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Value Sets and ISO 11179

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ISO 11179 Metadata Registries

- Owning group is ISO/IEC JTC1 SC32 (Data Management and Interchange)
- Working Group 2 – MetaData
- 11179 is a six part standard
  1) Framework
  2) Classification
  3) Registry Metamodel and basic attributes
  4) Formulation of data definition
  5) Naming and identification principles
  6) Registration

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11179-3 Edition 3

- Metadata
- First edition published 1994
- Second edition 2004
- Edition 3 is (or soon will be) FDIS
- One goal of this edition is to fill out "the upper left hand corner" and get ontology/terminology fully integrated.

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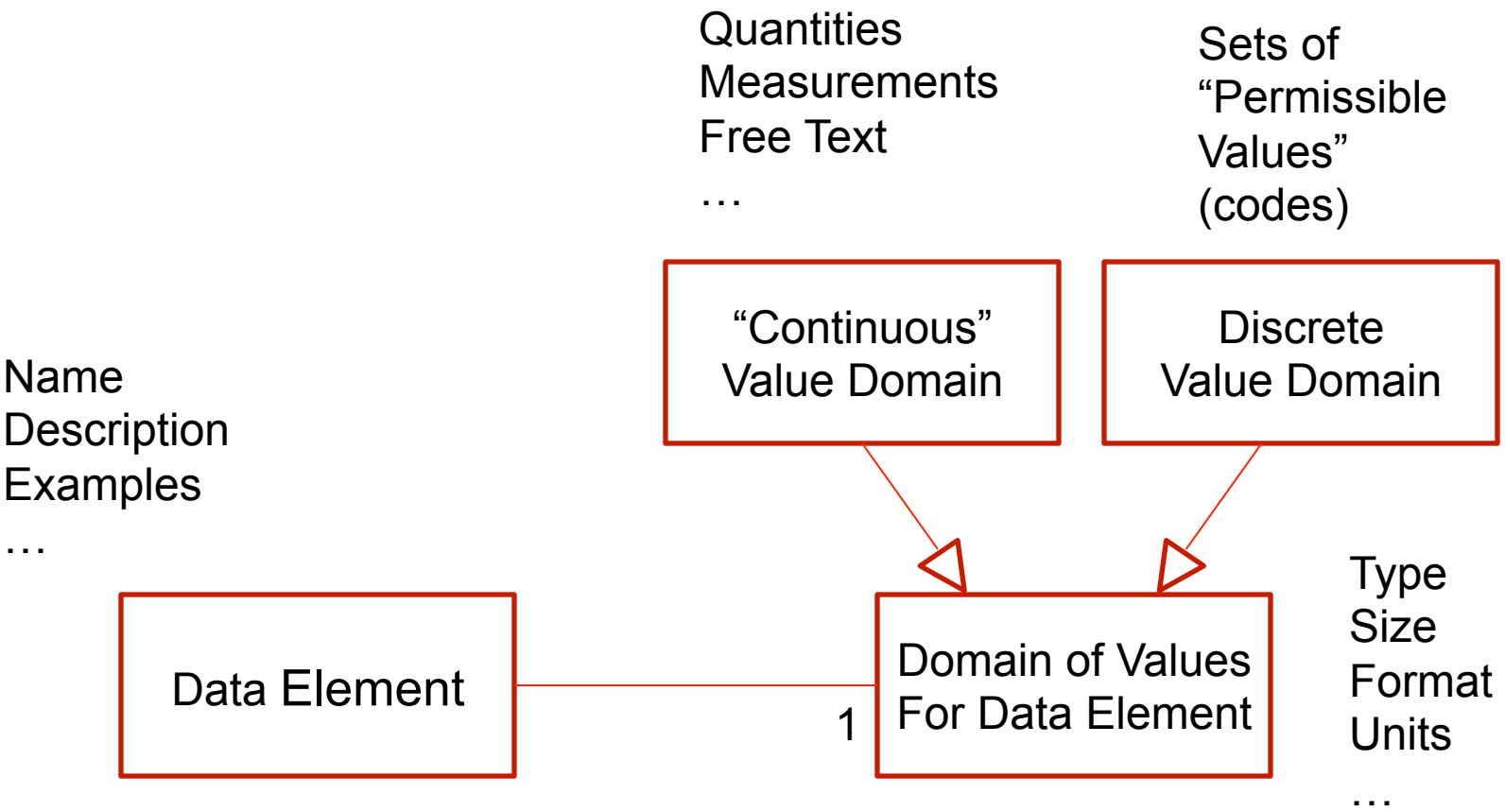
Describing Data

