



UNIVERSITY OF PADUA
DEPARTMENT OF INFORMATION ENGINEERING

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INFORMATION
ENGINEERING
UNIVERSITY OF PADOVA



Annotations: Enriching a Digital Library

Maristella Agosti

maristella.agosti@unipd.it

Nicola Ferro

nicola.ferro@unipd.it

Information Management Systems Research Group



Contents of Presentation

- ▶ Methodological aspects regarding annotations;
- ▶ Development of an annotation service;
- ▶ Integration of the annotation service within an existing digital library.

Methodological Aspects

Research Vision

Nowadays we work in an increasingly distributed and networked environment, which allows us to provide services and applications, without any distinction between local and remote information access.

- ▶ paradigm of interaction with digital libraries;
- ▶ the annotations is a means for enabling this paradigm;
- ▶ focused annotation services rather than general-purpose annotation services.

Main Steps

In order to develop an *annotation service for digital libraries*:

- ▶ we study the semantics of the concept of annotation;
- ▶ we derive a conceptual model of annotation from the study of its semantics;
- ▶ we design and develop a prototype annotation service, which implements the conceptual model of annotation;
- ▶ we test the prototype annotation service with an existing digital library, named OpenDLib.

Annotation: a Complex Concept

Annotation is a complex and stratified concept in our cultural heritage, whose semantics is especially rich and has a great expressive power.

We can distinguish between:

- ▶ *meaning of annotation;*
- ▶ *sign of annotation;*

as explained in the following.

Meaning of Annotation

The meaning of annotation is a main aspect concerning the concept of annotation: it identifies conceptual differences within the semantics of the annotation.

We can identify the following meanings of annotation:

- ▶ *comprehension and study;*
- ▶ *interpretation and divulgation;*
- ▶ *cooperation and revision.*

Sign of Annotation

The sign of annotation is a way of representing a meaning of annotation, that is a way in which a particular meaning of annotation can materialize itself.

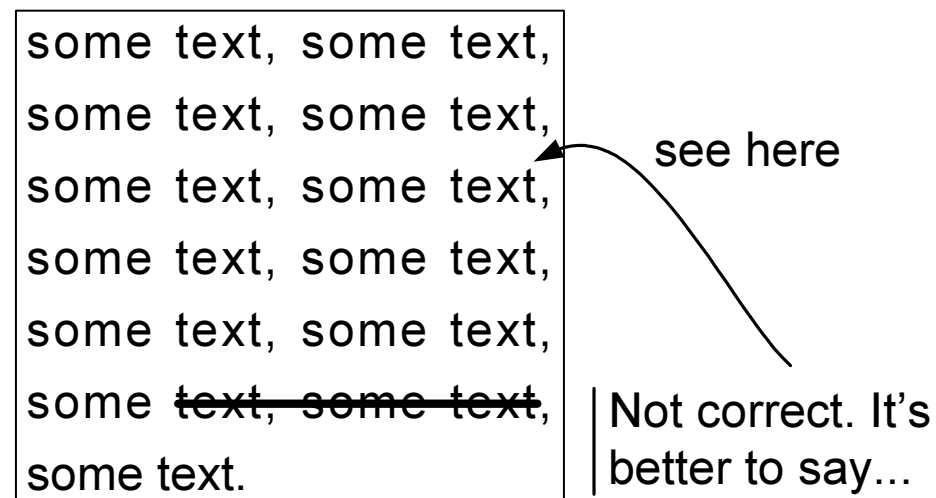
We can identify the following signs of annotation:

- ▶ *textual sign*;
- ▶ *graphic sign*;
- ▶ *reference sign*.

These signs can be compounded together in order to express complex meanings of annotation.

