

**This is an electronic reprint of the original article.
This reprint *may differ* from the original in pagination and typographic detail.**

Author(s): Huovinen, Erkki; Kaila, Anna-Kaisa

Title: The Semantics of Musical Topoi : An Empirical Approach

Year: 2015

Version:

Please cite the original version:

Huovinen, E., & Kaila, A.-K. (2015). The Semantics of Musical Topoi : An Empirical Approach. *Music Perception*, 33(2), 217-243.
<https://doi.org/10.1525/mp.2015.33.2.217>

All material supplied via JYX is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

THE SEMANTICS OF MUSICAL TOPOI: AN EMPIRICAL APPROACH

ERKKI HUOVINEN

University of Jyväskylä, Jyväskylä, Finland

ANNA-KAISA KAILA

Hanken School of Economics, Helsinki, Finland

THE ARTICLE INTRODUCES AN EMPIRICAL APPROACH to studying music's extrinsic meanings, based on the idea of musical *topos* as a set of musical entities that is delimited and furnished with meaning by extramusical associations in a listener population. The proposed methodology involves free, associative responses as well as responses on semantic variables addressing the imagery. After deriving potential topical structures for a given musical domain from the quantitative results, the structures are substantiated by using them to guide a rule-based, qualitative analysis of the free responses. The approach allows a view to the topical organization of a musical domain in which the identity of each musical *topos* is fixed in extrinsic terms, by a set of semantic fields that is unique to the *topos* in question. An application of the approach to contemporary "motivational" production music yields an organization of such semantic fields into three topical categories—**INTIMACY, POTENCY, and SPEED.**

Received: December 18, 2012, accepted December 20, 2014.

Key words: meaning, imagery, production music, *topos*, extramusical

IT IS SOMETIMES ARGUED THAT MUSIC DOES NOT truly represent anything, because unlike in visual art—where understanding of a picture requires grasping its represented content—the same is not quite true of music: we might understand a lot about Debussy's *La Mer* even without knowing that it is about the sea (Scruton, 1997, p. 131). But even if this is true of our experience of individual musical works, it seems equally clear that understanding the whole cultural phenomenon of music requires acknowledging how music often works *as if* it represented or meant something beyond itself. For many of us, music evokes images of landscapes, describes moods, narrates stories, or suggests attitudes or

values. Even while acknowledging the problems in strictly separating the musical and the extramusical, many theorists have deemed it useful to find ways of referring to the "nonmusical" meanings that emerge in musical contexts. Some have called these music's "designative" (Meyer, 1956), "extragenic" (Coker, 1972), "referential" (Trainor & Trehub, 1992), or "extrinsic meanings" (Hargreaves, Hargreaves, & North, 2012), or understood them as "communication of extramusical experience" (Ferguson, 1960), as "semantic content" (Bicknell, 2002), as "representationality" (Rowland, 2007), as "extroversive semiosis" (Agawu, 1991), or just simply as "signs" (e.g., Tarasti, 2002). Others have preferred to speak of "inner images" (Gabrielsson, 2011), "associative responses" (Hargreaves & Colman, 1981), "programmatic hearing" (Hofmann, 2011), "paramusical fields of connotation" (Tagg, 2013), "cross-domain metaphors" (Spitzer, 2004), or "priming of knowledge" (North, MacKenzie, Law, & Hargreaves, 2004), or have postulated a special "semantic listening mode" (Chion, 2013; Tuuri & Eerola, 2012). Despite the different implications in terms of whether listeners are taken to *interpret* music in terms of extrinsic meaning or to *associate* it with extrinsic meanings—or perhaps even to *perceive* meaning in "what the sounds specify" (Clarke, 2005; Dibben, 2001)—there appears to be a large consensus that music can importantly function as a carrier of extramusical meaning. Quite often, the implication is not merely that music might help any personally significant imagery to emerge from one's psyche (as some music therapists would hope; cf. Bonny, 2002), but that it is the *music* that means—or is taken to mean—something extramusical.

A good share of thinking concerning music's extramusical meanings has been based on a methodological premise that could be called *analytical reductionism*—the recommendation that meaning is best sought on the level of individual musical parameters or types of individual musical entities. In an extreme version such as Cooke's (1959), the claim would be that musical and extramusical domains are correlated by one-to-one mappings between individual musical and semantic features. Inspired by natural language with its referential lexicon and compositional semantics, Cooke (1959) set out to "discover exactly how music functions as a language [and] to establish the terms of its vocabulary"

(p. 34). Such views are optimistic: if we first learn how individual musical parameters affect ascriptions of meaning, perhaps broader views of musical signification might thereafter be constructed from the bottom up, quite like the meanings of sentences could be compositionally determined by their constituent expressions. And indeed, there is evidence from language itself concerning sound symbolism on the level of phoneme-level units (see Nuckolls, 1999), suggesting that there may be some universal basis for piecemeal correlations between sound and meaning.

Cooke's somewhat outdated essentialism aside, in more moderate forms the basic approach of analytical reductionism has greatly assisted empirical research into musical meaning. Much of the empirical research on the emotional, expressive, and more broadly semantic connotations of music has proceeded as a search for correlations between musical and nonmusical domains. On the basis of this work, we understand, say, how semantic terms might fit musical intervals (e.g., Costa, Ricci Bitti, & Bonfiglioli, 2000), how individual musical parameters might influence listeners' affective judgments of heard music (e.g., Gomez & Danuser, 2007; Mote, 2011), and how musical parameters might find cross-domain mappings in the spatial domain (e.g., Eitan & Granot, 2006; Eitan & Timmers, 2010). In focusing on simple perceptual features of music, these lines of research are congenial to larger questions concerning cross-modal correspondences in human perception and understanding (for a review, see Spence, 2011). For example, if people tend to match higher pitch with bright visual surfaces (Wicker, 1968), this might help to account for certain kinds of visual imagery evoked by music alone. Further support for the idea of simple musical entities as semantic units comes from neurophysiological research showing that musical elements such as chords may activate affective semantic meanings on a neural level (for a review, see Koelsch 2011).

As already seen in Francès' (1988) pioneering study of free associative responses in the 1950's, the wish to explain listeners' extrinsic understandings by musical properties easily ends up in discussions of general kinetic or spatial schemes suggested by the musical materials. Some extrinsic listener responses might, indeed, quite comfortably be linked to musical structure by way of spatial metaphors or image schemas (e.g., Rautio, 2007; cf. Larson, 2012). Nonetheless, there remains a tangible gap between empirical results of the above-mentioned kind and broader kinds of significance that listeners seem to associate with music. The current musicological understanding is that music may take on social, political, religious, gender-related,

or other kinds of cultural significance, and that it may therefore assume a role in the construction of our personal and sociocultural identities. Whereas these ideas are common in music analysis or the sociology of music, empirical research with music listeners has largely tended to avoid discussing such broader kinds of extramusical meaning formation—to the extent that some have called for a “cultural turn” in the psychology of music (Allesch & Krakauer, 2005-2006).

