BIBFRAME --

Linked Data, MARC, LRM/RDA, Share-VDE, OCLC and More

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課程大綱

» 第一部分
  ◊ Linked data, RDF, BIBFRAME 及 RDA
  ◊ BIBFRAME 對比 MARC
    ◊ 對照練習
» 第二部分
  ◊ 小組討論
  ◊ LC 比較工具
    ◊ 展示
    ◊ 作業
» 第三部分
  ◊ 建模比較
  ◊ Linked data 編輯與探索

MARC 格式將被 BIBFRAME 取代

» MARC 的問題
  ◊ 圖書館社群之外不被採用，阻礙圖書館資訊在網路上的共享
  ◊ 未將編目規則與載體分開，阻礙標準的明確應用
  ◊ 不能很好地為作品/表現形式/具體呈現/單件編碼

» BIBFRAME 的目標
  ◊ 使用 linked data (以RDF形式) 來促進與 Web 的整合
  ◊ 適應各種內容模式及編目規則

RDF 的定義

» 資源描述框架 (Resource Description Framework, RDF)
  ◊ 框架 (Framework): 做事的特定方式
  ◊ 描述 (Description): 編目員所熟悉的
  ◊ 資源 (Resource): 任何有形或無形的事物

» RDF 是描述任何事物的特定方式

» 其意味著旨在供電腦用於 Web

RDF 精髓

» 三元組 (Triples)
» 資源描述框架圖 (RDF graphs)
» 節點與弧線 (Nodes and arcs)
» 節點類型 (Types of nodes)
» 統一資源識別符 (URIs)
» 資源描述框架綱要 (RDF Schema)

Triples

» 在 RDF 中，敘述是關於資源的

» 每個敘述包含3個部分，因此稱為 "三元組" ("triple")

» 敘述就像宣告性的句子
  ◊ 主詞 (Subject)
  ◊ 述語 (Predicate)
  ◊ 受詞 (Object)

Subject

» 主詞 (subject) 是被描述的資源

» 例如, Apple

» 例如,"this apple being described now"

Predicate

» 述語 (predicate) 是主詞 (subject) 的屬性

» 例如，"color" 或 "hasColor"

Object

» 受詞 (object) 是屬性 (property) 的值

» 例如，"red"

Triple 的範例

三元組部分

» 主詞 (Subject)

» 述語 (Predicate)

» 受詞 (Object)

範例

» This apple

» Has the color

» Red

書目範例

» 題名: Oliver Twist
  ◊ <thisBook> <hasTitle> <Oliver Twist>

» 著者: Dickens, Charles
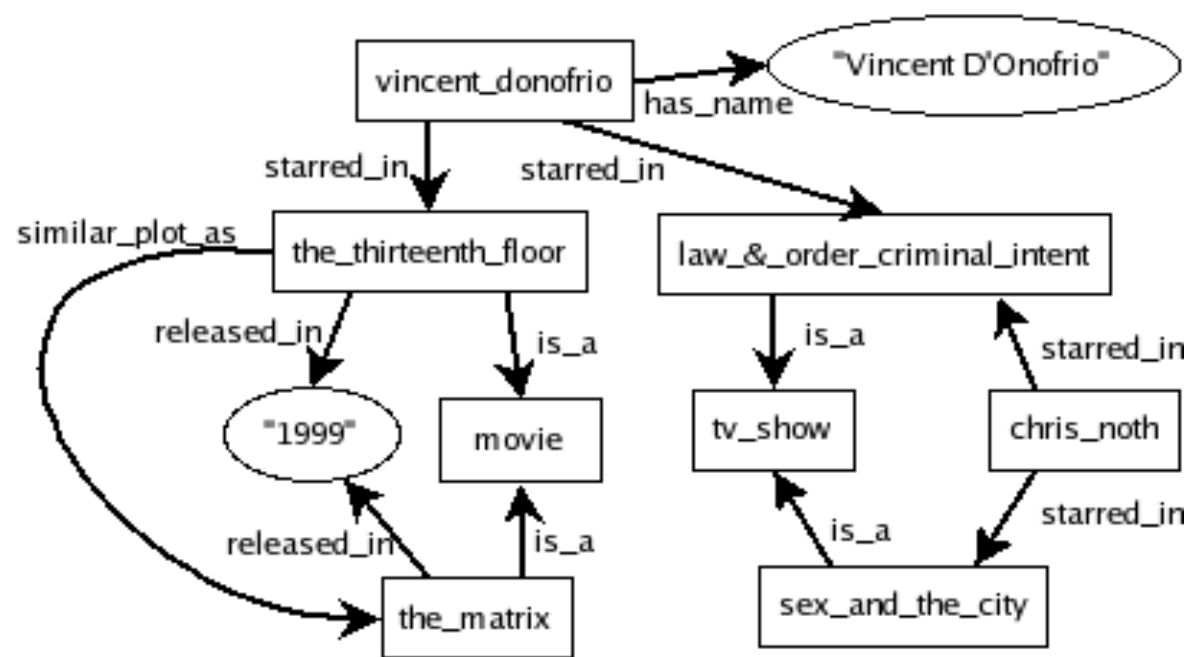 ◊ <thisBook> <hasAuthor> <Charles Dickens>
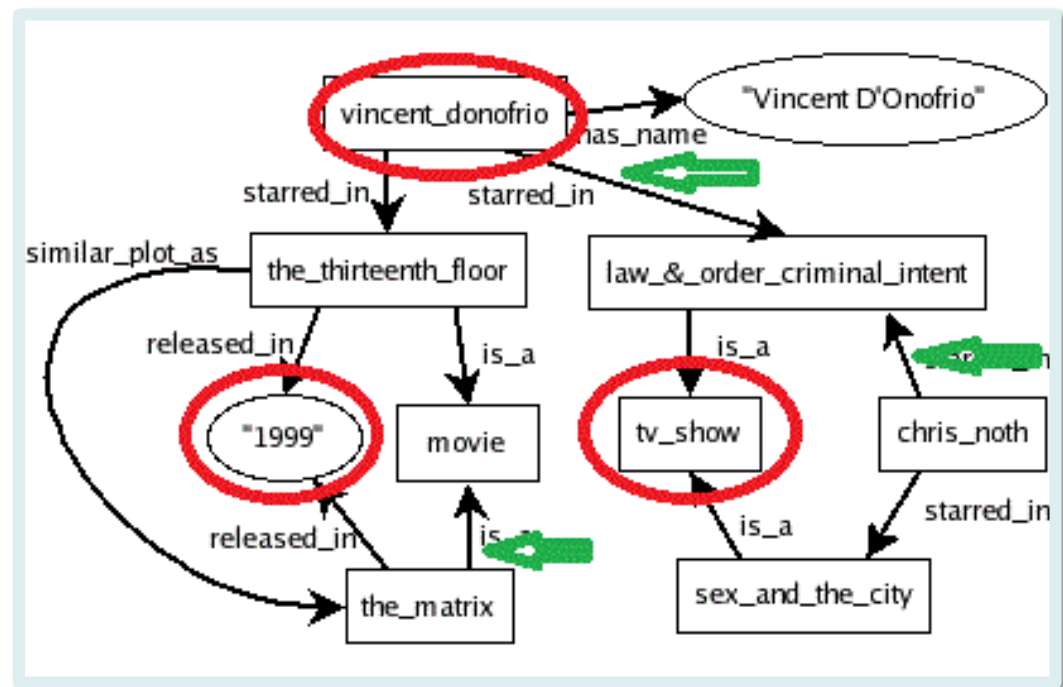
» 出版日期: 1837
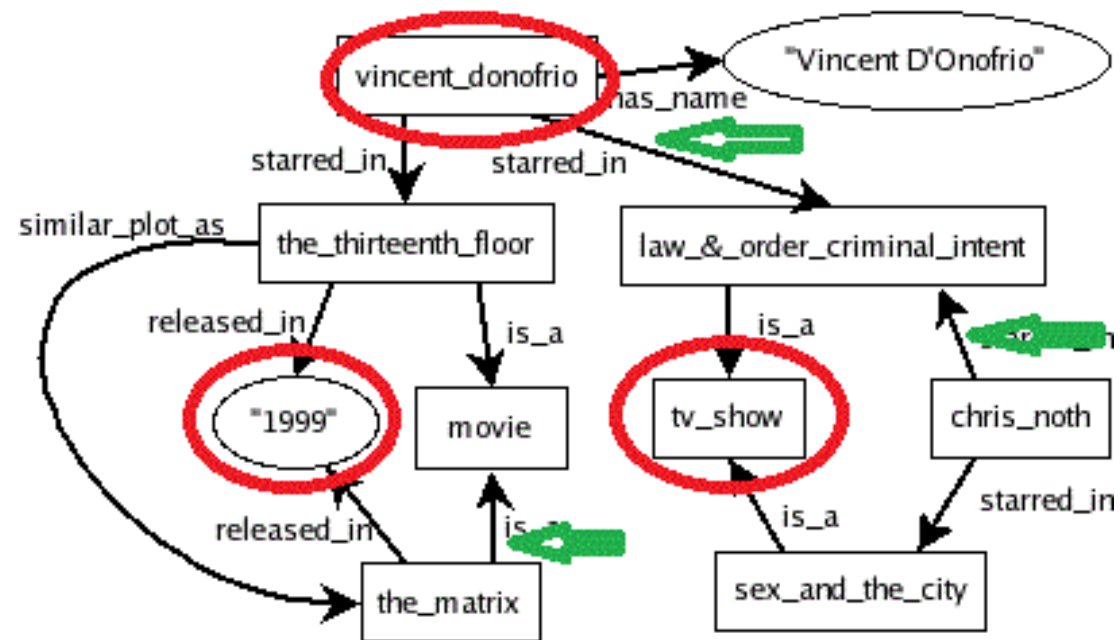 ◊ <thisBook> <hasPublicationDate> <1837>

