

Adapting Aspects of FRBR for Artworks in Wikidata

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Abstract:

Many prominent museums have made efforts to represent their art holdings within Wikidata, gaining exposure beyond those museums' websites and adding data to an open web of knowledge. But what of artworks that are not entirely unique such as print or sculpture editions? Wikidata uses a linked data framework for describing and relating people, things, places, and concepts. The beauty of such technology is that unique identifiers bring together data about the same things and ideas regardless of language barriers or label inconsistencies. How does this function when two or more museums have instantiations of the same work? This presentation discusses ways of addressing the question above within Wikidata and outlines the Smithsonian American Art Museum's current practices, which adapt and apply FRBR's (Functional Requirements for Bibliographic Records) conceptual model to represent artwork editions.

Keywords: Artwork editions, Wikidata, Linked data, FRBR, Sculpture



Harriet Hosmer. Puck, modeled 1854, carved 1856, Smithsonian American Art Museum, 1918.3.5. <https://americanart.si.edu/artwork/puck-10804>

American sculptor Harriet Hosmer (1830-1908) produced upwards of 50 marble *Puck* sculptures depicting the cheeky character of the same name from William Shakespeare's *A Mid-Summer Night's Dream*. *Puck* was extremely popular, earning Hosmer over \$30,000 from various buyers like the future Edward VII, who purchased one in 1859 for the Prince of Wales's Rooms in Oxford, England (National Museums Liverpool; The Huntington). As an artist and woman, Hosmer was unconventional in many ways. A progressive education allowed her to study human anatomy, a topic usually denied to women of the time. She lived openly as a lesbian and staunch feminist (Brooklyn Museum) and enjoyed success and financial independence in 19th Century Rome, where she was part of a group of ex-patriot artists and intellectuals. Hosmer is also credited for artistic and technological innovations, such as the process of turning limestone into precious marble (NCMA Learn).

Hosmer was not unconventional, however, in capitalizing on the popularity of a sculpture edition like *Puck*. Sculptors of the time often made their money through the sale of sculpture editions, which allowed them to reuse their intellectual labor to produce multiple works of art. Such artwork editions are more familiar to general audiences in the context of printmaking, such as a run of lithographs. However, Tate (2023) notes that although an edition "... commonly refers to a series of identical impressions or prints made from the same printing surface ... [it] can also be applied to series of other media such as sculpture." Like print editions, sculpture editions can be small or large; limited or open. For clarity, I will refer to each artwork within an edition as an "execution" in this paper.

Funded through the American Women's History Initiative (now part of the Smithsonian American Women's History Museum), my work is part of a broader Smithsonian Institution open access effort to disseminate Smithsonian data to the world and engage with the public to generate new knowledge. Specifically, I publish Smithsonian metadata about women, non-binary, and AFAB artists, and the artwork they create, to open data platforms. One such platform, Wikidata, is regarded by GLAM institutions as a low-barrier way to publish linked data because of its ready infrastructure and built-in communities of contributors and search engine consumers. Although the Smithsonian American Art Museum (SAAM), where my position is based, had previously published its collections data as linked data, Wikidata provides the additional benefit of expanding Smithsonian data by linking it to other data sources.

While there are several resources to look to for guidance when publishing metadata for artworks in Wikidata, the Functional Requirements for Bibliographic Records (FRBR) provides justification and a model for depicting artwork editions as two entity types within Wikidata. Although this entity model is not new to Wikidata, I am writing about these practices in the hopes they become more widespread and consistently adopted.

The Situation

It is important to note that each execution within an artwork edition is an original work of art. This is how multiple museums can have an original Degas *Little Dancer Aged Fourteen*, Rodin *Thinker*, or Hosmer *Puck*. Unlike libraries, museums do not have a robust practice of, or system for, shared cataloging, possibly because most items are unique, rare, or have been uniquely acquired. As a result, when museums publish their data openly as linked data on their websites

or through platforms like Wikidata, there may be no attempt to connect artworks with other items from the same edition at another museum. Unfortunately, not creating these linkages means that visitors may not know if an artwork is from an edition at all or where other executions are located.

