

MARC, FRBR and RDA: Topic Maps Perspective

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Presentation Outline

- ➊ Understanding FRBR Model
 - Functional Requirements for Bibliographic Records
- ➋ Converting MARC to FRBR
- ➌ Converting FRBR to Topic Maps
- ➍ Implementing a TM Prototype Enabling FRBR Model

FRBR 3 Groups of Entities

Group 1

- products of intellectual or artistic endeavor that are named or described in bibliographic records
 - work, expression, manifestation, item

Group 2

- entities responsible for the intellectual or artistic content, the physical production and dissemination, or the custodianship of such products
 - person, corporate body

Group 3

- entities that serve as the subjects of intellectual or artistic endeavor
 - concept, object, event, place

FRBR Group 1

Work

- A distinct intellectual or artistic creation

Expression

- The intellectual or artistic realization of a work

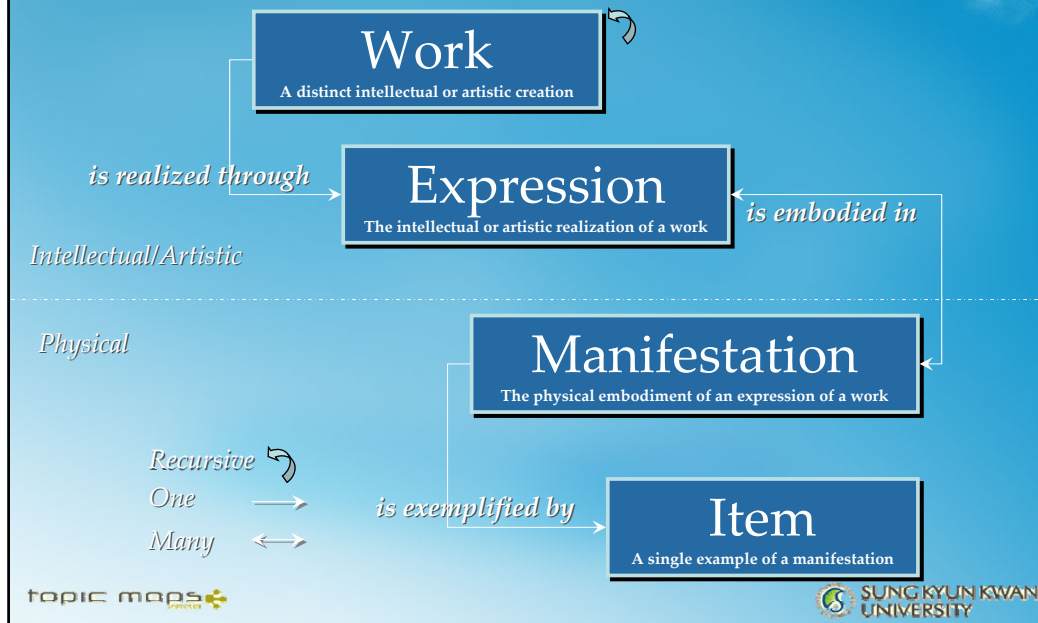
Manifestation

- The physical embodiment of an expression of a work

Item

- A single example of a manifestation

FRBR Group 1...



Group 1 Attributes

Work

- Work title, form or genre, date, performance medium, intended audience

Expression

- Expression title, form of the expression, language of the expression, type of score, scale of a map

Manifestation

- Manifestation title, publisher, date of publication, form of carrier, dimensions, manifestation identifier (e.g. ISBN), terms of availability

Item

- Location or call number, barcode, provenance, condition, access restrictions on an item

Group 2 – Responsible Entities

- Entities responsible for the intellectual or artistic content, the physical production and dissemination, or the custodianship of such products

Group 2 entities:

- Person
- Corporate Body

And perhaps a third ...

- Family

Group 2 Attributes

• Person

- Names, dates, titles or other designations

• Corporate body

- Name, number, place, date, other designation

Group 3 - Subject Entities

- Entities that serve as the subjects of intellectual or artistic endeavor

Group 3 entities:

- Concept: **topical subject heading**
- Object: **name for an object**
- Event: **name for an event**
- Place: **name for a place**
- Plus the Group 1 and 2 Entities:
 - Works about Works/Expressions/Manifestations/Items
 - Works about Persons and/or Corporate Entities

Relationships Between FRBR Groups

- Work $\Leftrightarrow$ Person
 - Created by
- Expression $\Leftrightarrow$ Person
 - Translated by
- Manifestation $\Leftrightarrow$ Corporate body
 - Produced by
- Item $\Leftrightarrow$ Corporate body
 - Owned by
- Concept $\Leftrightarrow$ Work
 - Is subject of

Relationships within a group

Work to work

- ✦ Successor
- ✦ Supplement
- ✦ Complement
- ✦ Summarization
- ✦ Adaptation
- ✦ Transformation
- ✦ Imitation
- ✦ Whole/part

Scenario A (Now)