Relevant empirical studies on broader extrinsic meanings are, indeed, still too few and methodologically too sporadic to allow systematic comparison, but at least they suggest that broader kinds of meaning attribution can be observed. For instance, listeners have been shown to associate heard music with gender (Tagg, 1989), with religious and cultural ideas (Johnson, 2003), with social contexts and physical spaces in which the sounds were made (Dibben, 2001), and with moral and political concepts (Shevy, 2008). While extramusical imagery does figure prominently in experts' interpretations of music (cf. Bicknell, 2002), it appears to be especially common in nonmusicians' accounts of their listening experience (Flowers, 1984; Larsen & Whitaker, 2013). Moreover, extrinsic associations may be rather systematic: Wagner's leitmotifs may acquire characteristic semantic profiles even for listeners not familiar with the music (HaCohen & Wagner, 1997), and even small children may successfully match music with natural category terms intended by the composer (Hofmann, 2011; Trainor & Trehub, 1992), or agree on the fairy tale characters that particular musical excerpts are best associated with (Hofmann, 2011). There are also indications that reliance on extramusical imagery in descriptions of heard music might depend on the listeners' cultural background (Morrison & Yeh, 1999). Finally, it is useful to note that much extrinsic signification might be activated even without actual heard sound—consider, for instance, gender stereotypes associated with musical instruments (for a review, see Wych, 2012).

Perhaps the most ambitious empirical listening study in this scattered field of research has been Philip Tagg's research on the “visual-verbal associations” (VVAs) elicited by television title tunes (Tagg & Clarida, 2003; cf. Tagg, 1989, 2006, 2013). Tagg's approach is to take freely written, associative responses to heard music, “discretize” them into smaller conceptual units, and find a classification for these units that shows the breadth of meaning in play in our encounters with music. A characteristic feature of Tagg's detailed classification is that it contains categories related to such things as social context, social class, geographical location, or gender, but not

as higher-order categories constructed out of simpler emotional or movement qualities (or the like), but rather as parallel, separate classes. In other words, what was above referred to as “broader kinds of significance” are here seen as low-level associative units of meaning in their own right, and hence ultimately within the reach of an analytical reductionist strategy. In Tagg’s (2013) semiotic terminology, music indeed consists of “musemes,” small music-structural elements each of which comes with their culturally ingrained semiotic properties. Given that he takes musical similarity relations to be analyzable with reference to simpler music-structural elements, Tagg’s semiotic project as a whole has an air of compositionality about it: if we know what each of the structural units mean (in a given culture), we should get closer to the extramusical significance of a larger piece of music as a whole just by seeing how these units are combined.

In discussing the dearth of listening studies concerning musical meaning, Clarke (2005, p. 193) explains it by “a widespread assumption within the psychology of music that the perception and interpretation of musical structures should be the central focus of listening research”—because of this assumption, “the question of what different kinds of listeners actually hear [. . .] has been sidelined as a more sociological issue.” In the present article, we want to question this music-structural focus by approaching extrinsic meanings without the premise of analytical reductionism—without seeking to pinpoint the musical features or parameters responsible for given units of meaning. In our view, music-structural entities should not quite self-evidently be given center stage in discussions of musical meaning: musical traditions and their particular stylistic features come and go, and it may be that some extramusical meanings (love, feast, death, etc.) have more stability and perseverance in human culture than some of their particular musical carriers do. This opens the question of whether and how our categorization and understanding of musical entities might also be driven by our extrinsic concepts, and hence by our semantic modes of listening. An appropriate response to this question would constitute, in effect, an extrinsic theory of extrinsic meaning in music. The quest for such an account may usefully begin from what are known as musical topics.

TYPOLOGIZATION OF TOPOI

The rhetorical concept of *topos* (Gr. τόπος, pl. τόποι; “place,” metaph. “commonplace”) was introduced to contemporary music scholarship by Ratner (1980), who observed that 18th century composers often organized their music around musical figures and styles that carried conventionalized extramusical meanings. Ratner’s

exposition of *topoi* covered dances associated with specific sociocultural backgrounds (e.g., the minuet, bourrée, and contredanse, representing “high,” “middle,” and “low” styles, respectively), characteristic figures (e.g., fanfares with hunting and military associations), as well as broader stylistic complexes like the Singing Style, Storm and Stress (Ger. *Sturm und Drang*), or Sensibility (Ger. *Empfindsamkeit*). Following Ratner’s lead, most of the research on musical topics has concentrated on music of the classical period, identifying *topoi* and topical processes in the work of composers such as Mozart and Haydn (e.g., Allanbrook, 1983, 1992; Agawu, 1991; Hatten, 1994, 2004; Linjama, 2002; Monelle, 2000, 2006; Ratner, 1991). Much of the interest has had to do with whether *topoi*, despite being “programs of surface structure” (Tarasti, 1994, p. 26), could also assume a role in larger-scale accounts of musical form, process, or narrative (e.g., Agawu, 1991; Almén, 2008; Caplin, 2005; Hatten, 1994). In one of the few empirical, music-psychological studies on musical *topoi*, Krumhansl (1998) approaches topics from this very perspective—by showing that even less schooled listeners may be able to parse musical large-scale structures in accordance with a topical analysis provided by an expert analyst. With the exception of Margulis’ (2014) empirical study concerning the relationship between classical topics and syntactic surprises, the contributions in the recent, impressive *Oxford Handbook of Topic Theory* (Mirka, 2014) continue to situate topics in the disciplinary frameworks of music analysis and historical musicology.

For Ratner’s followers, then, topical research is basically a strand of semiotically informed musical analysis. This not only means that it largely “depends on old-fashioned style analysis” (Agawu, 1999, p. 157) for its technical aspects, but also that its attributions of musical meaning stem from the interpretive skill of the music analyst, informed by what is known about the socio-historical and ideological landscape of the composer. For studying the social and cultural meanings attached to Mozart’s music in its original context, this has to be so: what the different stylistic threads of his musical weavings might have meant to the urban elite of late 18th century Europe can only be accessed through historical records and an empathetic attitude. What is left open, of course, is whether the topical interpretations of the analysts actually succeed in modeling the extrinsic reactions of Mozart’s contemporaries—or of any other broader listener population, for that matter. The same is true of Mak’s (2011) rare application of topical terminology to describe contemporary, culturally contingent significations of music: her descriptions of opera music’s

potential extrinsic meanings in different cultural contexts remain traditional semiotic readings at heart.

Our research is motivated by the working hypothesis that the concept of musical topos, far from only being appropriate for an interpretive approach to the music of a bygone age, might actually capture an important phenomenon in our contemporary musical culture(s). The starting point is the idea that extramusical meaning-making could fruitfully be described as happening on the level of complex musical textures, stylistic categories, or what Tagg (2013) has called composite “now sounds.” Like the transition from learned counterpoint to opera buffa style in Mozart may have been accompanied by a sudden change in the emotional and social associations evoked in 18th century listeners, quite similarly we immediately recognize the shifts of attitudinal and social emphasis when switching between the stations in our car radio (cf. Gjerdingen & Perrott, 2008). However, rather than treating the phenomenon on a stimulus–response model in which one inquires into the associative effects of fixed musical style categories, we propose that the formation of musical categories themselves might be informed by the organization of extramusical imagery in some group of listeners. To set the stage, we hence provide the following provisional definition:

(MT) Musical topos =_{def} a set of musical entities, as delimited and coherently furnished with meaning by consistent trends of shared extramusical associations in a significant majority of a given listener population.

Notice that according to this definition, musical topoi are not just a separate kind of meaning category alongside emotional, motion-related, social, narrative, and other kinds of extrinsic meaning (as implied by, e.g., Patel, 2008), but something that may organize any extrinsic meanings appearing in a musical culture. Ideally this means that musical entities (passages, textures, sounds, whole compositions, etc.) could be grouped together by similarity of the sets of extramusical associations they evoke. By itself, this claim should hardly be controversial, considering that music publishers and record companies have long compiled music for special functions (funerals, relaxing, etc.), apparently based on the moods and extramusical imagery evoked by the pieces in question. What seems more open to discussion is how such phenomena might best be studied in empirical terms.

