

Derivative Relationships and Bibliographic Families Among Creative Works

A Systematic Study of Their Application by the
Wikidata Community from the FRBR and
BIBFRAME Perspective



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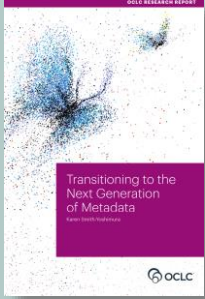
Which types of relationships **matter most** for a global community engaged in organizing encyclopedic knowledge?

Understanding work relationships beyond the library field

What insights can be drawn from the ways **Wikidatians manage relationships** between multidomain **creative works** in Wikidata Knowledge Base?



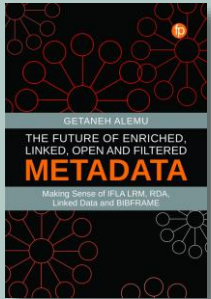
Context ... bibliographic transition



Contemporary bibliographic description focuses more on relationships among resources than on the mere enumeration of attributes.

- Evolution of the concept of “work”
- Models: FRBR, LRM, BIBFRAME, OpenWEMI
- Importance of relationships in catalogs and information discovery systems

Smith-Yoshimura, 2020



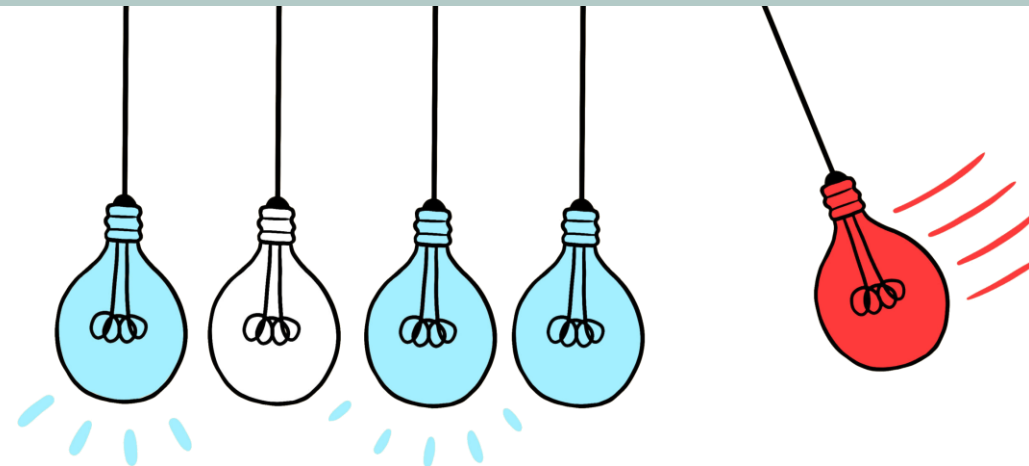
The emerging future of bibliographic information systems lies in metadata connection, openness, enrichment, and filtering

- Resources matter beyond their original domain.
- Metadata are in a continuous flow of enrichment.
- Metadata embody multiple perspectives and communities of interest.

Alemu, 2022

**Key
ideas** ►

- What is a work?
- New configurations of cross-media work families
- How content is produced by the industry — and how it is consumed by users
- Wikidata as a catalogue of creative works
- User interest and community-driven data



Research objective

To explore how the Wikidata community shapes —consciously or not—bibliographic models in the description of creative works.

- Systematic analysis of more than 2.2 million works
- 4 big domains: audiovisual, music, literature, video games
- Central question: How are derivative relationships and bibliographic families reflected in Wikidata?