Authority

Work/Expression
Uniform Title

Concept

Person

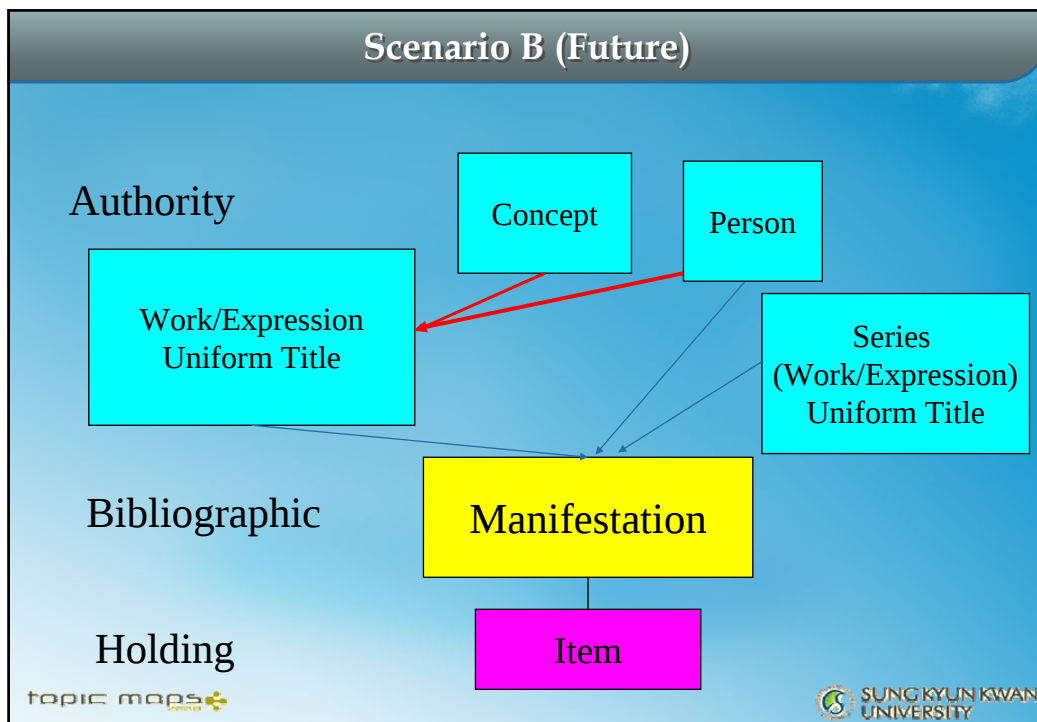
Series
(Work/Expression)
Uniform Title

Bibliographic

Manifestation

Holding

Item



Applying FRBR in Services

☰ Incorporating the concepts of the FRBR model in systems:

- Superior presentation of search results
 - Esp. in large files – more intuitive clustering
- May help streamline library cataloging
 - Reduces repeated keying of work-related info
- Bibliographic & management intelligence
 - New insights into works (e.g., [OCLC's 1000 list](#))
 - Libraries can operate at workset level (e.g., ILL)

Logos for 'topic maps' and 'SUNG KYUN KWAN UNIVERSITY' are visible in the bottom left and right corners respectively.

Converting MARC to FRBR

Mapping Between FRBR Attributes & MARC21 Elements

Entities	Attributes	MARC21 Elements	MARC21 Description
Work	created by	100/110/111 700/710/711 \$t,\$n,\$p,\$d,\$f,\$k,\$s,\$m,\$r,\$l,\$o,\$h	person/corporate body
	Title of work	130 \$a,\$n,\$p 240/243/245 \$a,\$n,\$p	Uniform title Collective uniform title Title statement
	Date of work	130 \$d 240/243 \$d 245 \$g	Date of treaty signing
	Form of work	130 \$k 240/243/245 \$k	Form subheading
	Medium of performance	130 \$m 240/243 \$m	Medium of performance for music
	Key	130 \$r 240/243 \$r	Key of music
	Coordinates	255 \$c	Statement of coordinates

Converting MARC to FRBR

Mapping Between FRBR Attributes & MARC21 Elements

Entities	Attributes	MARC21 Elements	MARC21 Description
Expression	Form of expression	leader/06	Type of record
	Language of expression	130 \$l 240/243 \$l 008/35-37	Language of a work language
	Other distinguishing characteristic	130 \$o 240/243 \$o 245 \$s	Arranged statement for music Revision
	Type of score	254 \$a Music 008/20	Musical presentation statement Format of music
	Scale	255 \$a 034 \$b,\$c,\$h	Statement of scale

