

Metadata Framework for Manga

A Multi-paradigm Metadata Description Framework for Digital Comics

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Background

- Manga – a Japanese term meaning Comics, Cartoons, Graphic Novels
- Changes in Business Environment
 - Print-based publishing: major but not growing
 - Digital publishing (mobile/Web): minor but growing
- Metadata framework for a whole lifecycle of manga – production, authoring, discovery, sharing, use/browsing, reuse

Goal

- Build a Metadata Framework for (Digital) Manga
 - Information Architecture for Digital Manga
 - Integration of Metadata Description in Three Different Aspects
 - Bibliographic Description
 - Structural Description
 - Intellectual Entity Description

Approach

- Analysis of Manga for Metadata Description
 - Analyze physical/logical structures of manga for bibliographic and structural descriptions
 - Identify intellectual content useful to find, use, reuse, and link mangas
- Build a metadata framework using existing metadata models
- Implementation is our next step

Why

- Purposes of Metadata Description
 - Metadata Description to Use/Reuse Published Resources
 - Publishing Same Content via Different Media
- Clarification of Architecture of Manga as an Information Object
 - Metadata Aspects of Digital Manga
 - Bibliographic Description, Object Structure, Ontology
 - Description for Smaller Granule of Objects
- Mangas are (in)directly linked via their intellectual contents, e.g. characters, creators, publishers, etc.

Base Metadata Models

- FRBR – Bibliographic Description
 - Group 1 Entities – Manga (Work, Expression, Manifestation, and Item)
 - Group 2 Entities – Agents (Creators, Publishers, etc.)
 - Group 3 Entities – Intellectual Entities (Concepts, Places, etc.)
- TV Anytime (MPEG7) – Structural Description
 - Description about content structure
 - Story (Time line to read) + Visual Representation
 - Similarity between video content and manga

Analysis of Manga (1/3)

Objects for Bibliographic Description

- Instances of Manga (a series of stories, a story, a book of manga, a piece of manga in a book, etc.)
--- Group 1 Entities
- Creators, Publishers (Agents) --- Group 2 Entities
- Intellectual Entities --- Group 3 Entities
 - Characters
 - Genre – no well-established vocabulary
 - Audience (Boys, Girls, Adults, Learners, etc.)
 - Story type (Sports, Family, Adventure, etc.)
 - Creators, publishers and magazines are often used to express genre

Analysis of Manga (2/3)

Publishing Objects (higher level constructs)

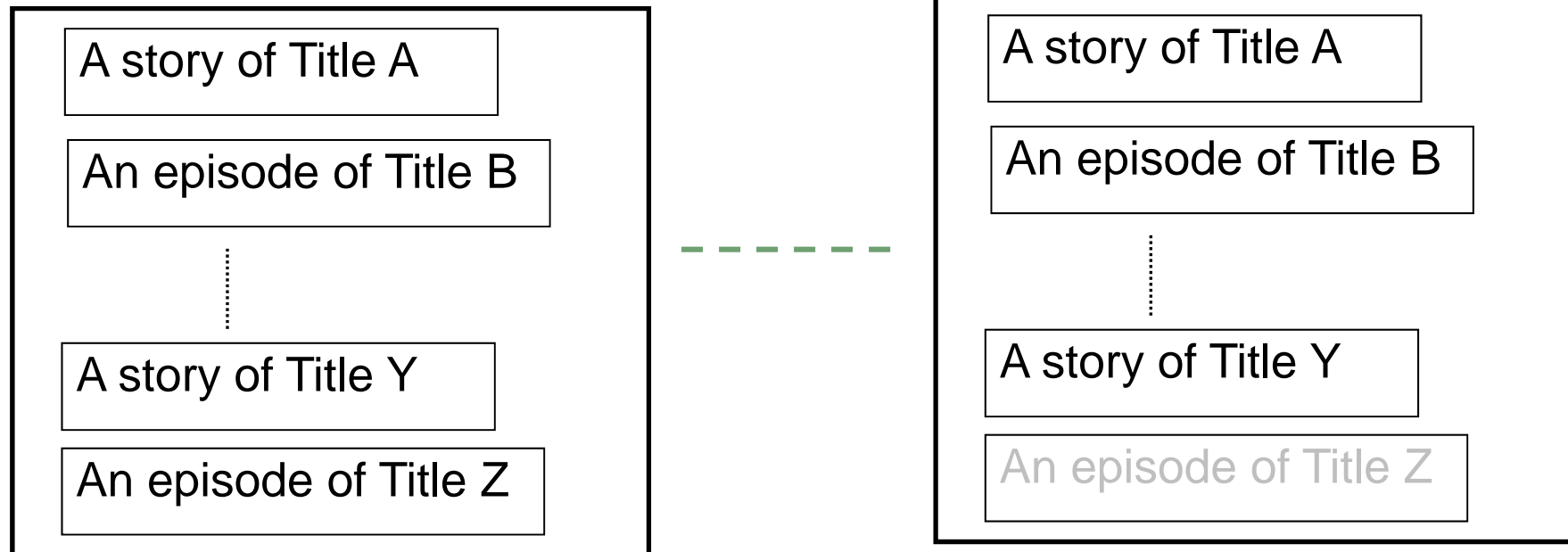
- Title and Story/Episode
 - A title of manga has one or more stories , e.g. Dragon Ball.
 - A story is composed of one or more episodes.
- Book and Magazine
 - Generally speaking, a comic book has one or more stories/episodes of a single title of manga.
 - A single issue of a magazine has several stories/episodes of different titles.

