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Knowledge Organisation Across Aural and Visual Domains:
Connecting the Facets of Music and Art

Abstract: Music and art are complex areas of knowledge organisation, and this paper considers the connections between the classifications in both domains. It starts with an analysis of music and art facets, utilising the Dewey Decimal Classification and relevant KO literature. Four important connections emerge from the comparison: the interplay between medium and materials; the interweaving of forms, genres, corporeality, and medium; the idea of format and its links to physicality; the connections between iconography, music subjects and function. These findings as well as the resulting model of combined music-art facets, further our knowledge of music and art KO, as well as interdisciplinary classification.

1.0 Introduction

Music and art are intriguing (and complex) areas of knowledge organisation (KO). While the domains of music and art are closely related, this research compares how these domains are classified. (In this paper, "art" is shorthand for the fine and decorative arts, and the scope includes photography, but not architecture, theatre, etc.). The paper's purpose is to contemplate the connections and nebulous spaces between the knowledge structures of both domains, using a brief comparative analysis as a starting point. The term "facets" is used loosely in this paper, to broadly refer to types of information in the broadest sense. The term is used for situations which are not necessarily part of formal faceting or a faceted classification, but instead used as a shorthand for delineating types of information that are first-order divisions of a domain.

This paper occupies a noteworthy space within KO literature. While there is much KO literature about music classification including detailed literature reviews (for example, Smiraglia and Young (2006), Lee (2012), Lee (2017a)), and some literature about art classification (for examples, Greenberg (1993), Ørom (2003), Winget (2009)), discussions which compare KO across music and art classifications are much rarer. There is a discussion of arts classification more generally in interdisciplinary KO research, especially work by Szostak about the *Basic Concepts Classification* (Szostak 2021). Szostak (2014) analyses the classification of the humanities, including some discussion about shared types of information between music, art and other arts. However, our paper takes a different approach: we start, instead, with music and art classification as they are realised in knowledge organization systems (KOSs) and systems of facets, and discuss the commonalities, dissimilarities, and connections between them. So we could codify what we are doing as an inductive approach to arts-based classification, by working towards a model of music-art classification generated by the comparative analysis of music and art KO.

This exploratory study utilizes only a limited set of KOSs and KO literature, which in turn limits the results. In particular, there is an inevitable bias towards Western art music and Western art, due to the focuses of the KOSs considered. This paper starts by extracting a workable list of music and art facets, which are then compared. Four significant ideas are discussed about the connections between specific music and art facets,

showing the overlapping nature of music and art information and presenting a model of the connections between music and art's facets.

2.0 The facets of music and art

A set of core facets for music and for art needs to be determined. This proves to be rather a complex task within KO. To start, music's facets are discussed at different junctures within music KO discourse, whereas art's facets are barely discussed at all. For example, Lee (2017a) triangulates a music classification literature analysis, systems of music meta-facets, and findings from a deep analysis of three specific music classification schemes, in order to articulate likely music facets and their relative importance. Conversely, art classification literature typically discusses a particular scheme or scenario, but meta-analyses of KOSs or general accounts of theoretical issues in the classification of art from a bibliographic perspective are rare (with Ørom's (2003) domain analysis approach to art classification being an exception). So, art classification has no equivalent to the body of literature which analyses and delineates facets of music. Moreover, many works which do discuss music facets (for example, Lee, Robinson and Bawden (2018)), focus only on the facets pertaining to musical works, rather than works about music.

Therefore, this paper takes a combined approach to extracting facets of music and art for comparison. No two special classification schemes for music and art could be identified that would have been deemed comparable in function and coverage. For example, while the *Art and Architecture Thesaurus* (AAT) is a significant tool for art indexing, there is no equivalent, fully developed music thesaurus which is designed for a similar purpose. Therefore, AAT cannot be directly compared to a *music* thesaurus to elicit comparative facets for this paper. Instead, a combined approach is taken. An important KOS which is commonly used for music and art materials in libraries is used as a base: the *Dewey Decimal Classification* (DDC; Dewey *et al.* 2011). However, using DDC has its own issues. First, the structures of knowledge are inconsistent within music and within art in DDC. Second, the DDC schedules for music and art have developed in different ways; in particular, the music schedules were redesigned as a fully-faceted section of DDC in the 1970s (Clews 1975). So, we complement the DDC music facets by comparing these with a few studies about the facets of music and complement the DDC art facets with a brief comparison to the significant faceted art KOS of AAT.