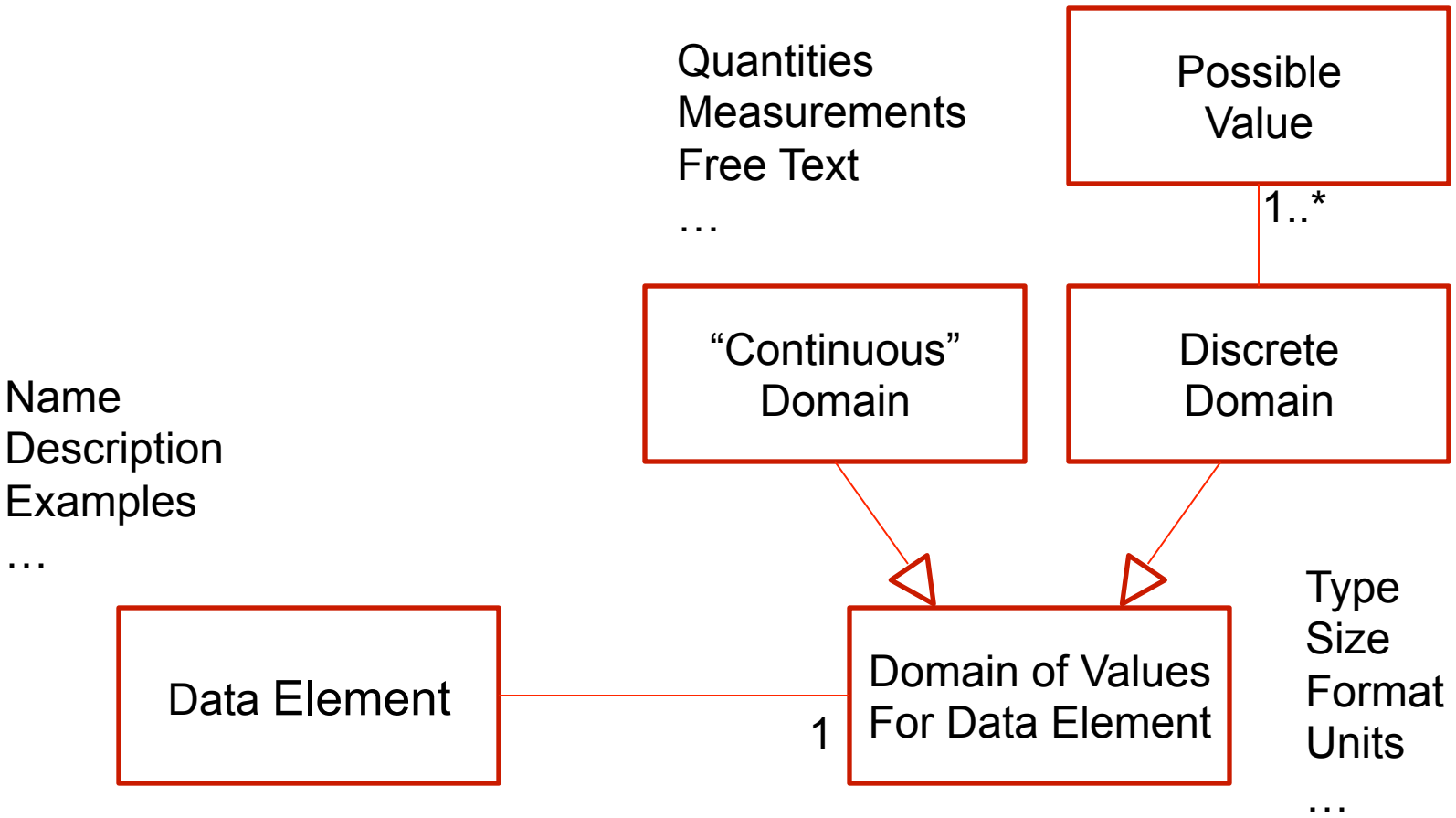
Name
Description
Examples
…

Type
Size
Format
Units
…

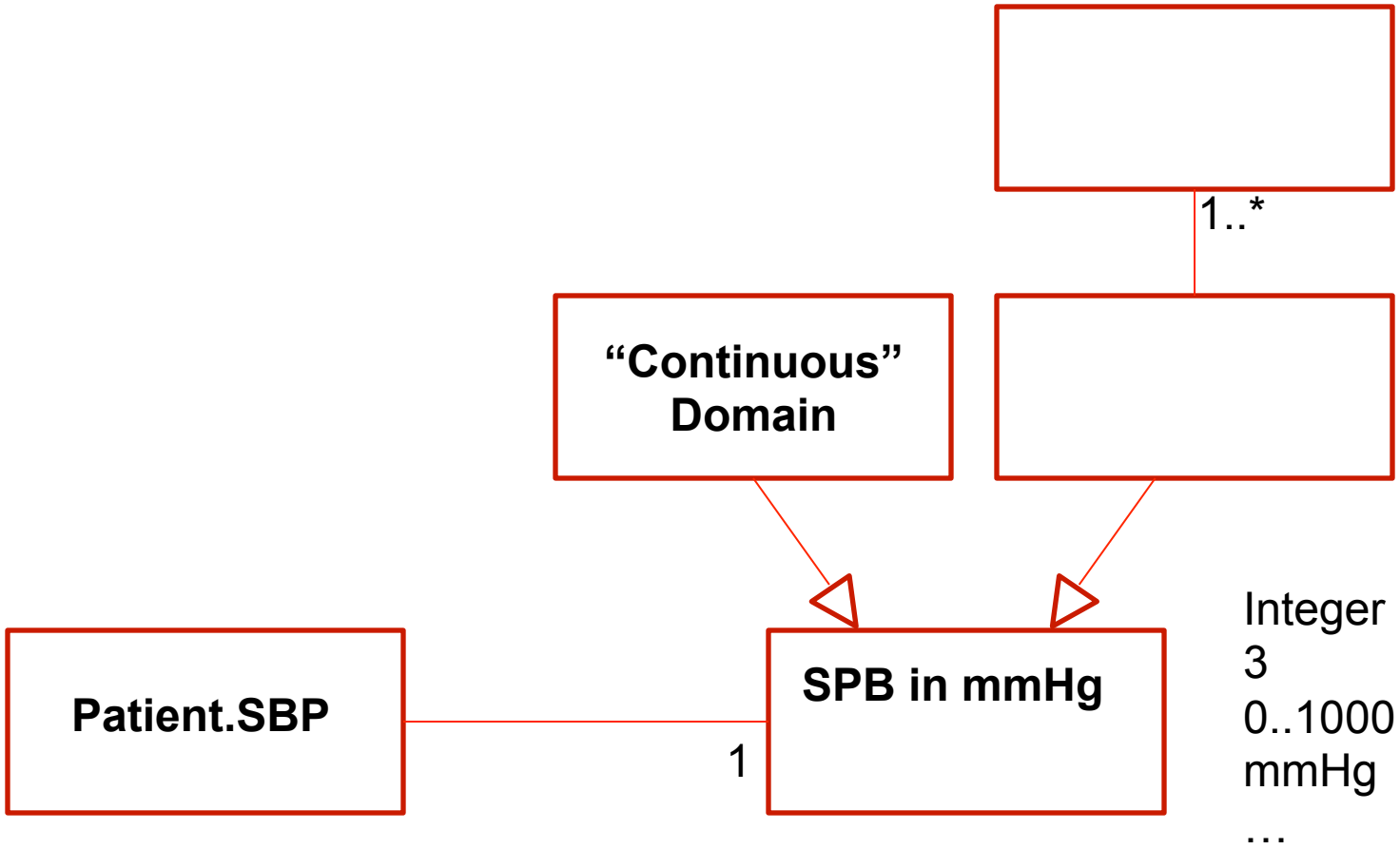
Describing Data



Describing Data



Describing Data
Example 1



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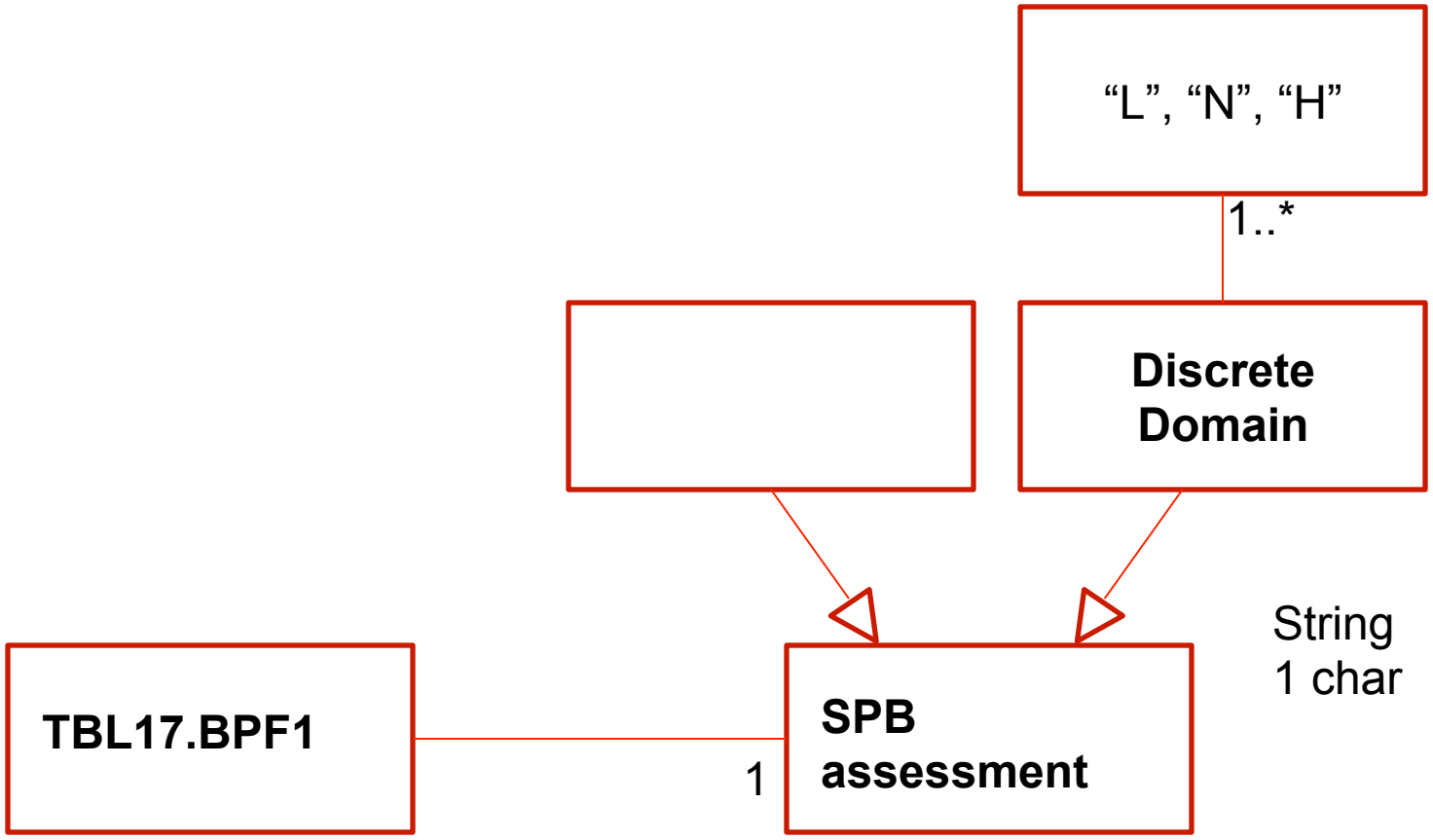
Describing Data
Example 2



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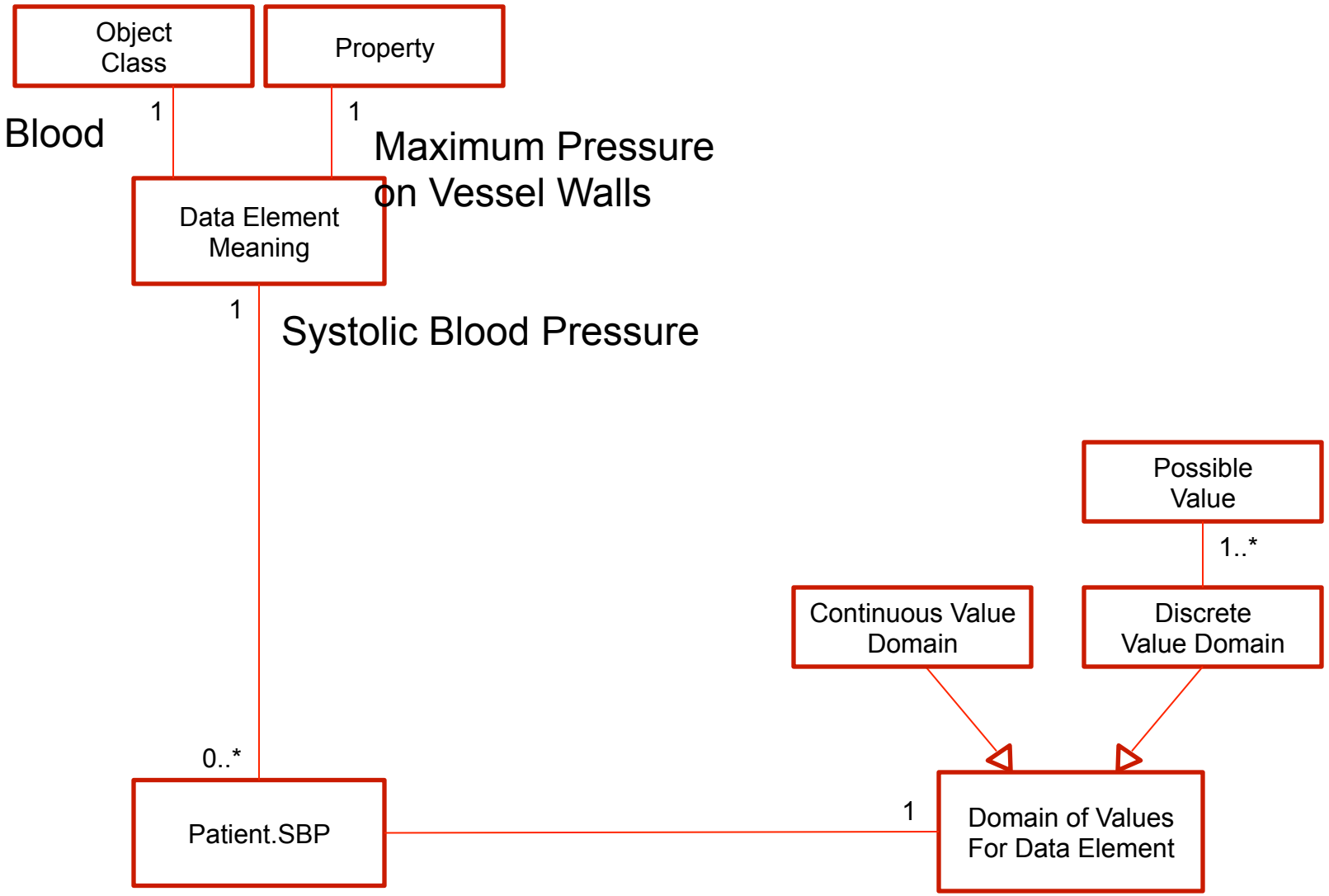
Adding Meaning