Theoretical framework

WORK as a foundational concept in organizing bibliographic universe (also in a cross-domain sense)

FRBR-LRM → WEMI

Work, Expression, Manifestation, Item

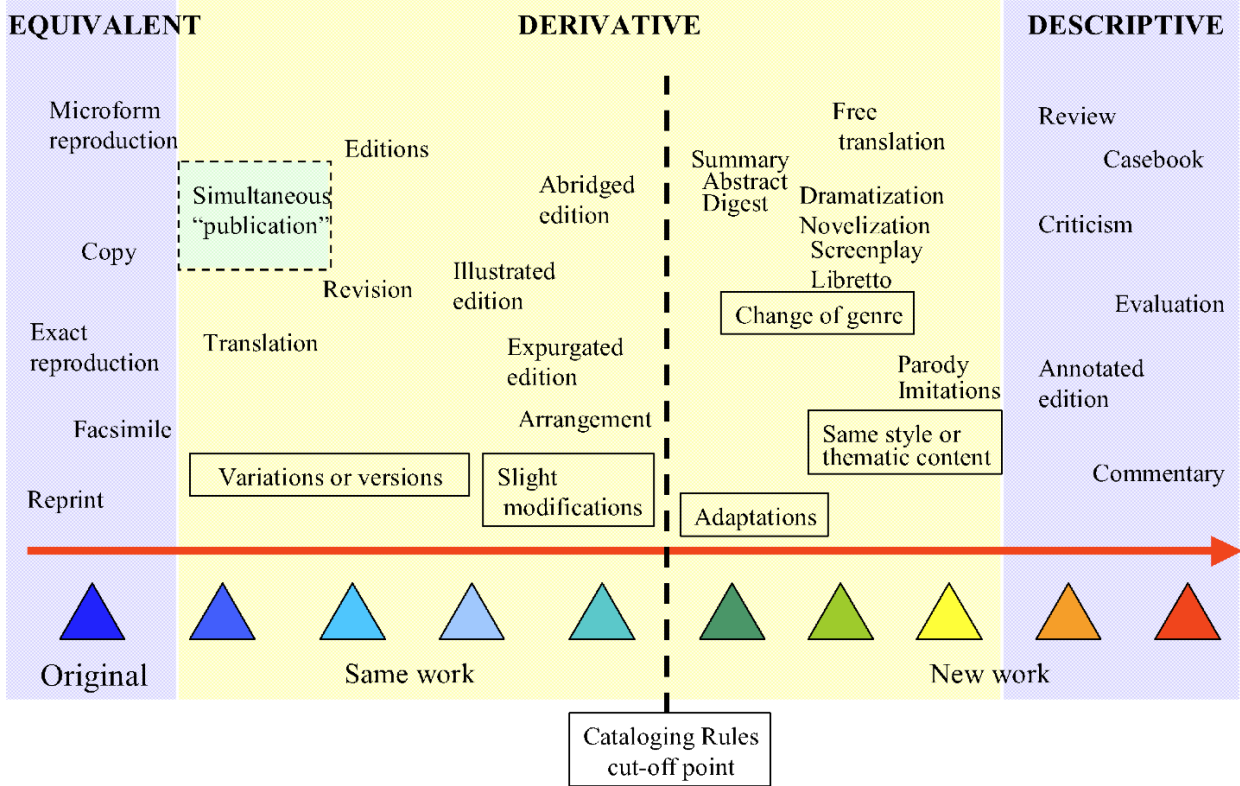
BIBFRAME

Condensed model: Work–Instance–Item

RDA & BIBFRAME

Relationships between works

Tillet's bibliographic families



The work in question, the family in question

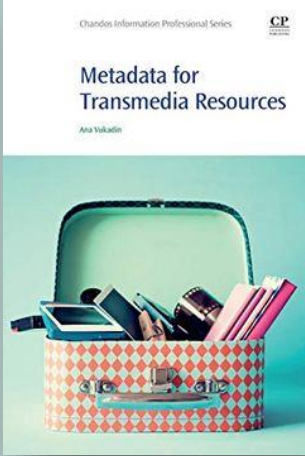
Applying the WEMI model strictly proves complex in practice.

- Ambiguity in the "work" concept in theory and practice.
- Relations beyond WEMI are so or more relevant.
- User-Centered vision of the work; as a functional construct—adaptable to the specific needs.