Graphs

» 一組三元組 (triples) 稱為 RDF 圖

» 其可呈現為資源間之關係的圖

» RDF 圖類似 FRBR 的實體關係圖

RDF 圖之範例

Nodes and Arcs

» 圖中的主詞和受詞稱為 "節點"（"nodes"）

» 述語稱為 "弧線"（"arcs"）

Nodes 的類型

» 主詞可以是
  ◊ URIs
  ◊ 空白節點 (Blank nodes)

» 受詞可以是
  ◊ URIs
  ◊ 文本（"文字"）(Text（"literals"）)
  ◊ 空白節點 (Blank nodes)

» (述語只能是 URIs)

何謂空白節點 (Blank Node)？

» 空白節點是圖中可能無法從具有通用識別符中受益的節點

» 例如，一個常見的空白節點聚集地址資訊的例子
   ◊ "John Smith's address" 沒有這樣稱呼的
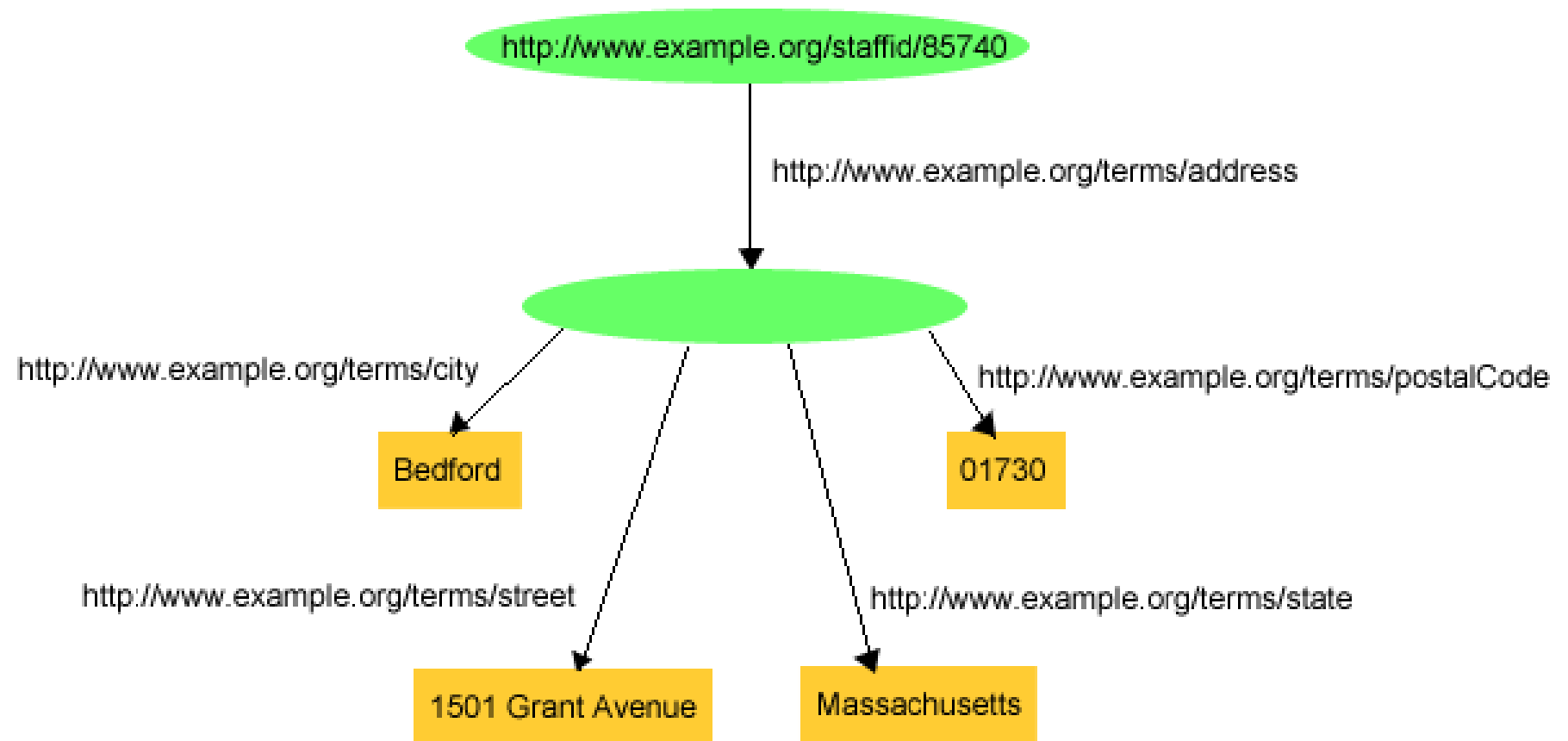
URIs

» 統一資源識別符 (Uniform Resource Identifier, URI)

  ◊ 用來標識資源的字符串

» RDF 文件可能使用專門詞彙 IRI

  ◊ 國際化資源識別符 (Internationalized Resource Identifier, IRI)

  ◊ URI 的普遍化以便包含更多 Unicode

» 您可將 URIs 和 IRIs 視為 URLs

範例

» William Shakespeare
  ◊ http://viaf.org/viaf/96994048/

» English
  ◊ http://id.loc.gov/vocabulary/languages/eng

» BIBFRAME 中定義的 "Title"
  ◊ http://bibframe.org/vocab/title

RDF 綱要（The RDF Schema）

» RDF的資料建模詞彙表

» 使用 "類別"（"classes"）和 "屬性"（"properties"）

» 它們是以前綴 (rdf 或 rdfs) 來書寫，後面則跟隨冒號和本地部分
  ◇ 例如, rdf:type

» RDF 也允許來自 XML Schema 的資料類型，其前綴為 xsd

範例

» rdf:type – 最重要的一項
  ◊ "is an instance of a class"
  ◊ 可以縮寫為 "a"

