AGGREGATES AND CATEGORIES OF AGGREGATES

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The term aggregate was first used in the context of bibliography in the FRBR (Functional Requirements for Bibliographic Records) published in 1998. At that time, the precise definition of aggregate had not yet been defined. The breakthrough was achieved by the Working Group on Aggregates set up by IFLA. In its 2011 final report, the Working Group defined the definition of aggregate and the main types of aggregate. These definitions have been adopted in the IFLA Library Reference Model. As aggregates are a relatively common record type in catalogues, the aim of this paper is to summarise what an aggregate is, what types of aggregates are distinguished and how to model these type.

The term aggregate was first used in the context of bibliography in the FRBR (Functional Require-ments for Bibliographic Records). In the final report a short section deals with aggregates without detailed modelling. In this section of the final report, aggregates were treated as an 'integral units' consisting of two or more components (IFLA Study Group on the Functional Requirements for Bibliographic Records 1997; Zapounidou 2020). Progress was made by the Working Group on Aggregates. In its 2011 final report, the Working Group has been distinguished aggregating work and aggregating expression from the expressions that are aggregated, and had recognised that the nature of an aggregate is nothing other than the fact that these distinct expressions are subsumed into a single manifestation (Riva 2018). In this sense, an aggregate is nothing other than a manifestation that subsumes several different expressions.

Although aggregate as a bibliographic terminology has only been in use for a short time, the types of documents it covers have long been present in catalogues. This is supported by the estimate that about 12 percent of the bibliographic records in the OCLC World-Cat database are aggregates (Ghiringhelli 2020). For this reason, we thought it important to look at what the term aggregate means, how it has changed since the inception of FRBR, what aggregate types have been defined and how these can be modelled.

THE EMERGENCE OF THE AGGREGATE AS A CONCEPT
The concept of aggregate dates back to the 19th century, when Cutter recognised that multiple works could be published in a single physical manifestation and that it was useful to distinguish between the case of joint authors of one work (not an aggregate) and the case of authors of two separate works combined in a single volume (an aggregate) (O'Neill et al. 2015). The review of the literature on aggregates should actually begin with FRBR, as this term was first used in a bibliographic context in the English edition of FRBR published in 1998, although at that time no precise and effective definition of aggregate had been developed. The model treats aggregates as a single whole entity. Logically, this means that "*the entity work, for example, may represent an aggregate of individual works brought together by an editor or compiler in the form of an anthology, a set of individual monographs brought together by a publisher to form a series, or a collection of private papers organized by an archive as a single fond. By the same token, the entity work may represent an intellectually or artistically discrete component of a larger work, such as a chapter of a report, a segment of a map, an article in a journal, etc.*" (IFLA Study Group on the Functional Requirements for Bibliographic Records 1997). Whether at the level of larger wholes or parts, entities are defined in the same terms, have the same characteristics, and are interconnected in the same way as entities at the integral unit level.

In 2005, FRBR organised a workshop. One of the issues addressed at the workshop was aggregates (O'Neill et al. 2015). At the workshop, it became clear that difficulties and inconsistencies in the application of the 2

conceptual model to aggregates were an obstacle to the implementation of FRBR. With the intention of exploring the topic further, the IFLA FRBR Review Group decided to establish a Working Group on Aggregates (Ghiringhelli 2020). The Working Group published its final report in 2011, which examined aggregates and their treatment. By analysing concrete examples, they defined the concept of aggregates: a representation that includes several different forms of expression. It was found that there are many different types of aggregates, but the most common are: 1. aggregate collections of expressions; 2. aggregates resulting from augmentation; 3. aggregates of parallel expressions (IFLA Working Group on Aggregates 2011).

In a published paper, O'Neill, Žummer and Mixter confirmed the findings of the working group by analysing bibliographic records from the OCLC WorldCat database. From their analysis of the records, they found that 73 percent of the aggregates were collections, 26 percent were augmentations, and 1 percent were par-

allels. This meant that the types of aggregates resulting from the analysis corresponded to the three types identified in the final report. It was also observed that the three types of aggregates are not mutually exclusive, as a significant proportion of collections are augmentations (O'Neill et al. 2015; Ghiringhelli 2020).