Our approach follows the general idea of extensional classification in which objects are grouped together according to perceived similarities in the states of some

properties. When more than one such property, or *fundamentum divisionis*, is simultaneously taken into account, the resulting scheme can be called a *typology* (Marradi, 1990). Now, according to the model of Kelle and Kluge (2010), a typologization process starts from (1) working out relevant dimensions of comparison between the entities in question, followed by (2) grouping of the entities based on the dimensions of comparison, with the goal of reaching maximal homogeneity within individual groups and maximal heterogeneity between them. This would be followed by (3) analysis of connections between the content of the found groups, often leading to some streamlining of the emerging typology, and finally (4) characterization of the types arrived at. In our case, the entities worked with would be pieces of music, all comparisons between them would be made on the basis of extramusical meanings associated with them by musical listeners, and the types at the end of the typologization process would be musical topoi. We will modify the model of Kelle and Kluge most crucially at the third step, where the most distinctly interpretational component of our procedure will appear as the extraction of *semantic fields* from more basic *semantic features* by a human interpreter.

Given a cultural environment with its musical domain and extramusical associative descriptions observed as response to the pieces of music in this domain by inhabitants of the culture, our envisioned research process could be summarized in the following four steps (see Figure 1). First, in our preliminary study, we tentatively search out *mood variables* relevant for the listeners’ musical experience and *situation variables* relevant for their free extramusical associations. Second, in our main study, we collect both free associative descriptions as well as judgments on the mood and situation variables, and find a *mood/situation structure* for the pieces of music on the basis of the latter. Third, we take the participants’ free associative descriptions from the main study, subjecting them to a rule-based qualitative analysis in which simple semantic features are collected into broader semantic fields in a way that is regulated by the category structure extracted above. Fourth, the resulting semantic fields are validated by inspecting their potential to discriminate between the categories, thereby arriving at an interpretation of the categories as topoi, each of which will be characterized by the presence of certain semantic fields.

The main goal of our research, then, is to apply the above-sketched methodology in practice, seeing whether it can be used to provide an ascent from (1) simple SEMANTIC FEATURES (as well as their straightforward groupings into SEMANTIC MACROFEATURES and

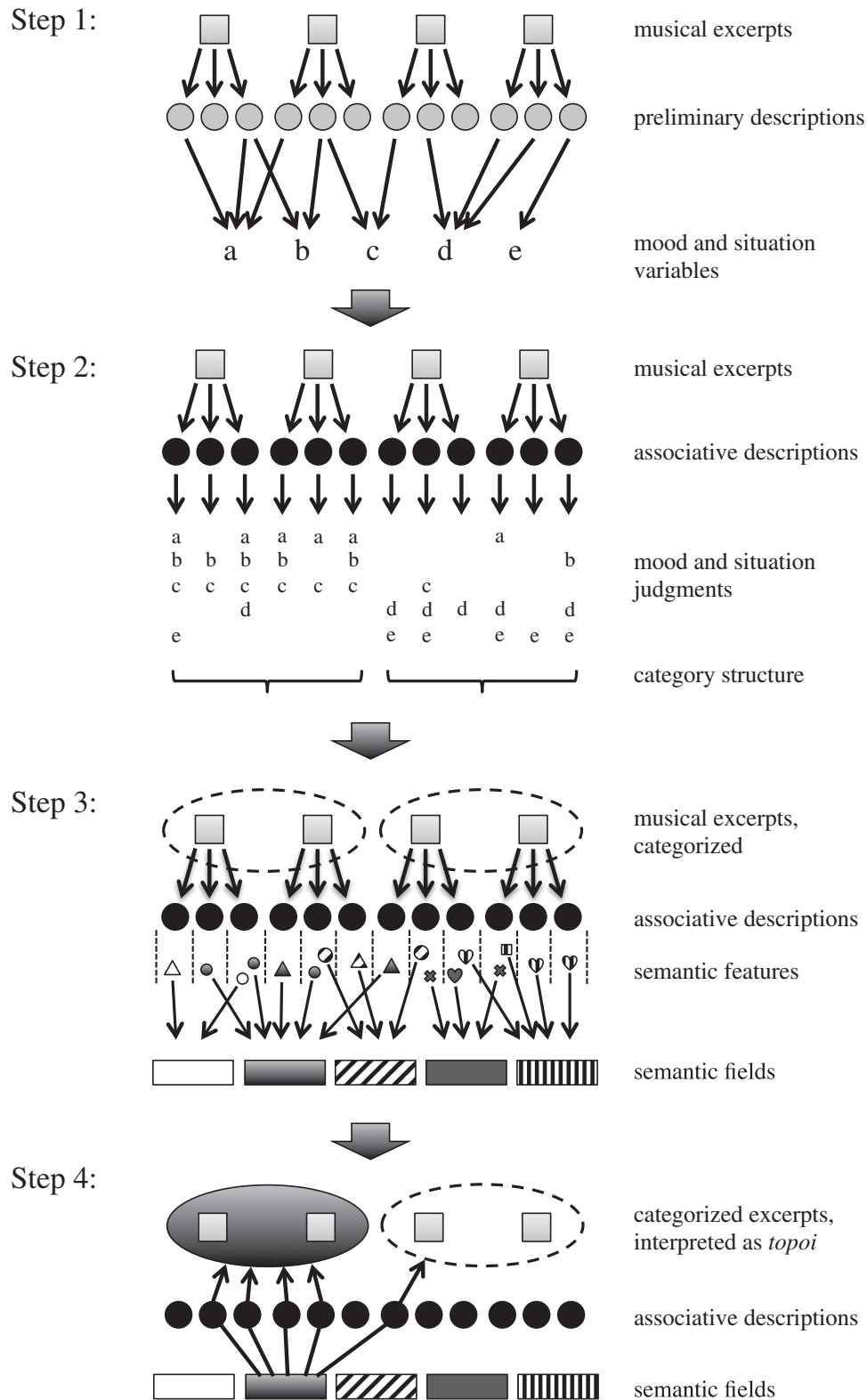


FIGURE 1. Key phases of the research process: (Step 1) Searching out mood and situation variables; (Step 2) Determining a mood/situation structure; (Step 3) Extracting semantic fields from associative responses, guided by the mood/situation structure; (Step 4) Validating the semantic fields and interpreting the categories as *topoi*.

SEMANTIC VARIABLES), through (2) more encompassing and interpretationally contingent *SEMANTIC FIELDS*, up to (3) the overarching musical *TOPOI*. (For convenience, we will distinguish concepts on these three levels by the typographical convention shown in the previous sentence.) The key role in this process is played by the intermediate semantic fields that provide an operationalization for the “consistent trends of shared extramusical associations” mentioned in the definition (MT). Intuitively, the distinction between semantic features and semantic fields can here be understood as a distinction between compact semantic labels that, like Tagg’s VVAs, could ideally be derived from a set of free responses on a linguistic basis (and perhaps even organized into somewhat more abstract macrofeatures or variables with equal perspicuity), and broader categories that require more interpretive freedom or structural guidance. Instead of letting broader “themes of signification” simply appear through the researcher’s interpretation (as in Frances, 1988, p. 263), we will construct our semantic fields by relying on guidance from the preliminary mood/situation structures that have themselves first been erected on the basis of feature-level information. More exactly, semantic fields can be defined as such supersets of low-level semantic features that are able to convey semantic uniqueness to given groupings of musical entities. As such, they serve as classification criteria for validating a proposed topical structure of the given musical domain. Understanding any suggested category structure of the pieces of music as providing an adequate typology of extrinsic contents will then be seen as contingent upon finding a set of semantic fields that, as a set of empirically derived *fundamenta divisionis*, clearly differentiates between the categories of musical objects, endowing each of these categories with distinct meanings.