Fremery & Buckland: useful grouping of works in discovery platforms (catalogues)

- A shift from hierarchical thinking to a pragmatic, bottom-up perspective.
- Beyond relationships? Useful grouping based on shared utility of resources.
- Hard and soft connections between works (cultural connections)

Beyond bibliographic WEMI



As transmedia universes expand, they challenge existing models for organizing and describing creative works.

Vukadin, 2019

- Information about works that extend across different media should be available and interconnected.
- Integrate resources from various media (books, films, video games, music).
- Facilitate navigation and discovery of parts within the narrative whole to understand its overall structure.
- Understand how users group and search for related works.
- Adopt database strategies oriented toward consumption (tags, links, metadata).

Wikidata as bibliographic tool

Wikidata serves as a **structured database for Wikipedia articles** and therefore contains abundant bibliographic information derived from articles about **creative works described in the encyclopedia**.



- There are also many Wikidata items that do not correspond to encyclopedic articles, serving instead as references to sources.
- Each record connects with authority registries and external databases (Authority Hub)
- The WikiProject Books initiative and its loose alignment with BIBFRAME

Analysed Corpus = Creative Works in Wikidata

A total of **2,223,321** creative works were identified

through SPARQL queries based on main categories and relevant subcategories



Q2431196

(Audiovisual works)

897.146



Q2188189

(Musical works)

687.195



Q7725634

(Literary works)

515.819



Q11419

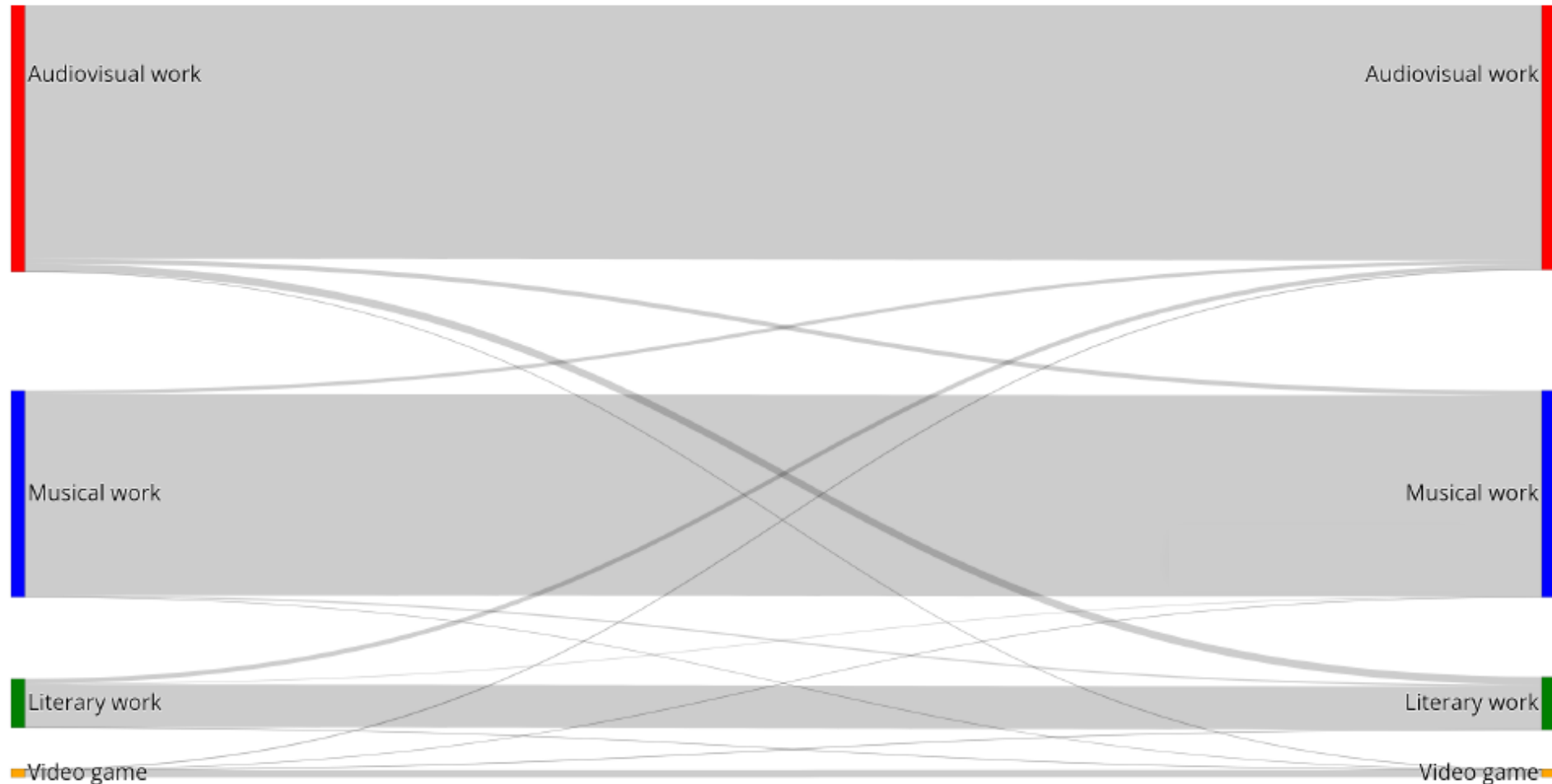
(Games)