Converting MARC to FRBR

Mapping Between FRBR Attributes & MARC21 Elements

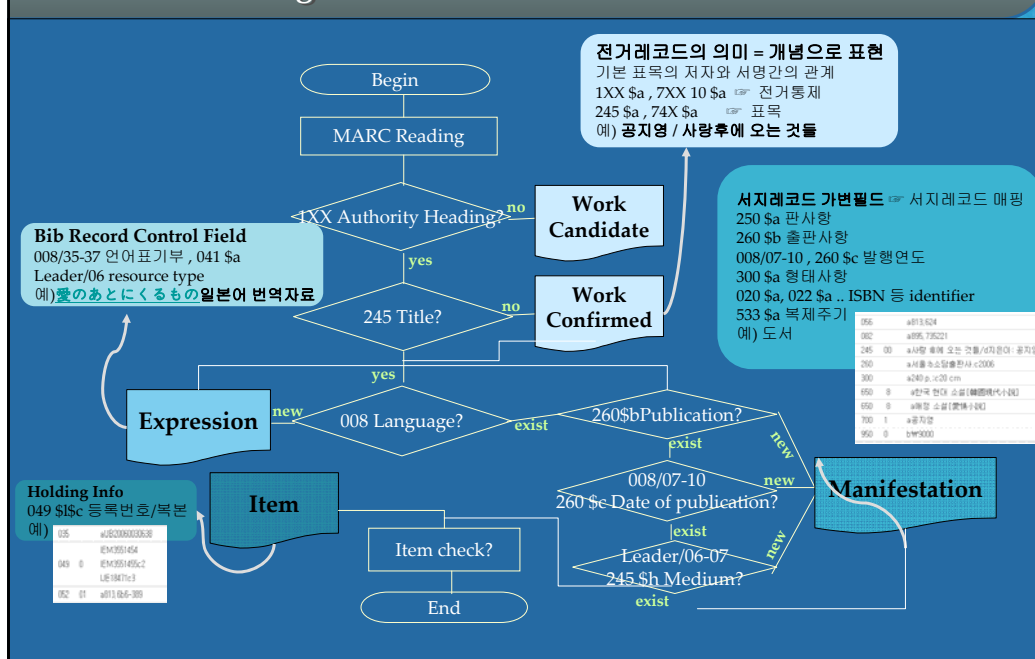
Entity	Attribute	MARC21 Elements	MARC21 Description
Manifestation	Title of manifestation	245 \$a,\$n,\$p 242 \$a,\$n,\$p	Title Number of part Name of part
	Statement of responsibility	245 \$c 242 \$c	Statement of responsibility
	Edition/issue designation	250 \$a,\$b	Edition statement Remainder of edition statement
	Numbering	362 \$a	Dates of publication and sequential designation
	Publisher/distributor	260 \$b 533 \$c	Name of publisher, distributor Agency responsible for reproduction
	Date of publication/distribution	260 \$c 533 \$d	Date of publication, distribution Date of reproduction

Converting MARC to FRBR

Mapping Between FRBR Attributes & MARC21 Elements

Entity	Attribute	MARC21 Elements	MARC21 Description
Manifestation	Form of carrier, extent of carrier	300 \$a 533 \$e	Extent Physical description of reproduction
	Dimensions of carrier	300 \$c 533 \$e	Dimensions Physical description of reproduction
	Physical medium, capture mode, playing speed, groove width, kind of cutting, tape configuration, kind of sound, special reproduction characteristics, color, polarity, presentation format, file characteristics	300 \$b	Other physical details
	Reduction ratio	340 \$f 533 \$e(?)	Production rate/ratio Physical description of reproduction
	Manifestation identifier	BK:020,027,074 SE:022,030,074 Other:024,028,074	ISBN,STRN:BK, ISSN, Coden:SE Other standard identifier, publisher number:other, Form of musical composition code:074t

An Algorithm to Convert MARC21 to FRBR



Algorithm to Convert MARC21 to FRBR

An Algorithm to Convert MARC21 to FRBR

1. Read MARC record one by one.
2. Read 1XXtag about author and apply normalization rules. (100/110/111 tag \$abcdq extract text)
3. If the author already exists in the DB, extract the title. If not, that becomes a new candidate for a new work.
4. In the 245tag \$a, extract the title and compare it to see whether it matches one of works in the DB.
 - 1) Apply normalization rules to extracted title.
 - 2) If the title in 245tag does not match, extract the text from 740tag \$a or 507tag \$t and compare it with the existing works.
 - 3) When you find a title that matches a work, extract the text in 245tag \$a as an expression of the work and move to the expression routine.
 - 4) Fix the author and title as work, then move to expression module.

Algorithm to Convert MARC21 to FRBR

An Algorithm to Convert MARC21 to FRBR...

6. Check the language, 008tag / 35-37, if that is a new one, register it as a new expression.
 - If 041tag exists, separate the text from \$a and \$bch, the \$bch becomes an expression.
7. Describe expression concept as author, title, language, and type.
8. After you went through work and expression steps, check manifestation items.
 - After you extract a publisher info from 260tag \$b, apply normalization rules, then check whether it matches existing ones.
 - Extract publication date from 008tag / 07-10 and check it matches with others.
 - Treat the value of leader/06-07 as upper classification category, if 245tag \$h exists, separate resource type from it and check whether it matches with others.
9. Registration of a manifestation will be done per record and manifestation. If that is an item of manifestation, it should be excluded.
10. Extract holding information from items and register it.