THE CASE EXAMINED: PRODUCTION MUSIC

Like any socioculturally contingent categorization, an account of musical *topoi* is likely to be specific to a given musical culture with its particular styles, usages, social roles, and understandings of music. For probing the approach summarized above, we have chosen to work with *production music*, one of the most prevalent forms of functionally crafted music in the contemporary audiovisual culture. Also known as “library music” or “catalogue music,” it dominates the musical landscape in TV commercials, corporate videos, independent and low-budget documentaries, and other types of multimedia productions. It is used as telephone waiting music, as interludes in radio talk shows, and as background music in commercial spaces. It is music produced in advance

with specific communicative goals in mind, but not for a particular production, and it is sold through production music libraries, which administer the copyrights for the compositions and the sound recordings. Typically, production music libraries are run by major publishing and record companies (e.g., Sony/ATV Music Publishing, Universal Publishing Group, Warner/Chappell), and can consist of tens of thousands of audio tracks catalogued by style, genre, function, and mood.

As pointed out by the author of a history of commercial easy listening music, “production music is heard so commonly by so many that it deserves a place among the twentieth century’s most authentic folk arts” (Lanza, 2004, p. 63). Still, apart from occasional brief discussions in film and television music research (e.g., Kassabian, 2001; Rodman, 2010; Tagg & Clarida, 2003), music research has been slow in catching up with the phenomenon (for a useful exception, see Nardi, 2012). This apparent lack of scholarly interest likely stems from the low cultural profile of the contexts in which production music has been used, the relative anonymity of its creators, and the fact that even in the field of audiovisual musics, it falls on the gray zone between well-appreciated film music and the most salient uses of music in advertising such as jingles. And, while research concerning film music and music in advertising might potentially shed light on music’s extrinsic meanings, in these fields the topic tends to be subordinated to other concerns. For most film music research, the focal point is an audiovisual artifact as a nexus of previously set visual, musical, and semantic connections, directing the research toward questions of structural congruence between the visual and auditory domains (see, e.g., Chion, 2013; Cohen, 2000; Cook, 1998; Gorbman, 1987; Marshall & Cohen, 1988). Research on music in advertising similarly often focuses on extramusical meaning in terms of congruence with the product or message (e.g., North, Hargreaves, & McKendrick, 1997; Zander, 2006), or else tends to see the significance of the phenomenon merely in the formation of positive consumer attitudes for the purpose of increased sales (e.g., Craton & Lantos, 2011; Lantos & Craton, 2012).

The detailed content descriptions of production music libraries imply, however, that far from only creating “peripheral persuasion cues” (Park & Young, 1986), the producers of production music are hoping to evoke broader cultural associations and expressive contexts that are interesting in their own right (see Table 1 below). Moreover, the extramusical connotations, moods, and functional implications mentioned in the “metadata” to individual pieces of music are supposed

TABLE 1. Excerpts of “Motivational” Production Music Used in the Preliminary Study and the Main Study

Genre	Excerpt			Producers’ description				
	Name	Composer	Spectral brightness	Tempo (BPM)	Primary description	Moods	Function (“music for”)	Musical styles
<i>orchestral fanfare</i>	1. Spot On Target ²	Larry Wolff, Killer Tracks [BMI]	0.682	80–84	Full orchestra in constant motion, with many dynamic colors and textures.	Confident, Bold, Bright, Proud	Corporate Video, Industry, Newsreel/Vintage, Documentary, Modern, News	Corporate
	2. Turning Point ³	Larry Wolff, Killer Tracks [BMI]	0.655	69	Inspirational and confident, with orchestra playing contrapuntal passages.	Grand/Majestic, Achievement, Proud, Motivational	Corporate Video, Documentary, Prestige & Achievement	Corporate
<i>light classical</i>	3. Design Your Dream ¹	Larry Wolff, Killer Tracks [BMI]	0.642	66	Expressive piano over strings and brass.	Warm, Relaxed, Achievement	Communications, Corporate Video, Western, Orchestral	Neo Classical
	4. Reaching Out ²	Larry Wolff, Killer Tracks [BMI]	0.657	60	Soft piano and flute intro, joined by strings and gentle brass.	Delicate/Gentle, Building, In a Classical style, Melodic	Communications, Newsreel/Vintage, Documentary, Heritage	New Age, Influence
<i>MOR</i>	5. Down Home Dream ³	Dan Ferguson, Killer Tracks [BMI]	0.324	80–84	Easygoing and relaxed, featuring acoustic guitar accompanied by orchestra.	Confident, Cheerful/Happy, Relaxed, Melodic	Corporate Pop, Industry	MOR/Melodic
	6. Building Tomorrow ²	Brad Smith, Killer Tracks [BMI]	0.488	92–96	Gentle piano over strings, french horns and light rhythmic section.	Delicate/Gentle, Relaxed, Flowing, Melodic	Emotional, Family/Light Comedy, Romantic	New Age, MOR/Melodic
<i>rock</i>	7. Take Control ⁴	Dick Winzeler, Soundcast Music [ASCAP]	0.340	120	Dance beat, with soulful male vocal accents and melodic guitar.	Cheerful/Happy, Driving, Energetic/Lively, Soulful	Corporate Pop	Pop, Rock
	8. Unlimited Horizons ⁴	Jonathan Merrill, Killer Tracks [BMI]	0.494	100	Strong and positive rhythm section with guitar lead.	Confident, Strong/Powerful, Percussive	Corporate Pop, Activities/Adventure	Pop, Rock
<i>techno</i>	9. Crystal Clear ⁵	Chuck Kentis, Killer Tracks [BMI]	0.469	168	Refreshing and bright, this fast paced track bubbles along.	Busy, Driving, Energetic/Lively, Percussive	Communications, Animation, Current Affairs, Action/Adventure	Drum & Bass
	10. Invigorating ⁵	Chuck Kentis, Killer Tracks [BMI]	0.353	138	Peppy, bouncy, happy techno keeps our toes tapping.	Cheerful/Happy, Bouncy, Busy, Percussive, Quirky	Creative/Quirky, B-Movie, Art House & International Films	Electronica, Techno

Source albums at www.killertracks.com: ¹ Motivational – Volume 1, KT 48; ² Motivational – Volume 2, KT 63; ³ Motivational – Volume 3, KT 81; ⁴ Motivational – Volume 4, KT 104; ⁵ Motivational – Volume 5, KT 142.

to be carried by the music alone, without a previously set context with respect to the visuals used or the products advertised. Executive producer Ryan Perez-Daple from the production music company *Killer Tracks* (that our examples will be drawn from) explains the producers' role in finding the descriptions under which a composer's music is sold to the client:

The metadata is generally created by us as producers and the terminology has been chosen generally by using words common within the industry. I suppose these do evolve over time naturally and occasionally we get feedback from our bigger clients requesting we use specific phrases and words, but in the end the tagging and descriptions are left for us to come up with. — We do this to try and cover a variety of search terms that clients might use when searching.¹

Despite such informality of procedures involved, the apparent success of the production music concept suggests that the producers' "empirically tested heuristics concerning social facets of music" (Huron, 1989, p. 559) should be taken seriously when trying to identify contemporary instances of musical *topoi*. Hence we have chosen to work with production music labeled "motivational" by the producers, asking what distinctions of extrinsic meaning emerge within such a functionally limited area, and how these distinctions might lead to topical distinctions between pieces of production music. Interestingly, the label provides a semantic focus on providing inspiration or arousal that, as a typical objective for production music, may somewhat differ from the overarching goals of film music production. To assist the reader in following our broader concerns, we have annotated the following study with references to the four steps of our methodological procedure, as presented above.