For aggregates, 2017 is an important year, as it was the year of the publication of the IFLA consolidated model, the IFLA Library Reference Model. The reference model adopts the definition and types of aggregates given in the 2011 Final Report of the IFLA Working Group on Aggregates. Compared to the FRBR, the IFLA Library Reference Model not only provides a more precise definition of the aggregate, but also adds it between of relationships: LRM-R25 (was aggregated by). LRM-R25 is defined as a relationship between expressions, indicating that a particular expression of a work has been selected by design for an aggregating expression. In fact, it is a shortening of a relationship path (Figure *1*):

EXPRESSION1 IS embodied in MANIFESTATION (aggregate)
+
MANIFESTATION (aggregate) embodies (aggregating) EXPRESSION (Riva et al. 2018)
=
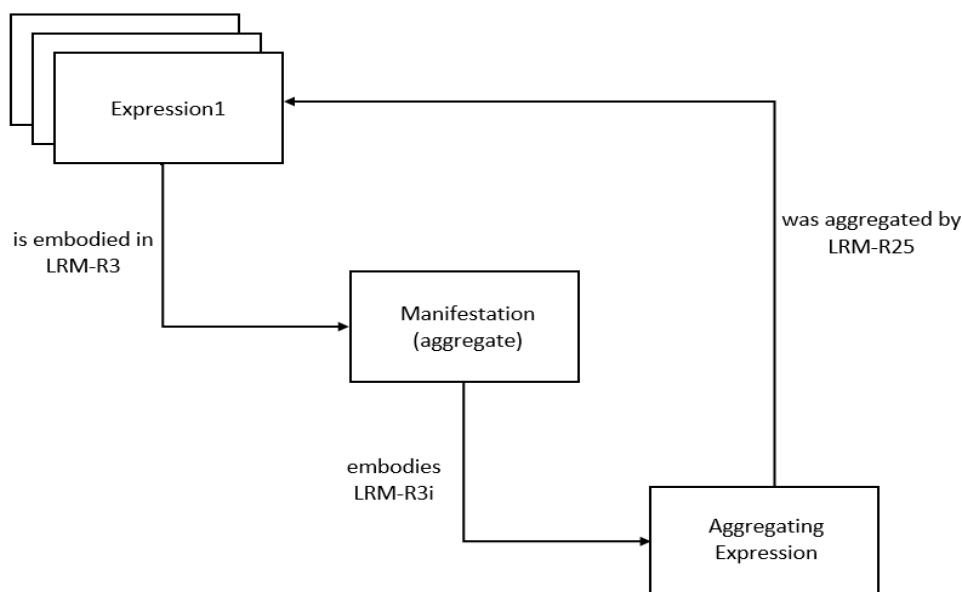(aggregating) EXPRESSION was aggregated by EXPRESSION1

Figure 1 LRM-R25 (was aggregated by) relationship

As an example of the "was aggregated by" relationship, consider the following: the English text of William Faulkner's "Old man" was aggregated by: the collective expression that produced the manifestation of the "Three famous short novels" aggregate.

An aggregating expression selects from many individual expression of other works, so that together they can be embodied in an aggregate manifestation. With respect to an aggregating expression, the expressions that are selected for coexistence in an aggregate manifestation do not become components of the aggregating expression, and the relationship between these expressions is not an inherent characteristics of the works. The latter means that these characteristics do not apply to other expressions of the works. These works are, which realised in the aforementioned expressions (Riva et al. 2018).

TYPES OF AGGREGATES
Three types of aggregates are distinguished: 1. aggregate collections of expressions; 2. aggregates resulting from augmentation; 3. aggregates of parallel expressions. In the following, wedescribe these types of aggregates, illustrated with examples.

Aggregate collections of expressions: "*Collections are sets of multiple independently created expressions which are 'published' together in a single manifestation*" (Riva et al. 2018). In creating a manifestation of collection from collections of expressions, the collector selects and arranges each expression, i.e. creates an aggregate. The defining characteristic of this type of collections is that the individual works are similar in type and/or genre, e.g. a collection of novels by a particular author, songs by a particular artist, an anthology of a genre of poetry. This type includes selections, anthologies, monographic series, periodicals issues and other similar groups of sources, but examples include journal issues (aggregates of articles), collections of short stories (multiple novels published together in a single volume), books with independently written chapters, compilations on CD (aggregates of individual songs), and various collected/selected works (Riva et al. 2018).