In Wikidata, reconciliation is the process of matching entities to an existing entity within Wikidata. To reconcile two entities is to say that one (person, place, concept, artwork, etc.) is the same as another already described in Wikidata. Wikidata contributors reconcile data before adding new entities in part to avoid duplication and the dividing of linkages. While reconciling Smithsonian prints and sculptures to objects described in Wikidata, what often seemed like matches were in fact executions of the same edition at another museum. It would have been inaccurate, however, to say SAAM's *Puck*, for example, was the same as the National Gallery of Art's *Puck*. The two *Puck* executions may share the same visual content but are not the same entity. For users to collocate and differentiate between executions within an artwork edition, multiple types of entities needed to be described and linked together.

How FRBR Helps

Although the art world has its own standards (e.g., CCO [Cataloging Cultural Objects], CDWA [Categories of Description: Works of Art], VRA [Visual Resources Association], Linked Art), I turned to FRBR because art metadata standards lack a conceptual model for describing entities beyond *Work* (an object, distinct from FRBR *work*) and *Image* (image of the *Work*). Within these art standards, editions are described as attributes of a *Work* or alluded to through relationships to other *Works* rather than described as separate entities.

Quick FRBR Review

FRBR's conceptual model (IFLA, 2009) outlines the four bibliographic entities that correspond to users' needs to find, identify, select, and obtain resources: *works*, *expressions*, *manifestations*, and *items*. *Works* and *expressions* are not physical things, but conceptual. At the top level, *work* is the "intellectual or artistic creation" that becomes more tangible through the other entities in the model. *Expression* is a "realization of the work," which is still not physical. Here it might be helpful to imagine that the specifics of the artistic creation – the sentences, symbols, or shapes are floating in a thought bubble.

A *manifestation* is a "physical embodiment of an *expression* of a *work*." Imagine everything in the thought bubble finally gets put down on paper, rendered as recorded sound, or is composed of some real, physical material. Finally, *item* is a single copy or "exemplar" of a *manifestation*.

FRBR acknowledges that the demarcations between and within entity types can be a bit nebulous and may depend on a few factors. FRBR also implies that collapsing entities may be acceptable in some cases, for example when *manifestations* will only have one *item* as it cites in the case of an oil painting (p. 22).

Applying FRBR to Artwork Editions

One attempt to apply FRBR to artwork editions might go as follows:

- *work 1*: Hosmer’s *Puck* (Hosmer’s intellectual and artistic creation of the character Puck as a cupid-like cherub)
 - *expression 1*: *Puck* (realized [in Hosmer’s mind] as a nude, winged sculpture, sitting cross-legged on a toadstool, arm raised)
 - *manifestation 1 / item 1*: *Puck* (embodied in plaster or clay, a model for the marble edition)
 - *manifestation 2*: *Puck* (embodied in marble, marking the beginning of the marble edition)
 - *item 1*: *Puck* (marble sculpture at SAAM)
 - *item 2*: *Puck* (marble sculpture at National Gallery of Art)
 - ...
 - *item 50*: *Puck* (marble sculpture in Oxford)

FRBRized Artwork Editions in Wikidata

I chose to represent artwork editions within Wikidata using two entity types. One entity type represents the edition and serves as an umbrella for all executions of Hosmer’s *Puck* (Figure 1). The second entity type represents a single execution of the *Puck* edition. The entity that represents the entire edition is described as a “work with multiple executions” and a “sculpture series.” In Wikidata, “sculpture series” is synonymous with “sculpture edition,” although it is possible Wikidata’s “sculpture series” conflates both the concepts of edition and serial works. The edition-level entity also contains locations where executions of the edition are housed, as well as links to entities representing each execution, indicated through “has part” relationships. The entities that represent single executions of the edition each contain details about a specific sculpture in that edition and contain “part of series” relationships pointing back to the edition-level entity.