Preliminary Study (Step 1)

The purpose of this preliminary study was to assist in identifying variables that would correspond to recurrent and distinctive characteristics of semantic associations elicited in Western listeners by production music. This first experiment would thus help to formulate a more systematic design for the main experiment (as suggested for research on musical meaning by Patel, 2008, p. 310).

¹ E-mails to Erkki Huovinen, February 7, 2014; April 10, 2014.

METHOD

Participants. The participants were 32 Finnish university students (19 female, 13 male), with a mean age of 24.0 ($SD = 4.0$). Most of them were not music majors, but they reported having, on average, 7.3 years ($SD = 6.0$) of experience in taking music lessons or playing a musical instrument. Twelve of the participants indicated the extent of such experience as 10 years or more, and 12 participants had a maximum of 3 years of experience, including 5 participants with no reported experience.

Stimuli. The stimuli were ten commercially available pieces of production music from the catalogue of the large production music company *Killer Tracks* that can be accessed on the Internet (www.killertracks.com; accessed April 2, 2012). In the catalogue, we chose a set of albums called *Motivational*, selecting ten one-minute musical excerpts that represented as broad a range of styles available on these albums as seemed possible. Table 1 lists the excerpts by name, giving the company's descriptions for each of them. Brief transcribed examples are given in music notation as Appendix A. The excerpts were chosen to satisfy a tentative classification in which two excerpts would always fit one of five different musical genres: *orchestral fanfare* (1, 2), *light classical* (3, 4), *MOR*² (4, 5), (medium fast) *rock* (6, 7), and (fast) *techno* (9, 10). These categories were induced relying both on the producers' descriptions as well as on observed commonalities in tempo, instrumentation, and overall musical texture.³

The genre labels should only be understood as providing suggestive interpretations for facilitating discussion: they will not directly affect our topical analysis. Even though some overall musical characteristics clearly carve the joints between suggested genres (e.g., high tempi mark the genre *techno*), there would also be many similarities between the suggested genres, such as the

² "Middle of the road," technically a term for a commercial radio format. "MOR" is used here as an abbreviation for "MOR music," which is often associated with accessible, melodic, popular easy-listening styles of commercially produced music.

³ To gain some perspective to our tentative genre labels, we asked an American professor of music education to arrange the excerpts in pairs according to genre and name the genres (only audio files were given in a random order with no additional information). She came up with the same pairings as in Table 1 and suggested the following labels: (1–2) pop classical overture/bad school music/J. W. Pepper [sheet music store for band music]; (3–4) film music; (5–6) country-ish; (7–8) soul/funk/disco; (9–10) electronica. We find these quite acceptable labels as well. The seeming discrepancy with our label for (7–8), "rock," is a reminder that we are dealing not with "genuine" rock or soul or disco music, but commercial pastiches that often involve combinations of features from several styles.

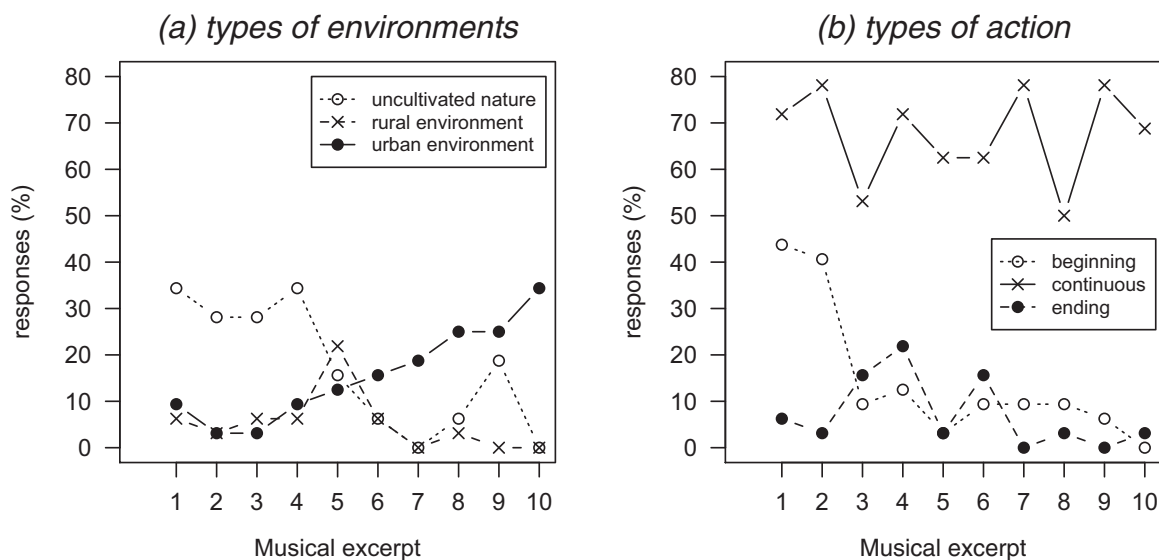


FIGURE 2. The appearance of semantic features related to various (a) types of environment and (b) types of action in the free responses of the preliminary study.

freer, “through-composed” feel of excerpts 1-4 as opposed to the more rhythmically regular accompaniments of excerpts 5-10. Moreover, excerpts 1-4 used instrumentations and textures of broadly “classical music” whereas excerpts 5-10 represented sounds of “popular music.” This division was reflected in overall timbral characteristics of the excerpts, as shown by an analysis of spectral brightness, carried out using MIR-toolbox (Lartillot & Toiviainen, 2007), that measured the ratio of the energy above a 500 Hz cutoff point to the total energy (see Juslin, 2000). The values, shown in Table 1, indicate brighter overall spectra for excerpts 1-4 than for excerpts 5-10. This was confirmed by the fact that correlation distances (one minus Pearson correlation) between the spectra of pieces 1-4 ($M = 0.22$, $SD = 0.07$) and pieces 5-10 ($M = 0.13$, $SD = 0.08$) were clearly lower than the distances across these two sets of pieces ($M = 0.70$, $SD = 0.21$).

Procedure. The experiment was conducted in a classroom setting, playing the excerpts back on a computer through a stereo system. In the experiment, participants described the visual associations triggered by the music they heard, responding to the following question: “This music could be used in television or cinema. What do you think could be happening on the screen while the music is heard?” (cf. Tagg & Clarida, 2003, p. 118.) The participants wrote down their responses within 90 seconds after hearing each excerpt. The excerpts were arranged such that no two consecutive samples represented the

same genre. The experiment was repeated on three occasions, with three similar-sized groups (13, 8, and 11 participants respectively), and the order of excerpts was reversed for the two latter groups.

RESULTS

The written responses were analyzed by extracting items of semantic content that were subsequently grouped into larger semantic categories. We began by extracting semantic features—word-length units of the kind that Tagg and Clarida (2003, p. 121 ff.) call visual-verbal associations (VVAs). Instead of following Tagg and Clarida’s theoretically based top-down classification process, however, we used a more bottom-up approach akin to the practices of coding and constant comparison in Grounded Theory (see, e.g., Charmaz, 2006; Holton, 2007). This involved finding semantic macrofeatures that would cover multiple saliently similar semantic features for individual musical excerpts, refining these categories on the basis of results from other musical excerpts, and finally analyzing the whole set of responses with a view to the appearance of these macrofeatures. A brief account of the clearest semantic categories found will suffice to motivate the formulation of the variables for the main study.