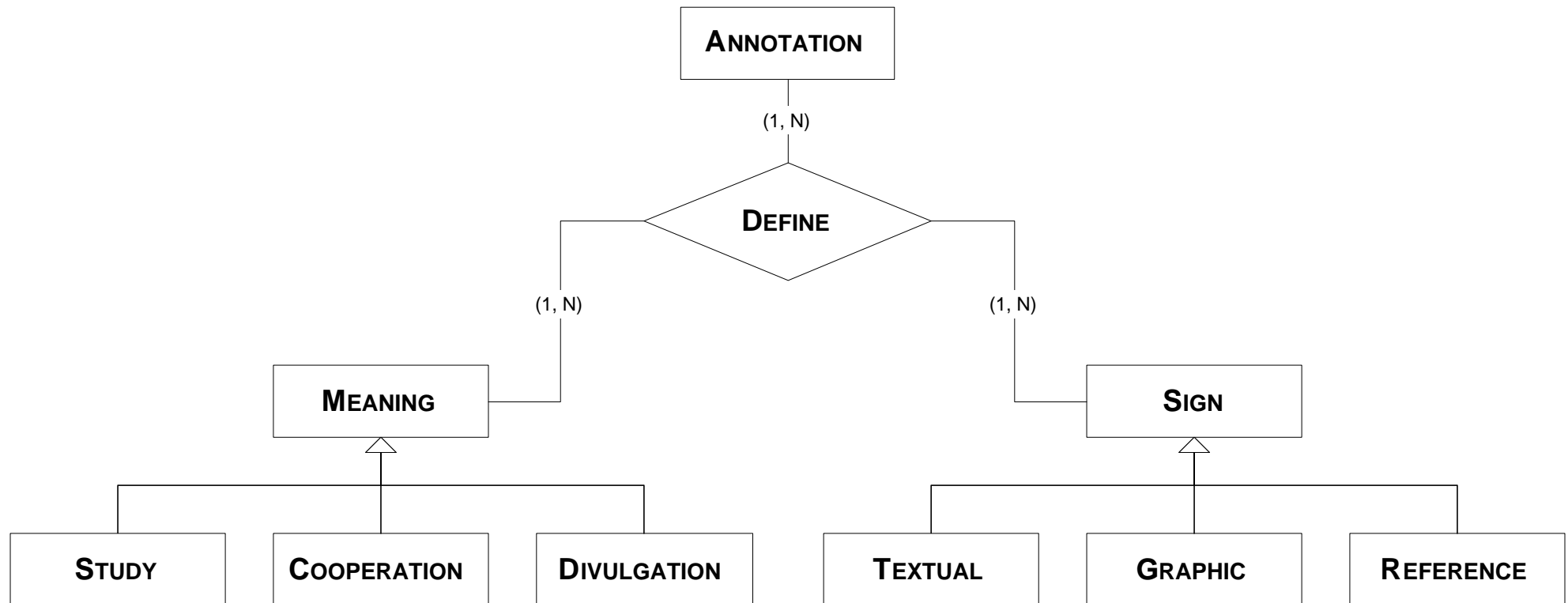
Signs Compounding

Signs compounding can be employed in order to express meanings of annotation, which a single sign of annotation is not able to represent.



For example, in order to express the “cooperation and revision” meaning of annotation, we could use a compounding of textual signs, graphic signs and reference signs.