2.1 Identifying the facets of music

There are two sources of facets for music in DDC. A Beethoven example in the DDC manual (Dewey *et al.* 2011, 159) suggests four music facets: executant (i.e., voice or instrument, musical form, general principles, and standard subdivisions. Analysis of the DDC schedules reveals the same overall order of facets, but "general principles" and "standard subdivisions" are now divided out into different types of information, such as techniques of music and biography. This is where some of the complexities arise as what counts as a separate type of information might be interpreted differently by different classificationists. In this paper, for example, sacred music (781.7) is considered part of the function facet, and what is labelled as "composition" (e.g., serialism, computer composition, arrangement) is understood to be another aspect of the techniques of music. Furthermore, only those DDC standard subdivisions (e.g., geography, history)

which appear to be significant independent types of information are included. So, the music facets in DDC in this analysis are as follows: Executant [=medium]; Musical form; Theory[1]; Kinds of music [=function]; Traditions of music [=types of music]; Techniques of music; Elements of music [e.g. harmony, rhythm]; Biography; Geographic treatment; History.

The body of literature about music facets suggests broad agreement with the music-specific facets in DDC. For example, Elliker's (1994) seven meta-facets of musical works, drawn from his synthesis of analyzing over twenty music classification schemes, are all included in the above, but also suggests that format – a small set of classes within the 780s in DDC (e.g. miniature scores, sound recordings) – should be included too. Redfern's (1978) generic facets of musical works and works about music mostly match the DDC analysis, and similarly adds forms of presentation as an additional facet (i.e. formats). One Redfern (1978) facet, phase relationship, is not added to our list, as it refers to the relationship between music and other subjects.[2] Coates' (1960) seminal, fully-faceted classification scheme for music, *British Catalogue of Music Classification*, was the basis of the 20th edition DDC music schedules and beyond, so it is unsurprising that its facets are all found in the DDC list, albeit with sometimes different labels. So, our analysis suggests 11 facets covering the music domain, drawn from our analysis of DDC and supplemented by a few examples of KO literature's analysis of music facets – see Table 1.

2.2 Identifying the facets of art

The first challenge is that while music appears clearly as one domain and a hundred division (780s) in DDC, the fine and decorative arts appear as multiple different hundred divisions (730s, 740s, 750s, 760s, 770s, plus debatably some of 701-709) and are arguably different domains (or subdomains). On a practical level, this means synthesising the findings from the different types of art/hundreds in order to produce a single list of core facets for art, while conceptually this provides an extra complexity within the music/art comparison. The way that 730-779 is split at its primary level is clear and consistent: divided into subdomains, where a subdomain is differentiated from another subdomain by the form of the art being produced and discussed. In other words, the schedules divide between the subdomains of sculpture, painting, printing, photography and so on. Within each art there are often further divisions based around the form. After this, the presence of particular facets and their order of importance often differ. For example, within photography (770s), the primary division is mostly by process; whereas, in painting (750s), after technique and material, there is a significant division by subject. Given this variation, we identified those facets common to a majority of fine and decorative arts, acknowledging that this is only one approach. Again, standard subdivisions provide extra complexities, so those which appear explicitly in the majority of the subdomains of art are included. Our analysis suggests that there are ten key facets of art in DDC: [Forms]; Biography; Philosophy and theory; Inherent features;

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[1] Theory is especially complex in DDC's music schedules, not least as it appears in three different ways, coupled with there being a very specific meaning of "music theory" within the discipline of music.
[2] Conversely, one DDC music facet does not appear in Elliker (1994) or Redfern (1978): a specific facet for types or traditions of music. This relates to ideas about the Western art music-centricity of KOSs and so on.

Techniques and procedures; Apparatus and equipment; Materials; Iconographic treatment; Geographic treatment; History.