Analysis of Manga (3/3)

Graphical Objects (lower level constructs)

- Page
 - A story/episode is drawn on one page or a series of pages
 - A page is a unit of layout and browsing of contents
- Scene
 - A story/episode contains several scenes
- Frames
 - A visual frame in which visual objects are drawn
- Visual Objects
 - Characters, Texts, Onomatopoeia, Graphic Symbols, etc.

A Generalized Structure of Magazines



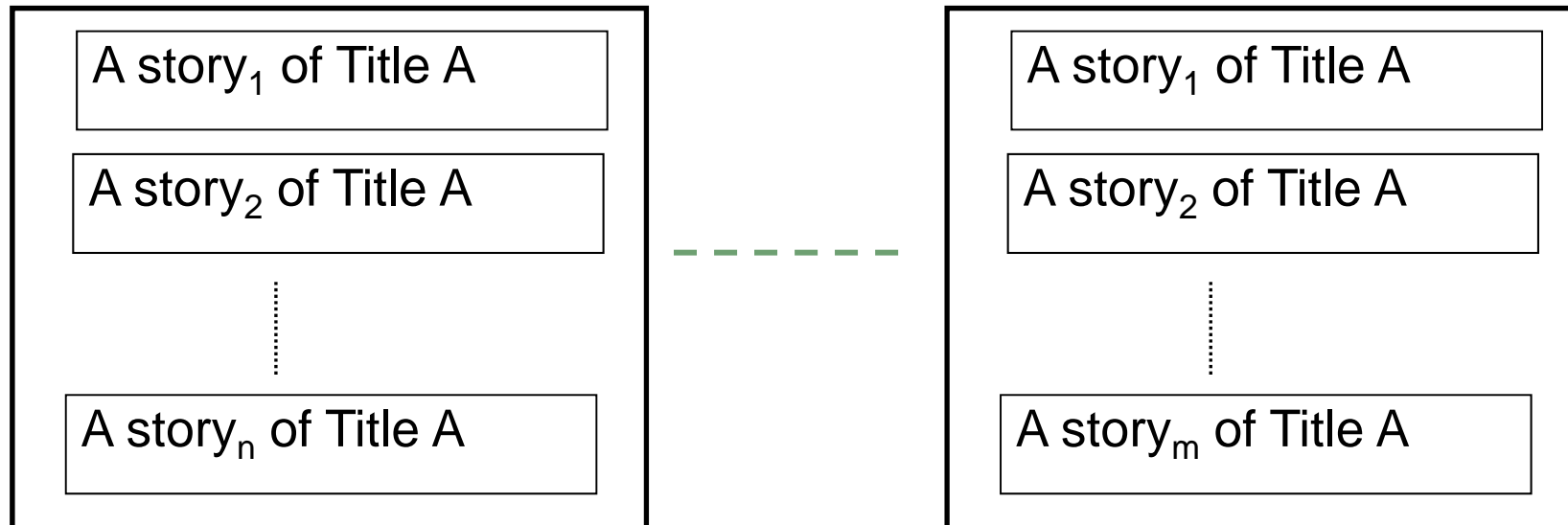
A magazine is a series of issues.

Each issue includes a story (or an episode of a story).

A title of manga is published in a magazine.

A title of manga is composed of one or more stories.