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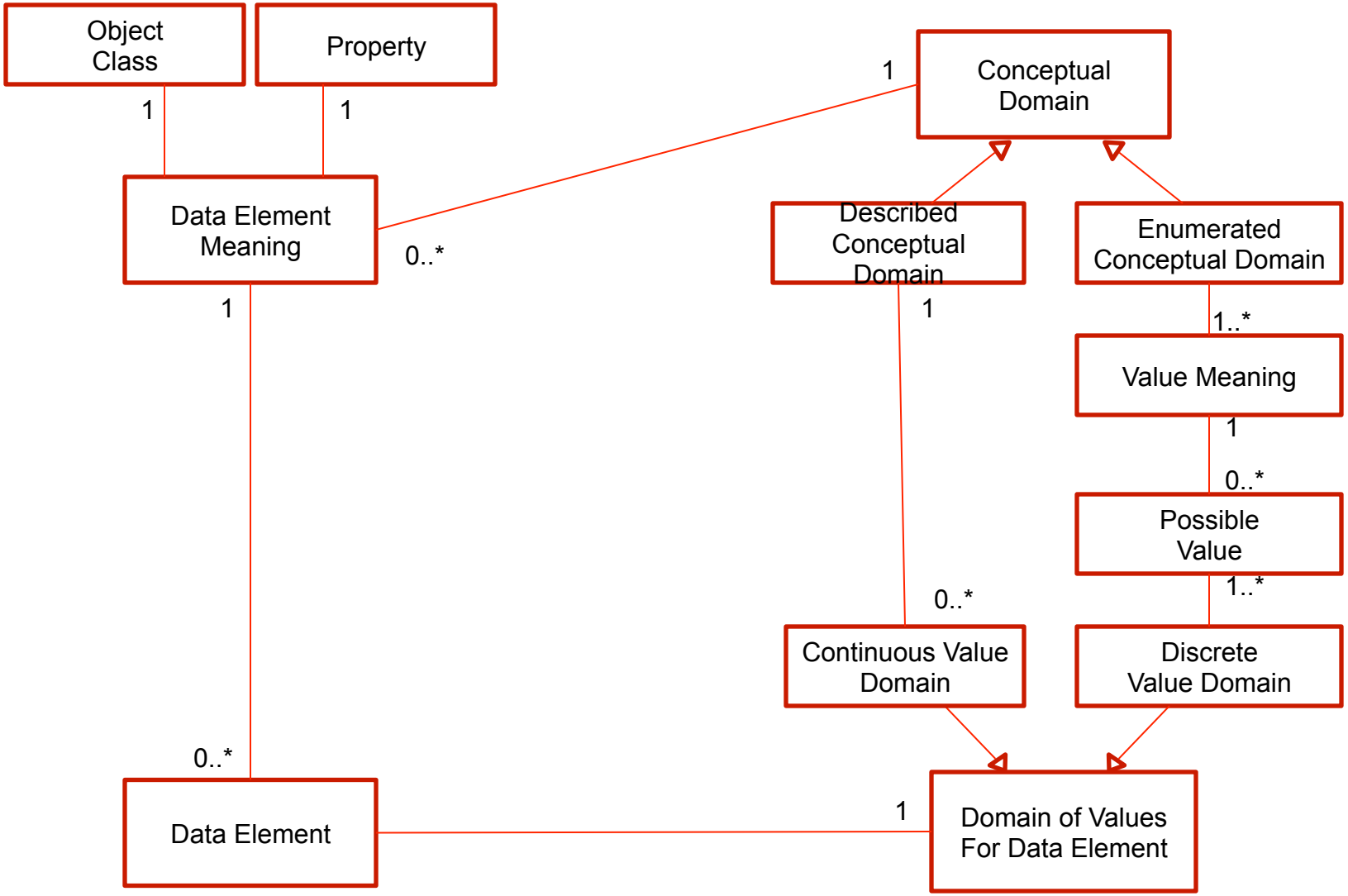
Adding Meaning



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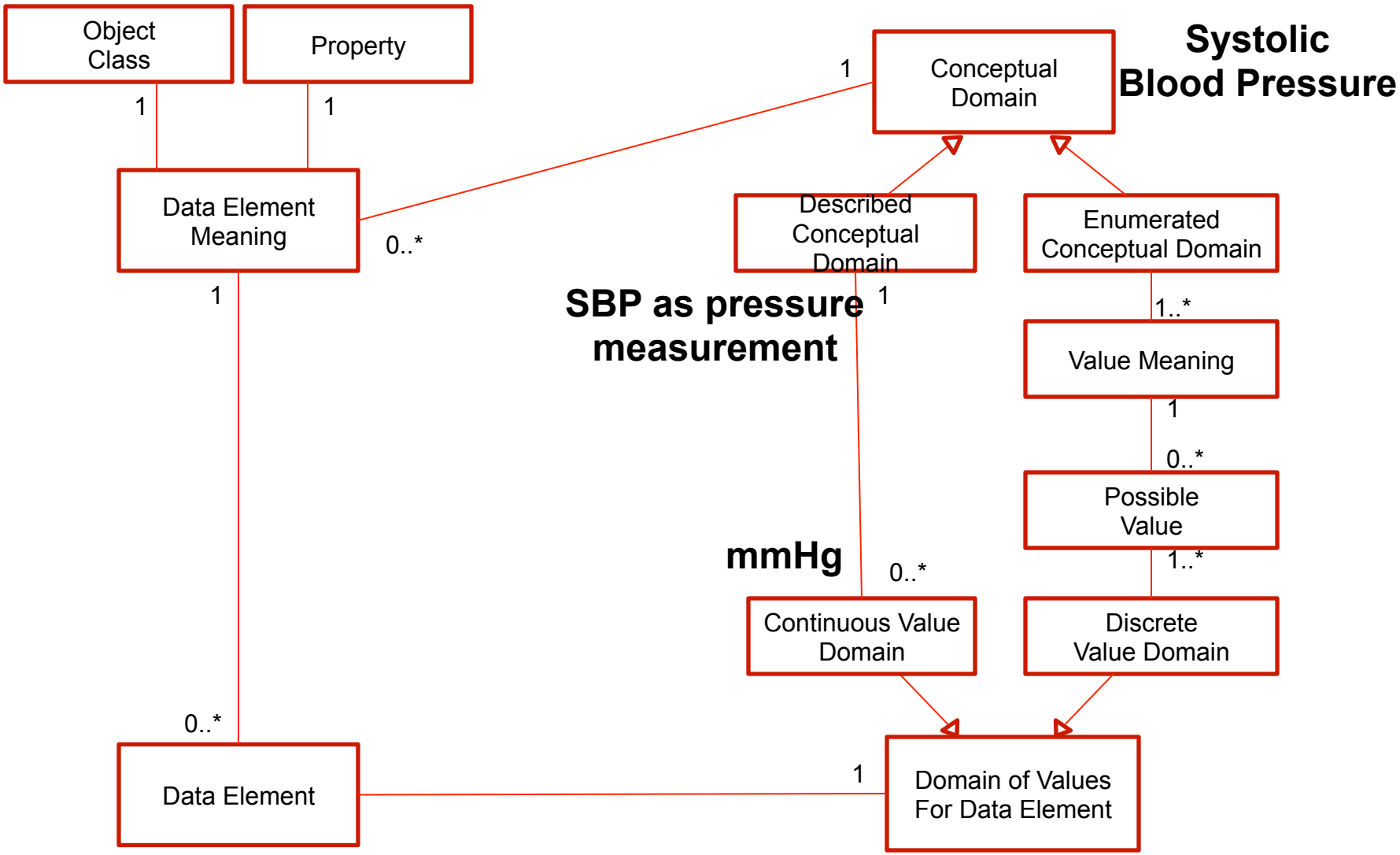
Adding Meaning



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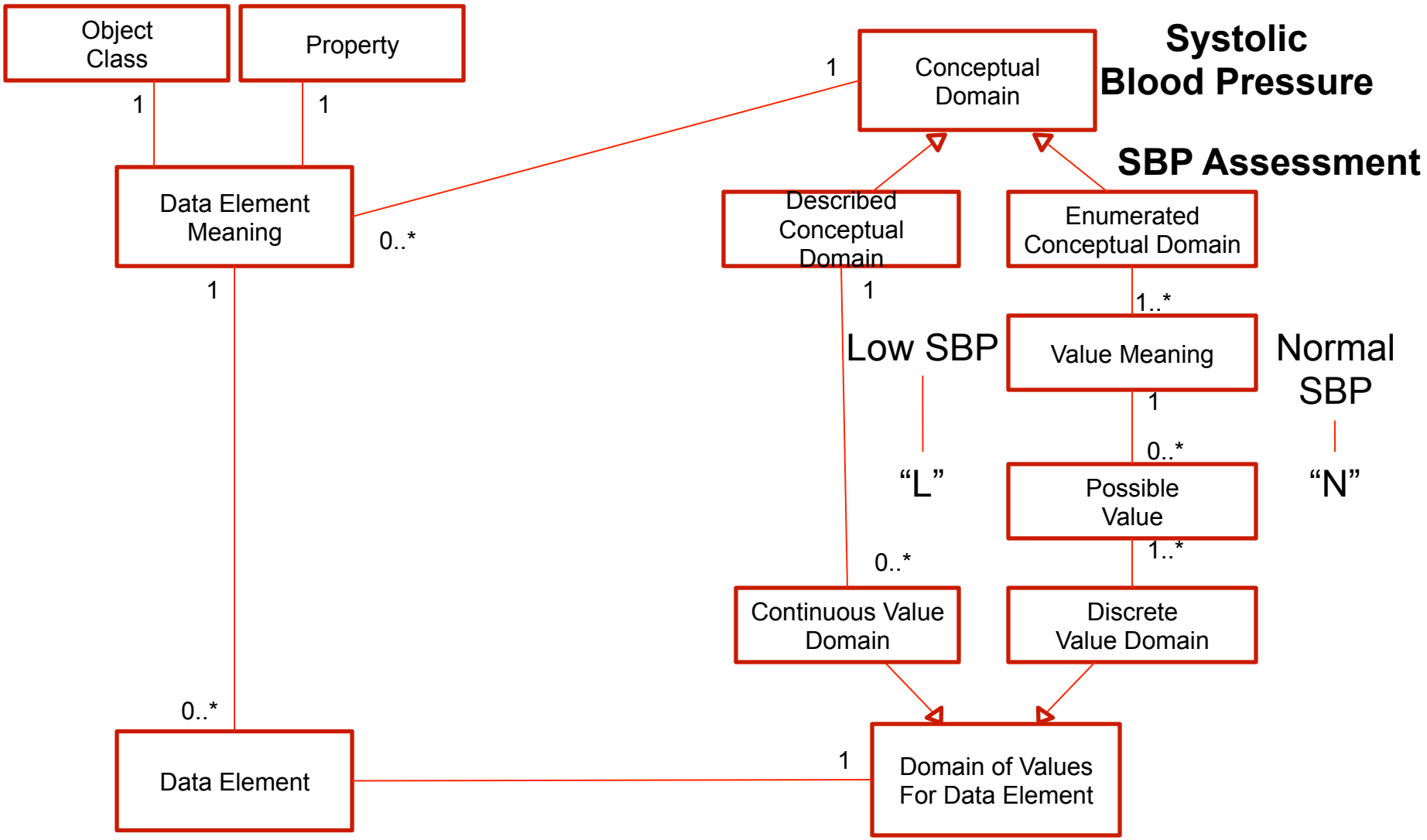
Adding Meaning



