Jurisdictions ontology are given in Table 10.3.

Table 10.3 - European Union Government Entities and Jurisdictions Ontology Metadata

Metadata Term	Value
sm:filename	EUGovernmentEntitiesAndJurisdictions.rdf
sm:fileAbbreviation	fib-be-ge-euj
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/EuropeanJurisdiction/EUGovernmentEntitiesAndJurisdictions/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160801/GovernmentEntities/EuropeanJurisdiction/EUGovernmentEntitiesAndJurisdictions/
sm:dependsOn	http://www.omg.org/spec/LCC/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LEIEntities/ http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/GovernmentEntities/

10.2.2.2 Ontology: Government Entities and Jurisdictions for the United Kingdom of Great Britain and Northern Ireland

This ontology provides government entities and jurisdictions for the United Kingdom of Great Britain and Northern Ireland for use in other FIBO ontologies.

The initial, 2016-08-01, version of this ontology reflects the national level only, and does not include the corresponding entities for England, Wales, Scotland, Northern Ireland, or any of the islands and other territories that comprise the United Kingdom.

Metadata defining the primary metadata elements for the Government Entities and Jurisdictions for the United Kingdom of Great Britain and Northern Ireland ontology are given in Table 10.4.

Table 10.4 - Government Entities and Jurisdictions for the United Kingdom of Great Britain and Northern Ireland Ontology Metadata

Metadata Term	Value
sm:filename	UKGovernmentEntitiesAndJurisdictions.rdf
sm:fileAbbreviation	fibonacci-be-ge-ukj
OntologyIRI	http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/EuropeanJurisdiction/UKGovernmentEntitiesAndJurisdictions/
owl:versionIRI	http://www.omg.org/spec/EDMC-FIBO/BE/20160801/GovernmentEntities/EuropeanJurisdiction/UKGovernmentEntitiesAndJurisdictions/
sm:dependsOn	http://www.omg.org/spec/LCC/ http://www.omg.org/spec/EDMC-FIBO/FND/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LegalPersons/ http://www.omg.org/spec/EDMC-FIBO/BE/LegalEntities/LEIEntities/ http://www.omg.org/spec/EDMC-FIBO/BE/GovernmentEntities/GovernmentEntities/

Annex A: Deliverables Included with this Specification (normative)

The FIBO ontologies are delivered as (1) RDF/XML serialized OWL (normative and definitive), (2) UML XMI, serialized from UML with the ODM profiles for RDF and OWL applied (normative), (3) ODM XMI, serialized based on the ODM MOF metamodels for RDF and OWL (normative), and (4) Visual Ontology Modeler (VOM) model files, based on the VOM plug-in to MagicDraw (informative). If there are differences between the OWL files, ODM XMI, and UML XMI, the OWL files take precedence, followed by the UML XMI, and finally the ODM XMI.

Regardless of their form, each of the ontologies included in Business Entities makes normative reference to the DCMI Dublin Core Metadata Terms³, W3C Simple Knowledge Organization System (SKOS) Recommendation⁴, and the OMG Architecture Board's Specification Metadata Recommendation⁵, which are not part of this specification.

The individual RDF/XML files are organized by module (directory), and within a given module, alphabetically by name, as shown in the URI structure for each individual OWL file. These files are UTF-8 conformant XML Schema files that are also OWL 2 compliant, and may be examined using any text editor, XML editor, or RDF or OWL editor. They have been verified for syntactic correctness via the W3C RDF Validator and University of Manchester OWL 2 Validator. They have also been checked for logical consistency using the Pellet OWL 2 reasoner from Clark & Parsia as well as the HermiT OWL 2 reasoner from Oxford University. It is anticipated that the OWL ontologies will be dereference-able, together with technical documentation (HTML) from the OMG site once the specification is adopted.

³ <http://www.dublincore.org/documents/dcmi-terms/>

⁴ <http://www.w3.org/TR/2009/REC-skos-reference-20090818/>

⁵ <http://www.omg.org/techprocess/ab/SpecificationMetadata/>

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