123.161

Relationships between Works by domain

More than **1.7** millions of relationships between work items

- Figure shows works as origin and target of the connections
- Prevalence of connections between works of the same type (**96%**)
- **Surprised?** The explanation, to some extent, has to do with publication relationships — first parts, sequences, sagas.

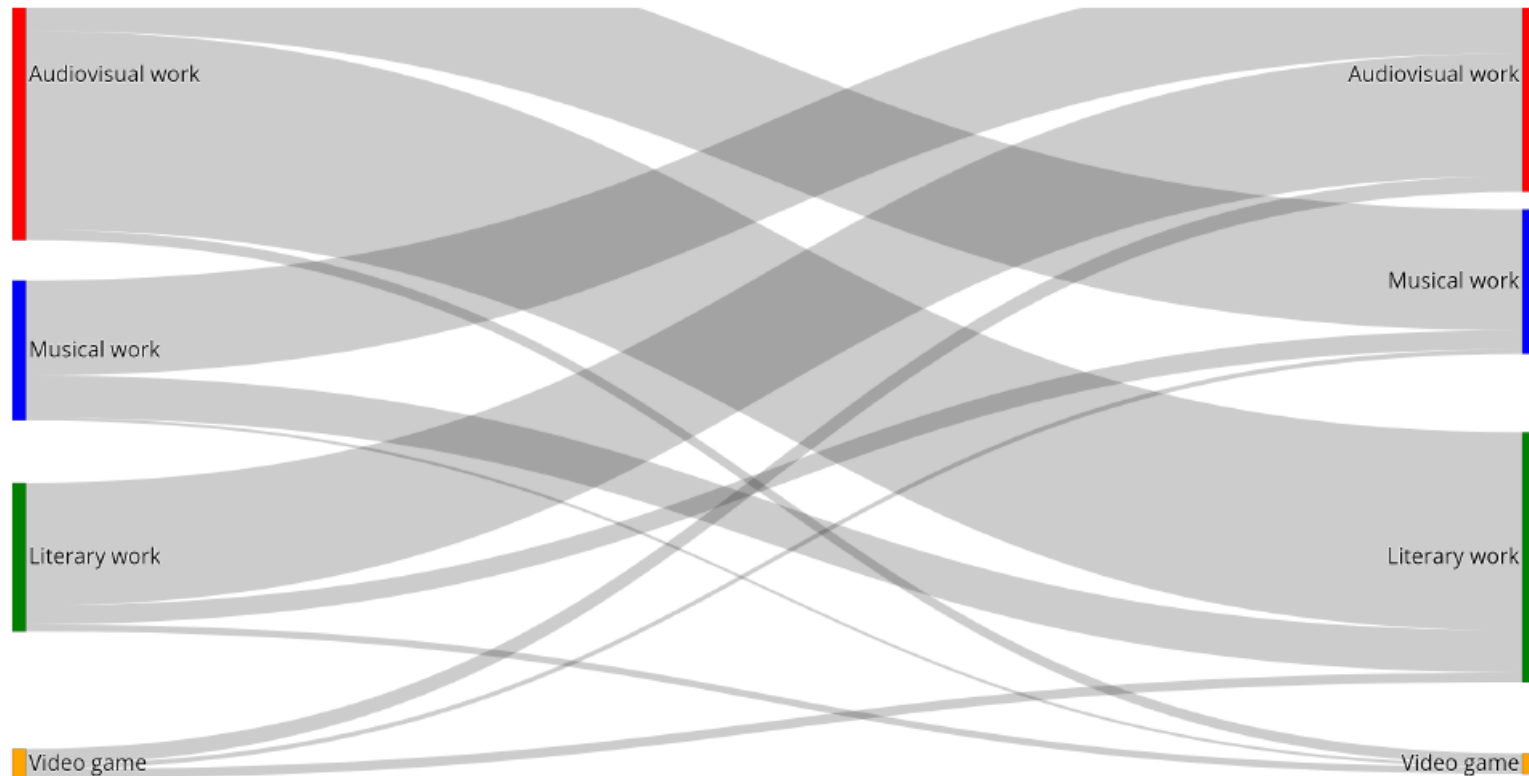


Cross-domain relationships

Intertwined relations

- Extensive Transmedia Relationships
 - Audiovisual – Literature
 - Audiovisual – Music
- Dense and diverse network of links
- Bidirectional relationships among different types of works

Just **4%** of registered relationships between work of different domains



What kind of relationships?

- There are **49 types** of different properties-relationships used when connecting Wikidata items for creative Works
- Inverse properties (as: has parts <> is part of) are counted separately.
- **Categorizing properties** conforms to well-accepted taxonomy beyond WEMI core entities
- **Expanding taxonomy** when needed (**own proposal**)