For all of the excerpts, the environments and locations mentioned turned out to be one of the most straightforwardly classifiable aspects of the semantic features. As seen in Figure 2a, the “classical music” excerpts 1-4 often elicited images of UNCULTIVATED NATURE, including any

natural sceneries of wild, undomesticated nature. Likewise, the *rock* (7, 8) and *techno* (9, 10) genres were often associated with an URBAN ENVIRONMENT. One of the MOR excerpts (5), exhibiting a laid-back countryish feel, was more often associated with an agrarian, RURAL ENVIRONMENT than with either of the above.

Similar complementary sets of categories were somewhat harder to tease out for other situational aspects of the imagery. As an example, we may look at the punctuality and continuity of action mentioned in the responses (see Fig. 2b). First, images of BEGINNING ACTION were called forth by the *orchestral fanfares* (1 and 2) in 43.8% and 40.6% of the responses, respectively, while the mean share of such responses for the other eight excerpts remained at 7.4% ($SD = 4.1\%$). However, responses exemplifying a contrasting category of ENDING ACTION remained low across the board ($M = 7.2\%$, $SD = 7.7\%$). Instead, at least half of the responses for all musical excerpts—including the *orchestral fanfares*—elicited images that were described in terms of some kind of CONTINUING ACTION ($M = 67.5\%$, $SD = 10.2\%$).

In analyzing the action imagery of the responses, we also paid attention to the number of agents imagined. INDIVIDUAL ACTION, here understood as the explicit mention of individual agents (e.g., “Miss Marple” [excerpt No. 3], “country girl” [5], “LSD bogeyman” [9], etc.), turns out to have been more characteristic of the *light classical* (3: 21.9%, 4: 31.3%) and MOR excerpts (5: 28.1%, 6: 31.2%) than of the rest of the pieces (for which $M = 12.0\%$, $SD = 5.4\%$). It is also noteworthy that a situational aspect such as the number of agents imagined might come to be typically conjoined with other situation and mood aspects. This is demonstrated by the country style MOR excerpt No. 5, “Down Home Dream” for which references to families or couples were often intermingled with images of fire or warmth:

- “a family gathered inside, a fire in the fireplace, candles are burning”
- “a warm family series . . .”
- “sunset, moonshine, [. . .] the slow dance of a couple, an evening at home”
- “outdoors, countryside, family, relatives, friends, warm feelings, tradition”
- “a family [. . .], warmly spending the evening by the fire”
- “a family or loved ones enjoying each others’ company, lying by the campfire”
- “family life, lakeside sauna, togetherness in the summer night”

- “two middle-aged people make love in the glow of the fireplace, the man is becoming bald”

DISCUSSION

The free associations collected in the preliminary study suggested that within “motivational” production music, listeners’ imagery may be guided not only with respect to overall mood (as implied by the producers’ descriptions in Table 1), but also in terms of environments, kinds of action, or the particularity of agents imagined. Still, results such as these give us neither convincing, extrinsically guided groupings of the pieces of music nor, for that matter, perspicuous mappings between semantic and musical features, should one want to go the analytic reductionist way. The problem is that while a free response includes one image or association, it cannot guarantee that the respondent would discard a whole number of other descriptions that might not simply come to mind or feel relevant or culturally interesting. Besides yielding perhaps unduly low response percentages for some semantic categories, the methodology leaves us the problem of interpreting totally “missing” attributions. For instance, in the preliminary study the frequent association of the *orchestral fanfare* excerpts with BEGINNING ACTION was not matched by recurring associations of ENDING ACTION in any single excerpt, and the common appearance of WARM in the MOR excerpt “Down Home Dream” was not matched by any notable imagery of COLD in the response material. The relative absence of such semantic aspects might reflect the nature of our sample of production music or perhaps of this type of music in general, but it might also be due to linguistic or cultural factors having to do with the ease of spontaneous attribution or the prototypicality of certain kinds of expressions in the kinds of discourse evoked by the music-related task. These are the kinds of problems that cannot be overcome in using merely free responses.

Main Study

In this main experiment, we wanted to approach the above problems by adding to the free responses ipsative, forced-choice questions, thus presenting explicit alternatives to some of the expected response strategies. Besides basic *mood variables*, generally suggested as relevant by the producers’ descriptions, the preliminary study encouraged us to include *situation variables* having to do with the nature of the environments imagined, the kinds of action imagined (especially in terms of beginning or continuity), as well as the extent to which

listeners' imagery would be focused on individual agents. By introducing sets of alternatives to probe each of these aspects of the listeners' imagery, we hoped to measure their consensus in more accurate terms, differentiating unsuitable characterizations from ones that are perhaps just too self-evident to be mentioned or untypical of idiomatic speech. The quantitative data generated would then be used to extract potential topical structures within the chosen field of "motivational" production music—after which a rule-based qualitative analysis of the listeners' free responses would help substantiate the quantitatively extracted structures.

In order to take into account potential influences of cultural learning on extrinsic imagery, we decided to run the same experiment with both adults and school children with fewer years of exposure to their audiovisual culture. So as not to impose TV or movie related interpretations on the listeners, direct references to audiovisual media were dropped from the instructions.

METHOD

Participants. Participant group 1 ("children") consisted of 58 Finnish third and fourth graders (corresponding to American fourth and fifth graders) in an urban, public comprehensive school with an extensive music program. The group included 46 girls and 16 boys, with a mean age of 9.9 years ($SD = 0.7$). Their self-reported experience in taking music lessons or playing a musical instrument was on average 2.3 years ($SD = 1.5$, only 2 with no reported experience), and their own evaluations of the level of engagement in music had a mean of 4.1 on a scale from 1 through 5 (1 = *very inactive*, 5 = *very active*). Seventy-two percent of the children reported listening to music daily (95% at least once a week) and 62% reported watching television daily (93% at least weekly), while for watching music videos the corresponding figures were 19% (53%), and for watching movies 3% (45%).

Participant group 2 ("adults") were 31 Finnish university students of musicology—15 females and 16 males, with a mean age of 25.4 ($SD = 5.6$). Their self-reported experience in taking music lessons or playing a musical instrument was 13.3 years on average ($SD = 6.9$, minimum = 2 years), and their self-judged activity of musical engagement had a mean of 4.2, on the scale 1–5. Eighty-seven percent of the adults reported listening to music daily (100% at least once a week), and the corresponding percentages for watching TV, music videos, and movies were 42% (81%), 3% (26%), and 6% (26%), respectively. In sum, both the children and the adults were generally active players and listeners of music, went to school or studied in a Northern European

city environment, and most of them were weekly involved with audiovisual media, primarily television.

Stimuli. The stimuli were the same ten one-minute excerpts of "motivational" production music as in the preliminary study.

Procedure. For presentation in the experiment, the musical excerpts were arranged such that no two consecutive excerpts would represent the same tentative genre category (cf. the leftmost column in Table 1), further requiring that each of these genres would be once represented among the first five as well as the last five trials. The adults were tested in two similar-sized groups ($n1 = 16$, $n2 = 15$), applying this presentation order for one of the groups and its retrograde for the other. With the children, there were similarly two groups hearing the stimuli in one of these two orders ($n1 = 24$, $n2 = 34$), but each group was split into two similar-sized subgroups for practical reasons. The presentation of the stimuli was done in a classroom setting, playing the excerpts back on a computer through a stereo system.