A good example of this type of aggregate is Fidelity: five stories, featuring the stories of Wendell Berry, set in Wendell Berry's fictional town of Port William, Kentucky, with familiar characters who form a cohesive community. So, Fidelity is a collection of stand-alone stories that share a common theme, but these stories

have been published independently before. Presumably, the author selected, collected and arranged the expressions of the five stories, i.e. created the aggregate (Figure 2).
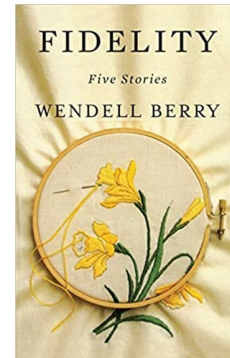

Figure 2 Fidelity: five stories
Source: https://images-na.ssl-images-amazon.com/images/I/41VBoe7mcjL._SX311_BO1,204,203,200_.jpg

CONTENT
1. Pray Without Ceasing
2. A Jonquil for Mary Penn
3. Making It Home
4. Fidelity
5. Are You All Right?

In Fidelity: five stories, the five chapters are separate works, each with its own expressions. In combining these expressions, the author, who is also an aggregator, has created an aggregating work entitled Fidelity. The aggregation work carried out by the author can be considered a significant effort representing the intellectual contribution of the author and as such requires separate bibliographic identification. Although Wendell Berry wrote these stories, the aggregating work itself is still a separate work (Figure 3).

Aggregates resulting from augmentation: "Aggregates resulting from augmentation are distinct from collections in that they typically consist of a single independent work that has been supplemented with one or more dependent works. Such aggregates occur when an expression is supplemented with additional material that is not integral to the original work and does not significantly change the original expression." (Riva et al. 2018) Augmenting work may be forewords, introduction, illustrations, notes, etc. They may also be described in a separate bibliographic description, depending on the relevance of the augmenting work (Riva et al. 2018).
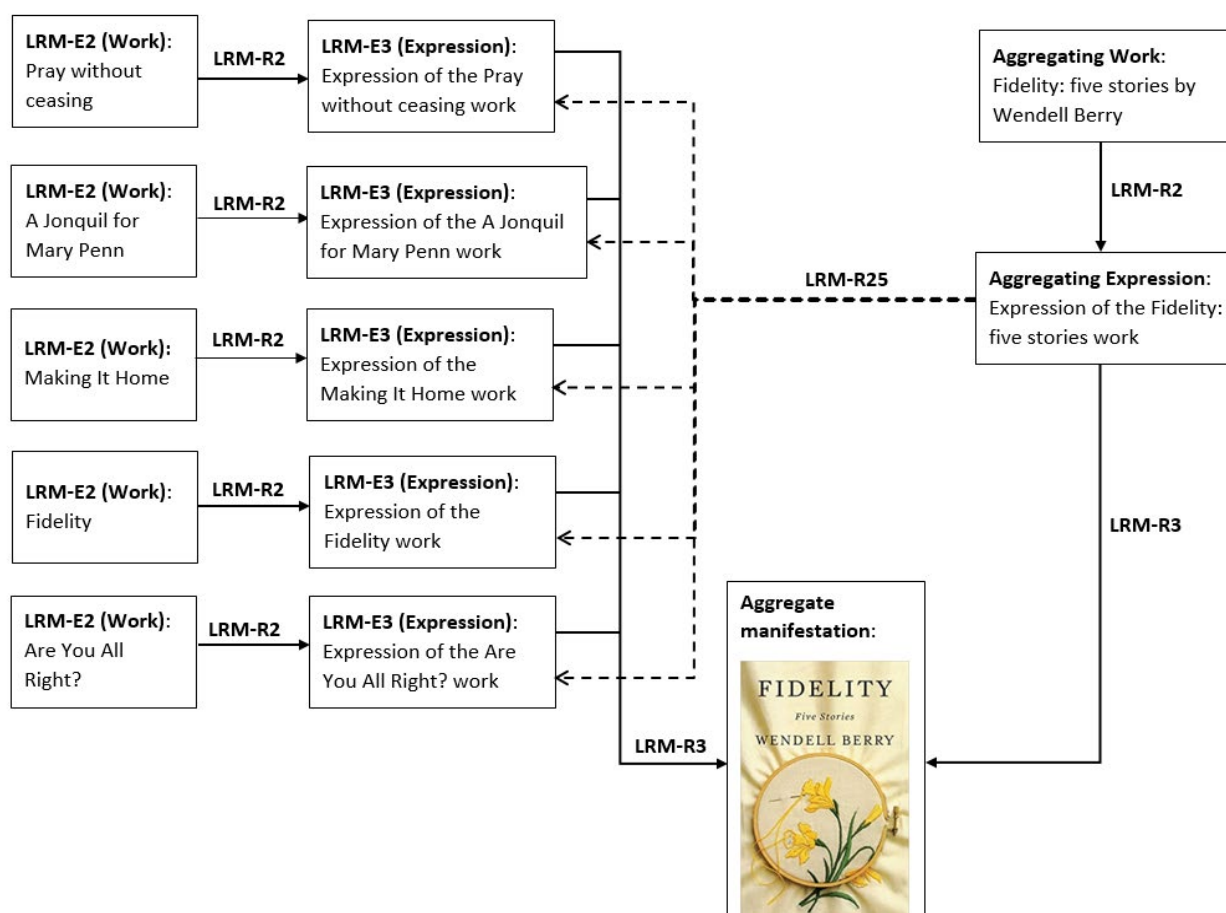
Figure 3 Model of aggregate entitled "The Fidelity: five stories"