Advantages of Topic Maps in Semantic Services

-  Provides excellent collocation capability – Cutter's second purpose of cataloging
-  TM implementation is relatively easy compared with RDF/OWL so one can expect a better return on investment.
-  Excellent candidate in modeling FRBR-based data and provides great interoperability with other semantic data.
-  You can easily change your ontology schema without modifying applications, which offers excellent advantage in terms of management cost.
-  Provides flexible ways to model ontology.
-  Provides flexible ways to convert any structure data, which makes it easy to utilize legacy data.
-  Integrating TM with Web2.0 technology is easy and natural.

Refining MARC-Ontology Using Topic Maps

Topic Types

- Among FRBR entities from group 1,2,3 and MARC metadata elements, select the elements that can create “useful” collocation, assign them as topic types.
- Map FRBR model entities into MARC metadata elements and establish them as topic types.

Association Types

- Establish association types between topic types.
- Apply FRBR relationships as TM associations between topics and also establish associations between metadata elements.

Occurrence Types

- Except for MARC metadata elements that were converted as topic types, the remaining MARC elements will be defined as TM occurrence types.
- Classify occurrence types based on element values of FRBR model and assign them to appropriate topic types.
- Since MARC records are usually based on manifestation, most MARC metadata elements and other occurrence types are assigned to manifestation.

Defining Topic Types

Topic Types	FRBR Group & MARC Element
Work/Expression Manifestation/Item	FRBR Group 1, MARC Title
Person / Corporate Body	FRBR Group 2, MARC Personal name, Corporate Name
Object / Event / Place	FRBR Group 3
Country / Genre	MARC Subject (KORMARC 650tag)
Type	MARC leader's type of record (Expression Criterion)
Format	MARC Medium (245 \$h, Manifestation Criterion)
Language	MARC Language statement (Expression Criterion)
Classification	MARC KDC classification number
Context	FRBR Model (Entity Attribute)
Publisher, Date	MARC publication
Audience	MARC Target audience / User tagging info
Subject	User subject tagging info

KORMARC Elements / TM Occurrence Types

KORMARC Elements	Topic Maps Occurrence Types
Title and related fields (1XX/24X/4XX/7XX)	Other words associated with a name, Remainder of title, Parallel title, Original title, series statement, uniform title
Publication (26X)	Edition statement, Place of publication, Frequency, Regularity
Physical description (3XX)	Extent, Other physical details, Dimensions, Accompanying materials, size of unit
Note (5XX), Subject(653)	Contents note, Restrictions on access, Immediate source of acquisition, keyword
Non-book bibliographic Note(5XX)	System details note, Music format, Participant or performer note, Exhibitions note, Date/time and place of an event note, Creation/production credits note, scale note
Control field (0XX)	DDC, KDC, ISBN, Price, Korean National Library call number, identifier number, language note
Other service Note	URL, book review, status of book circulation, abstract, image of title

Occurrence Types by Topic Types

Topic Type	Occurrence Types
Work	uniform title
Expression	Original title, language note, Frequency, Regularity, Restrictions on access
Manifestation	Contents note, Immediate source of acquisition, Extent, Other physical details, Dimensions, Accompanying materials, size of unit, Edition statement, System details note, Music format, Participant or performer note, Exhibitions note, Date/time and place of an event note, Creation/production credits note, scale note, Other words associated with a name, Remainder of title, Parallel title, DDC, KDC, ISBN, Price,
Item	Korean National Library call number, identifier number
Publisher	Place of publication,
Classification	KDC, DDC
인물	Dates associated with a name?
Subject	keyword

Defining Association Types I

Topic Type	Association Type	Topic Type
Work	Work form	Genre
	Realized Through	Expression
	Created by	Person/ Corporate Body
	Context for	Context
	Work classified	Classification