» rdf:langString
» rdfs:Class
» rdfs:subClassOf
» xsd:string
» xsd:language

一個 RDF Triple 的範例

```
<http://example.org/99160660980001452>
<http://bibframe.org/vocab/title>
"United States history framework for the two thousand fourteen National
Assessment of Educational Progress" .
```

某些語法難以閱讀

» RDA 頗難閱讀 (至少對於人類而言)

» 有多種表示 RDF 的不同方法，稱為語法 (syntaxs) 或序列化 (serializations) :
  ◊ RDA/XML, N-Triples, JSON, RDFa, N3 及 Turtle

» RDF/XML
  ◊ 冗長囉嗦的三元組 (triples) 很難識別

» N-Triples
  ◊ 對機器容易，對人類很難

» JSON
  ◊ 基於程式化語言

» RDFa
  ◊ 專為在 HTML 中使用而設計

N3 及 Turtle

» N3 (Notation3) 旨在成為一種緊湊且易於閱讀的格式 (對於人類而言)

» 其有一個名為 Turtle (簡要的 RDF 三元組語言) 的子集,專門用於 RDF

» Turtle 是我們將用來表達 BIBFRAME 的語法

» 語法

◊ 完整的 URL 是括在括號 (<>) 內

◊ 文字 (文本) (Literals (text)) 則是用雙引號 ("") 括起來

◊ 三元組有一個結束的圓點 (.)

Turtle 的範例

```
@prefix bf: <http://bibframe.org/vocab/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

<http://example.org/991606609800001452instance22> a bf:Electronic,
        bf:Instance,
        bf:Monograph ;
    bf:carrierCategory <http://id.loc.gov/vocabulary/carriers/cr> ;
    bf:extent "1 online resource (viii, 65 pages)" ;
    bf:illustrationNote "illustrations, maps" ;
    bf:instanceOf <http://example.org/991606609800001452> ;
    bf:mediaCategory <http://id.loc.gov/vocabulary/mediaTypes/c> ;
    bf:modeOfIssuance "monographic" ;
    bf:note "\"Developed for the National Assessment Governing Board under
contract number",
        "Title from title screen (viewed Dec. 27, 2013)." ;
    bf:publication [ a bf:Provider ;
            bf:providerDate "[2013?]" ;
            bf:providerName [ a bf:Organization ;
                    bf:label "National Assessment Governing Board, U.S.
Department of Edcuation" ] ;
            bf:providerPlace [ a bf:Place ;
                    bf:label "Washington, DC" ] ] ;
    bf:systemNumber <http://www.worldcat.org/oclc/866849376> ;
    bf:title "U.S. history framework for the 2014 National Assessment of
Educational Progress",
        "United States history framework for the two thousand fourteen
National Assessment of Educational Progress" .
```

BIBFRAME 模型

» BIBFRAME 係由描述書目實體和相關實體的 "類別" (class) 及 "屬性" (property) 組成

◇ "類別" (class) 是一種資源或實體 (有形或無形)，即主體 (subject) 或客體 (object) 資源
  ◇ 例如: Person, Jurisdiction, Topic

◇ "屬性" (property) 是實體之間的關係，即 RDF 術語中的主體 (subject) 資源和客體 (object) 資源之間的關係
  ◇ 例如: continuedBy, isbn, note
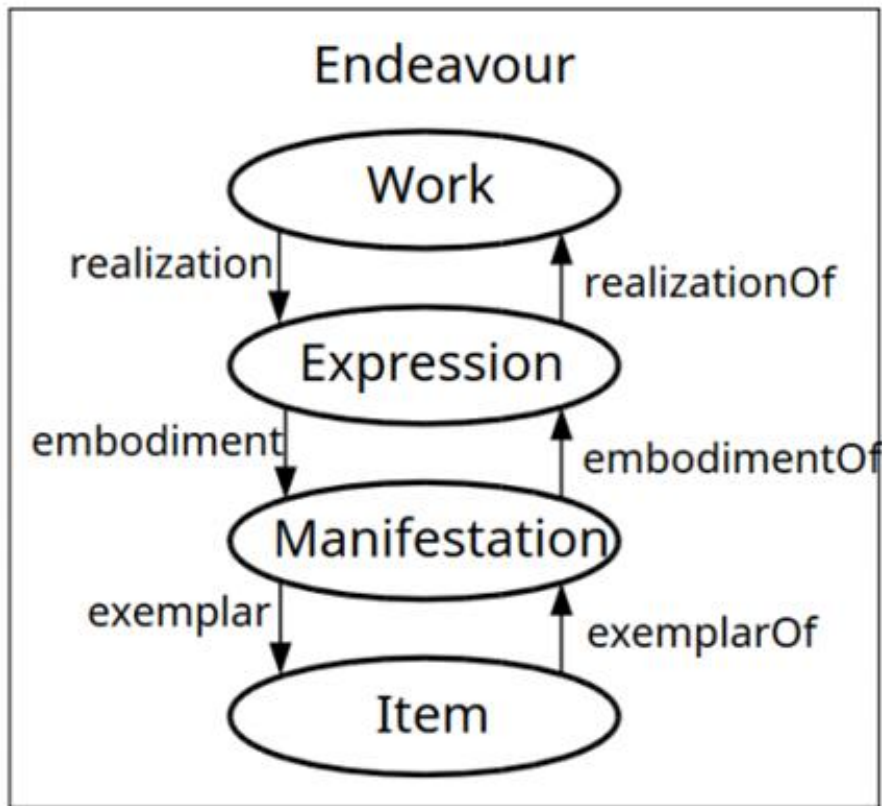
RDA 及 BIBFRAME 實體: BIBFRAME 2.0

LRM/FRBR 第1組 (WEMI)

» 作品 (Work)

» 表現形式 (Expression)

» 具體呈現 (Manifestation)

» 單件 (Item)

BIBFRAME 2.0

» 作品 (Work)

» 實例 (Instance)

» 單件 (Item)
  ◊ 取代BF 1.0 中的註釋 (annotations)

BIBFRAME 2.0 模型 對比 WEMI：
LD4P2/Sinopia 及 S-VDE 面臨的重大挑戰

By Jakob Voss - own creation, CC BY-SA 4.0,
https://commons.wikimedia.org/w/index.php?curid=3243128
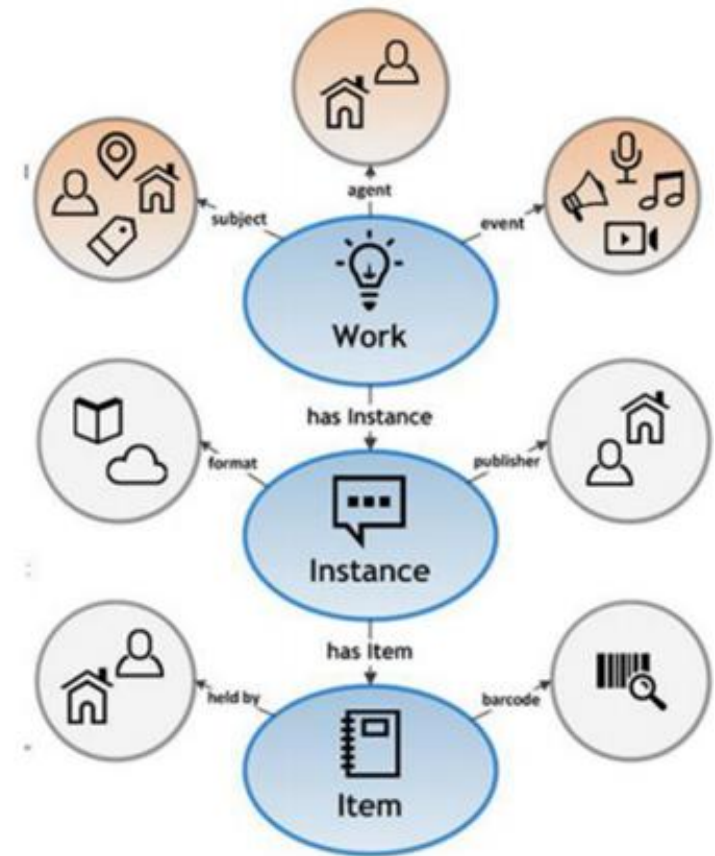
bf 字首 (bf prefix)