During the one-minute long pauses following each musical excerpt, the participants filled out responses to six questions. The procedure for each trial consisted of forced-choice responses concerning four mood variables (Question 1), written free associations (Question 2), forced-choice responses concerning four situation variables (Questions 3–5), as well as a familiarity question (Question 6):

1. "What is the mood of the music like?" This required forced-choice responses to a set of four bipolar adjective pairs, *warm* vs. *cold*, *bright* vs. *dark*, *relaxed* vs. *tense*, and *mobile* vs. *static*. To simplify discussion, the first terms in each of these pairs will be called "positive" terms.⁴
2. "What sort of event or situation do you think the music could most suitably describe?" The question required free written descriptions.
3. "How many characters are there in the event or situation that you described?" Five response alternatives: "0," "1," "2," "3–10," or "more than 10."
4. "Where is this happening?" Here, the participants first selected between "inside" or "outside," and next chose one among the following four alternatives: "in a big city," "in a small town," "in the countryside," "in the wilderness."

⁴To avoid suggesting a consistent valence ordering in the experiment, the third adjective pair was presented with the alternative *tense* on the left. All of the other pairs of adjectives were presented with the "positive" term on the left.

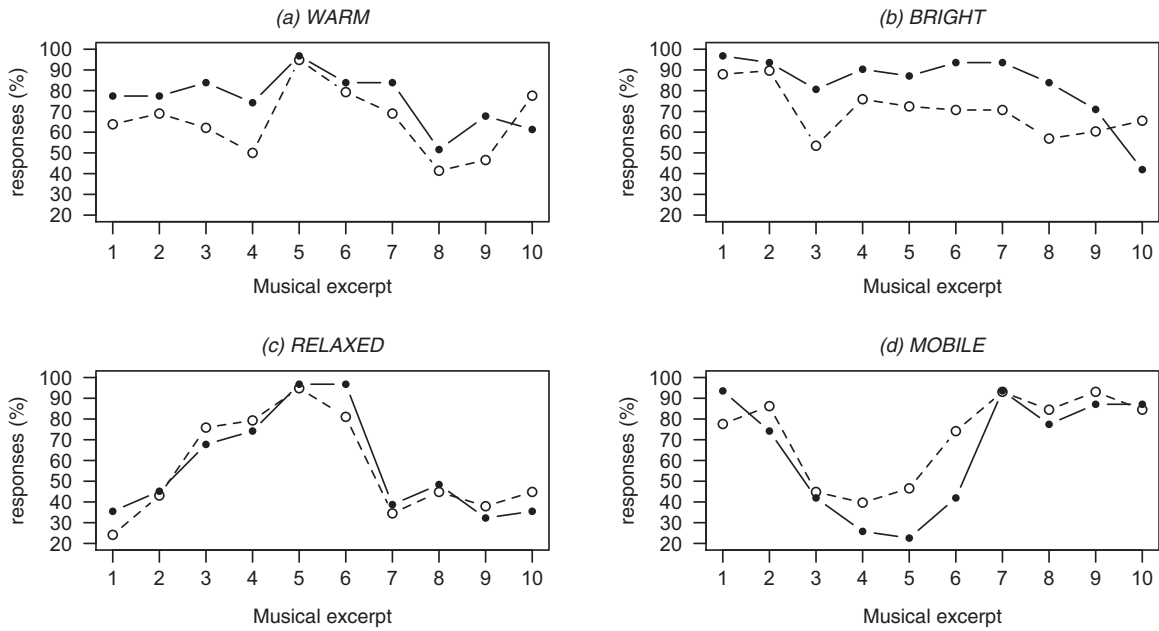


FIGURE 3. Children's (○- -) and adults' (●—) responses for the positive mood terms in the main study.

5. “Do you think that this music would best describe (a) beginning action, (b) continuing action, or (c) concluding action?” One of the three alternatives was chosen here.
6. “Did you recognize the piece of music?” Three response alternatives: “Yes I did, it was _____,” “I have heard it before, but did not recognize it,” and “I haven’t heard it before.”

RESULTS: MOOD AND SITUATION VARIABLES (STEP 2)

Recognition of the excerpts. Only four of the adults and two of the children reported recognizing one of the 10 excerpts they heard, but none of them could name the excerpts correctly. Still, 45% of the adults and 60% of the children reported that they had heard, but could not recognize, at least one of the excerpts (means: 1.57 and 2.83 excerpts). Since very few even attempted to name the pieces, it is reasonable to assume these respondents simply recognized the general character of the musical styles instead of being previously familiar with the excerpts themselves.

The mood of the music. In the forced-choice question with four pairs of mood terms, both of the participant groups tended in their judgments toward the positive term of each adjective pair. Taking the ten musical excerpts together, a series of two-sided binomial tests revealed that these positive terms were significantly

more frequent in both participant groups’ responses than their bipolar opposites (for RELAXED/adults, $p = .005$; every other $p < .001$). Hence the musical excerpts were more often judged to be WARM rather than COLD, BRIGHT rather than DARK, RELAXED rather than TENSE, and MOBILE rather than STATIC (see Figures 3a-3d). Nevertheless, we also found the musical excerpts to differ highly significantly from one another in their associated moods. According to a series of Friedman tests, this was the case for each of the four mood variables, separately in both participant groups; in all cases, $\chi^2(9) > 29$ and $p < .001$. Finally, there were some differences in the two participant groups’ response tendencies toward the positive terms. According to Mann-Whitney U tests, the adults’ WARMTH judgments (75.8% of all of their responses indicating “WARM”) and BRIGHTNESS judgments (83.2%) significantly exceeded those of children (65.3%; $U = 90517$, $p = .02$, and 70.3%; $U = 93804$, $p < .001$, respectively). In MOBILITY judgments, the children provided higher judgments (72.4%) than the adults (64.5%; $U = 74890$, $p = <.001$), whereas no significant difference was observed in judgments of RELAXEDNESS (children: 56.0%, adults: 57.1%).

The number of characters. Postponing a discussion of the results from the actual free association task to the next section, we can move on to the situation variables concerning the properties of the imagined scenarios. The first of them concerned the number of characters

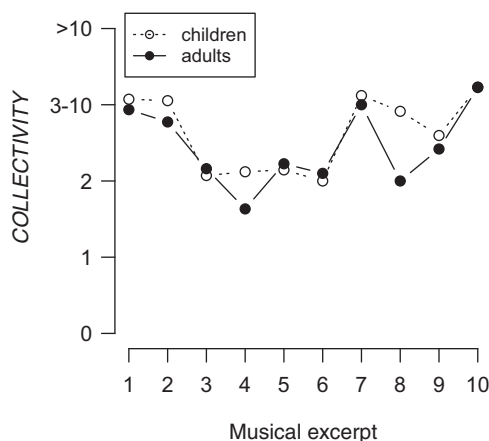


FIGURE 4. Numbers of imagined characters in the main study: Children's (○ - -) and adults' (● —) means on a COLLECTIVITY scale.

imagined. Among the response alternatives “0,” “1,” “2,” “3-10,” and “more than 10,” the first-mentioned received rather unimpressive percentages of all given responses in comparison to the others (children: 5.5%, 16.6%, 19.5%, 23.1%, and 33.1%, respectively; adults: 10.6%, 17.7%, 15.2%, 27.7%, and 28.1%, respectively). Hence it appears that most of the imagery was “personal” in the broad sense of involving agents or characters of some kind.