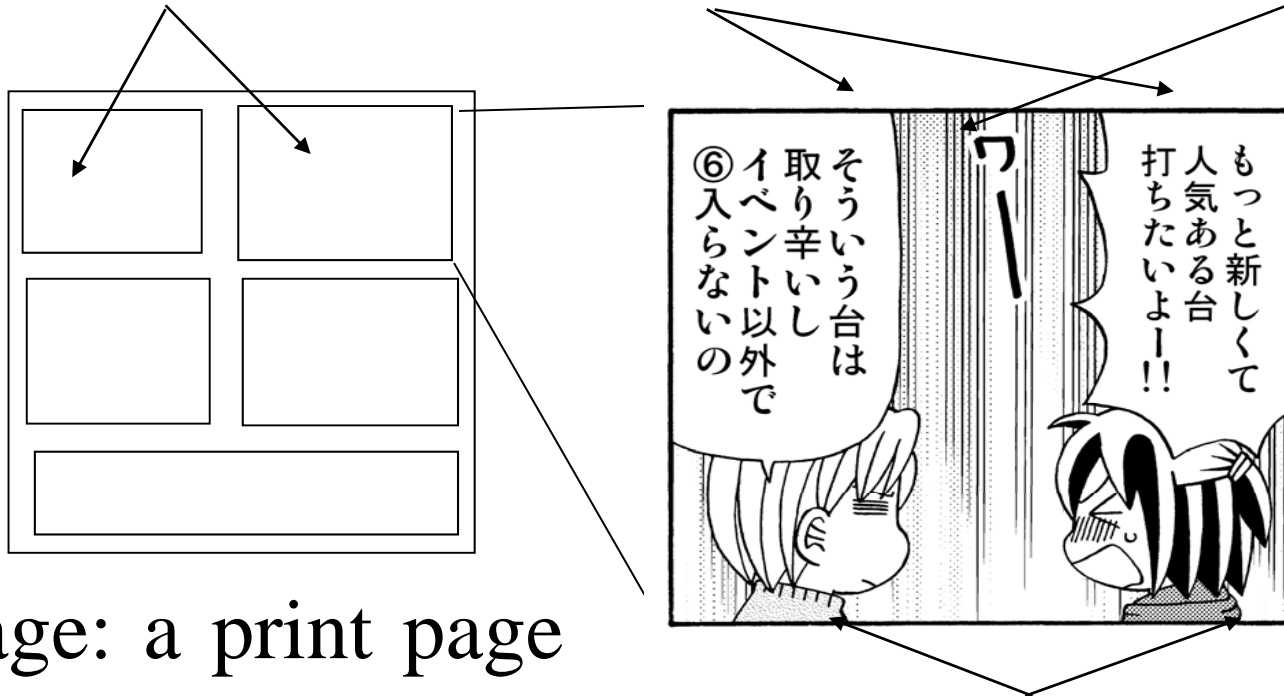
A Generalized Structure of Comic Books



A title of manga is often published as a series of comic books.
A single book contains a set of stories.