» BIBFRAME 中的類別和屬性具有可以在其他模式中使用的標籤
   ◊ 例如, "title"
» 為了將 BIBFRAME 類別和屬性與其他模式區分開來，使用前綴 "bf"，並遵循一般的 RDF 慣例
   ◊ bf:title
» 變異題名:
   ◊ bf:KeyTitle
   ◊ bf:ParallelTitle

BIBFRAME 中的命名慣例

» 類別以大寫字母開頭，屬性以小寫字母開頭

» 之後，類別和屬性名稱使用駝峰式大寫 (camelCase) (指由兩個單詞組成的詞組，單詞之間沒有空格，並且第二個單詞的首字母為大寫) 命名法，即使是首字母縮略詞 (acronyms)

  ◊ IntendedAudience
  ◊ partNumber
  ◊ classificationDdc

Class List

AbbreviatedTitle	Generation	PlaybackCharacteristic
AccessPolicy	GenerationProcess	PlayingSpeed
AcquisitionSource	GenreForm	Polarity
+ AdminMetadata	GeographicCoverage	PostalRegistration
+ Agent	GrooveCharacteristic	PresentationFormat
Ansi	Gtin14Number	Print
AppliedMaterial	Hdl	Production
Archival	+ Identifier	ProductionMethod

Classes with SubClasses

AdminMetadata   Agent   Classification   DigitalCharacteristic   EnumerationAndChronology   Identifier   Instance   Notation   ProjectionCharacteristic   ProvisionActivity
ShelfMark   SoundCharacteristic   Title   UsageAndAccessPolicy   VariantTitle   VideoCharacteristic   Work

* Note: Subclasses of these classes are not included in the Class List, but are listed at the panel for the class to which they relate.

Property List

acquisitionSource	ensembleType	partNumber
acquisitionTerms	enumerationAndChronology	pattern
adminMetadata	equinox	physicalLocation
agent	exclusionGRing	+ place
appliedMaterial	extent	polarity
arrangement	firstIssue	preferredCitation
ascensionAndDeclination	fontSize	productionMethod
aspectRatio	frequency	projection

屬性種類：種類顯示 (Category View)

» 一般 (General)
» 種類 (Category)
  ◊ 內容 (作品) (content (Work))
  ◊ 載體 (實例) (carrier (Instance))
  ◊ 體裁形式, 媒體 (genreForm, media)
» 題名 (Title)
» 作品識別 (Work identification)
» 作品描述 (Work description)
» 主題用詞及分類 (Subject term and classification)

» 實例描述 (Instance description)
» 實例識別 (Instance identification)
» 載體 (Carrier)
» 單件 (Item)
» 型態 (Type)
» 編目資源關係: 一般, 詳細或特定 (Cataloging resource relationships: general, detailed or specific)
» 執行者 (Agent)
» 行政的 (Administrative)

題名資訊

» 與題名相關的屬性, 例如:
  ◇ title
  ◇ mainTitle
  ◇ subtitle
  ◇ partNumber
  ◇ partName
  ◇ variantType

實例描述敘述、識別資訊和描述資訊

» 具有與實例 (Instance) 相關之大部分屬性, 例如:
- ◊ editionStatement
- ◊ seriesStatement
- ◊ provisionActivityStatement
- ◊ responsibilityStatement
- ◊ tableOfContents

識別資訊

» 識別符 (identifiers)大部分種類, 例如:
- ◊ doi
- ◊ isbn
- ◊ issn
- ◊ lccn
- ◊ lcOverseasAcq
- ◊ musicPublisherNumber

編目資源關係

» 分為3種
» 編目資源關係 – 一般的
  ◊ 例如 instanceOf
» 特定的
  ◊ part of
  ◊ accompaniedBy
» 詳細的
  ◊ absorbedBy
  ◊ hasReproduction
  ◊ translationOf

單件資訊

» 與單件 (Item) 相關之大部分屬性, 例如:

- ◇ heldBy
- ◇ electronicLocator
- ◇ lendingPolicy
- ◇ shelfMark
- ◇ sublocation

行政資訊

» 與詮釋資料本身相關的一小部分屬性, 例如:
  ◇ changeDate
  ◇ creationDate
  ◇ descriptionConventions
  ◇ descriptionLanguage
  ◇ descriptionAuthentication

是否有所謂的 BIBFRAME "紀錄" (record)？

» MARC 將所有必要的資訊集中在 1 筆紀錄中呈現

» 相對的，BIBFRAME 則是透過鏈結，來串連外部相關資訊

◊ 作品紀錄 (Work records), 名稱權威, 主題權威等

» BIBFRAME 沒有如同在 MARC 中所使用之 "紀錄" (Record) 的概念

何謂 MARC 欄號對照至 WEMI？

- » 010
- » 020
- » 041
- » 050 $a $b
- » 100
- » 240
- » 245
- » 250
- » 264
- » 300
- » 336/337/338
- » 500
- » 520
- » 650
- » 700 $a 名稱. $t 題名

小組討論

WEMI 與 MARC 對照之挑戰

LC BIBFRAME 比較工具

» [MARC to BIBFRAME comparison viewer](#)

» [BIBFRAME to MARC comparison viewer](#)

» 展示

» 使用比較工具的練習

  ◇ 比較 5 筆紀錄並記下您的意見/問題

  ◇ BIBFRAME 資料是否正確對照以呈現 MARC 資料?

    ◇ 是否有任何資料遺失或扭曲?

» 問題:

  ◇ AACR2 紀錄不具 "關係" 描述。 如何將其轉換為具有 WEMI 結構的 BIBFRAME 紀錄?
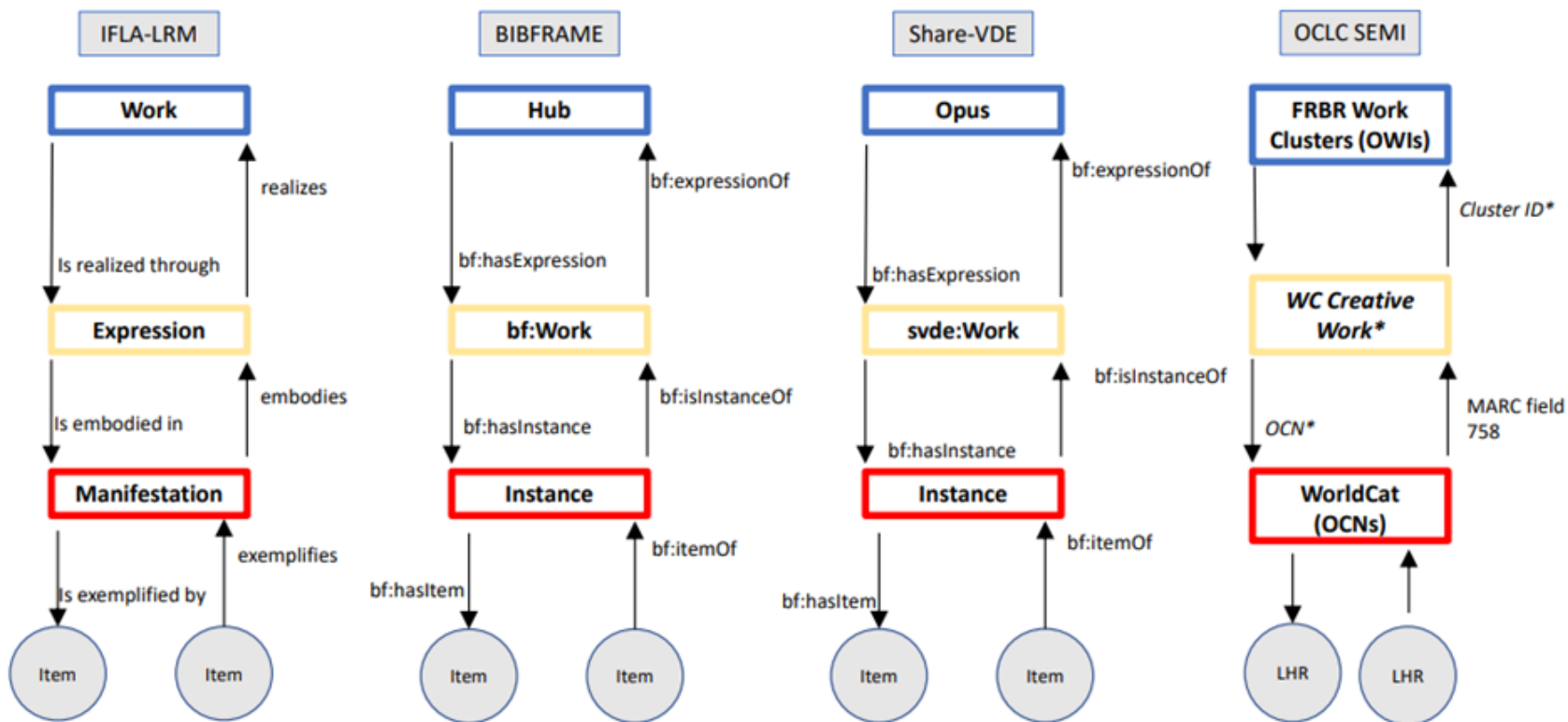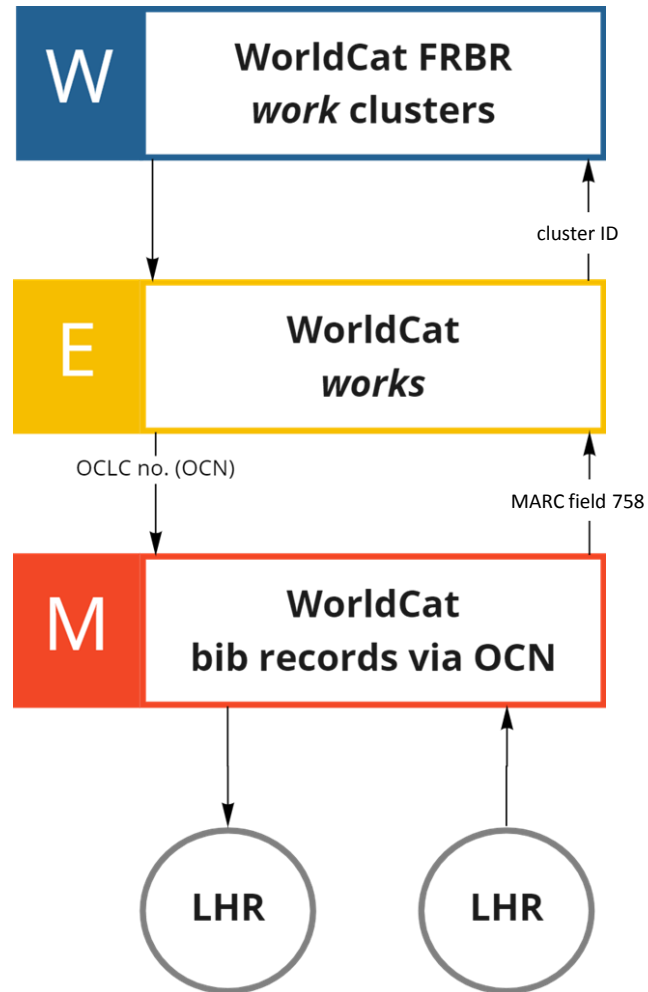
建模比較

LRM, BIBFRAME, SHARE-VDE, OCLC SEMI 等

交叉比較中的概念模型

OCLC 實體管理之實施

初始呈現

目前呈現
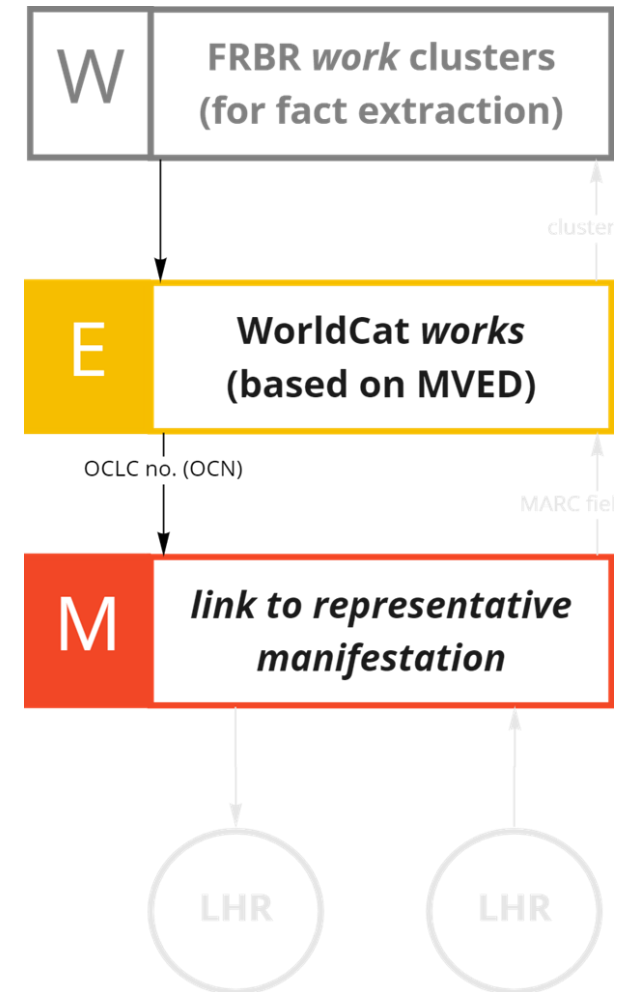
模型的演變

Shared Entity Management System (SEMI)

W — FRBR *work* clusters (for fact extraction)

cluster ID

E — WorldCat *works* (based on MVED)

OCLC no. (OCN)

MARC field 758

M — *link to representative manifestation*

LHR   LHR
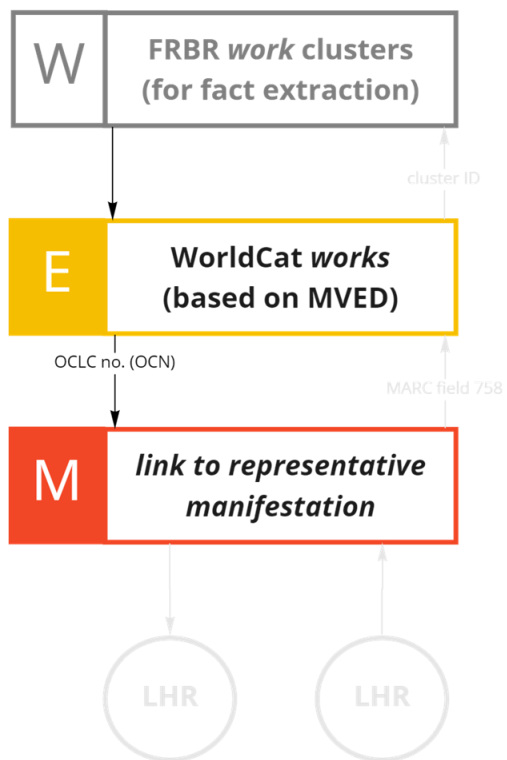
(future state of the model)