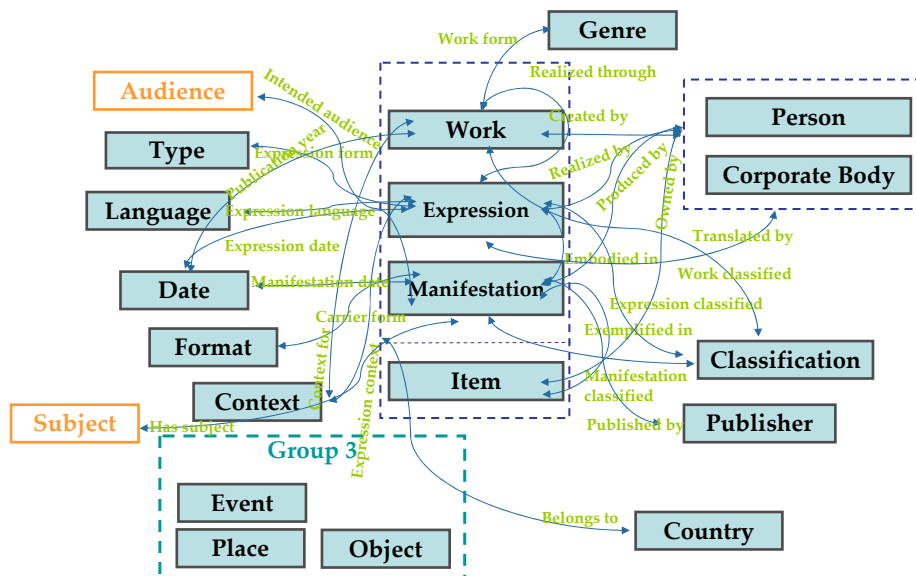
Defining Association Types II

Topic Type	Association Type	Topic Type
Expression	Embodied in	Manifestation
	Realized by	Person/ Corporate Body
	Expression form	Type
	Expression language	Language
	Expression classified	Classification
	Expression context	Context
	Expression date	Publication Date
	Translated by	Person/ Corporate Body

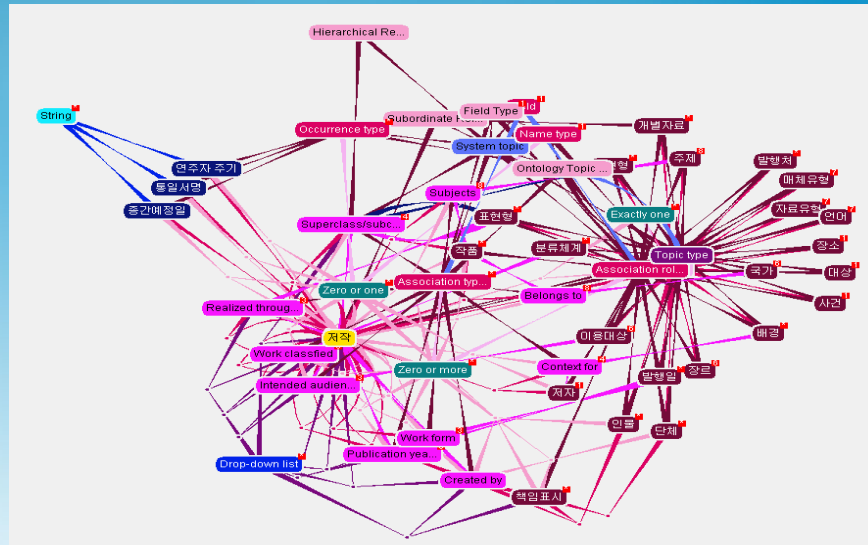
Defining Association Types III

Topic Type	Association Type	Topic Type
Manifestation	Exemplified in	Item
	Produced by	Person/ Corporate Body
	Carrier form	Format
	Published by	Publisher
	Manifestation classified	Classification
	Intended audience	Audience
	Manifestation date	Publication Date
Subject	Has subject	Work
Country	Belongs to	Expression Manifestation

Topic Map Modeling of FRBR



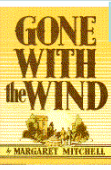
Graphical TM View of MARC



topic maps

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OCLC Fiction Finder



Gone with the wind.
Mitchell, Margaret, 1900-1949

293 editions | 27 languages, held by 11291 libraries

Summary: A monumental classic considered by many to be not only the best of its kind but also one of the greatest American novels ever written.

Genres: Historical fiction | War stories | Love stories | Epic fiction

Characters: O'Hara, Scarlett (Fictitious character)

Settings: 1861 - 1865 | United States | Georgia | 1800 - 1899 | Estado Georgia —Atlanta [+]

Subjects: American Civil War, 1861-1865 | Women | Plantation life | Young women | Civil war | English literature | Russian language

Audience: Kids | General | Special

Work | **Item**

Expression | **Manifestation**

LDR 00630c-am au200217 a 4500

001 0001133101

005 20060709122518

008 04011219641936nyu 000 1 eng d

010 36027334

020 00025853902

040 1aIPP 1cIPP 1dOCL 1dWSU 1dIFA

050 1aPS 3525.1972 1bG6 1964

062 1aF 1bMit

082 00 1a813/.52 1c220

090 1aA823.52 1bM694go

100 1 1aMitchell, Margaret, 1900-1949

245 10 1aGone with the wind / 1cMargaret Mitchell

260 1aNew York : 1bKnopf, 1936

300 1a833 p. : 1c22 cm

651 0 1aUnited States 1xHistory 1yCivil War, 1861-1865 1xFiction, 1a

Editions		Genres		Characters		Settings		Subjects	
Title / Author	OCLC #	Date	Format	Aud.					
1. Gone with the wind / by Margaret Mitchell	00290059	1936	Book	General					
2. Gone with the wind	07909619	1936	Book	General					
3. Gone with the wind / by Margaret Mitchell	35240399	1964	Book	General					
4. Gone with the wind	01279858	1973	Book	General					
5. Gone with the wind / Margaret Mitchell	28491920	1936	Book	General					
6. Gone with the wind / Margaret Mitchell	25412027	1992	Large print	General					
7. Gone with the wind / Margaret Mitchell ; with a new preface by Pat Conroy and an introduction by James A. Michener	33947306	1996	Book	General					
8. Gone with the wind / Margaret Mitchell	02931402	1936	Book	General					
9. Gone with the wind. Illustrated by Ben Stahl	00878256	1961	Book	General					
10. Gone with the wind Margaret Mitchell	45950921	2001	Book	General					