Basic Structure of a Manga Page

frames Texts and text boxes Onomatopoeia



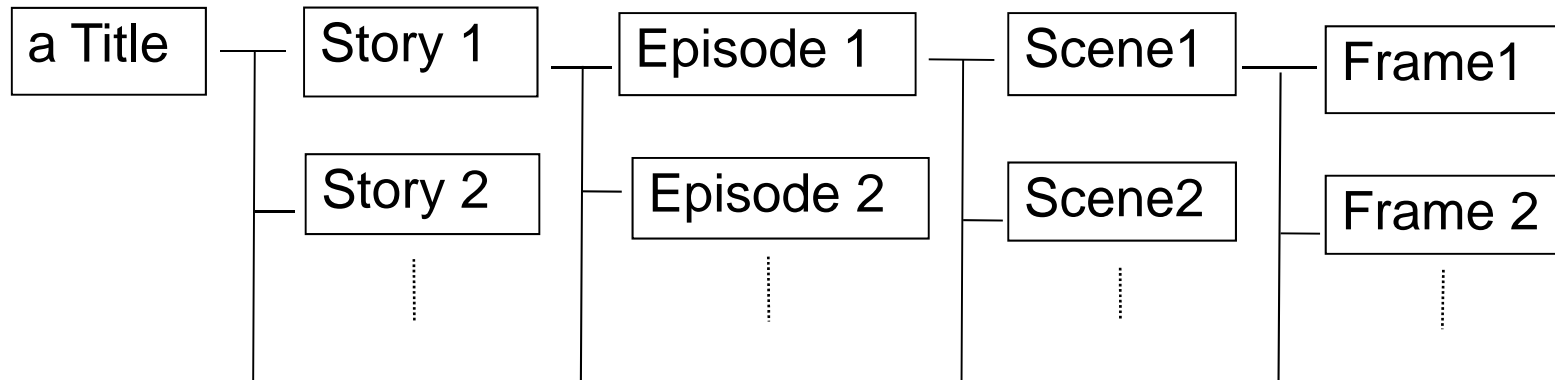
Page: a print page
or a display page

Characters

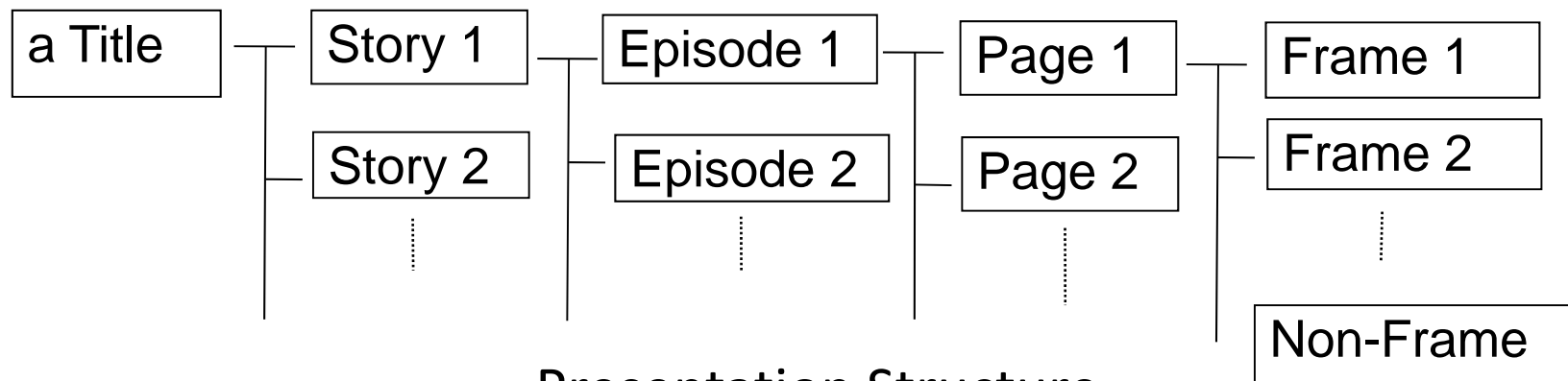
Basic Constructs of Visual Instances

(by courtesy of Kaori Kawasaki and Take Shobo Co. Ltd)

Generalized Story/Presentation Structures



Story Structure



Presentation Structure

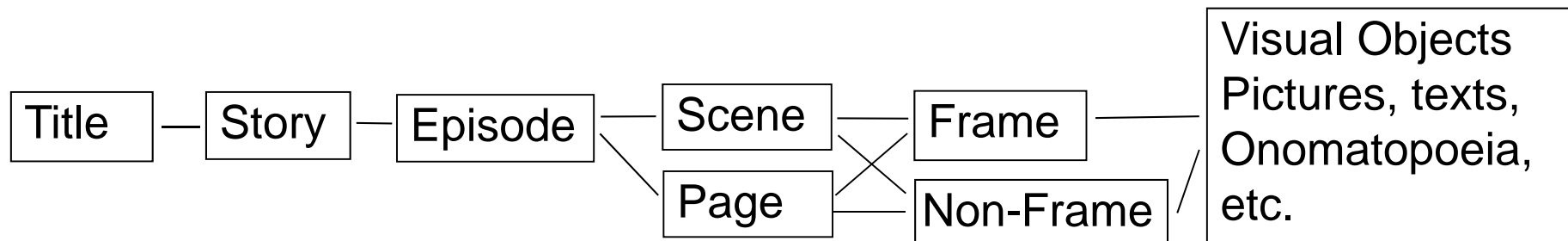
Granularity Levels of Metadata Description

- Magazine title, Book
- Manga Title
- Storie/Episode
- Scene
- Page
- Frame
- Visual Object

Granularity Levels of Metadata Description

- ~~Magazine title, Book~~ --- conventional lib. cat.
- Manga Title
- Story/Episode
- Scene
- Page
- Frame
- Visual Object