Take Victor Hugo's Notre-Dame de Paris, for example. Victor Hugo wrote it during his emigration and it was first published in 1832. The novel has been republished in many editions and, as a result, it has many different manifestations.

There are several English translations of Notre-Dame de Paris, including editions that include an introduction, preface, illustrations, notes, etc. The English version of the book shown here was created by John Sturrock, who translated the work from French. The work has also been expanded with a foreword by John Sturrock, additional readings and a chronology (Figure 4).
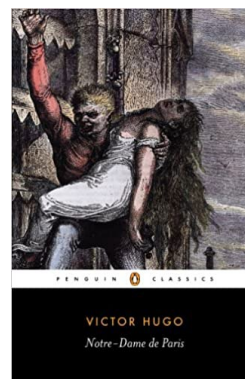
These augmentations can be considered as separate works with their own expressions. John Sturrock, as editor, in addition to the translation and foreword, has contributed to the creation of an aggregating work from these expressions. In this sense, this aggregating work is a collection of five expressions: (1) the English-language expression of the novel, (2) the expression of the preface, (3) the expression of the

Figure 4 Notre-Dame of Paris
Source: https://images-na.ssl-images-amazon.com/images/I/51DI7asfHXL._SX324_BO1,204,203,200_.jpg

further readings, (4) the expression of the chronology, and (5) the expression of the aggregating work. However, neither the foreword nor the epilogue is significant enough to merit a separate bibliographic description (Figure 5). The difference between the ag-
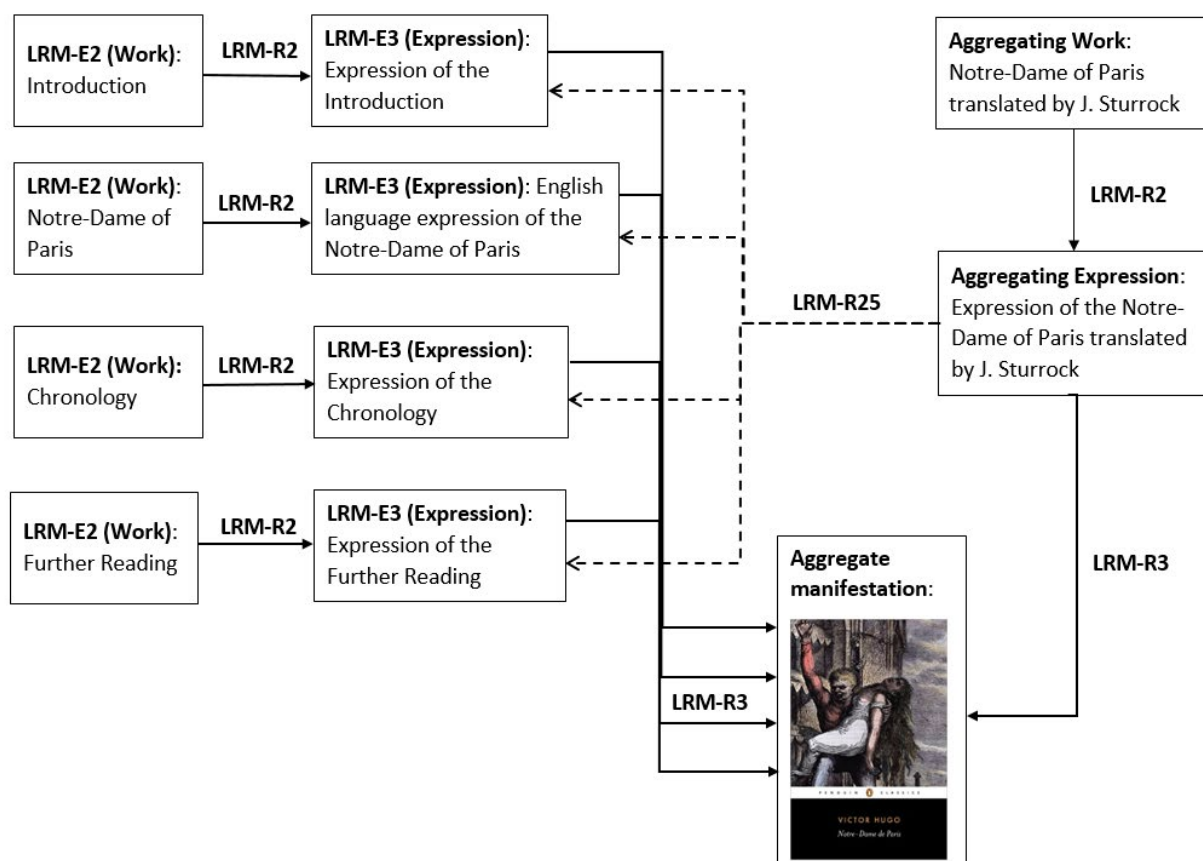
Figure 5 Model of aggregate entitled "Notre-Dame of Paris"