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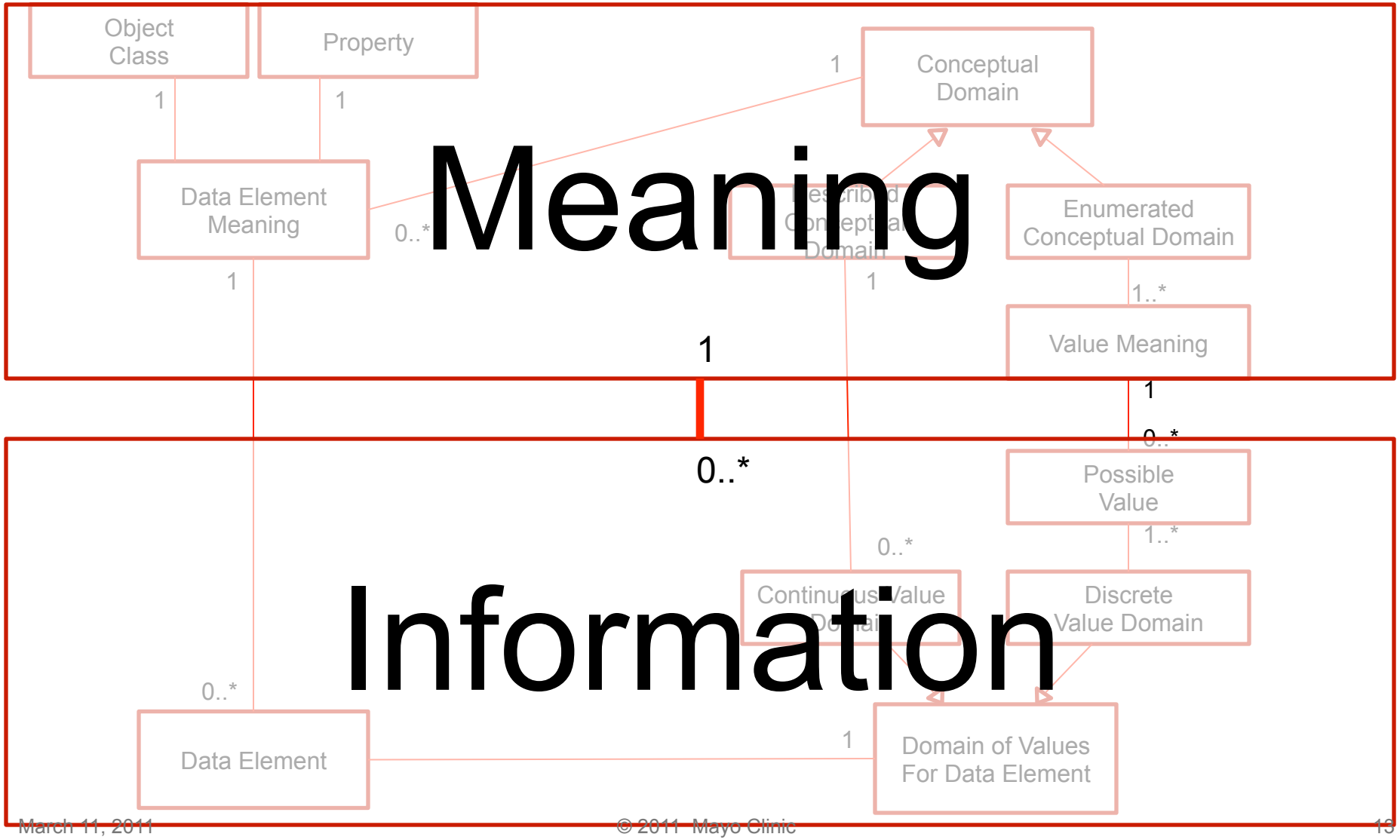
Information and Meaning



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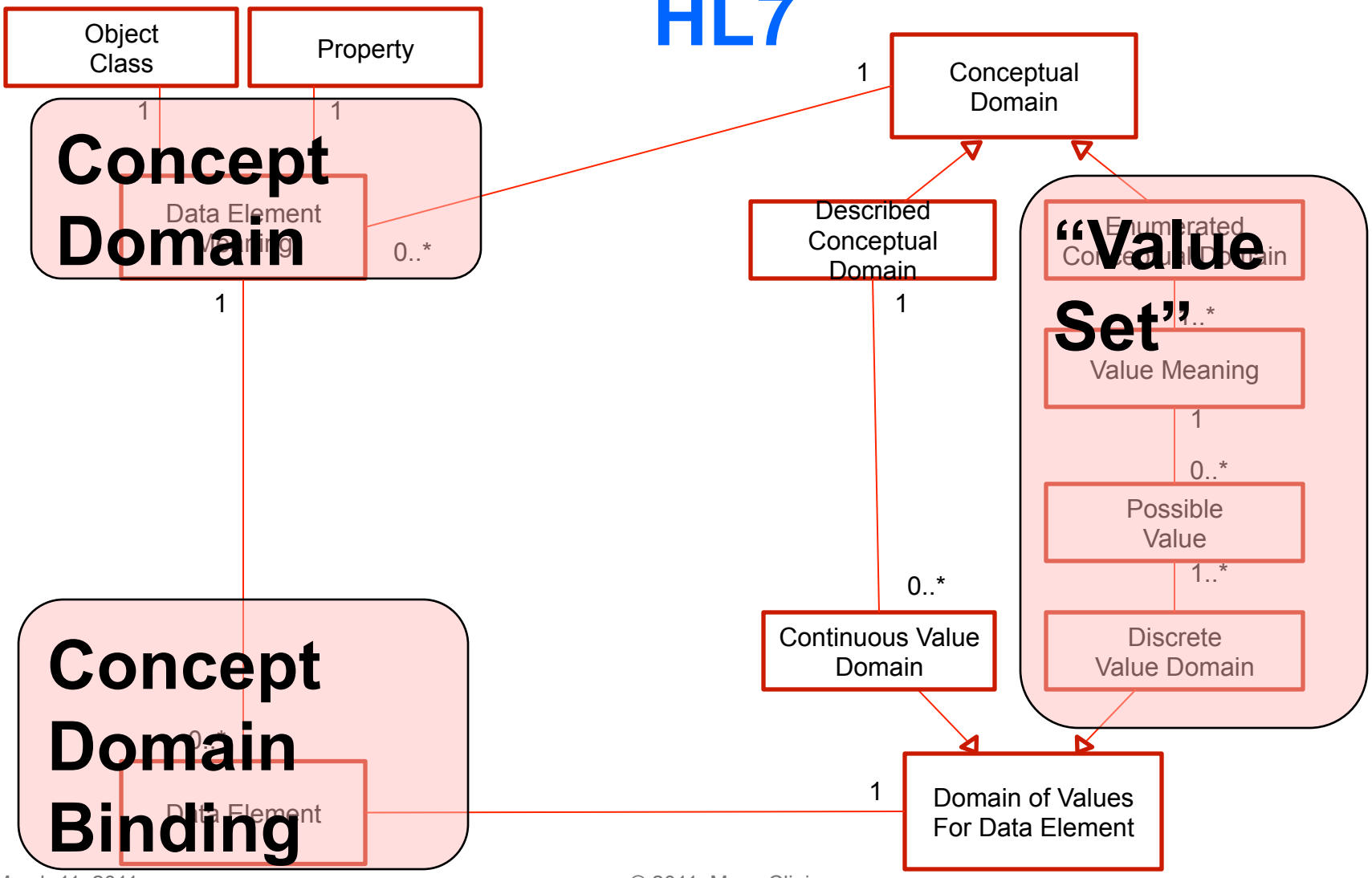
Information and Meaning HL7



