

Conceptualizing the *Ethnomuse*: Application of CIDOC CRM and FRBR

Gregor Strle, researcher
Institute of Ethnomusicology
Scientific Research Centre of the Slovenian
Academy of Sciences and Arts
Novi trg 2, 1000 Ljubljana
T: +386 1 4706 265
F: +386 1 4257 753
grega.strle@zrc-sazu.si

Matija Marolt, Assist. Prof..
University of Ljubljana
Faculty of Computer and Information
Science
Trzaska 25, 1000 Ljubljana
T: +386 1 4768 483
F: +386 1 4264 647
matija.marolt@fri.uni-lj.si

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1 Introduction

The paper refers to the national funded project *Ethnomuse: digital storage of Slovene folk music and dance culture* [1]. The main scope of the project concerns the development of advanced multimedia applications for various content (folk song, music and dance) and format (image, audio, video, notation, MIDI etc.), and digitisation of the production and post-production processes that relate to collecting, documenting and archiving of Slovene folk songs, music and dance. The objective of this paper is to discuss the latter, with focus on conceptual design of the *flexible data model*.

2 Requirements

In order to make the *Ethnomuse* valid as a basis and a tool for scientific research work at the Institute of Ethnomusicology, specific concepts and methods that apply to research of Slovene folk song, music and dance had to be implemented. This is due to the fact that scientists and researchers (of the Institute of Ethnomusicology) are active contributors (makers of the archive) and primary users of the *Ethnomuse* at the same time. On one hand, the nature of digitized material (folk song, music and dance) demands implementation of specific concepts and relationships into the data model to enable effective description of content. On the other hand, these descriptions cannot be isolated from the production processes that this material depends on; they cannot exist outside the events of their creation (collecting, recording), documentation and archiving. They required a *flexible data model* and implementation of both, CIDOC Conceptual Reference Model (CIDO CRM) [2] and *Functional requirements for bibliographic records* (FRBR) [3]; thus enabling a formal structure for description of

implicit and explicit concepts and relationships between concepts and events of production processes mentioned.

3 Conceptual design of *flexible data model*

It is in the nature of a folk song to be *performed*, to be mediated verbally and verbal communication has some major consequences:

“Non- performing arts products are physical objects that carry conceptual objects; such physical objects are the basic “documents” that are preserved in a collection and described in a catalogue; through such documents, the conceptual objects they carry are preserved and described as well; it is also possible to gather “documentation” about them, their creation, and the way they were perceived.

Performing arts products are events that convey conceptual objects; there is therefore no basic “document”, but only some “documentation”, which, consequently, becomes primordial, as the conceptual object conveyed by a show can be somewhat preserved and described only by preserving and describing that documentation” [4].

Audio recording remains the basic scientific source for folkloristic research [5] and a core feature of folk song representation: since there is no *document*, the representation of (particular folk song in) recorded *variant* is only the representation of its physical characteristics – audio *documentation* about the event of singing, not (of) event/performance itself. Because of this strong interdependence, the concept of *event* represents a core feature of *flexible data model* conceptual design: it serves as a linkage between recorded *variant*, *person/actor* (performers, recording team etc.) involved, *place* and *time* of recording session. Based on CIDOC CRM, the concept of *event* enables the representation and integration of various production (for ex. field recording sessions) and reproduction processes through time.

The entities and relationships that form between the performed *folk song* and its recorded *variant* (as the embodiment of the folk song’s immaterial nature) in the *event* of recording go well along the lines of the FRBR_er model: every new performance creates a new *variant* that belongs to particular folk song *variant type* – *Work* [6]. Following FRBR_er structure, this *Work* is represented by *Expression*, embodied in *Manifestation* (recorded *variant*) and carried by *Item* (carrier). Such framework represents hierarchical structure and description of content on various levels.