Figure 1: Wikidata entity for sculpture edition *Puck* by Harriet Hosmer in Wikidata

Puck (Q113454530)

sculpture with multiple editions by Harriet Hosmer

▼ In more languages

Statements

instance of	 works with multiple executions	 edit
	▶ 2 references	+ add reference
	 sculpture series	 edit
	▶ 0 references	+ add reference
		+ add value

location	Smithsonian American Art Museum ▶ 2 references + add reference
	National Gallery of Art ▶ 0 references + add reference
	Chrysler Museum of Art ▶ 0 references + add reference
	The Huntington Library, Art Museum, and Botanical Gardens ▶ 0 references + add reference
	Lenox Library Association ▶ 0 references + add reference
	+ add value
has part(s)	Puck Collection Smithsonian American Art Museum + add reference ▶ 2 references
	Puck Collection National Gallery of Art + add reference ▶ 0 references
	+ add value

Ideally, all entity types would be represented in a linked data world. The more nuanced the relationships between “things” are the more complex our queries can become. Practically speaking, however, limited resources and the constraints of working in an open platform suggest simplifying FRBR in Wikidata by collapsing entity types. Conversely, collapsing FRBR too far prevents querying details about executions of editions. The option existed, for example, to have a single Wikidata entity represent all FRBR entities, with FRBR *items* described mostly through inventory numbers, collections, or locations (Figure 2). That approach, however, might have disregarded the FRBR item-level descriptions museums had already created in Wikidata to represent their executions of editions and with them, the associated rich, queryable data.

Figure 2: Wikidata entity for Bird in Space (sculpture) in which all FRBR levels are combined into one entity description

Bird in Space (Q2381632)

sculpture by Constantin Brâncuși

[▶ In more languages](#)

Statements

instance of	<div><div>sculpture edit</div><div>object named as Sculpture</div><div>▶ 2 references</div></div>	<div><div>+ add value</div></div>
location	<div><div>Metropolitan Museum of Art edit</div><div>▶ 1 reference</div></div>	
	<div><div>France edit</div><div>▶ 1 reference</div></div>	
	<div><div>Romania edit</div></div>	

Losing the distinction between *work* and *expression* did not seem to limit a user’s ability to find, identify, select, or obtain information about artworks, so I decided to combine FRBR *work* and FRBR *expression* into what I will call *Wikidata work*. The specifics and physicality of an execution of an artwork edition, however, seem necessary to describe separately. A person wanting to query details from a single execution could be prevented from doing so without this level. Therefore, FRBR *item* became what I will call *Wikidata item*.

Manifestation, which in FRBR is where the editions are often placed, is a bit of a wildcard. As noted earlier, *manifestation* can have a single exemplar *item* and represent a group of like *items*. Representing the edition as a *manifestation*-level entity is important to collocate executions of the edition but creating a third entity in Wikidata seemed like overkill. Therefore, I collapsed the aspects of *manifestation* that were conceptual into the *Wikidata work* and aspects that were physical into *Wikidata item*.

Consequences / Results (Real and Imagined)