W E — *representative expression*

M — first *edition* entity

E — later *expression* entity

M — later *edition* entity
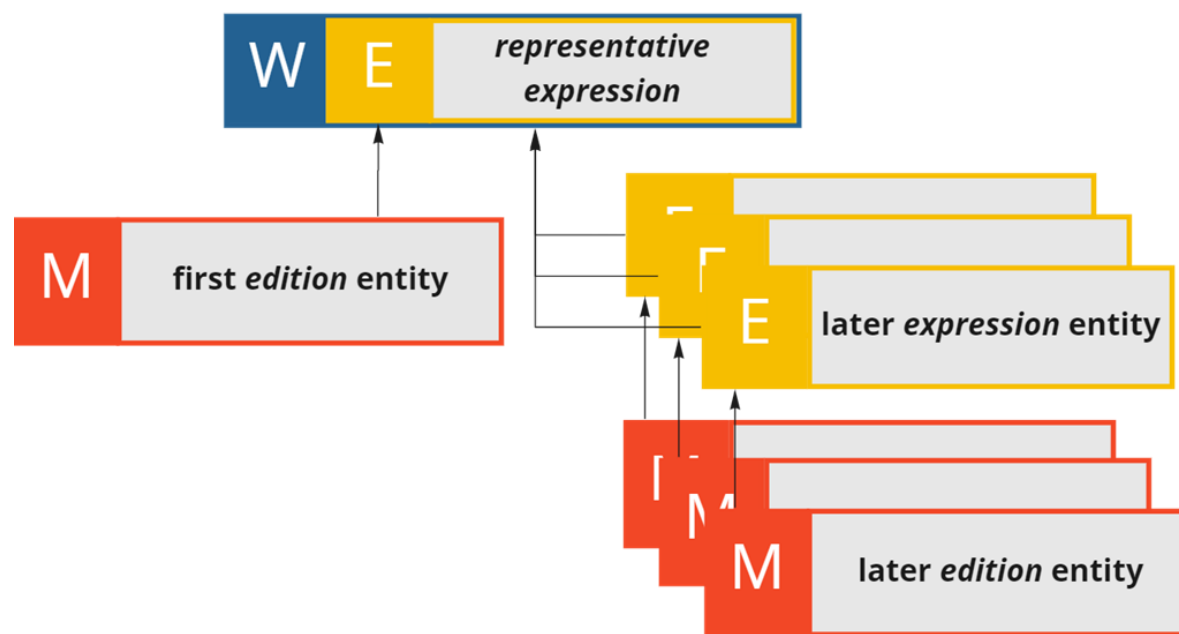
進化的下一階段

作品 實體圖
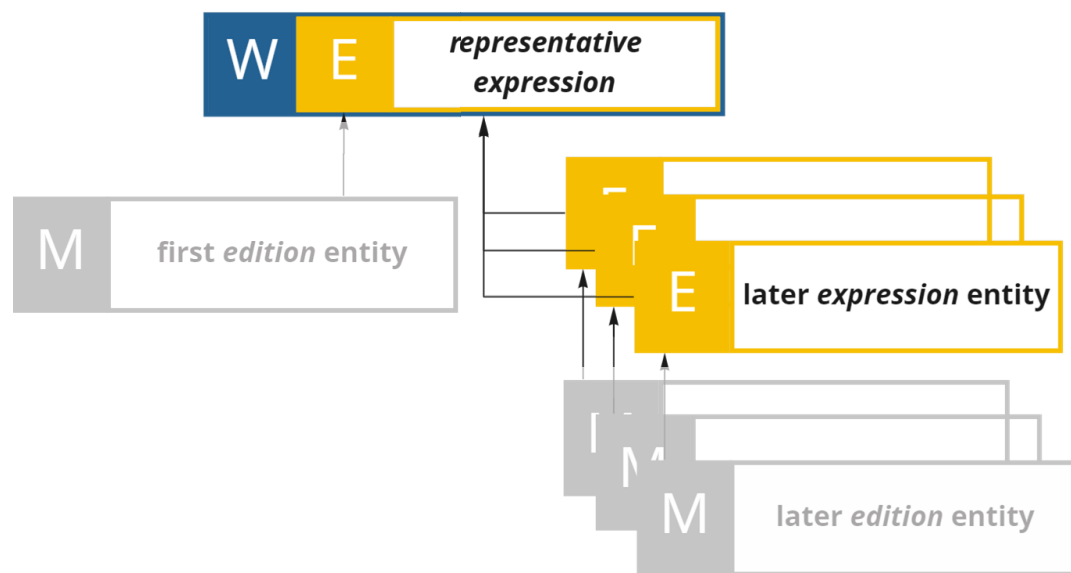
版本 實體圖

擴展圖
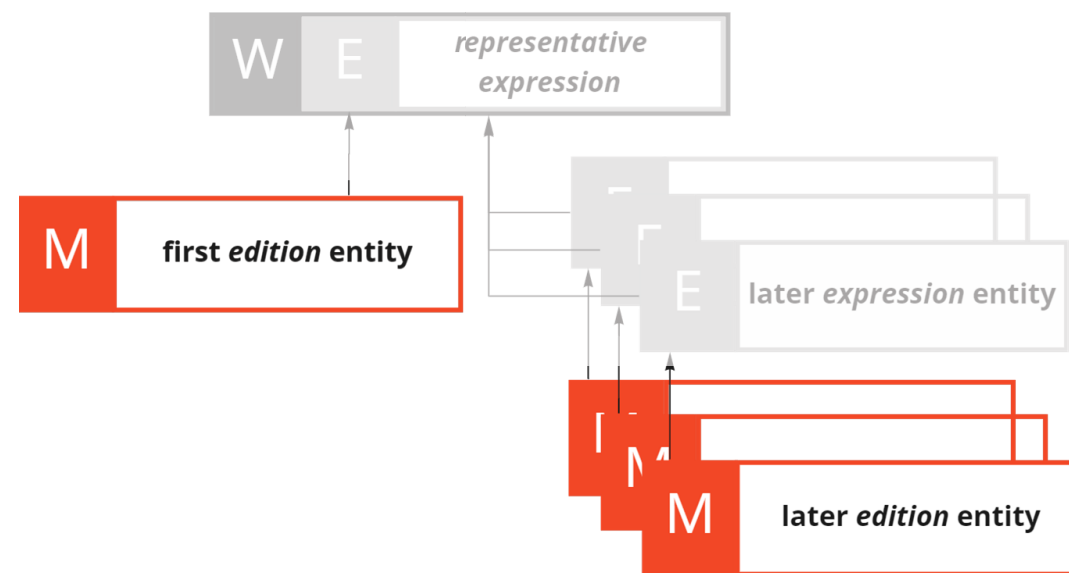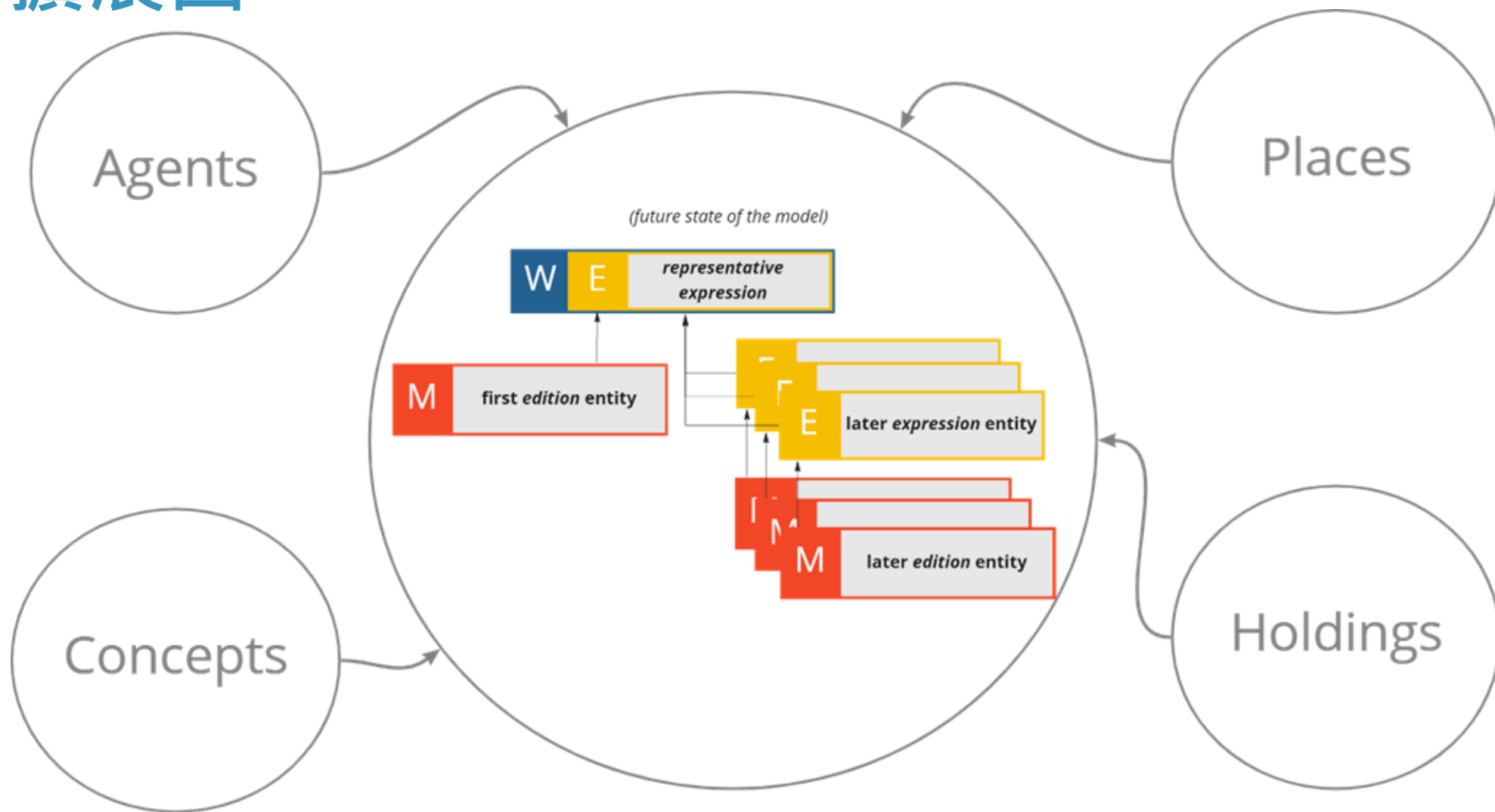
Share-VDE 模型
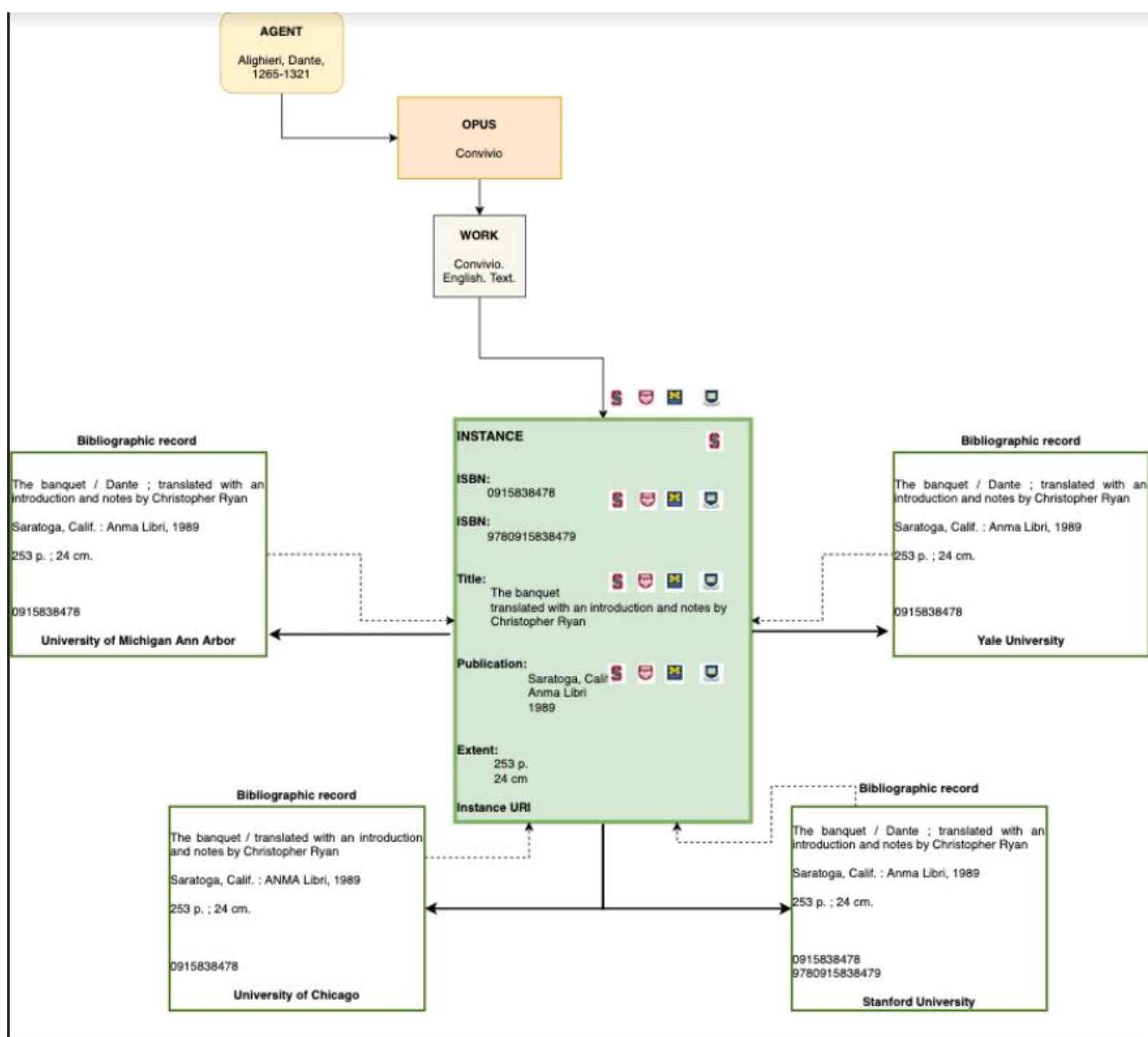
LRM/RDA/FRBR	BIBFRAME	Share-VDE	OCLC Work ID	OCLC SEMI	Wikidata WikiProject: Books
Work	Hub *(if Work (bf:expressionOf)[linking mechanism]*	Opus	?	Work cluster ID?	Work Item?
Expression	Work	Work	Work ID?	?	Work Item? Edition Item?
Manifestation	Instance	Instance	OCLC control number?	Creative work (MARC 758)?	Edition Item?
Item	Item	Item	N/A	N/A	N/A

備註:

1. OCLC Work ID (P5331): identifier for a *work-level* item, defined in Wikidata
   - Work ID: *Pride and Prejudice (Spanish) & (English) with different Work ID*
1. Wikidata: item, instance, version/edition/translation …

Linked Data 編輯

Sinopia 及 MARVA

SINOPIA - STAGE

Latest news

Sinopia Version 3.17.3 highlights

For complete release notes see the Sinopia help site.