Following above, the *flexible data model* is a combination of two conceptual models, with the aim to enable:

- a) representation of entities and relationships describing folk song and music, based upon FRBR_er, especially 1st group entities [3]: *Work*, *Expression*, *Manifestation* and *Item*; and
- b) representation of production and reproduction processes based on CIDOC CRM concept of *event*.

Combining the ideas of both conceptual models, FRBR_er and CIDOC CRM, Figure 1 represents basic framework of *flexible data model*.

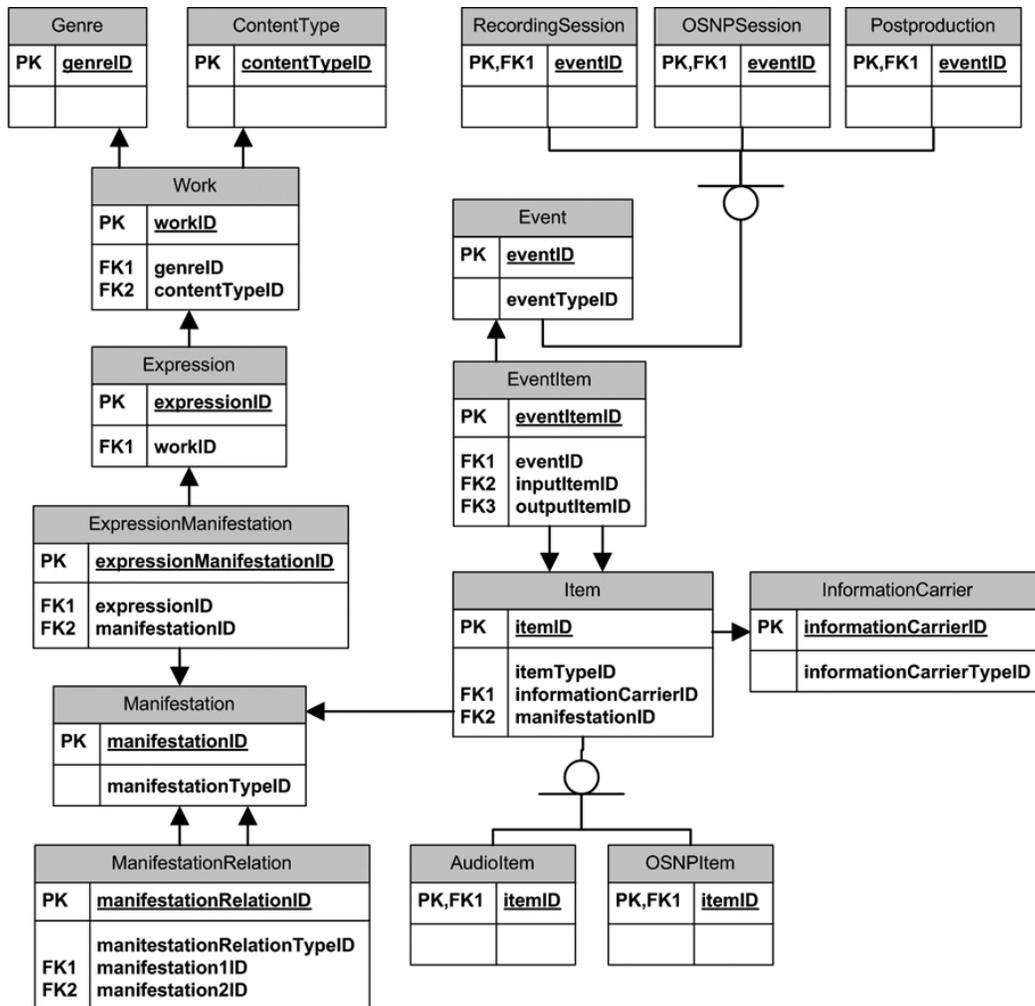


Figure 1: Flexible data model

As Figure 1 shows, the production of individual *audio recording* and the description of recorded *variant* are (in *flexible data model*) linked with the overall *documentation* (field record) about *production event*; this way, not only is each individual recording *session* linked with other recording *sessions*, but FRBR_er entities describing recorded *variants* are linked as well: each *Manifestation* is indirectly connected with the *production event* (individual recording *session*) through the *Item* (*audio recording*) - the information carrier of the recorded *variant* produced in particular *production event*. (The latter is represented in CIDOC CRM as shows Figure 2). Consequently, performers (singers, musicians etc.) belong to the *Manifestation* level (of recorded *variant*), while recording team, transcribers, collectors belong to the *production event* level (particular recording *session*).