A comparison between this interpretation of DDC's art facets and existing findings about art classification is complicated, as the art classification literature does not have definitive lists or analyses of art facets in the same way as music. So a brief comparison to the facets of the AAT (Getty Research Institute 2021a) is used, as many of the art classification writings use AAT as a focal point. Two facets found in AAT are not added to our list: "associated concepts" – appears to cover ideas found in philosophy and theory; "brand names" – covered by materials and persons. Interestingly, the definition of objects (Getty Research Institute 2021b) has much overlap with DDC's art facet of form, while also having overtones of physical form, which suggests a useful area for further discussion. Ultimately, AAT provides a useful viewpoint on the DDC analysis, but no additional facets are generated.

3.0 A comparison between the facets of music and art

The facets of music and art drawn from the analysis in Section 2, are listed in Table 1, using less DDC-specific and less art- or music-specific labels – for example, "agents" is broader than biography (the term used in DDC) or composers (found in Elliker (1994)). The order of facets follows the order found in DDC for music, with the corresponding art facet given in the same row.

Facets of music	Facets of art
Medium	Materials
Form/Genre	Form
Function/Character	
Types/Traditions of music	
Techniques	Techniques/Procedures
Elements	Inherent fetaures
Formats	
Theory	Theory
Space	Space
Agents	Agents
Time	Time
	Iconography
	Apparatus/Equipment

Table 1: A comparison of facets between music and art
Key: blue = identical for art and music; yellow = some overlap or a seemingly similar type of information between art and music; pink = appears only in music *or* art.

Identical facets (4). These four facets portray identical ideas and are also what we would consider to be universal facets – unsurprising considering their connections to DDC's standard subdivisions.

Similar facets (4). These could be seen as equivalent but non-identical. Music's medium facet describes what is needed to perform a musical work, while art's materials facet describes consumables and substances that are used to create the artwork (e.g., brushes, film). This potential equivalence is complex and discussed in detail in Section 4.1. Music's form/genre shares much with the fundamental art facet of form, and this complex connection is unpicked in Section 4.2. Elements of music (e.g., harmony, rhythm) are similar to the inherent features in DDC art (e.g., colour, shape). While the

idea of techniques is identical across music and art – the doing of something related to producing art or music such as conducting, computer composition, fresco painting, casting – there is a slight difference in this facet's label across art and music.

Unique to art or music (5). These are seemingly found only in art or in music. A facet based on types/traditions of music appears fleetingly in DDC, and covers music deemed to be outside of Western art music, such as popular music, rock music, and so on. There does not appear to be an art equivalent in DDC. Iconography seems situated only in art, and iconography and subjects will be explored in more detail in Section 4.4. At first glance, there seems to be no art equivalent to music's function/character facet, although some form divisions within art could be argued to be based on function, such as the division of plastic arts (730s) into coins, medals. Apparatus and equipment appear in DDC art (e.g., tools, machines), but in music are often sidelined in favour of the people using that apparatus (see Lee (2017b)). Finally, the format facet in music seemingly has no obvious art equivalent. Format and its connections to physicality boundary are explored in Section 4.3.

4.0 Exploring the connections between art and music's facets

This section discusses interesting connections between the facets of music and art, and how ideas between music and art intertwine.

4.1 Medium versus materials

Medium is at the heart of music classification, and is defined by Lee and Robinson (2018, 258) as "… the instrument(s) and/or voice(s) required to play and/or sing that work". Art has a similar facet, albeit occupying a more secondary position: materials. Examples of classes or include notes for DDC's materials facet include fixatives, surfaces, clays, glazes. The AAT materials facet is defined as "… physical substances, whether naturally or synthetically derived …" (Getty Research Institute 2021b). Occasionally medium appears to be used as a term within DDC art for what is described more broadly in the heading as materials. However, a deeper look suggests a more complicated connection than mere potential synonym: art materials are objects, whereas musical mediums are implicitly assumed to be the people making the music rather than the objects themselves (Lee 2017b). Both could be considered to be corporeal ("corporeal, *adj.* and *n.*" 2021), yet referring to different definitions – music's medium reflects the bodily defiiniton of corporeal, whereas art's materials fulfils the definition relating to matter and materials.