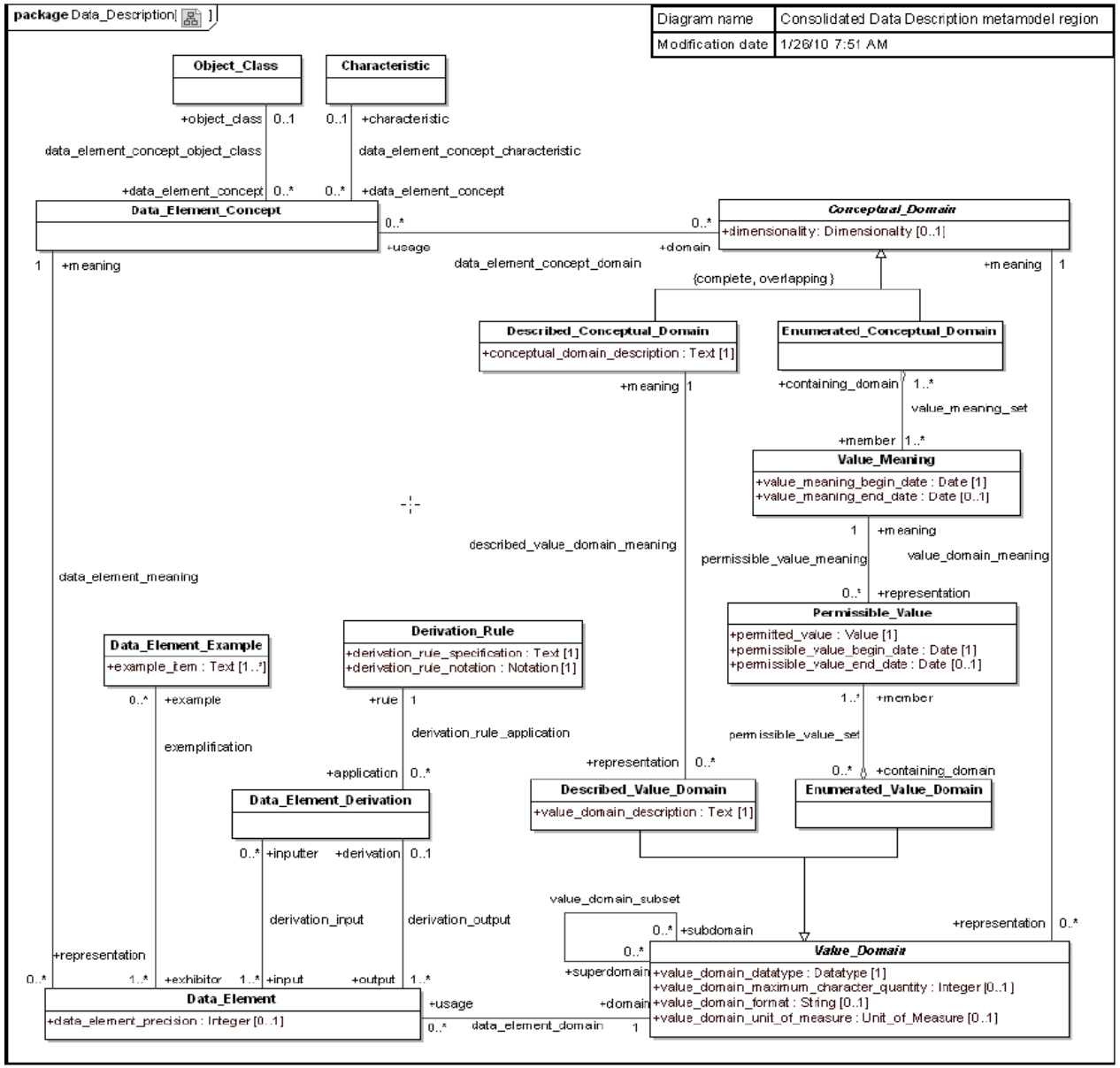


Figure 11-6 — Consolidated Data Description metamodel

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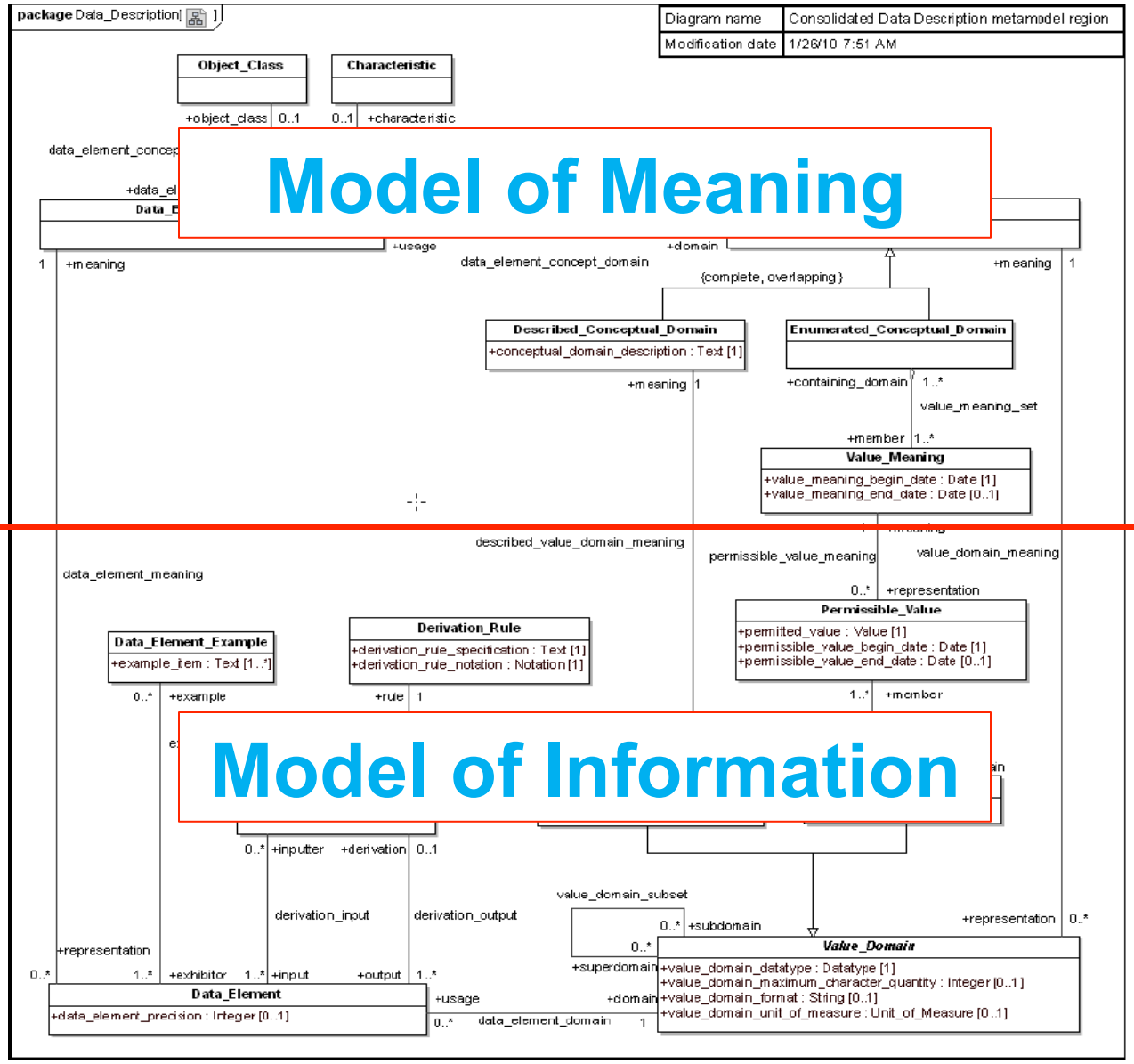