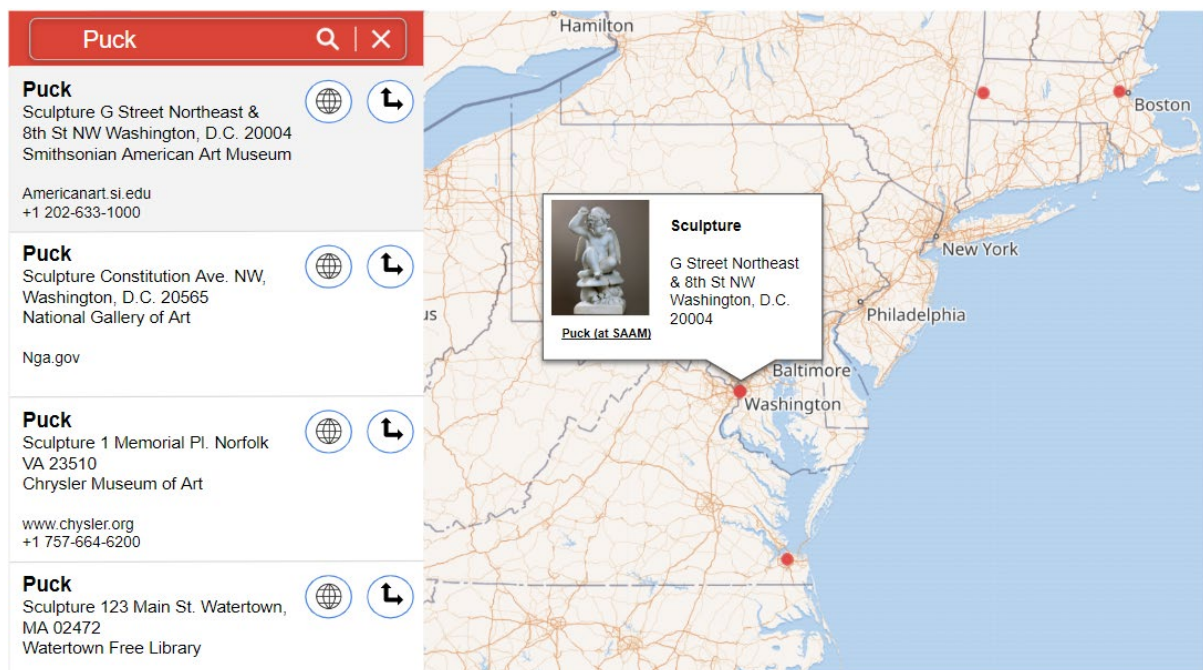
There is no consensus about how to model artwork editions in Wikidata. The “WikiProject: Visual arts” community provides helpful guidance, for example, recommending the use of “works with multiple executions.” I have also relied on examples such as *Bronco Buster* (<https://www.wikidata.org/wiki/Q95984336>) to create consistency with those who have made similar modeling decisions. Large-scale projects to port data from museums to Wikidata, however, do not seem to be reconciling executions of editions they own because it is time-consuming to do so. Consequently, I spend more time than ideal creating additional entities, i.e., *Wikidata works*, and linking them together with entities, i.e., *Wikidata items*, created by

the Smithsonian and other museums. I do this to improve linkages and to encourage others to follow suit.

Borrowing pieces of FRBR has also resulted in many questions. What warrants a new Wikidata work? Instinctively, the derivative nature of an aftercast, for example, could lead one to create a new *Wikidata work*, but are there factors such as material, technique, or authorship that complicate that decision? What constitutes additional *manifestations* of the same *work*, and how should those be collapsed into or separated from a *Wikidata work*? Should models or studies that depict parts of a fuller, final composition be treated as separate *manifestations* or *items* of the same *work*, or as constituent *works* of a larger *Wikidata work*?

One goal of using Wikidata is to contribute to an open knowledge graph that could improve internet searches and lead to cool remixes of data like new websites, apps, or research. The benefits of modeling artwork editions as described in this paper do not yet go far beyond collocation of data in searches and SPARQL queries, but the potential is exciting. Consider the example of a search engine experience. Currently, if one searches “Hosmer’s Puck locations,” the result is a helpful list of websites of those who own a copy of *Puck*. How much better would it be, however, to instead see *Puck* listed on a map the way locations for a restaurant chain would be (Figure 3)?

Figure 3: Theoretical map showing locations of Puck sculptures produced by Hosmer. Generated using the Wikidata Query Service and modified using design tools.



Although the two-entity model for describing artwork editions within Wikidata is not new, this explanation serves as one example for FRBR users and the art information community of how FRBR can support goals for art description in ways that are not fully considered by existing art standards. The benefits of this model include more uniformity within Wikidata’s knowledge graph, improved collocation of executions of artwork editions, and improved capabilities for querying, potentially leading to new ways for art enthusiasts to find and connect with artworks. Finally, if nothing else, I hope this paper can work towards creating a more consistent practice for representing artwork editions in Wikidata.

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