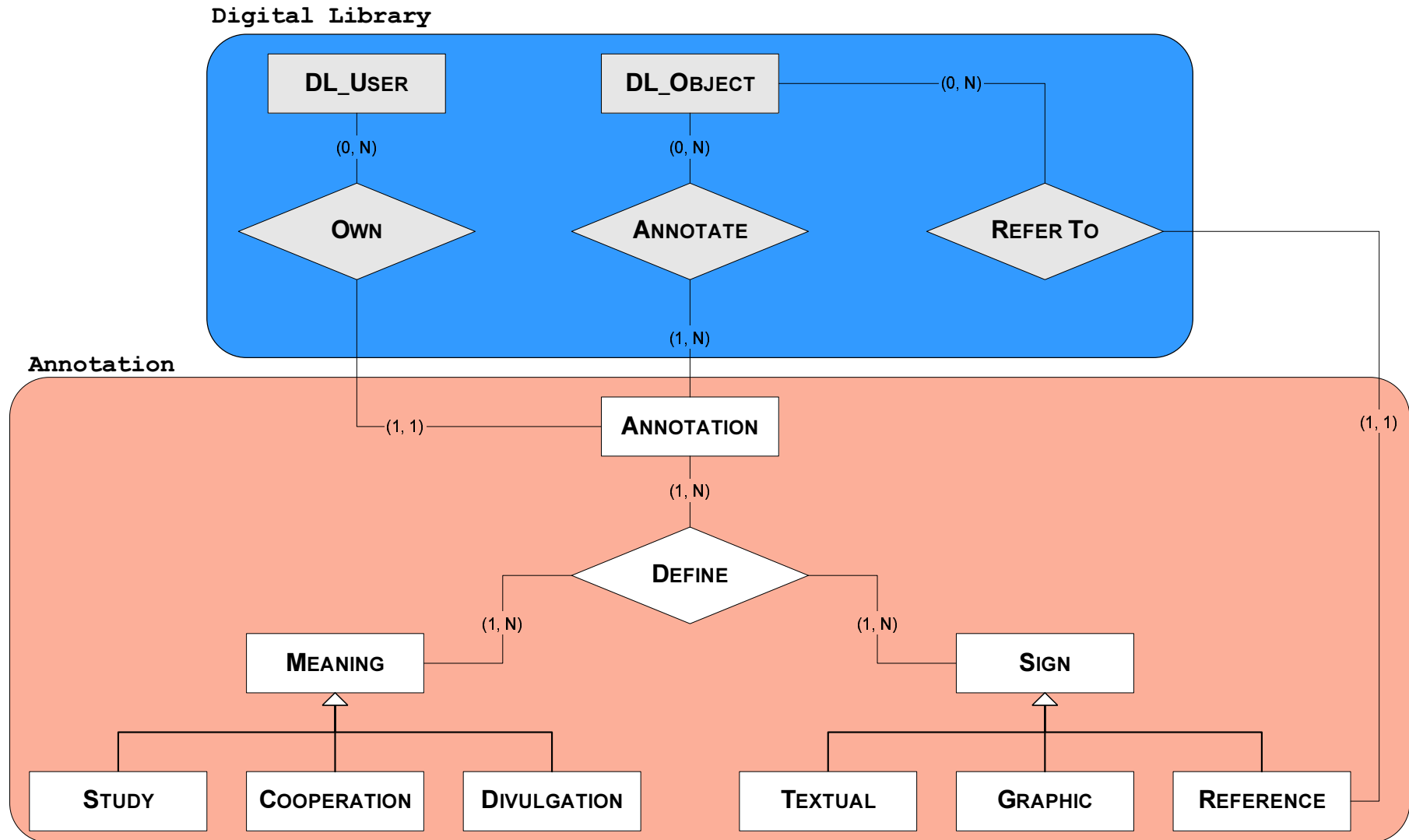
Conceptual Model of Annotation



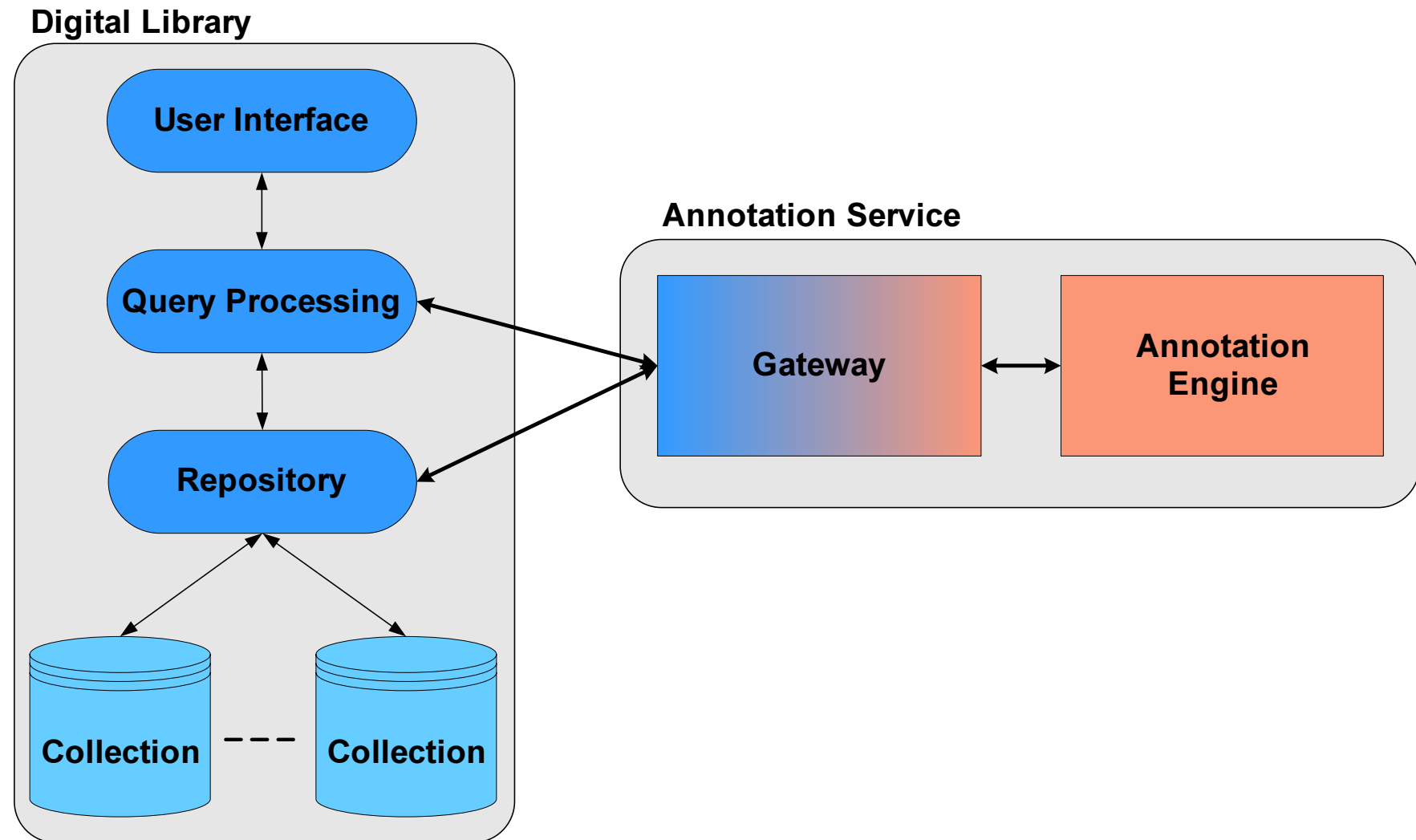
Note the threefold relationship **DEFINE**, which connects the three entities **ANNOTATION**, **MEANING** and **SIGN** in order to define the semantics and the materialization of an annotation.