Figure 11-6 — Consolidated Data Description metamodel

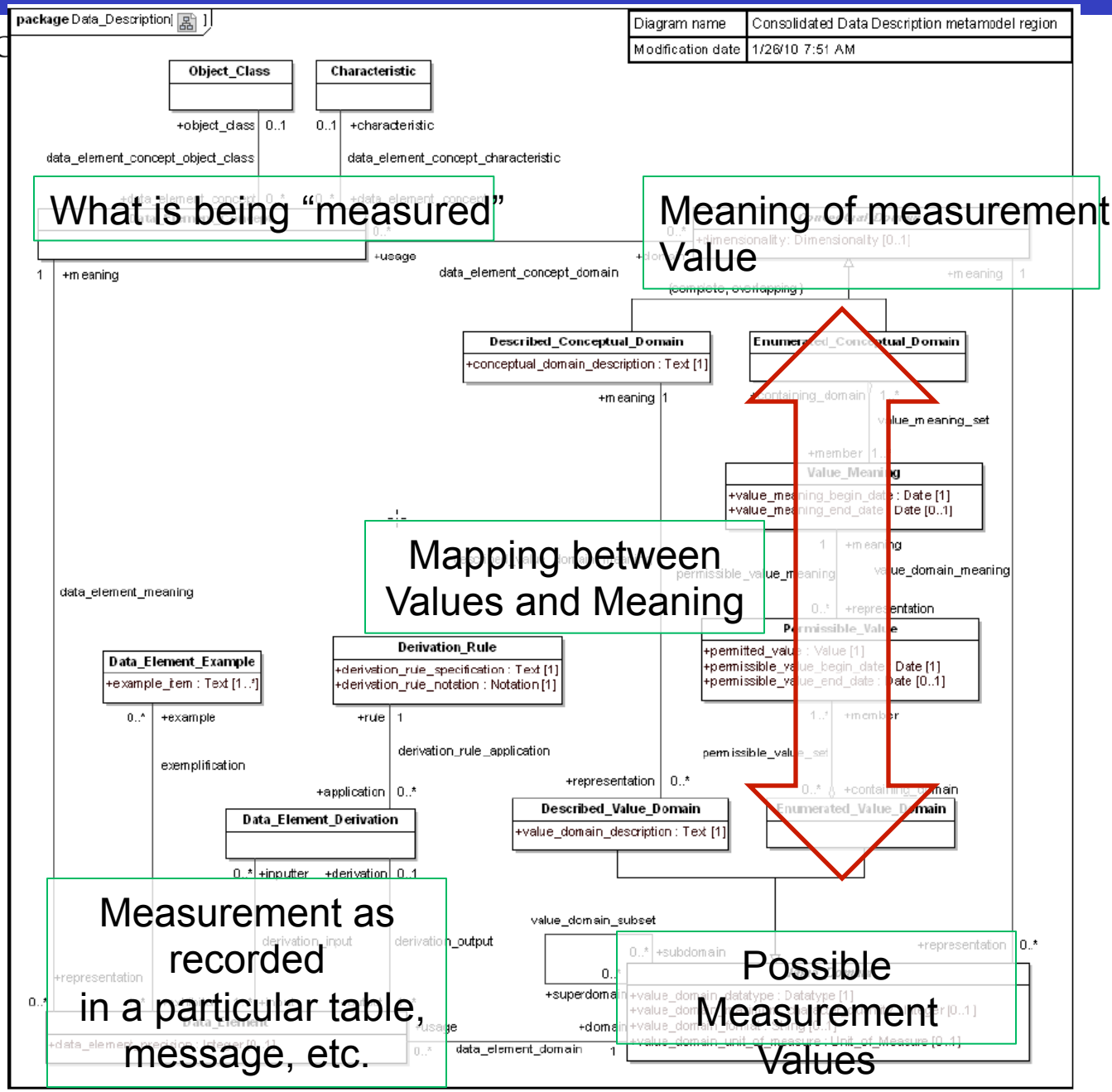


Figure 11-6 — Consolidated Data Description metamodel

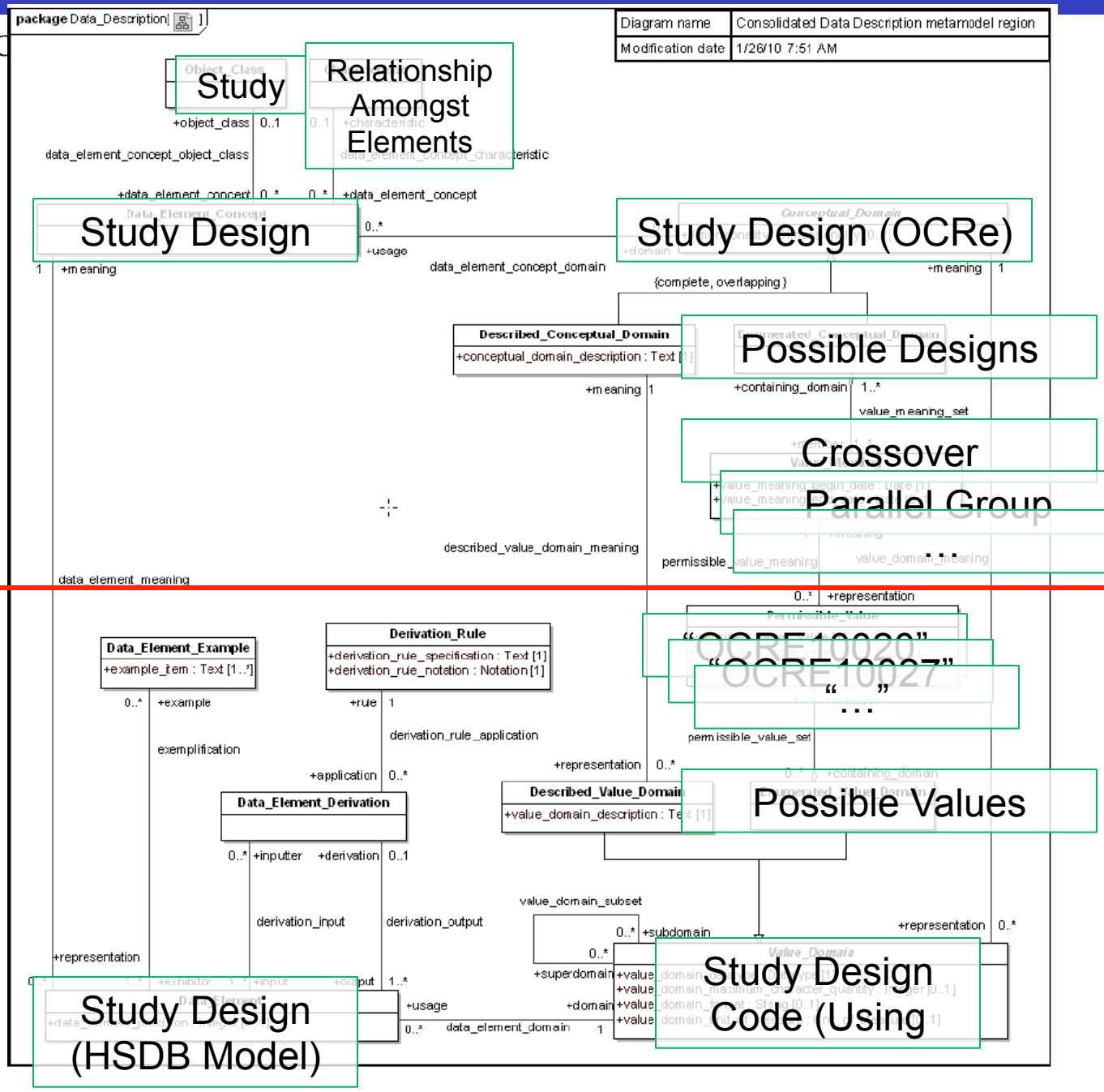
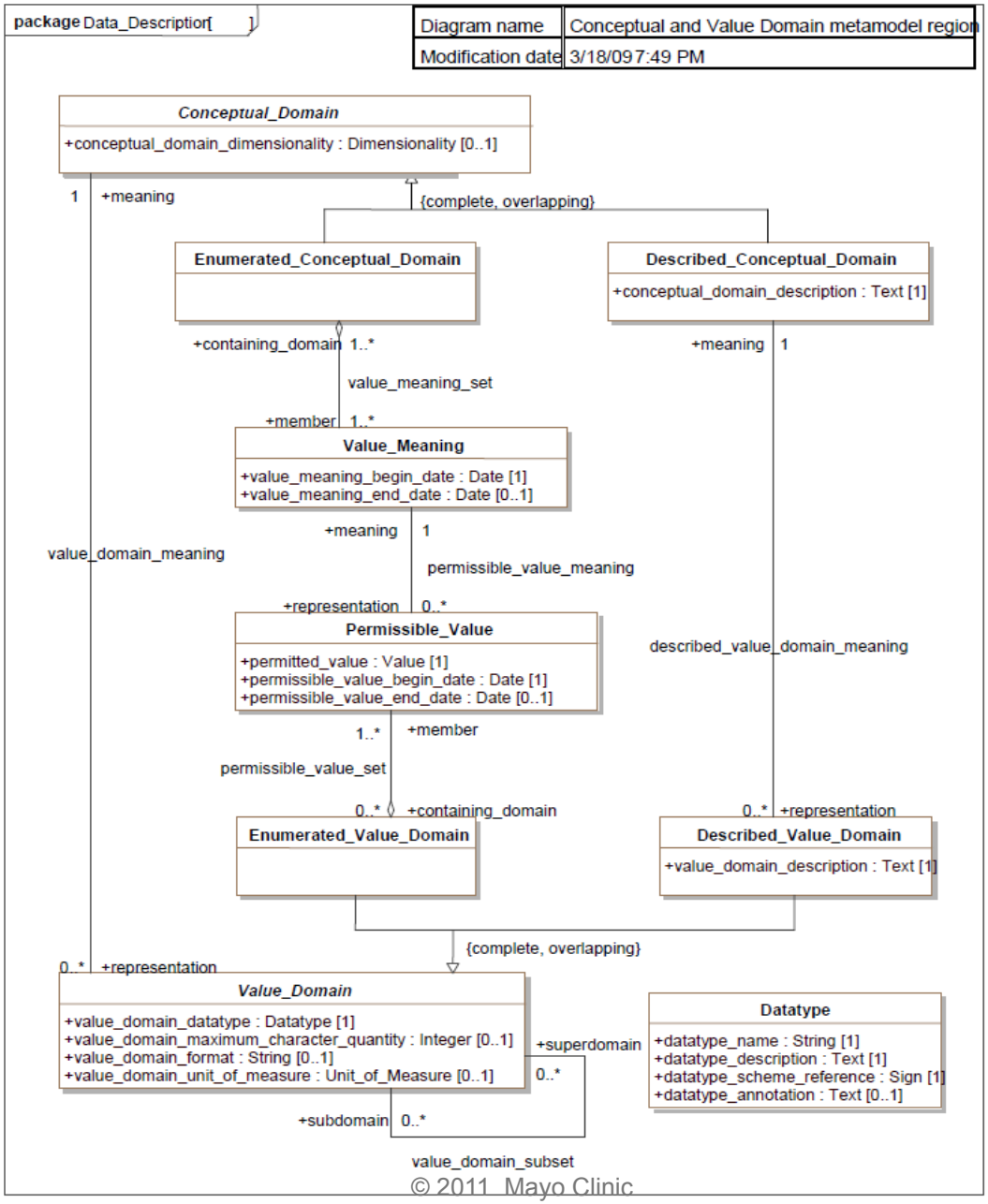


Figure 11-6 — Consolidated Data Description metamodel

THE MEANING OF "VALUE SET"



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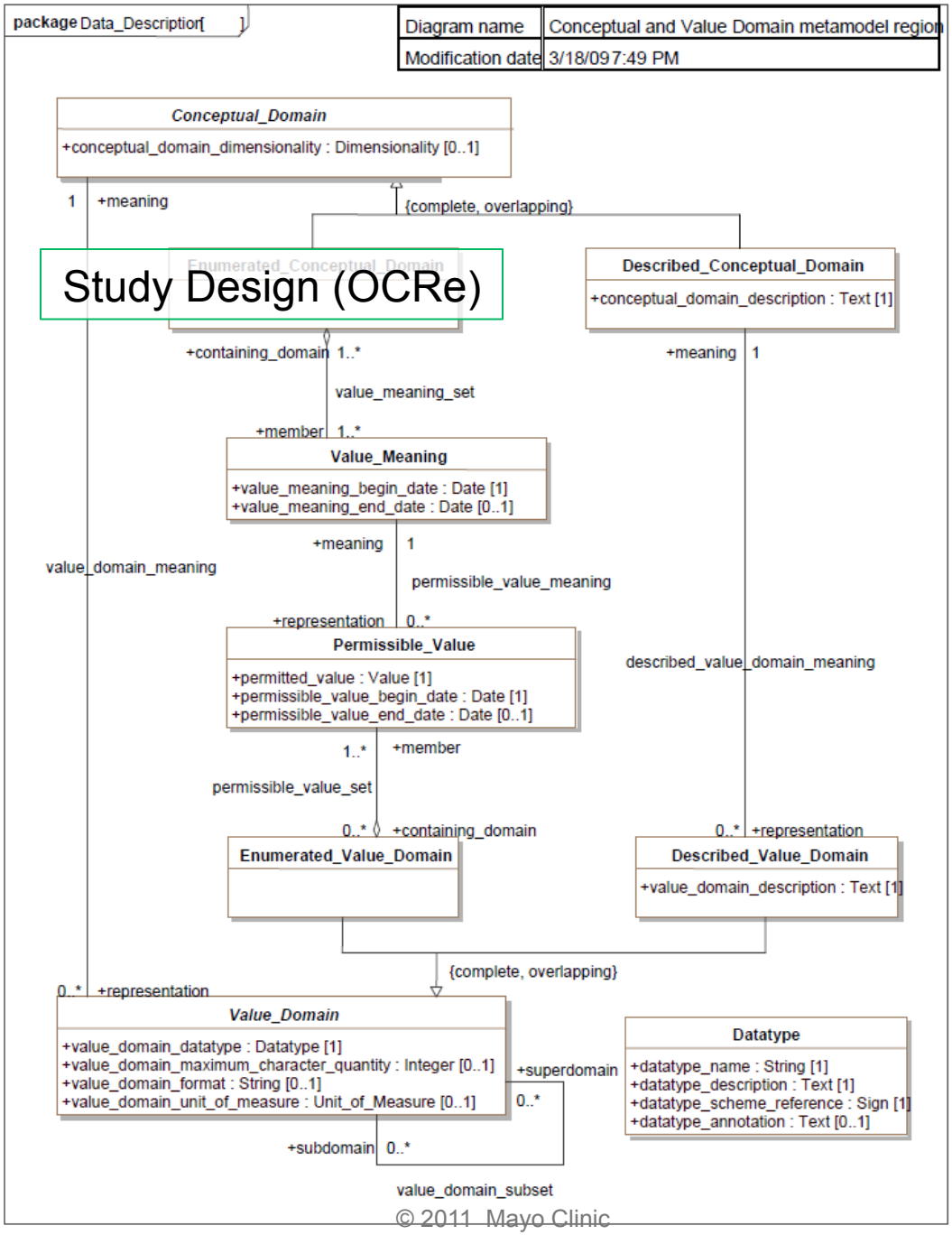
Value Set

1

Study Design (OCRe)



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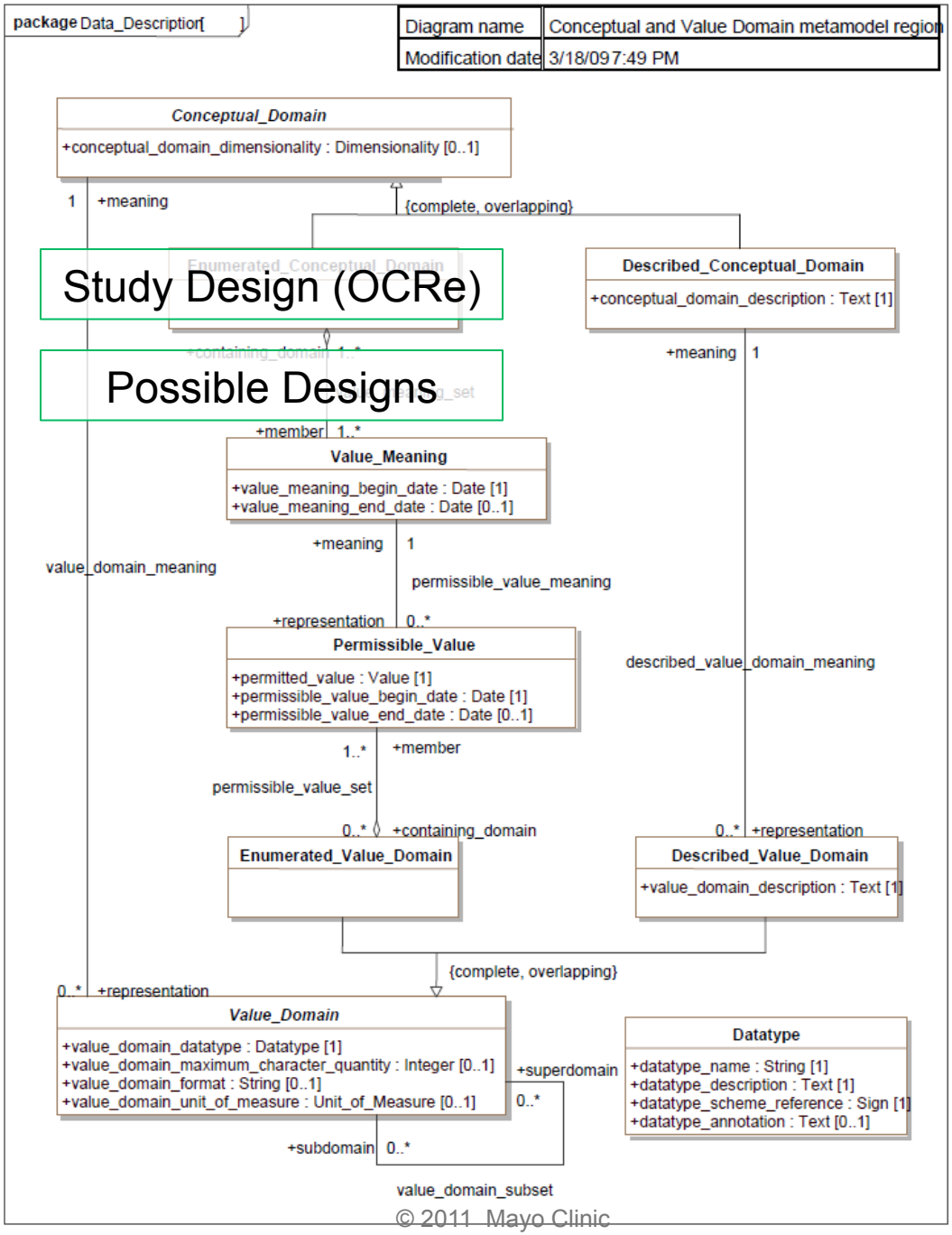
Value Set