The position and importance of these facets within KOSs is also different. Medium is said to be important because it helps to constitute music: for instance, "… ontologically speaking, the essence of music is form (including genre) and medium" (Smiraglia and Young 2006, 7). Making a similar argument for art domains is complex. In art classification, the painting is a form and perhaps a technique; yet the materials themselves become secondary despite the actual paint and canvas being vital to the painting existing. We can sometimes see this explicitly in DDC: for example, 739.12 represents materials for art metalwork, and the instruction here is to class materials associated with a specific technique with the technique rather than materials. So while we can take materials and medium to be conceptually similar ideas, they appear to occupy different places in terms of the mechanics of music and art classifications.

4.2 Form and form-like ideas

The analysis identified that music classification has a facet based around form/genre usually as the second most important facet, while art has an unquestionable primary division into what we have called form.

However, there are two noteworthy complications. First, there is an element of corporeality of form in art. For instance, AAT describes paintings, sculptures, and so on as being within the object facet which "… contains terms for discrete tangible or visible things that are inanimate and produced by human endeavour" (Getty Research Institute 2021b). Yet, a musical form/genre does not have this aura of corporeality; for instance, a symphony describes a specific shape and organisation of musical sound in time and space, but this is not tangible or visible. So, while we can in many ways equate a form facet across the music-art domain boundary, it seems that there is a potential extra quality around corporeality in art's form facet that may not be shared by music's form/genre. So, we can consider corporeality to be a "shadowy facet". By this we mean a type of information that is not explicitly referred to in art classifications, but is a co-dependent, implied type of information linked to art's form facet yet not entirely subsumed into it.

Additionally, we need to return to medium, and consider its connections to form. For example, Szostak (2014) mixes the terminology between types/genres and medium. Furthermore, form is the primary facet in DDC art, whereas medium is the primary facet for music (according to both DDC (see above) and other classifications of music (Lee and Robinson 2018)), possibly symptomatic of a crossover. Even within music, medium and form/genre are blurred in their execution as facets, as they are shown to be dependent facets (Lee, Robinson, and Bawden 2021).

The set of connections between medium, materials, form/genre and form are visualised in Figure 1. This figure depicts the traditional music facets of medium and form/genre as blue circles, then overlays the art facets of materials and form in pink circles alongside a shadowy quasi-facet for the idea of corporeality. Dependency between facets within art and music are indicated as well. This figure illustrates how art and music facets share similar ground but do not appear to – from this small analysis of KOSs – occupy exactly the same spaces as types of information.

4.3 Format and physicality

Physicality conjures up a thought-provoking discussion for comparative art and music classification. In music, physicality is represented in part by the format facet. Individual foci of musical formats include sound recordings, musical scores, works about music, and then the individual types within these such as orchestral scores, miniature scores, vocal scores, and so on. So, format is a complex facet in music, as it appears to contain different sorts of information, such as the nature of music information (musical works or works about music), method of communication (sound or notation), form/genre of the music (for instance, vocal scores are used for specific vocal form/genres such as operas) and physical attributes (for instance, miniature scores, full scores).

Arguably, there is some potential alignment between format and art's inherent qualities facet. However, they largely manifest themselves differently, partially due to KOSs such as DDC being used primarily for works about art rather than artworks themselves. For example, "colour" is a conceptual idea in DDC within the inherent qualities facet,

used for works *about* this physical (art) quality, whereas "miniature scores" typically is used for the actual physical qualities of a particular music resource. This realisation of the is-ness versus about-ness debates (McKnight 2012), suggest the usefulness of looking at about-ness and subjects more closely.

4.4 Subjects and about-ness

The analysis shows that DDC art has a clear and unambiguous facet for iconography. Conversely, subject is not usually an explicit facet for music, though subjects can be added to music in DDC. The idea of a music having a subject is an important philosophical debate within musicology, such as Dahlhaus' (1989) theories of absolute music (abstract) versus programme music (specific subject). Furthermore, iconography arguably has links to the function/character facet in music: for example, music for a wedding and a painting of a wedding. This music/art connection grows if utilizing Panofsky's three levels of iconography, in particular the division between art being "of" versus art being "about" (Szostak 2014, analyzing Shatford Layne), and then viewing this through a music classification lens. The idea of art sometimes depicting what something is "of" (Szostak 2014) could be equated to the function and occasion sides of music's function/character facet, whereas iconography's idea of "about" (Szostak 2014) could have parallels to the character aspect of function/character or be considered an additional, "shadowy facet". While seldom explicitly part of music's classification structure in the way that iconography is situated within art, subject is an implicit presence which is often coupled in some way to function/character in music, and could be thought of as another "shadowy facet". Ultimately, the treatment of subjects in art and music classifications are complex and this could be fruitful area for deeper and further research.