Annotation Service

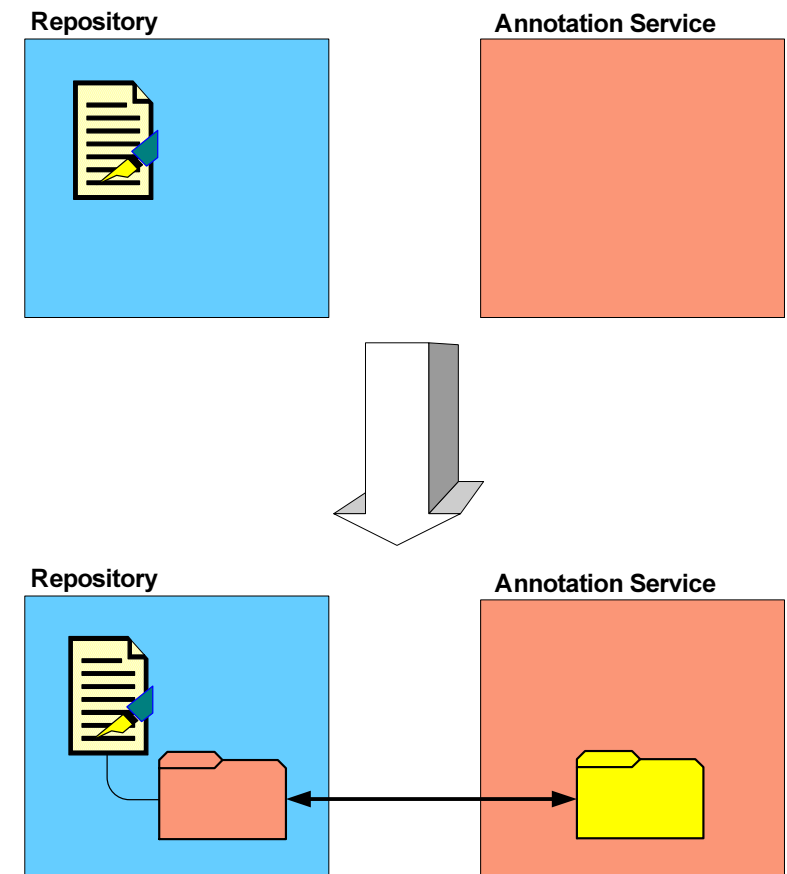
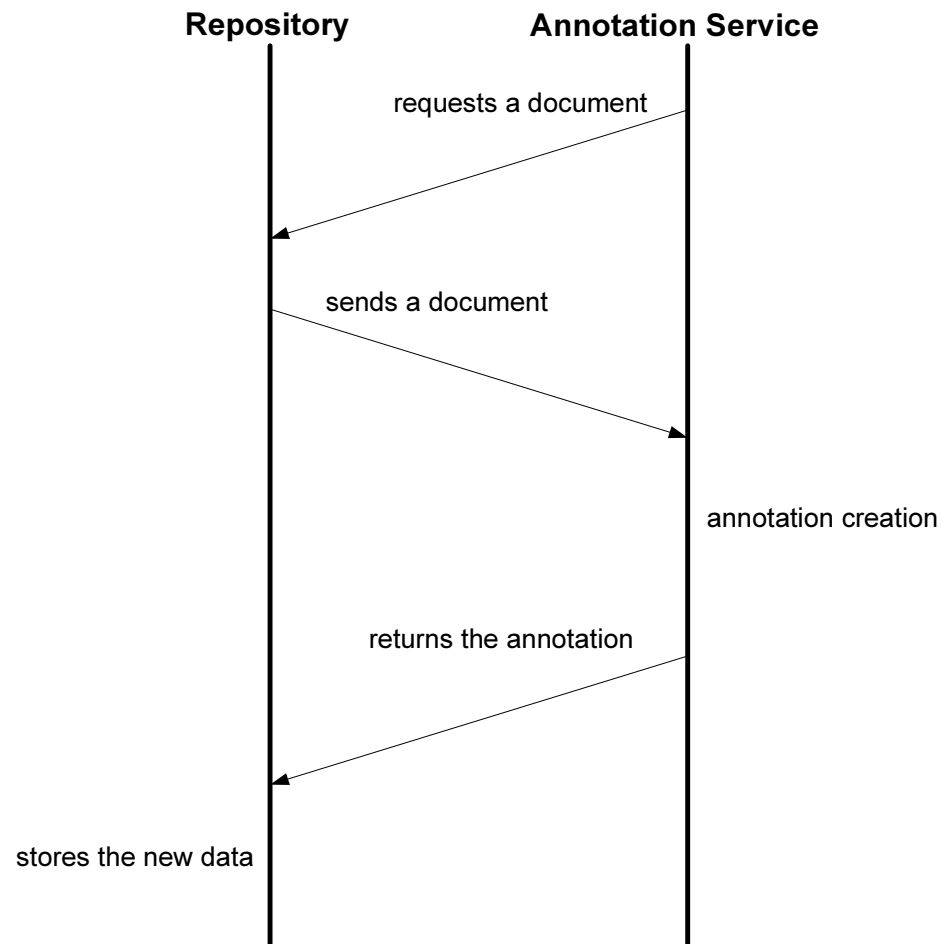
Conceptual Model of Annotation and Digital Library