Value Set Definition

1

2



Value Set

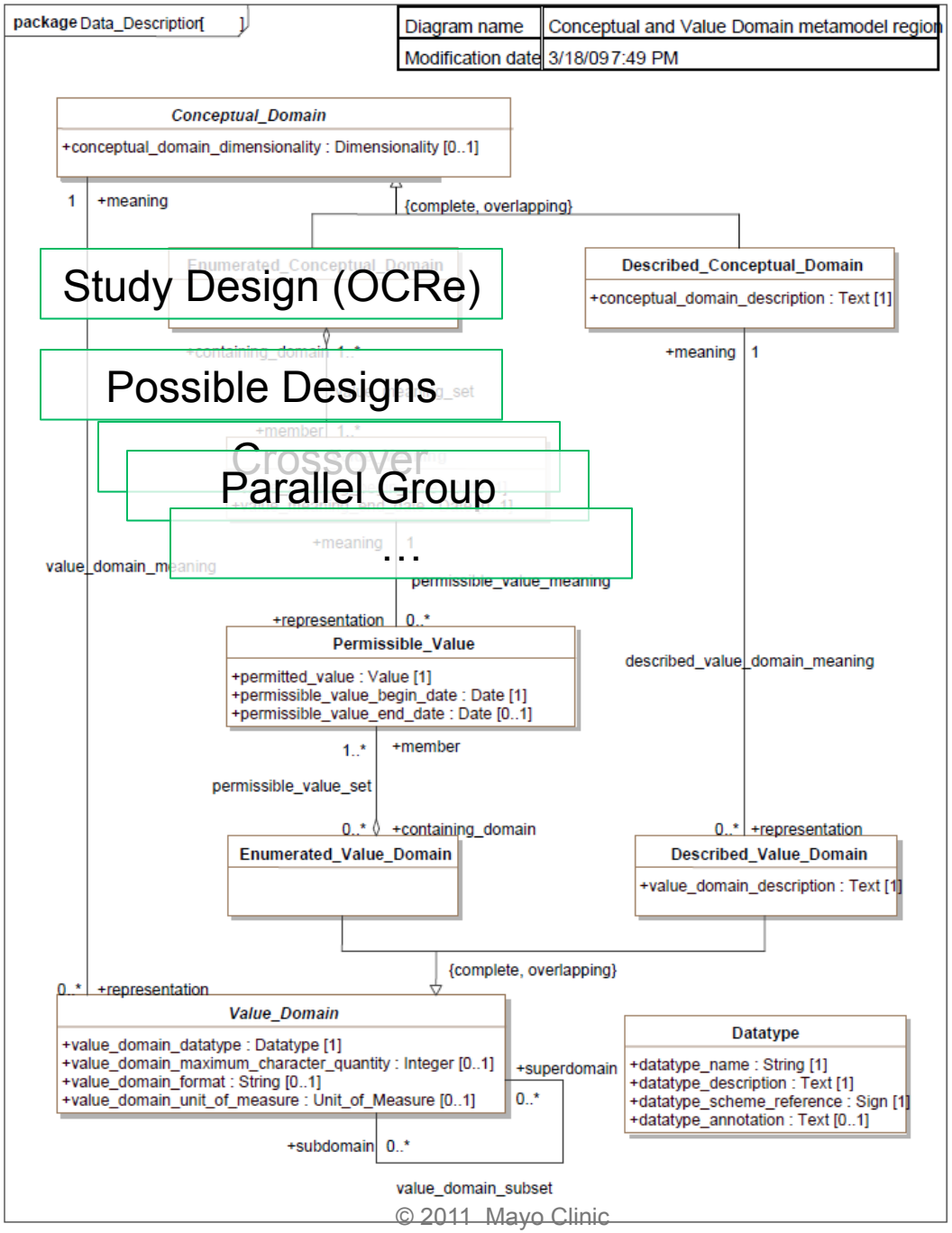
Value Set Definition

Resolved Value Set

1

2

3



Value Set

Value Set Definition

1

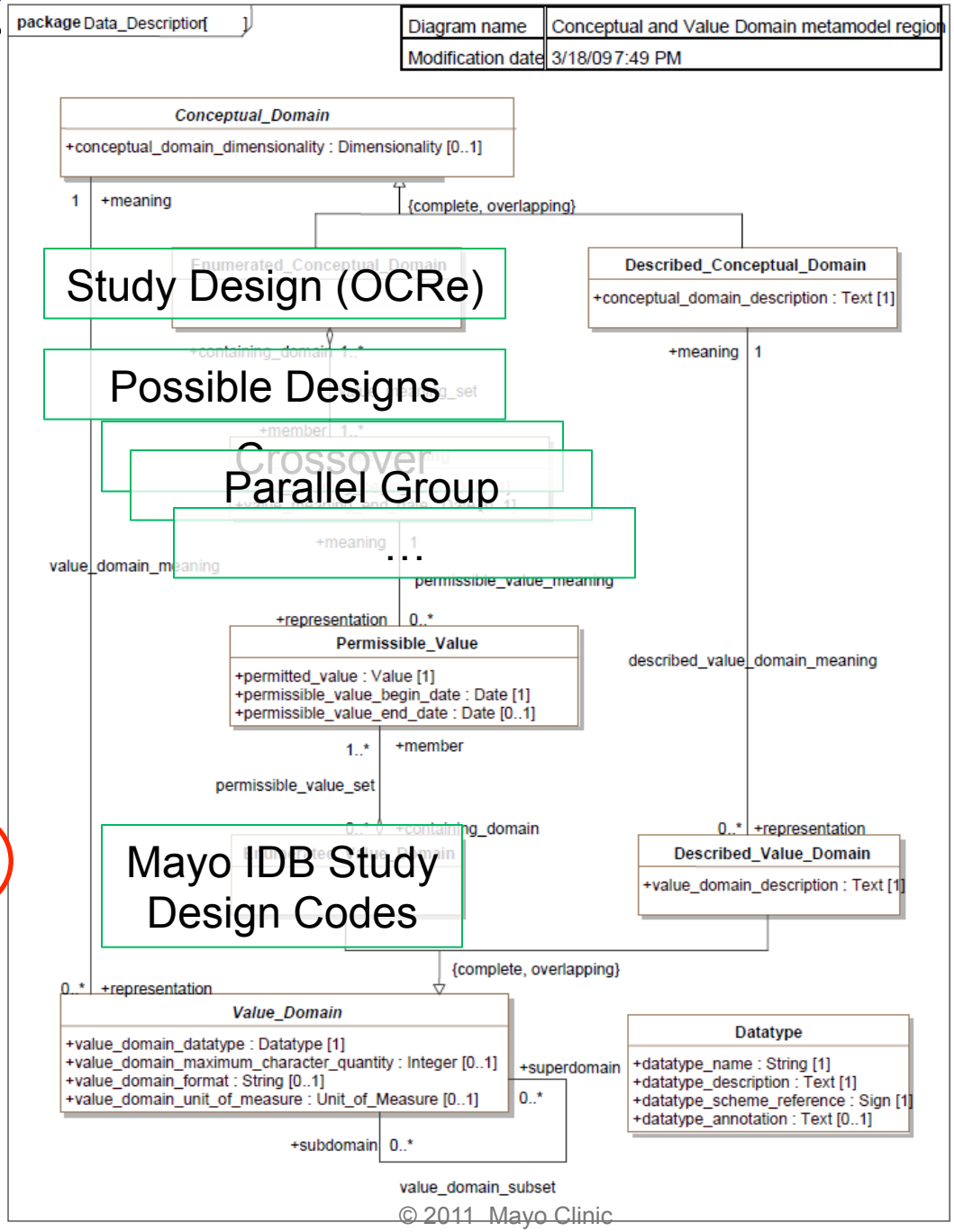
2

Resolved Value Set

3

4

Value Domain



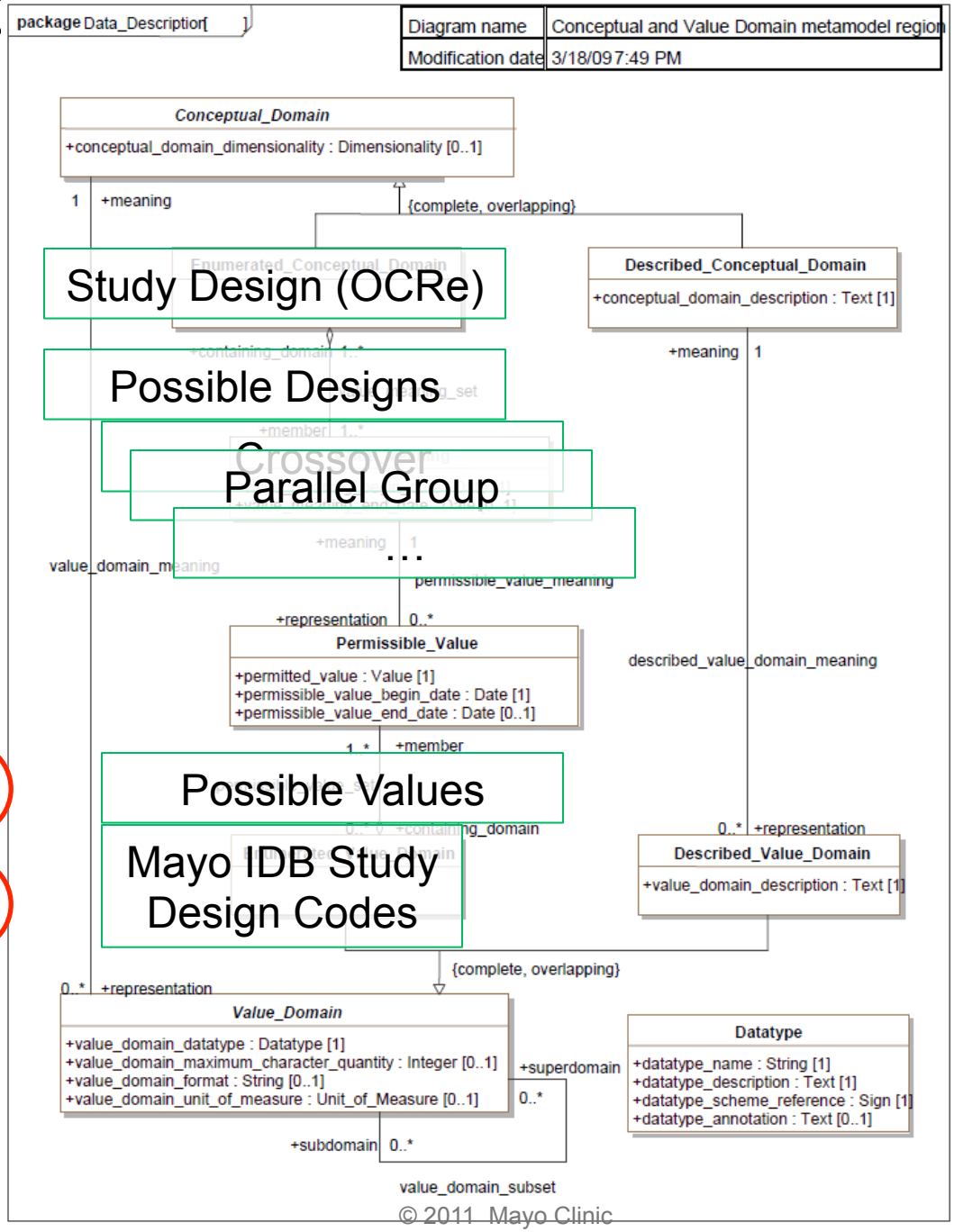
Value Set

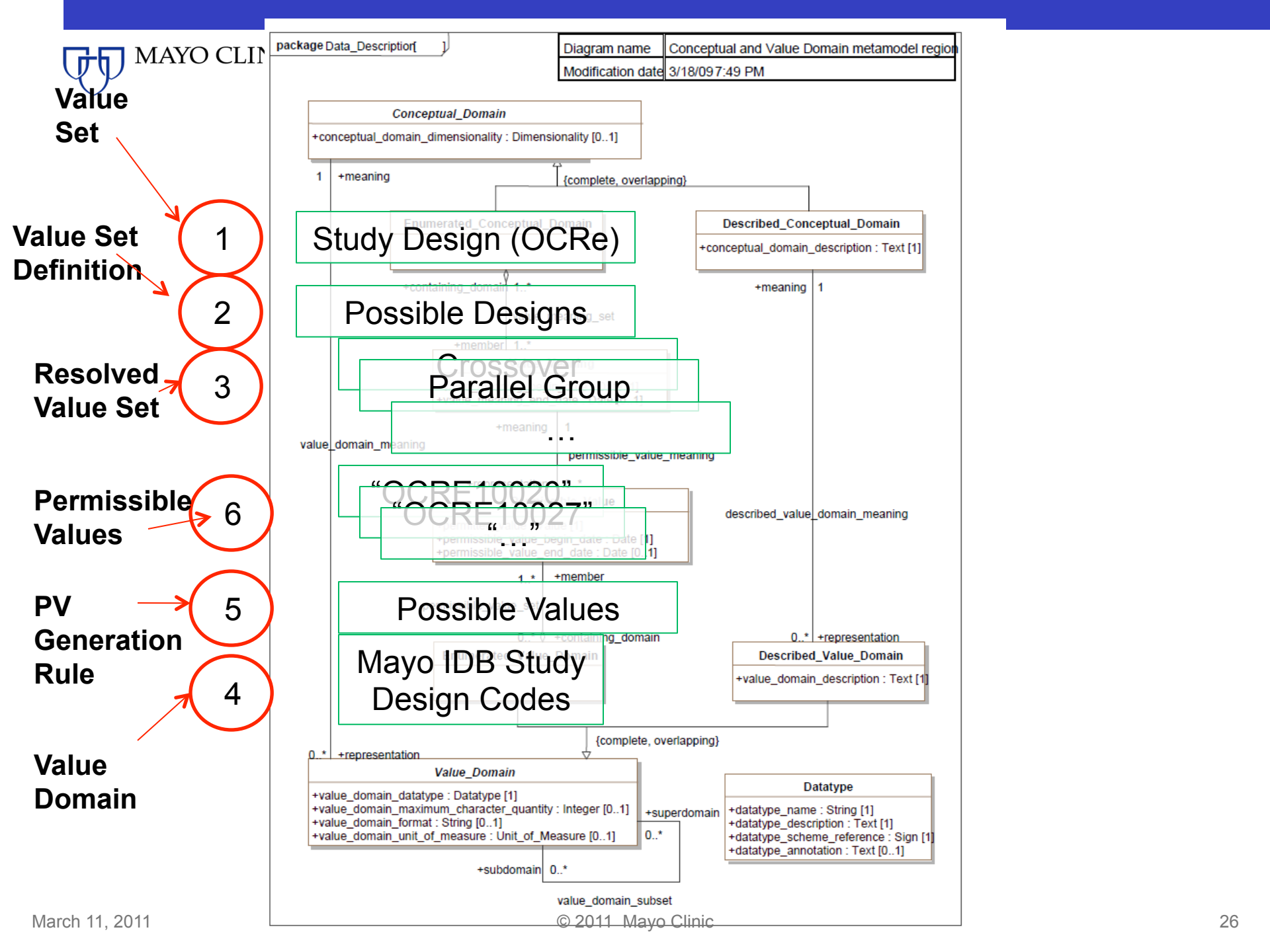
Value Set Definition

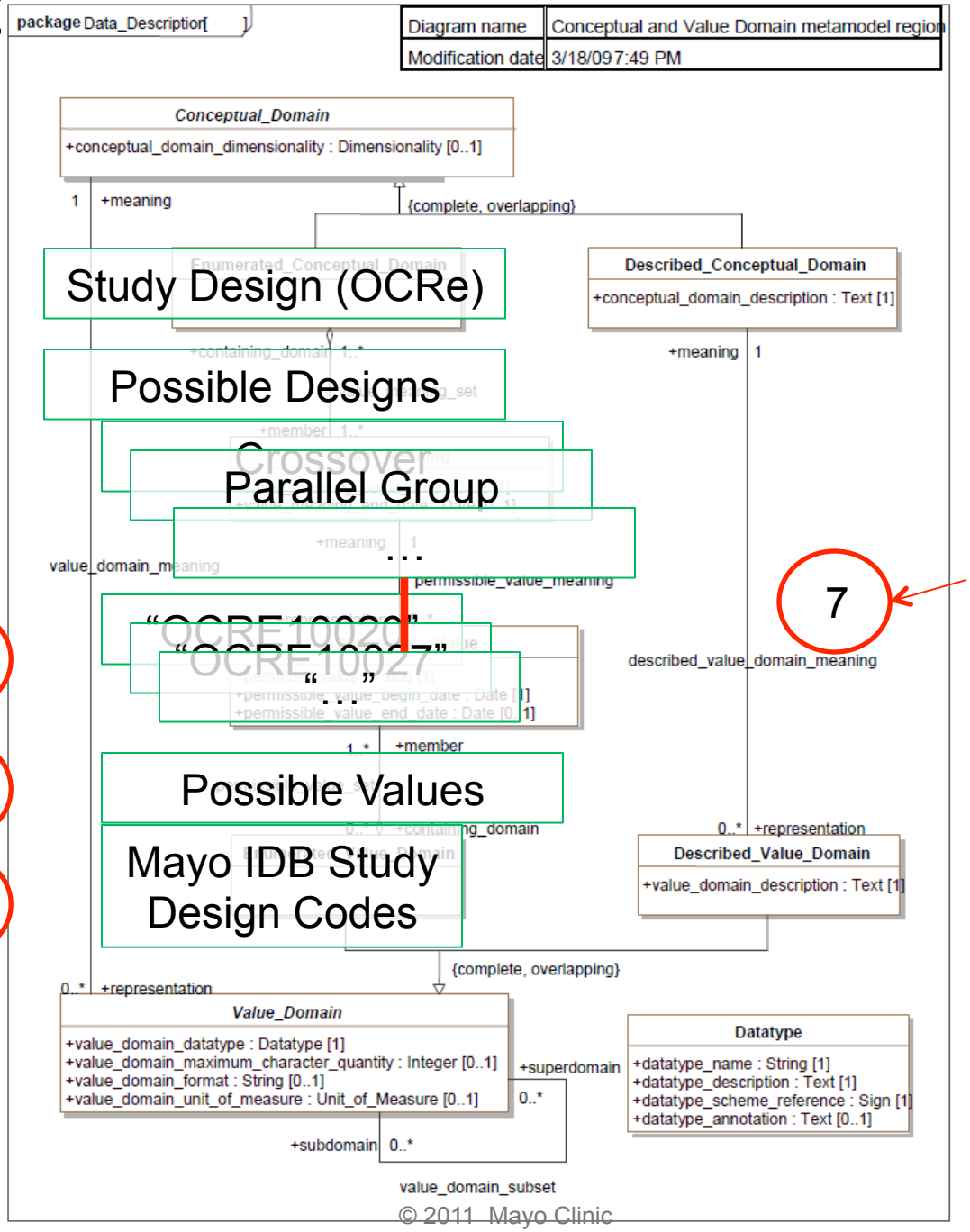
Resolved Value Set

PV Generation Rule

Value Domain







Value Set

Value Set Definition

1

2

Resolved Value Set

3

Permissible Values

6

PV Generation Rule

5

4

Value Domain

7

Map between
Permissible Values
And
Value Meanings

The Challenge

We are presented with multiple approaches to representing “value sets”

- Rector’s “Representing Specified Values in OWL: "value partitions" and "value sets” (http://www.w3.org/TR/2004/WD-swbp-specified-values-20040803/)
  - Pattern 1: Values as subclasses partitioning a quality
  - Pattern 2: Values as individuals whose enumeration is equivalent to the quality (Expanded upon in “Binding Ontologies & Coding systems to Electronic Health Records and Messages” (Rector – KRMed 2006)

The Challenge (continued)

- HL7 Concept Domain, Value Set and Concept Domain Binding
- CTS2 Value Set, Value Set Definition, Value Set Resolution, Concept Domain and Concept Domain Binding

The Challenge (continued)

- The method of representing value sets being proposed to the NCI by Lynch et. al.
- SPARQL definitions and queries as proposed
- CDC PHIN Vads
- (others)

The Challenge

The *good news* is that there is less conflict and overlap than originally expected…

… each approach turns out to focus on just a few of the various definitions described above.

The *challenge*, however, is to determine where there is overlap and collision and…

… where there are gaps that need to be filled in to make a complete model

Goals

- **Arrive at a consistent model of "value sets" (all 6+ definitions)**
- **Identify a consistent, interoperable suite of representations, each of which fulfills a particular purpose (e.g. description, definition, interchange, reasoning, mapping, etc.)**
- **Specify the *identity* of various model components and how they are used**