Taxonomy of work relationships

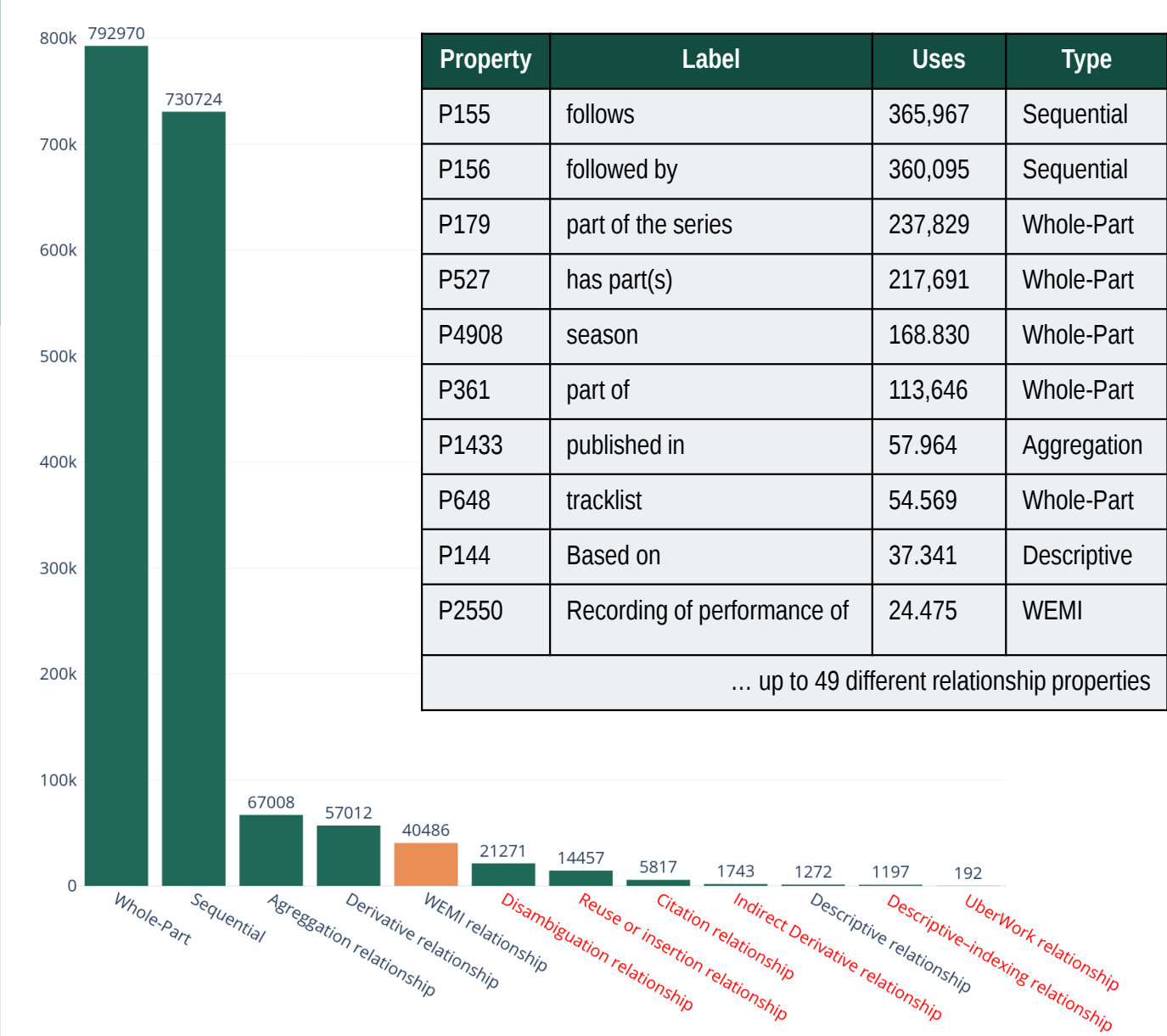
WEMI core
Equivalent
Derivative
Descriptive
Whole-Part
Accompanying
Sequential



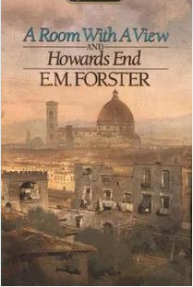
Extended Taxonomy

Data about relationships in Wikidata

- Sequence and Whole–Part: Most Frequent
- **Derivative relationships** (e.g., adaptations)
- WEMI: Only about 2% of the total
- Inclusion and citation: Present but minor



A few examples of needed categories for relationships



Q120288

- “A Room with a View”
- Novel by E. M. Forster



P1889

- Different from
- **Disambiguation relationship**



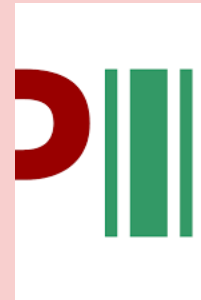
Q1204366

- “A Room of One's Own”
- Essay by Virginia Woolf



Q912467

- “The golden girls”
- Television series



P942

- Musical theme
- **Reuse or insertion relationship.**



Q12005693

- “Thank You for Being a Friend”
- Song

Which of these relationships are the more desirable or useful for users seeking creative works?