- Language detection and suggestion
- Sinopia/Symphony integration for Stanford users
- Templates are included in Sinopia search
- Can set literal field to default to current date or userID

Login to the Linked Data Editor

User name

Password

Login

Forgot Password

Request Account

The underdrawing for the new world of linked data in libraries

Sinopia is a linked data creation environment where libraries can:

- create metadata in a linked data environment without having to set up and maintain tools
- learn best practices related to linked data creation

SINOPIA - STAGE

cchou • Help • Lo

Dashboard **Resource Templates** Actions ▾ Search ⓘ | Sinopia ▾ |

Find a resource template | Enter id, label, URI, remark, group, or author | 🗑 | **New template**

Label / ID	Resource URI	Author	Group	Date	Guiding statement	Actions
(ToDelete)Emnebeskrivelse_Oddrun NB-lab:RDA:Emnebeskrivelse:Oddrun	http://www.w3.org/2000/01/rdf-schema#Resource	Olufine	National Library of Norway		RDFS resource is chosen to represent a description	➕ 👁 📋
_ Stanford BF2 Instance (Book) Stanford:bf2:Monograph:Instance	http://id.loc.gov/ontologies/bibframe/Instance	Stanford	Stanford Template Managers	Nov 8, 2021	For books (single or multi-volume) & e-books	➕ 👁 📋
_ Stanford BF2 Instance (IEEE Level 3) Stanford:bf2:IEEELevel3:Instance	http://id.loc.gov/ontologies/bibframe/Instance	Stanford Libraries	Stanford Template Managers	Jun 23, 2022	For creating Level 3 records that describe IEEE conference proceedings published online.	➕ 👁 📋
_ Stanford BF2 Instance (Literary Work) Stanford:bf2:Monograph:Instance:LiteraryWork	http://id.loc.gov/ontologies/bibframe/Instance	Stanford	Stanford Template Managers	Aug 14, 2022	For printed literary works (= "belles lettres")	➕ 👁 📋
_ Stanford BF2 Instance (Moving Image DVD) Stanford:bf2:MovingImageDVD:Instance	http://id.loc.gov/ontologies/bibframe/Instance	Stanford Libraries	Stanford Template Managers	Feb 8, 2022	For moving image DVDs and other video resources such as video tapes and streaming video. (Note: The optional class "Electronic" is only to be used with video resources that are intended to be used with a computer, accessed either directly or remotely.)	➕ 👁 📋
_ Stanford BF2 Instance (Score) Stanford:bf2:PMO:Score:SingleMusicalInstance	http://id.loc.gov/ontologies/bibframe/Instance	Stanford kk	Stanford Template Managers	Jun 3, 2022	For musical scores, musical parts, and score with parts (in development)	➕ 👁 📋
_ Stanford BF2 Work (Notated Music work) Stanford:bf2:PMO:Score:Work:SingleMusicalWork	http://id.loc.gov/ontologies/bibframe/Work	Stanford kk	Stanford Template Managers	Jul 20, 2022	in review	➕ 👁 📋
_Cartographic Instance (BIBFRAME) ld4p:RT:bf2:Cartographic:Instance	http://id.loc.gov/ontologies/bibframe/Instance	LD4P	LD4P	Aug 19, 2019	based on LC template ld4p:RT:bf2:Cartographic:Instance	➕ 👁 📋
_Cartographic Instance (BIBFRAME) Un-Nested ld4p:RT:bf2:Cartographic:Instance:unnested	http://id.loc.gov/ontologies/bibframe/Instance	LD4P	LD4P	Nov 22, 2019	based on LC template ld4p:RT:bf2:Cartographic:Instance	➕ 👁 📋

Dashboard   Resource Templates   Actions ▾   Search ⓘ   [Sinopia BIBFRAME work resources ▾]   emma

[Filter by class ▾] [Go]   [Filter by group ▾] [Go]

Label / ID	Class	Group	Modified	
Emma (Chen) https://api.stage.sinopia.io/resource/86e10bad-12cc-4ff6-aa13-415aa8570701 〉 Relationships	http://id.loc.gov/ontologies/bibframe/Work http://id.loc.gov/ontologies/bibframe/Text	National Library of Norway	May 20, 2022	👁 📋
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Emma (Austen) https://api.stage.sinopia.io/resource/7ee8abd0-2d48-41f9-b5c3-6b7cd37e0a53 ⌄ Relationships	http://id.loc.gov/ontologies/bibframe/Work http://id.loc.gov/ontologies/bibframe/Text	National Library of Norway	May 18, 2022	👁 📋

Instances

Emma (Austen) https://api.stage.sinopia.io/resource/1bd7b0ab-d9d3-411e-bf4d-bc26c1085125	http://id.loc.gov/ontologies/bibframe/Instance http://id.loc.gov/ontologies/bibframe/Print	National Library of Norway	Jun 7, 2022	👁 📋

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Sound Recording: Audio CD-R	● Work	◆ Instance		
Sound Recording: Analog	● Work	◆ Instance		
Sound Recording: Cassette	● Work	◆ Instance		
Moving Image: BluRay DVD	● Work	◆ Instance		
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1 ◉ **Hong lou meng (Volume in Chinese, published in 2012.)**
Contributors:
● E Gao (author)
● Xueqin Cao (author)
● Shanghai wai yu jiao yu chu ban she (publisher)
● Shi Hu (commentator)
● John Minford (other)
● Bunian Tong (other)
● Yuanwei Shu (other)
● Benjamin Franklin Library Fund (other)
● O Gao (other)
● Meng Wang (other)
+ 30 more

2 ◉ **Hong lou meng (Volume in Chinese, published in 2016.)**
Contributors:
● E Gao (author)
● Xueqin Cao (author)
● Shi bao wen hua chu ban qi ye gu fen you xian gong si (publisher)
● Shi Hu (commentator)

● Publication ⓘ

Hong lou meng

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Contributors

Shi Hu (commentator), _John Minford, Bunian Tong, Yuanwei Shu, Benjamin Fran_

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3	China › Fiction › History › Qing dynasty, 1644-1912 (Geo subject)	China (Place) / Fiction (Genre) / History (Topic) / Qing dynasty, 1644-1912 (Date)	University of Pennsylvania
4	PRO Aresty, Esther B. (donor) (Topical subject)		University of Pennsylvania
5	Cao, Xueqin, approximately 1717-1763 › Hong lou meng › Comic books, strips, etc (Title subject)	Xueqin Cao (Person) / Hong lou meng (Original work) / Comic books, strips, etc (Genre)	Library of Congress
6	Chinese fiction › Comic books, strips, etc › Qing dynasty, 1644-1912 (Topical subject)	Chinese fiction (Topic) / Comic books, strips, etc (Genre) / Qing dynasty, 1644-1912 (Date)	Library of Congress

資源 (參考書目)

» [Sinopia](#)

» [BIBFRAME - Bibliographic Framework Initiative (Library of Congress) (loc.gov)](#)

» [Share-VDE: linked data for libraries](#)

» [BIBFRAME Interoperability Group: Terms of Reference (April 15, 2022)](#)

» [Task Group on MARC Simplification for BIBFRAME Conversion (charge, Feb. 2022)](#)

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