topic maps

SUNG KYUN KWAN UNIVERSITY

NLK Prototype System: Main Screen

국립중앙도서관
THE NATIONAL LIBRARY OF KOREA

문학작품

저자

장르별

시대별

검색 태그보기

Welcome

이 prototype 프로젝트는 국중 소설 부분의 자료를 저자명, 서명, 주제별, 장르별로, 시대별로도 접근할 수 있게 도와 줍니다.
 여러 분이 찾은 작품이 더 다양한 관계 속에 있다는 것을 아실 것입니다.
 여러 분의 관심의 정도에 따라 자유롭게 탐색하시면 다른 작품도 우연히 만날 수 있습니다.
 (예: 다른 언어로, 다른 매체로)
 또 여러 분이 직접 작품의 주제를 입력하실 수도 있습니다.
 함께 만들어 가는 우리 문학의 보고입니다.

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NLK Prototype System: KDC 800 Literary Works

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문학작품

저자

장르별

시대별

검색 태그보기

문학작품의 가나다 순 열람 (20)

전체 가 나 다 라 마 바 사 아 자 차 카 단 파 하

(라디오 TV) 드라마 / 연재 / 표현형 (1) / 구현형 (1) / 한국방송작가협회 편
 [문자화된 인쇄자료]
 라디오 TV 드라마 / 연재 / [도서] / [1991] / [第三全集]
 [문자화된 인쇄자료]
 라디오 TV 드라마 / 연재 / [도서] / [1990] / [第三全集]
 [문자화된 인쇄자료]
 라디오 TV 드라마 / 연재 / [도서] / [1989] / [第三全集]

라오날라 재역 투시에 중독되었다 / 표현형 (1) / 구현형 (1) / 고영주
 라일락나무에 사시는 하느님 / 표현형 (1) / 구현형 (1) / 조영환
 할랄라 하우스 / 표현형 (1) / 구현형 (1) / 김경하
 알래스카의 가장 위대한 파라오 / 표현형 (3) / 구현형 (3) / 포이스트 타
 알드올렌이
 러자별선 / 표현형 (1) / 구현형 (1) / 이동수
 러브 인 사이프러스 / 표현형 (2) / 구현형 (2) / 김태희
 란 / 표현형 (1) / 구현형 (1) / 저자 미상함

12

관련 항목 보기

[소설 분야 작품]

- (題意) 大河小説이란
- (조용) 長篇小説이란 무엇인가를 적지 않
- 는다
- (공지) 소설/영화의 발전
- (공지) 장편소설/영화의 연니
- (공지) 장편소설/작가한여자
- (장편) 60년동안 가장 빛나는 남북한 창작동
- 화
- (장편) 60년동안 가장 빛나는 남북한 창작동
- 화
- (그 여자의) 방

1 2 3 4 5 6 7 8 9

[한대시 분야 작품]

- (84) 南進작가시대에오는 영웅의 눈
- (101) 南의 南進작가시대에오는 영웅의 눈
- (1) 南의 南進작가시대에오는 영웅의 눈
- (A) Lamp Burns Low

[외국 분야 작품]

- '90 南진작가시대에오는 영웅의 눈
- '91 南진작가시대에오는 영웅의 눈
- '92 南진작가시대에오는 영웅의 눈
- '93 南진작가시대에오는 영웅의 눈
- '94 南진작가시대에오는 영웅의 눈
- '95 南진작가시대에오는 영웅의 눈
- '96 南진작가시대에오는 영웅의 눈
- '97 南진작가시대에오는 영웅의 눈
- '98 南진작가시대에오는 영웅의 눈
- '99 南진작가시대에오는 영웅의 눈
- '00 南진작가시대에오는 영웅의 눈
- '01 南진작가시대에오는 영웅의 눈
- '02 南진작가시대에오는 영웅의 눈
- '03 南진작가시대에오는 영웅의 눈
- '04 南진작가시대에오는 영웅의 눈
- '05 南진작가시대에오는 영웅의 눈
- '06 南진작가시대에오는 영웅의 눈
- '07 南진작가시대에오는 영웅의 눈
- '08 南진작가시대에오는 영웅의 눈
- '09 南진작가시대에오는 영웅의 눈
- '10 南진작가시대에오는 영웅의 눈
- '11 南진작가시대에오는 영웅의 눈
- '12 南진작가시대에오는 영웅의 눈
- '13 南진작가시대에오는 영웅의 눈
- '14 南진작가시대에오는 영웅의 눈
- '15 南진작가시대에오는 영웅의 눈
- '16 南진작가시대에오는 영웅의 눈
- '17 南진작가시대에오는 영웅의 눈
- '18 南진작가시대에오는 영웅의 눈
- '19 南진작가시대에오는 영웅의 눈
- '20 南진작가시대에오는 영웅의 눈