More examples of needed categories for relationships



Q64760181

- “Papageno”
- 1935 film by Lotte Reiniger



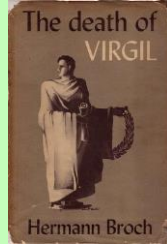
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- Inspired by
- **Indirect derivative relationship**



Q5064

- “The Magic Flute”
- Opera by Wolfgang Amadeus Mozart



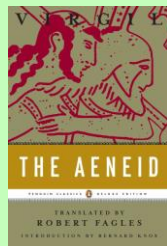
Q668105

- “The Death of Virgil”
- Novel by Hermann Broch



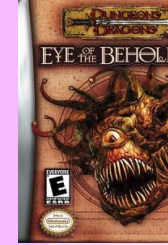
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- Main subject
- **Descriptive-indexing relationship**



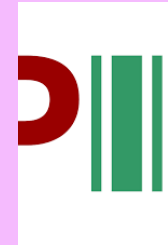
Q60220

- “Aeneid”
- epic poem by Virgil



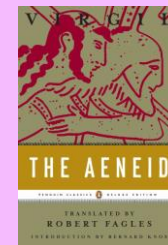
Q31088854

- “Eye of the Beholder”
- video game series



P1434

- Takes place in the fictional universe
- **UberWork relationship**



Q853499

- “Forgotten Realms”
- Dungeons & Dragons fictional universe

Regardless of how often they occur, how should these kind of relationships be considered when producing metadata for works?

Derivative relationships in a broad sense

Wikidata includes categories of relationships that are not fully covered in FRBR-LRM, BIBFRAME or RDA

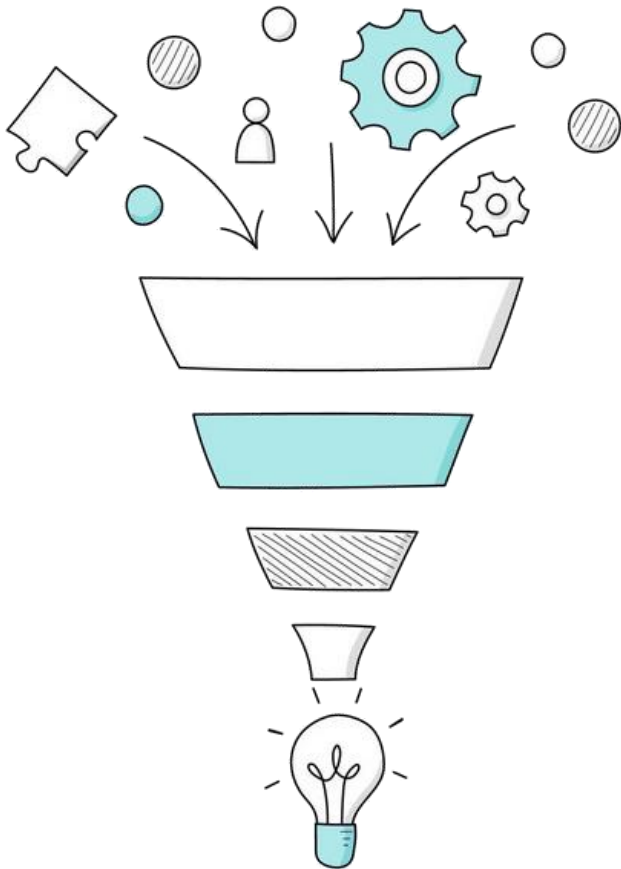


The nature of the relationships varies depending on whether their origin is related to the form of **publication** or to the **realization** and **interpretation** of their content.

- A derivative relationship is not purely factual; it partly consists of interpretative or creative cultural connection.
- Are they shared knowledge? Do they change over time? Are they equally valuable to users browsing/seeking works?

Conclusions

Derivative relationships and user's connections (similarity; contrast)



- Cross-media connections go beyond publication or release patterns.
- Beyond WEMI: users explore related, not identical, works.
- Creative and interpretative links enhance discovery — metadata as a creative resource
- Wikidata as a cataloguing and metadata open laboratory.

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