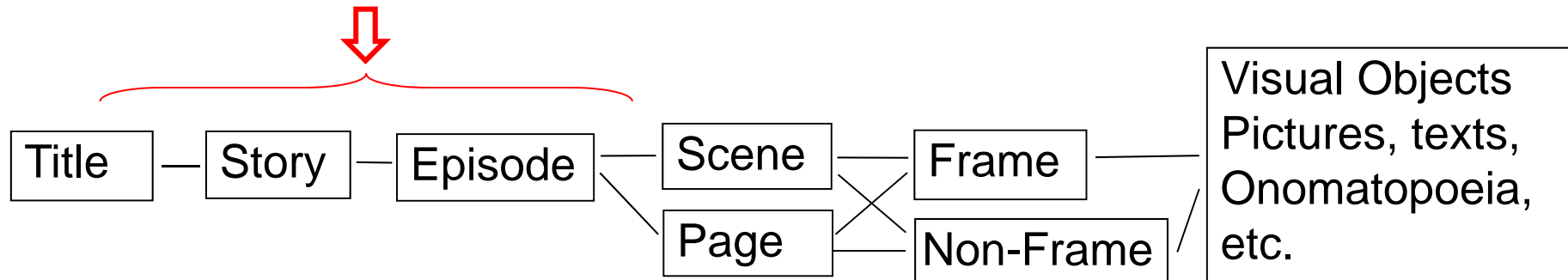
Generalized Structure of Manga



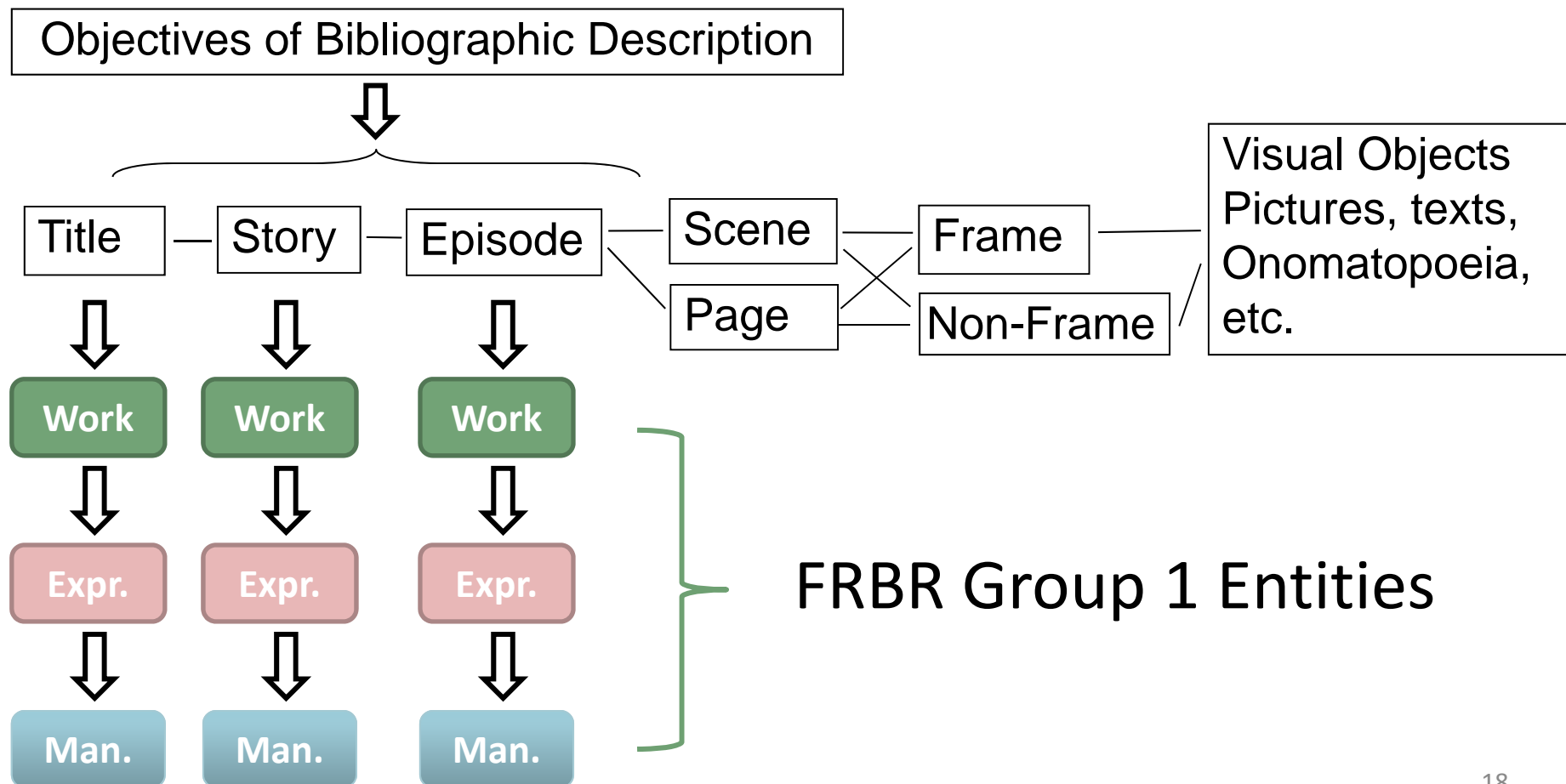
Appropriate Granularity for Bibliographic Description ?