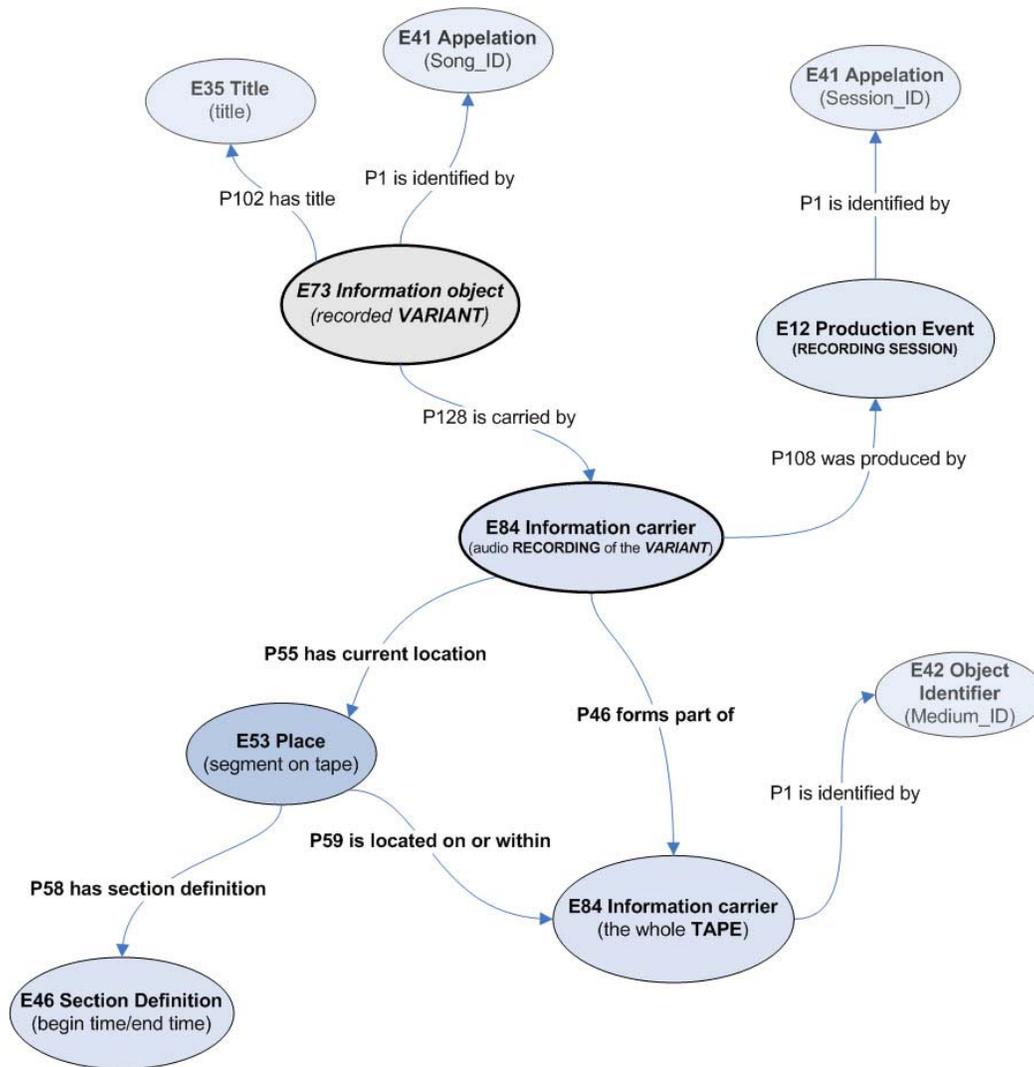


Figure 2: Mapping recording *session* in *CIDOC CRM* [6]