Work list & expression, manifestation count

Arranged by Genre

NLK Prototype System: Authors

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문학작품
저자
장르별
시대별

검색
태그보기

장르별 저자보기

[소설 분야 연표]

- 김소월
- 김훈
- 박경리
- 박완서

* 더보기

[현대시 분야 연표]

- 고은
- 김소희
- 김계순

* 더보기

[희곡 분야 연표]

- 김추자
- 우리국단 마당

* 더보기

저자 및 저작 리스트 (15)

검색 가나다라 마바사 아자 카타 대하

[다로]의 작품

- 제목: 고알덕 - 매체유형: [도서] - 발행일: 2005-2006 - 발행처: 두레미디어

[다알 알카]의 작품

- 제목: 가시

나루섬전자

[달라에 라]의 작품

- 제목: 달라에 라의 행복론 - 매체유형: [컴퓨터파일] - 발행일: 2005 - 발행처: 한빛도서관
- 제목: 달라에 라의 행복론 - 매체유형: [도서] - 발행일: 2001 - 발행처: 김영사
- 제목: 달라에 라의 행복론 - 매체유형: [컴퓨터파일] - 발행일: 2005 - 발행처: 한빛도서관
- 제목: 달라에 라의 행복론 - 매체유형: [도서] - 발행일: 2001 - 발행처: 김영사

[대니얼 김]의 작품

- 제목: 호크 - 매체유형: [도서] - 발행일: 2006 - 발행처: 동아

[대자부호]의 작품

- 제목: 고향 - 매체유형: [도서] - 발행일: 2005-2006 - 발행처: 두레미디어

1 2 3

관련 항목 보기

[다른 저자 보기]

- 김영호
- 김훈
- 박경리
- 박완서

* 더보기

[매체별 저작 보기]

- XBS 영상사양단
- 우리국단 마당
- 영화관 종결사
- 한국방송작가협회

* 더보기

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topic maps

 SUNG KYUN KWAN UNIVERSITY

NLK Prototype System: Literary Works (Detail)

주제 : "(문학)도지1부1"의 상세

태그 카테고리 ▼ 태그 목록

"(문학)도지1부1"의 저자
- 박종관
"(문학)도지1부1"의 출판사
- 나남
"(문학)도지1부1"의 출판연도
- 2002
"(문학)도지1부1"의 매체유형
- [도서]

"(문학)도지1부1"의 크기: [25cm]
["책크기:(0)가 "25cm"면 다른 도록]

90 방송작가 작품명
91한글방송작가상 수상작품집
94 한국방송작가상작품집
97한국방송작가상 수상작품집
98한국방송작가상 수상작품집
(#4국문산악시집)등여오는 영준의 눈

1 2 3 4 5 6 7 8 9 10 더보기

"(문학)도지1부1"의 국문연구자료: [812.6H1511 #]
["국문연구자료:(0)가 "812.6H1511 #"면 다른 도록]

90 방송작가 작품명
(P) 방송작가/작품명

1

"(문학)도지1부1"의 원미자: [420p]
["원미자:(0)가 "420p"면 다른 도록]

90 방송작가 작품명
大韓民國憲法制定勅諭
국회의원김계
한국 근대사의 재조명
현대학교회조선

1 2

"(문학)도지1부1"의 가격: [60000]
["가격:(0)가 "60000"면 다른 도록]

90 방송작가 작품명
(H)외국/재민간
(H) 외국에서 발행된 작품들
(朱東潤 著: 凡例集)과(朱東潤 著: 凡例集)
(凡例先生朱東潤記念詩會 國악가곡을 대표曲選

1 2 3 4 5 6 7 8 9 10 더보기

"(문학)도지1부1"의 발행지: [서울]
["발행지:(0)가 "서울"면 다른 도록]

Bibliography association

Work-centered vizigator

[다른 주제 보기]

- (1).90 방송작가 작품명 / 한국방송작가협회 문
- (2).91한글방송작가상 수상작품집 / 한국방송작가협회 판지
- (3).94 한국방송작가상작품집 / 한국방송작가협회 판
- (4).97한국방송작가상 수상작품집 / 한국방송작가협회 판지
- (5).98한국방송작가상 수상작품집 / 한국방송작가협회 판지

1 2 3 4 5 6 더보기

[다른 연월 보기]

- (1).A. J. Cronin
- (2).A. J. Cronin
- (3).Davidson, Alice Joyce
- (4).EBS 교육방송 제작
- (5).F. H. N.
- (6).Gibson, Kathl
- (7).KBS 디디이
- (8).KBS 디디이 (제작)
- (9).[韓國憲法制定勅諭]과(朱東潤 著: 凡例集)과(朱東潤 著: 凡例集)
- (10).[朱東潤詩會同人會 集] 3