Bibliographic and Structural Description

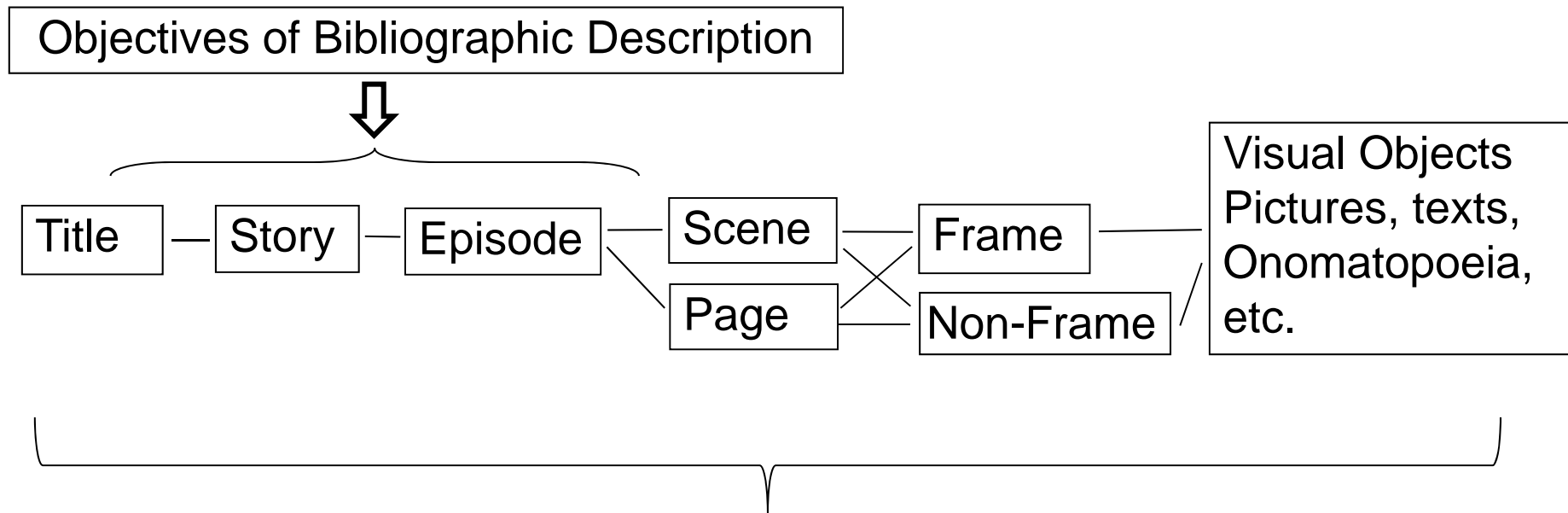
Objectives of Bibliographic Description



Bibliographic and Structural Description

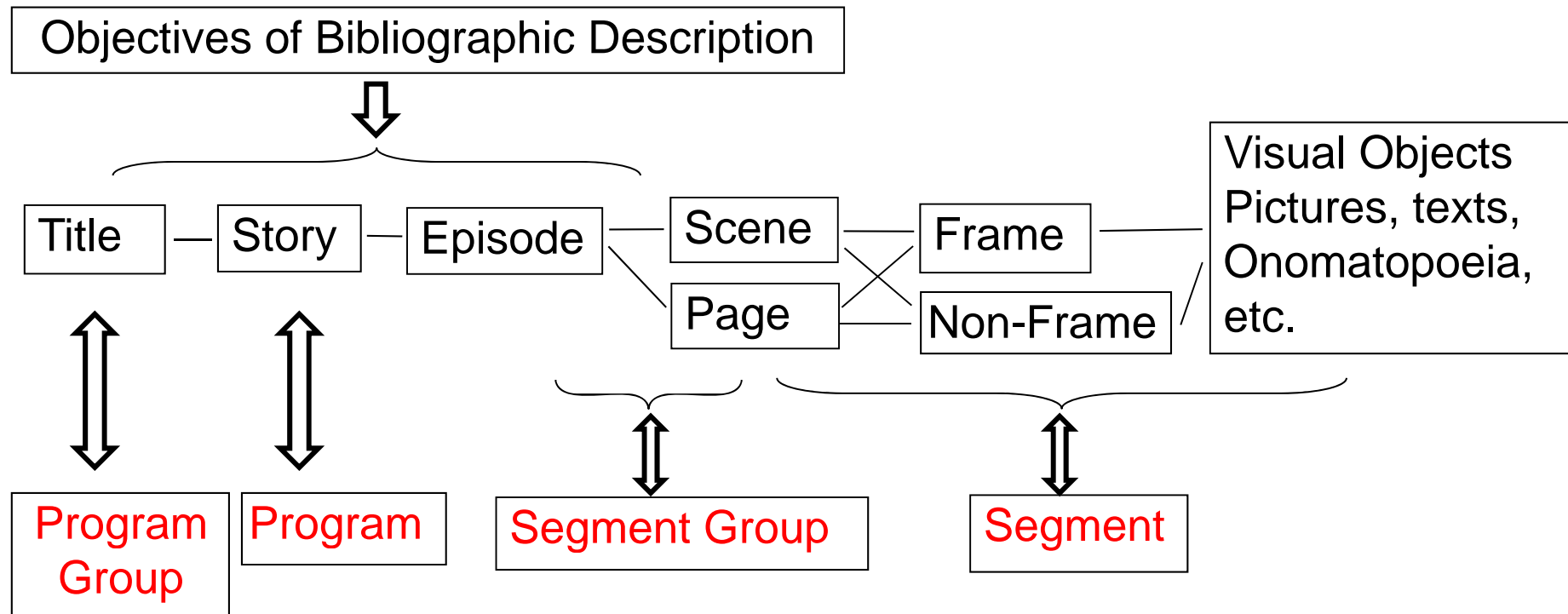


Bibliographic and Structural Description



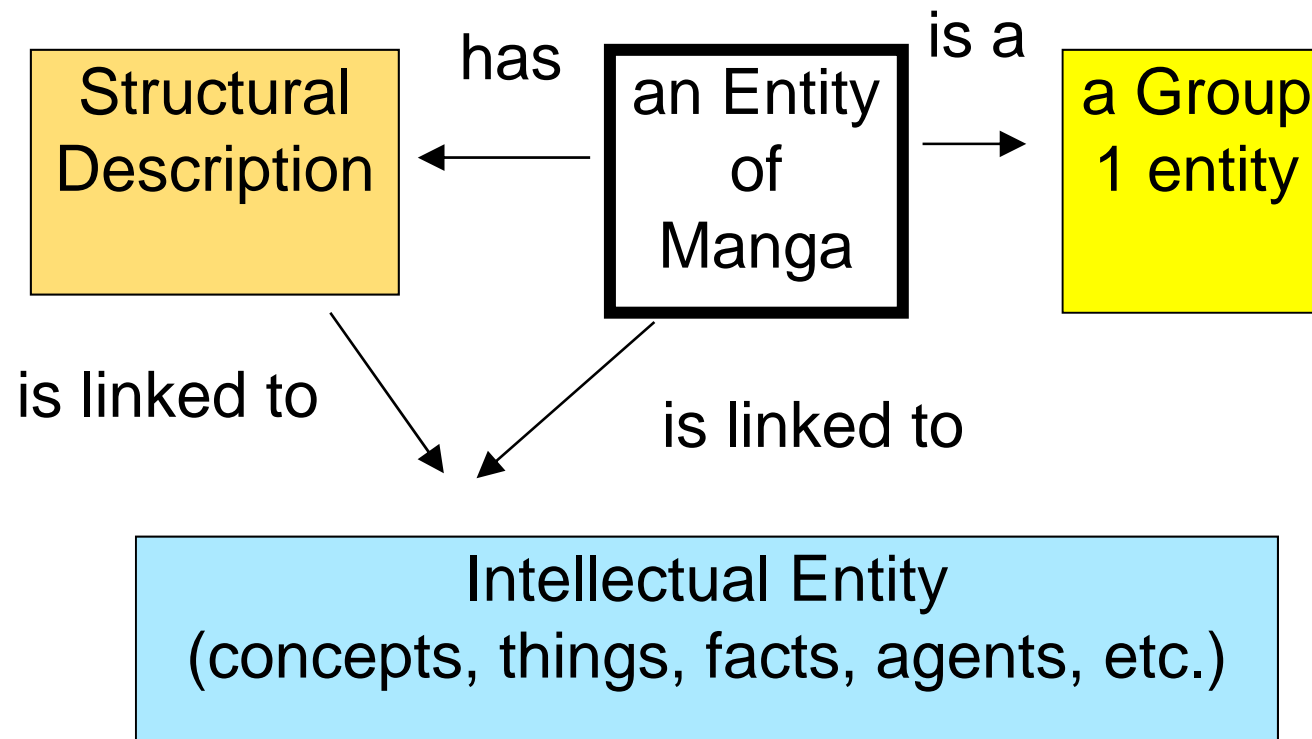
Objectives of Structural Description

Bibliographic and Structural Description



Use TV Anytime as a base model for structural description

Basic Relationship among the Three Description Paradigms



Intellectual Entities

- Any objects expressed in manga
 - Characters
 - Gadgets
 - Location, Time/Period, etc.
- Genre - Challenging Issue
 - Audience – Boys, Girls, Adults, Learners, etc.
 - Topic – Sports, Adventure, Family, etc.
 - Creator, Publisher, Magazine
 - etc.

Description Scheme for Intellectual Entities

- Vocabularies for Describing Intellectual Entities