Annotation Service Architecture

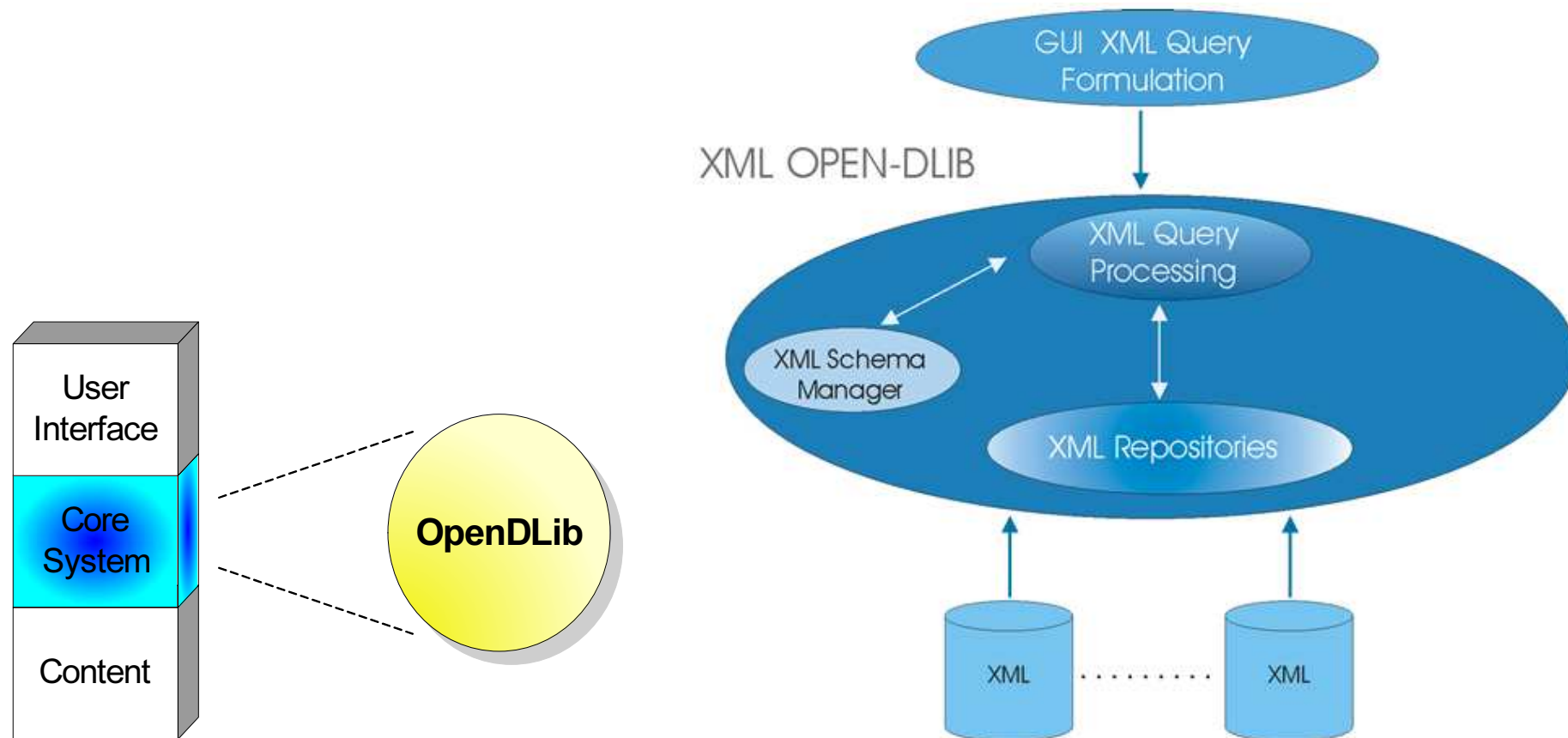


Annotation Creation Flow Example

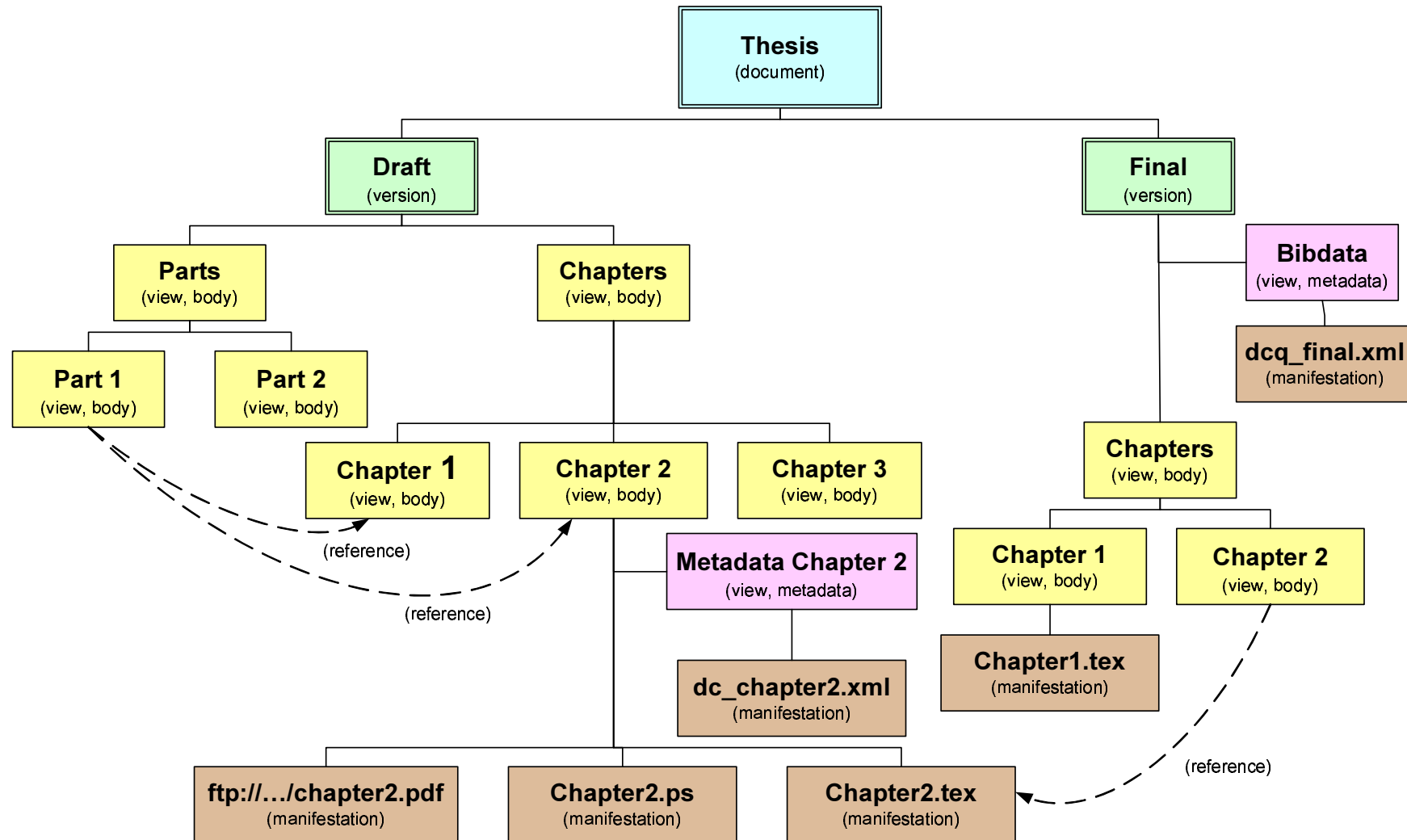


An Experimentation: Use of the OpenDLib Digital Library

OpenDLib Architecture

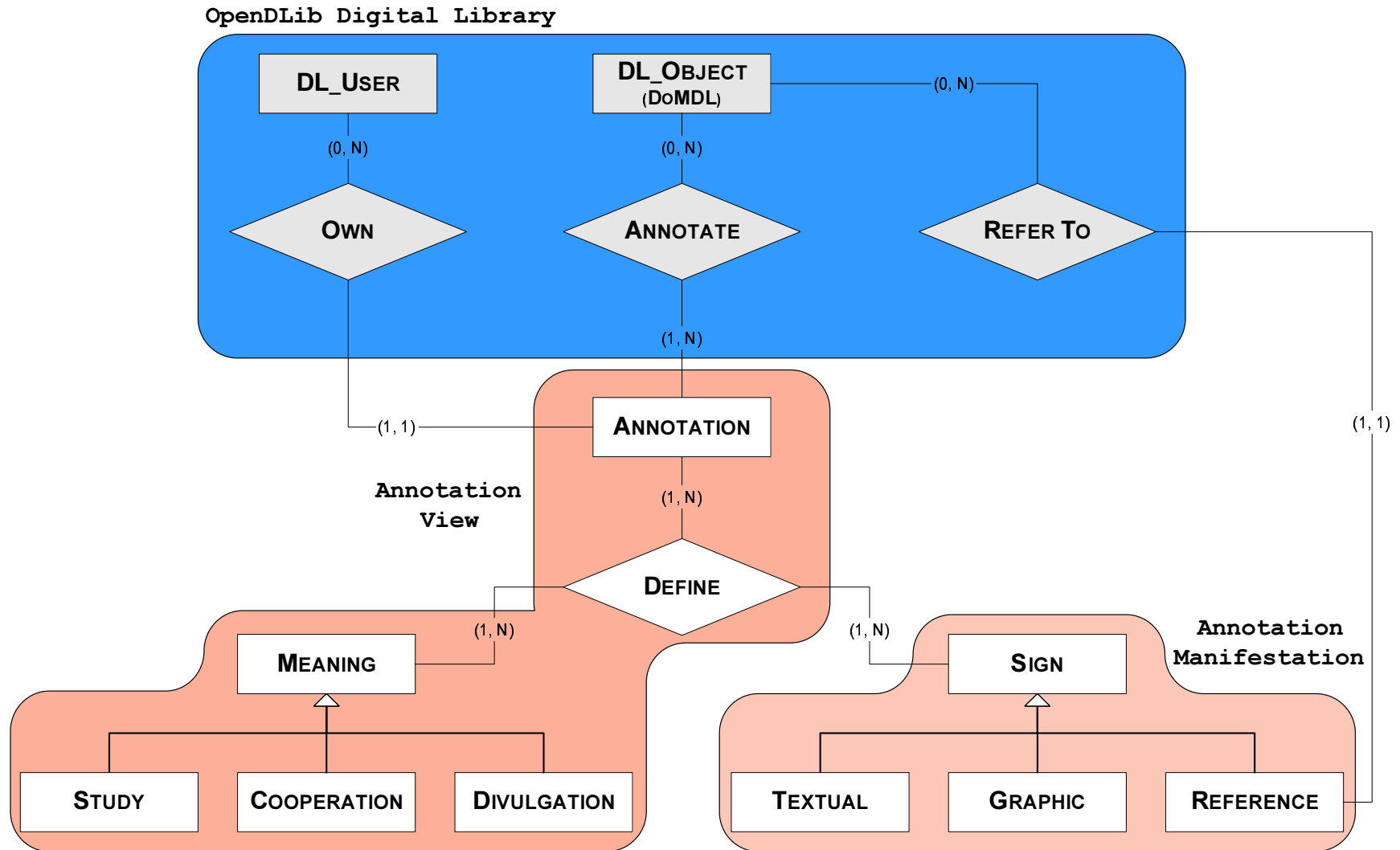