4 Mapping to FRBR_oo: Issues

The existing structure of *flexible data model* (Figure 1) doesn't correspond to the definition of FRBR_oo [7]; at the time when we'd started designing *flexible data model*, FRBR_oo was still in its initial stage, so the mapping of the *flexible data model* to the combination of FRBR_er and CIDOC CRM seemed like a logical choice (Figure 2). We mapped FRBR_er onto existing CIDOC CRM structure (Figure 2) mostly because E73 Information Object is insufficient (too broad) for representation of complex bibliographic relationships, that arise between folk song as immaterial concept, its numerous *variants* and carriers.

In the attempt to map *flexible data model* (Figure 1) onto FRBR_oo, some questions have been raised, especially due to the way FRBR_oo interprets *Manifestation*:

"The original Manifestation was likely to cover either a manuscript (in which case Manifestation overlaps with Item) or a publication (in which case Manifestation is both a Type and an Information Object). FRBR_oo strives to solve such logical inconsistencies, and had to "split" the Manifestation entity into two distinct classes, corresponding to the two possible ways of interpreting the ambiguous definition provided for Manifestation in FRBR_ER,

namely *F3 Manifestation Product Type* and *F4 Manifestation Singleton*. Whereas *F3 Manifestation Product Type* is declared as a subclass of the CIDOC CRM class *E55 Type*, and therefore as a subclass, too, of the CIDOC CRM class *E28 Conceptual Object* (a merely abstract notion), *F4 Manifestation Singleton* is declared as a subclass of the CIDOC CRM class *E24 Physical Man-Made Thing*, and therefore as a subclass, too, of the CIDOC CRM class *E18 Physical Thing*.”[7]

While in *FRBR_er Manifestation* can be interpreted as representation of either material or immaterial (an *Item* or *Information Object*), in *FRBR_oo Manifestation* is split: *F3 Manifestation Product Type* represents immaterial level (subclass of *E28 Conceptual Object*), *F4 Manifestation Singleton* represents material level (a subclass of *E18 Physical Thing*). In attempt to map *flexible data model* onto *FRBR_oo* neither *F3 Manifestation Product Type* nor *F4 Manifestation Singleton* served the purpose: *audio recording*¹ (our main *documentation*) cannot be reasoned in terms of *F4 Manifestation Singleton* or *F3 Manifestation Product Type*, it's not an *Item* nor *Type*.

The distinction has to be kept between *audio recording* as a materialised set of signs on one side (*Manifestation*), and concrete information carrier (*Item*) on the other. In *flexible data model* (Figure 1), this distinction consequently influences the interpretation of *FRBR_er Manifestation* and *Expression*, as the *Expression* represents “... the set of concepts expressed in one particular set of signs, independently of the materialisation of that set of signs...” [7]. For example, on *Expression* level, the folk song *variant* is represented as a particular set of signs, it conveys different ways of variants' immaterial representation (variant performed as singing, instrumental or both) - this set of signs is independent of its materialisation: a materialized set of signs embodied on *Manifestation* level (*audio recording*, melody transcription, text) and carried on concrete *E84 Information Carrier* (an *Item* in *FRBR_er*) with unique ID (audio carrier, sheet of paper, notation etc.).

The combination of *FRBR_er* and CIDOC CRM represented in *flexible data model* arises also on account of existing audio-archiving praxis, where documentation and preservation of audio recordings on carriers, and techniques and procedures used in production and post-production *events*, is of most importance. Our issues with implementing *FRBR_oo* come from this perspective.

¹ As already mentioned, folk song belongs to oral tradition, it is anonymous, without creator, place and time of creation: its immaterial nature is identifiable and preserved mostly based on audio recording

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