 - Need Dictionaries and Thesauri of Manga
 - No well-established Dictionaries and Thesauri
- Basic Issues
 - What properties need to be described in an article?
 - How should the intellectual entities be identified?
- Wikipedia
 - A rich freely available dictionary
 - 2400 titles of manga (as of 2008)
 - A natural candidate dictionary on the Web

Description Scheme for Intellectual Entities

- Description Scheme based on Wikipedia
 - Extraction of elements from table of contents of 100 articles of manga
 - Comparison with articles for novels
 - Recommended elements for description of manga
 - bibliographic information, overall description, story description, characters, evaluation/ratings, reviews, derived works, references, and notes

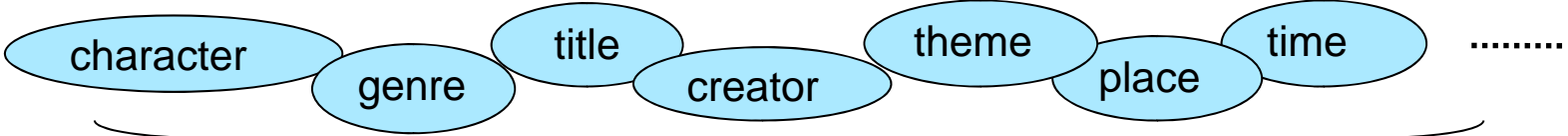
Description Scheme for Intellectual Entities