1 2 3 4 5 6 더보기

[다른 발행지 보기]

- (1).도서출판/영원원
- (2).주요학과 지성사
- (3).주요학과 지성사
- (4).주요학과 지성사
- (5).주요학과 지성사
- (6).주요학과 지성사

NLK Prototype System: Genre

국립중앙도서관
THE NATIONAL LIBRARY OF KOREA
문학작품 | 저자 | 장르별 | 시대별

문학작품에 장르 (09)

Genre (topic type)

1 2 3 4 5 6 7 8 9 10

문학작품

- (1) 국한속어로 / 표현형 (1) / 구현형 (1) / 갈호선
[문자표현 인위자료]
· 국한속어로 / [도서] / [2003] / [홍준서상]
- (2) 국한이탈형제 / 표현형 (1) / 구현형 (1) / 갈호선
[문자표현 인위자료]
· 국한이탈형제 / [도서] / [2003] / [발행지불종결]
- (3) 아랍어로 국한 아랍어로 사할물 / 표현형 (1) / 구현형 (1) / 갈호선
[문자표현 인위자료]
· 아랍어로 국한 아랍어로 사할물 / [도서] / [2000] / [홍준서상]
- (4) 저술자명, 그러나 다로계 / 표현형 (1) / 구현형 (1) / 갈호선
[문자표현 인위자료]
· 저술자명, 그러나 다로계 / [도서] / [2001] / [홍준서상]
- (5) 향가나는 정자 아랍으로 국한 / 표현형 (1) / 구현형 (1) / 갈호선
[문자표현 인위자료]
· 향가나는 정자 아랍으로 국한 / [도서] / [2003] / [홍준서상]

Genre-related work, manifestation list

관련항목보기

[소설 분야 작품]

- (2004) 황금의 눈개울 소설
- (2004) 미로 지평선의 수상작품집
- (2006) 역사가 가련한것을 조영철의 소설
- (2006) 송영희의 문체소설
- (Free) 기타단편 전기

[다른 항목 보기]

다른 저작자 보기

(1) A. J. Cronin
(2) ...

[한문 분야 작품]

- (184) 유림심각시집(유여오는 영조는 눈의 눈
- (181) 양의 靈峰集과 안해
- (1만원) 장사부(장사부의 하늘
- (A/Lamp Burns Low
- (中國民間詩歌選集(阿雲山의 메타리

[외국 분야 작품]

- (1) 90 발음각기 作樂圖
- (2) 90 발음각기 작가를 수상작품집
- (3) 94 한국문학작가상작품집
- (4) 95년 문학작가상 수상작품집
- (5) 《文壇雜報》(文壇雜報)
- (6) 《雜報》(雜報) 출판은 질서로
- (7) 《雜報》(雜報) 출판은 질서로
- (8) 《雜報》(雜報) 출판은 질서로
- (9) 《雜報》(雜報) 출판은 질서로
- (10) 《雜報》(雜報) 출판은 질서로
- (11) 《雜報》(雜報) 출판은 질서로
- (12) 《雜報》(雜報) 출판은 질서로
- (13) 《雜報》(雜報) 출판은 질서로
- (14) 《雜報》(雜報) 출판은 질서로
- (15) 《雜報》(雜報) 출판은 질서로
- (16) 《雜報》(雜報) 출판은 질서로
- (17) 《雜報》(雜報) 출판은 질서로
- (18) 《雜報》(雜報) 출판은 질서로
- (19) 《雜報》(雜報) 출판은 질서로
- (20) 《雜報》(雜報) 출판은 질서로

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The Role of Topic Maps in Digital Libraries

The diagram illustrates the role of Topic Maps in a digital library system, structured into five layers:

- 이용자 참여 층 (User Participation Layer):** Includes Personalize Service, Tag Cloud, Blog, Wiki, and Collaborative Filtering.
- 표현 층 (Expression Layer):** Includes Social Network, Ranking, Hit, Interest, SIA, TopicMaps, Ajax, FRBR in TopicMaps, UI, Concept Display, and Technical Display.
- 매개 층 (Distribution Layer):** Includes SIOC, Wikipedia (External), SPARQL, TOLOG, Query Execution, FOAF, Wikipedia, Identity Verifying (Internal), and SIOC.
- 관리 층 (Management Layer):** Includes RDF/OWL Data Management, Resource Relation Description (TopicMaps, FRBR), FOAF Realm, FOAF, Person Relation Description, and Taxonomy/Folksonomy SKOS Resource Classification.
- 보관/저장 층 (Preservation/Storage Layer):** Includes System/Library Information, Resource Information, FRBRized Storage, User Created Information, and User Profile.

Arrows indicate the flow of data and interactions between these components, showing how Topic Maps serve as a central hub for resource relation and person relation descriptions.

topic maps 

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