gregate collections of expressions and the Aggregates resulting from augmentation comes from cataloguing. For collections, the selected and collected expressions are of roughly equal importance. In a bibliographic description, the persons responsible for the compilation come to the fore, while the terms selected for aggregation are relegated to the background. In general, the expressions in the collection are included in the annotation, but there are of course cases where this is not done. In the case of Aggregates resulting from augmentation, the expressions are not considered to be of equal importance. One expression becomes primary and the emphasis in cataloguing is on the characteristics of that expression. The expression used for expansion (may be an introduction, index, editorial note, bibliographic compilation, etc.) are mentioned in the bibliographic description together with the summary term and its responsible persons, but are less emphasised than the primary expression (Riva 2018).

Aggregates of parallel expressions: "Manifestations may embody multiple, parallel expressions of the same work. A single manifestation containing expressions of the work in multiple languages is a common form of this type of aggregate." (Riva et al. 2018) This type of aggregate is common in bilingual countries, where it is commonly used for publishing manuals and official documents. But such parallel forms of expression can also be found on the web, where users can access the same page according to their choice of language. But examples can also be found when a text is published in its original language together with its translation, or when a DVD with a moving image is released with a choice of language for the film and subtitle (Riva et al. 2018).

Aggregates of parallel expressions are modelled slightly differently from the previous aggregate types. Here the expressions aggregated are expressions of the same work, and hence the number of expressions is more than the number of works (Riva 2018).