5.0 Concluding thoughts

This paper used a brief analysis of examples of art and music facets to explore connections between types of information in both domains. The discussion showed interesting connections between art and music. The facets surrounding form and its uneasy quantification as a combined music/art idea, was one example of the complexities in thinking in an interdisciplinary way across music and art classification. Furthermore, some facets seemed similar on the surface, such as medium (music) and materials (art) but further analysis revealed important differences; whereas others were seemingly unique to music or art yet deeper analysis elicited their connections to other facets, such as iconography (primarily associated with art).

A model of the connected-ness between music and art facets is visualised in Figure 2, with different colours for art (pink), music (blue) and a combination (purple). The black lines joining facets illustrate connections between facets. The figure illuminates not just connections between similar ideas in music and art, but also how this parallel analysis has revealed connections between completely different types of information. One of the most intriguing findings is the emergence of "shadowy facets", which are shown in fainter colours and with dotted outlines in Figure 2.

Future research could develop the ideas in this exploratory paper. For example, the idea of iconography versus subjects in music is worthy of further analysis. Importantly, the ideas in this paper could be used as a launch pad for more interdisciplinary KO research, perhaps starting with an extension to more arts. Also, by using DDC as the

first stage of the analysis, this paper inevitably focuses on Western art and Western art music; therefore, future research could explore whether the connections also hold true for the art and music of other cultures. The idea of "shadowy facets" could be explored further, such as considering whether they are found elsewhere in classification and by enfolding "shadowy facets" within theories of classification. Ultimately, this paper highlights the intriguing and often messy connections between music and art facets, which adds to interdisciplinary research in KO and furthers understanding of the knowledge structures and classification of both music and art.
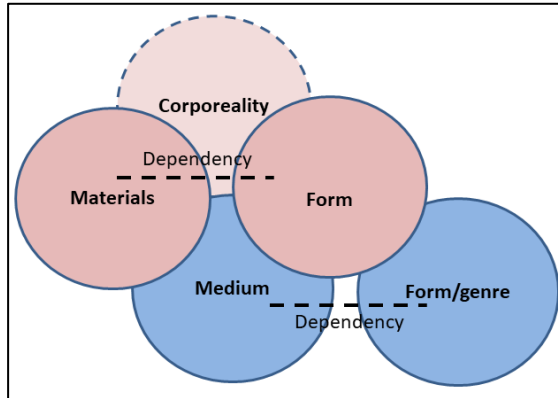

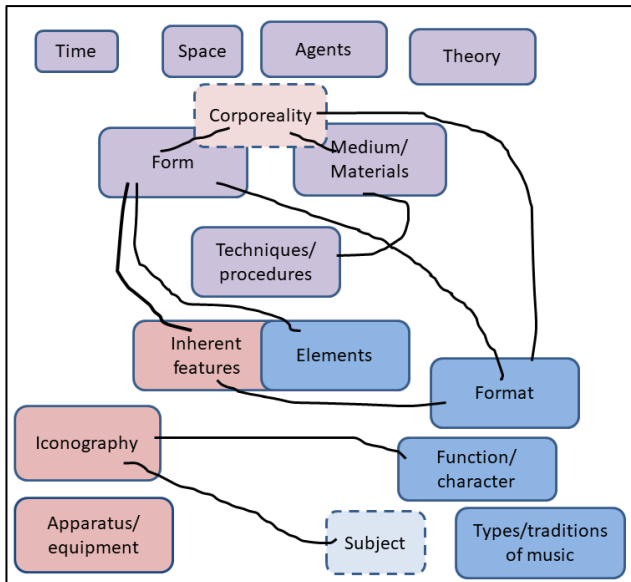Figure 1: The connections between music and art facets around form

Figure 2. Modelling the connections between music and art facets

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