- Some lessons
 - Need automated extraction of elements from Wikipedia, e.g. DBpedia
 - Need reliable identification scheme for intellectual entities
 - Need reliable and shared vocabularies for group 1, 2 and 3 entities
 - Crucial to enhance access and build portals
 - Vocabularies of genre or classes of manga

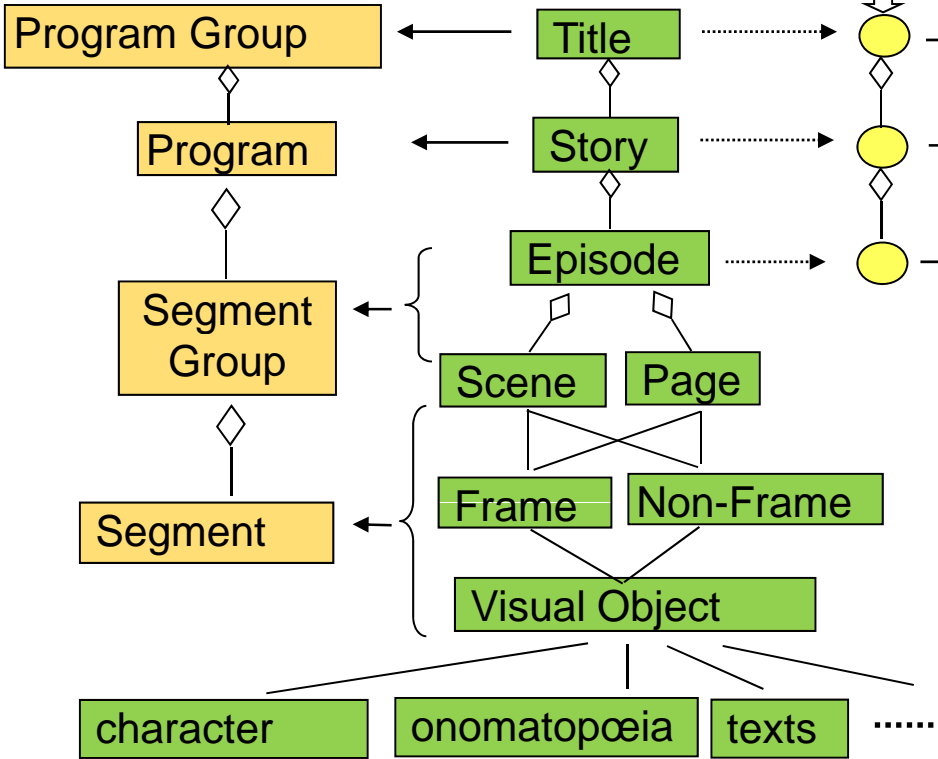
Merging Three Schemes

- Bibliographic Description – FRBR
- Structural Description – TV Anytime
- Intellectual Entity Description – vocabularies of intellectual entity terms

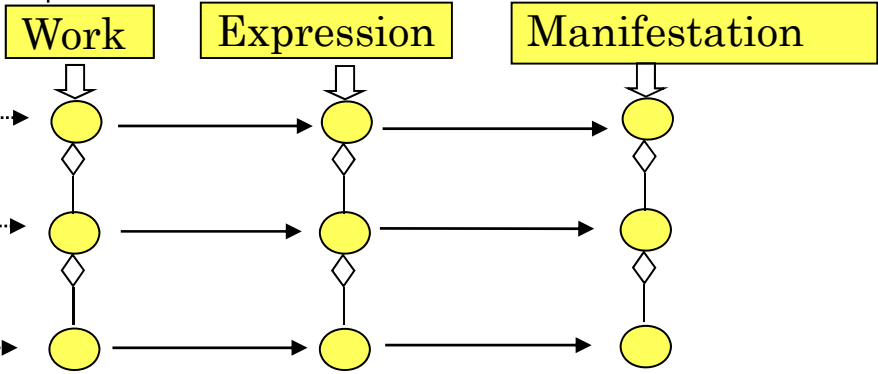
Descriptions of Intellectual Entities



Structural Description based on TV-Anytime



Bibliographic Description based on FRBR



Structure of Manga

contains

has subject

Works in Progress and Future

- Software tools to support creation and editing of digital manga
 - Manga editor based on the structural metadata
 - Drafts management tool to help production process
- Ontology for manga metadata
- Elaboration of the metadata framework and development of description set profiles for some classes of manga

Summary

- This study is an integration of existing metadata models for non-traditional resource.
- Reliable identification and description schemes of group 1, 2 and 3 entities are required.
- Seamless integration of metadata in different paradigms is required to seamlessly connect different tasks, e.g. find, access, browse, reuse, and so on.

Thank you very much for your
attention!

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