The book in the next picture (Figure 6) is a physical unit, containing two expressions of the same work, Le petit prince by Antoine de Saint-Exupéry.
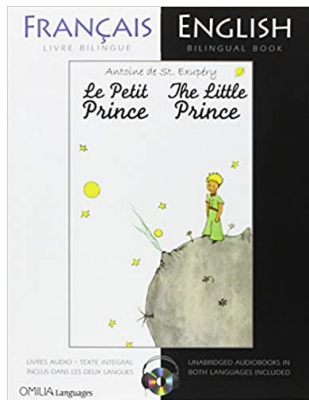
Figure 6 The Little Prince
Source: https://images-na.ssl-images-amazon.com/images/I/41a36b+g6aL._SX384_BO1,204,203,200_.jpg

The book therefore contains two expressions of the same work. One is the English language expression of the work and the other is the French language expression of the work. Both the English and the French language expression exist in different manifestations, and the work has been published in other languages. In this example, therefore, two expressions (English and French) are embodied in the form of the same work (Figure 7).

SUMMARY
Aggregation takes place at the level of the expression, since only expression can be combined (or aggregated). In the process of combining expressions, the aggregator creates an aggregating work. This aggregation process is itself an intellectual or artistic contribution and as such meets the criteria of a work. This contribution may be a relatively minor effort – the publication of two novels in one volume – or it may be a substantial effort, resulting in a collection of sources (aggregate) that is substantially more than the sum of its parts (for example, an anthology). Whatever the type of aggregate, the essence of the aggregating work is the characteristic of selection and arrangement (Riva et al. 2018). The modelling of aggregates can be described in simple and straightforward terms: regardless of aggregate type, it can be modelled as a form of representation that includes multiple expressions. Although the general model of aggregates applies to all three aggregate types, there are differences between the models. In this article, we can see about these differences through an example, but we can also read about what an aggregate is, what types it is and what the LRM-R25 (aggregated by the following) relationship means.
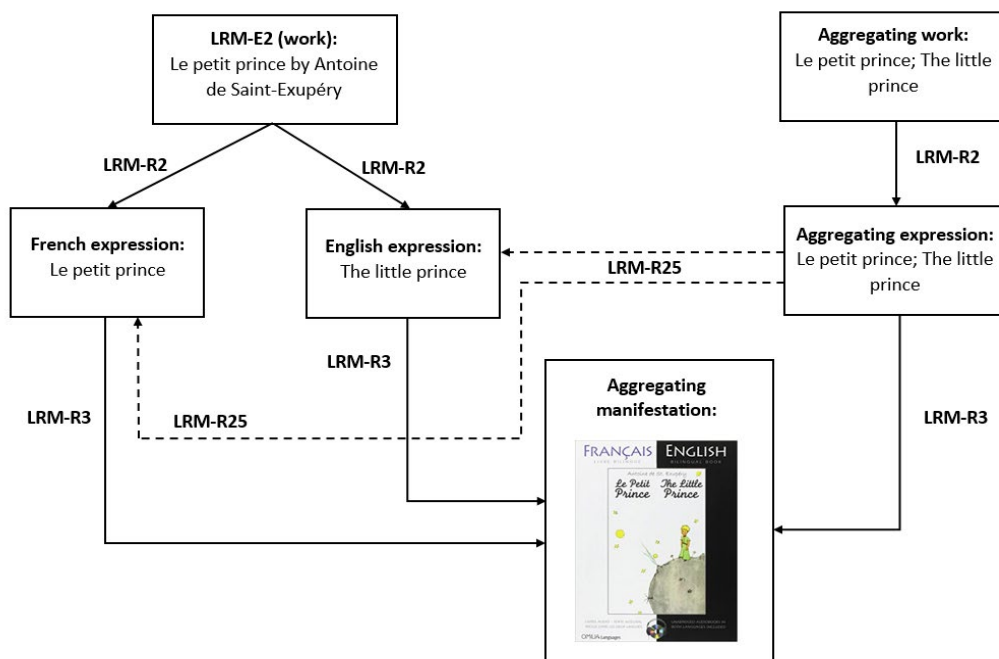

Figure 7 Model of aggregate entitled "The little prince"

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