OpenDLib DoMDL

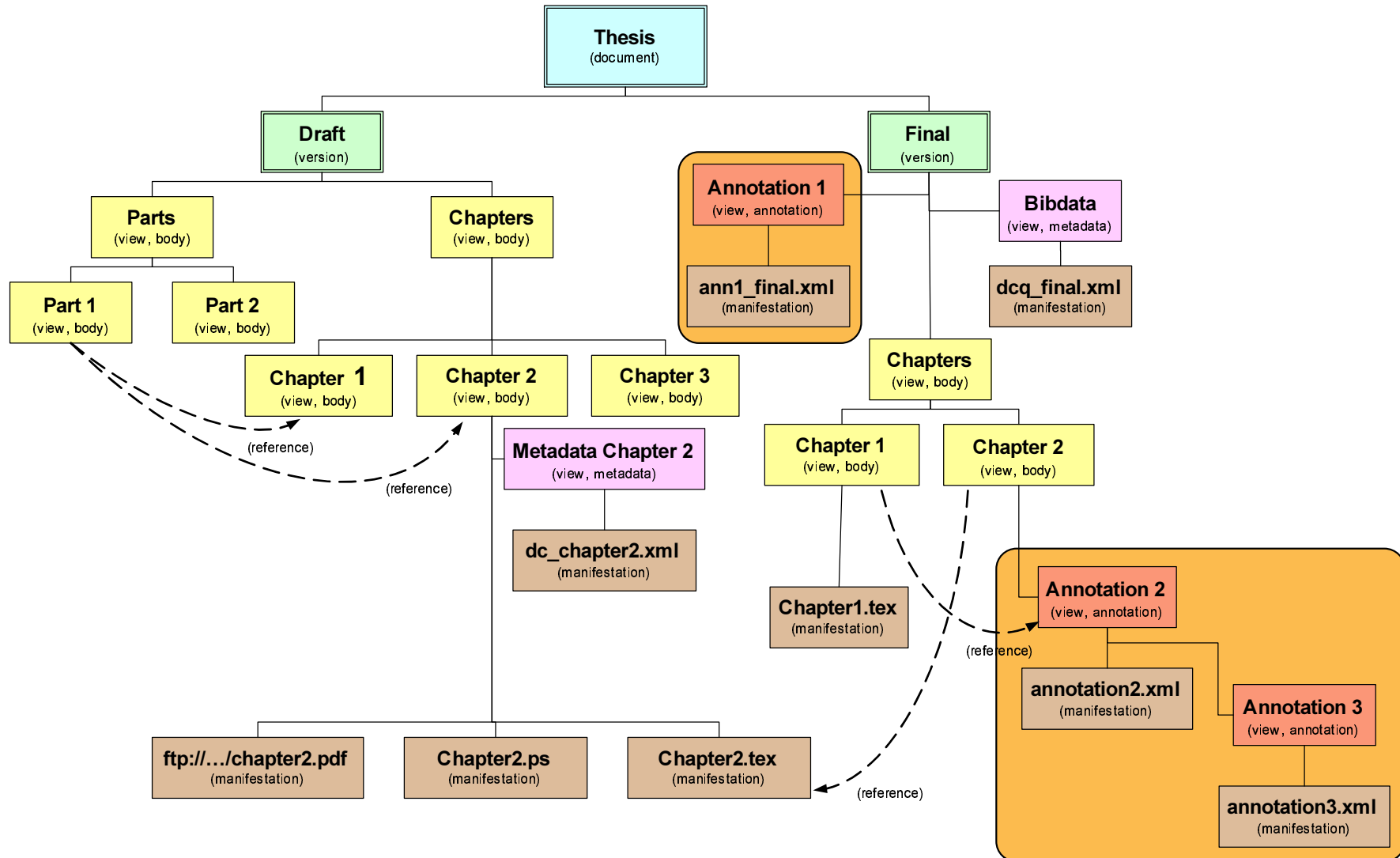


Annotations and OpenDLib

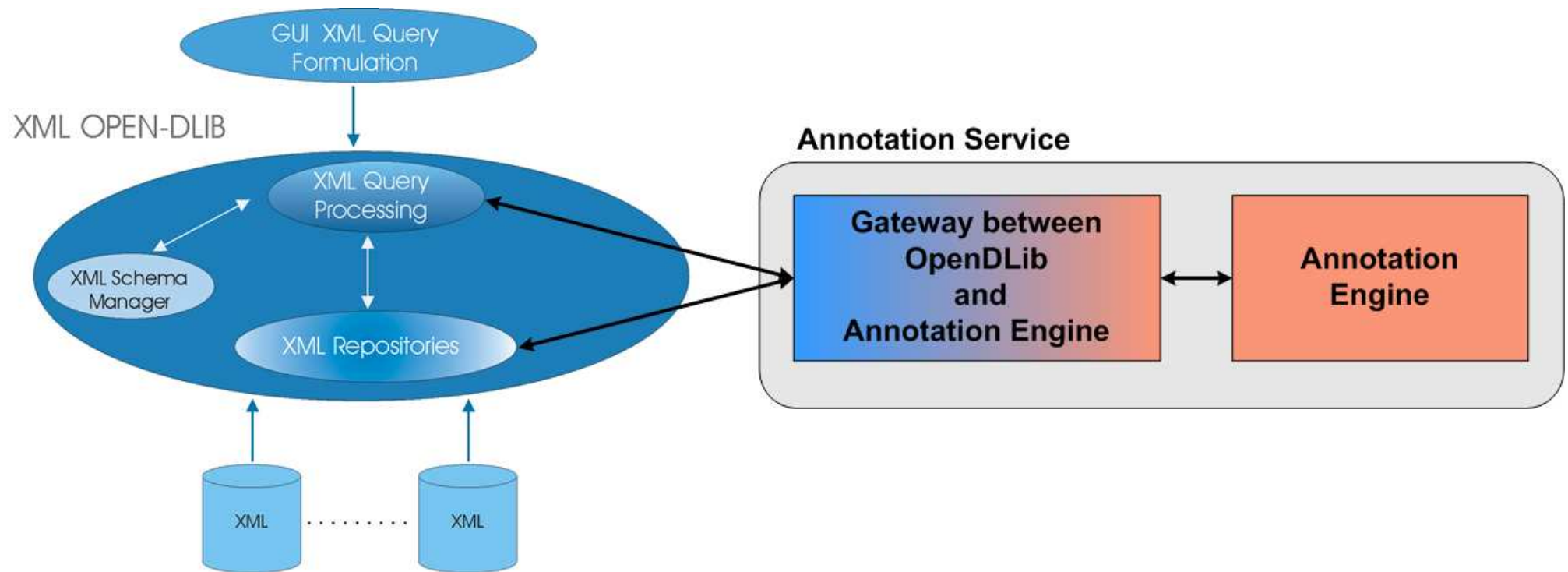
Conceptual Model of Annotation and DoMDL



Example of DoMDL with Annotations



Annotation Service and OpenDLIB Architecture



Conclusions and Future Work

- ▶ the research work pointed out the importance of the concept of annotation and its complexity in our cultural heritage;
- ▶ the semantics of the annotation has been formalized and an architecture for an annotation service has been proposed;
- ▶ the presented concepts have been mapped to an existing digital library;
- ▶ we will study suitable primitives in order to properly process annotations and provide advanced functionalities;
- ▶ we will face the problem of the evaluation of the impact of annotations on retrieval effectiveness.