We approach the responses by treating them as if falling on a five-point COLLECTIVITY scale between 0 and 4. According to Friedman tests, these responses differed significantly between the 10 musical excerpts, both in the adult group's case, $\chi^2(9) = 41.72, p < .001$, as well as for the children, $\chi^2(9) = 88.56, p < .001$. As suggested by Figure 4, it was especially the *light classical* and *MOR* excerpts 3-6 that received relatively low COLLECTIVITY means, indicating imagery centered on individual agents or pairs of agents. In most cases, the adults' and children's responses for the individual musical excerpts did not differ significantly from one another (the sole exception being No. 8; children: $M = 2.91$; adults: $M = 2.00$; Mann-Whitney $U = 528.50, p < .001$).

Imagined location. The first question concerning imagined location was whether the scene took place indoors or outdoors. Generally, 64.1% of all responses indicated the outdoor alternative, but Friedman tests showed that the responses differed significantly between the 10 excerpts, both for the children, $\chi^2(9) = 24.36, p = .004$, and for the adults, $\chi^2(9) = 51.12, p < .001$. For both participant groups, two-sided binomial tests indicated a bias toward the outdoor response for several of the musical excerpts (children: Nos. 1, 2, 4, 5, and 6:

$p < .001$; adults: Nos. 1 and 2: $p < .001$; Nos. 4 and 8: $p = .003$), and an indoor bias for excerpt No. 10 (children: $p = .02$; adults: $p < .001$). According to Mann-Whitney U tests, the difference between the two participant groups' responses was significant only for excerpt No. 10 for which 63.8% of the children but no less than 87.1% of the adults responded with the indoors alternative ($U = 685.50, p = .03$).

The second question about imaginary location asked the participants to indicate whether the scene could have taken place in a big city, a small town, in the countryside, or in the wilderness. We will here treat the responses as falling on a four-point URBANITY scale according to increasing degree of urbanity (1 = *wilderness*, 2 = *countryside*, 3 = *small town*, 4 = *big city*). Given this, Friedman tests indicated highly significant differences between the responses of the 10 musical excerpts for the children, $\chi^2(9) = 48.49, p < .001$, as well as for the adults, $\chi^2(9) = 81.23, p < .001$. According to Mann-Whitney U tests, the mean URBANITY judgments of the two participant groups differed significantly in excerpt No. 2 for which children's responses were higher ($U = 997.50, p < .01$) as well as in excerpts No. 6, 7, and 10, for which the adults' responses tended more significantly toward the “urban” end of the scale ($U = 510.50, p = .04$; $U = 476.50, p < .01$; $U = 541.00, p = .02$, respectively).

Type of action. The fifth question asked whether the heard music best represented “beginning action,” “continuing action,” or “ending action.” The percentages of responses in favor of these three alternatives are shown in Figure 5. On the null hypothesis that in each musical excerpt, each response category would receive an equal percentage (33.3%) of the responses, a series of chi-square goodness of fit tests indicated that the children's response distributions significantly deviated from such a neutral outcome for six of the excerpts (Nos. 1, 2, 7-10; all $p < .001$), while adults' response distributions deviated from a flat distribution in eight of them (Nos. 1, 7-10: $p < .001$; Nos. 5, 6: $p < .01$; No. 3: $p < .05$). A direct comparison of the adults' response distributions to those of the children, using the same test, showed marked changes between the participant groups for seven of the excerpts (Nos. 3, 6, 9: $p < .001$; No. 1: $p < .01$; Nos. 4, 5, 10: $p < .05$). While age thus seemed to bring a shift toward CONTINUING ACTION for the *light classical*, *MOR*, and *techno* excerpts, a comparison with the results of the preliminary study still suggests that the overwhelming prevalence of CONTINUING ACTION that we found there (see Figure 2a) may have been an effect of linguistic interpretation of the free responses. Given

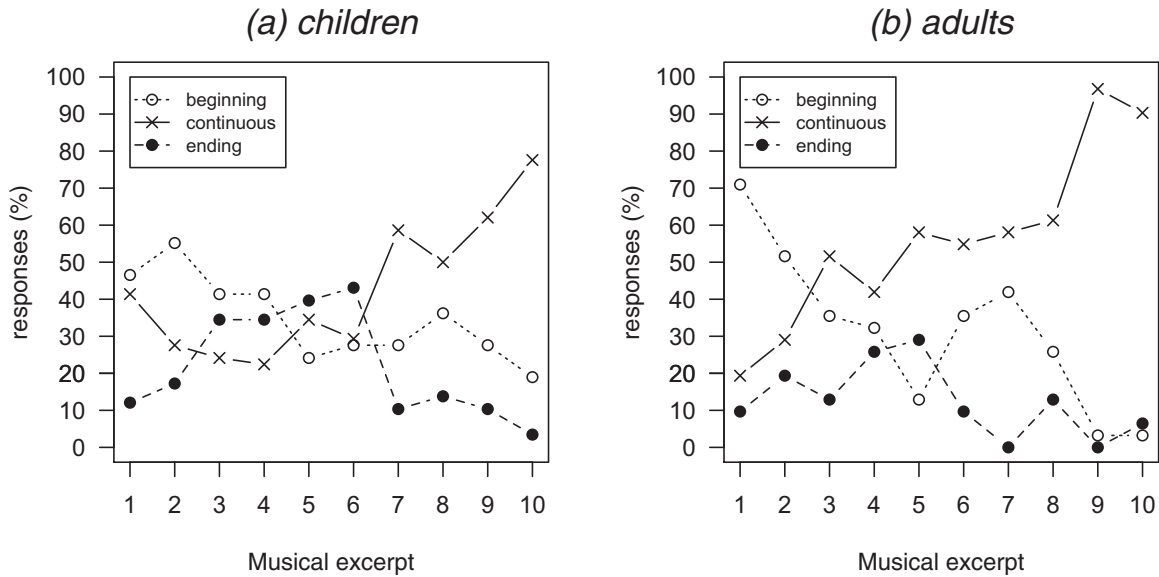


FIGURE 5. Percentages of responses associated with the beginning, continuing, and ending of action in the main study.

the explicit response alternatives of the main study, CONTINUING ACTION did remain as the response mode for many of the excerpts, but BEGINNING ACTION would be more favored for pieces 1–2. ENDING ACTION, in turn, did not emerge as the response mode in any of the cases where a given participant group’s response distribution would significantly differ from a flat distribution.

Extraction of mood/situation clusters. Given the definition (MT), the problem of musical topoi can be seen as a problem of clustering the musical entities according to the extramusical associations they evoke. Accordingly, we addressed the question of musical topoi in our sample of production music by subjecting the quantitative results to hierarchical clustering. Besides the four dichotomous mood variables, indicating the presence of WARMTH, BRIGHTNESS, RELAXEDNESS, and MOBILITY, we included four situation variables. Besides the five-point COLLECTIVITY and four-point URBANITY variables, we involved two dichotomous situation variables: EXTERIORITY, indicating the “outside” choices of the Inside/Outside question, and CONTINUITY, in which both “beginning action” and “ending action” would correspond to the absence of continuity. For both groups of participants, the eight quantitative variables discussed in the previous section were standardized and used in subjecting the musical excerpts to hierarchical clustering according to Ward’s (1963) minimum variance method (using the statistical program R). The resulting dendrograms indicate the hierarchical

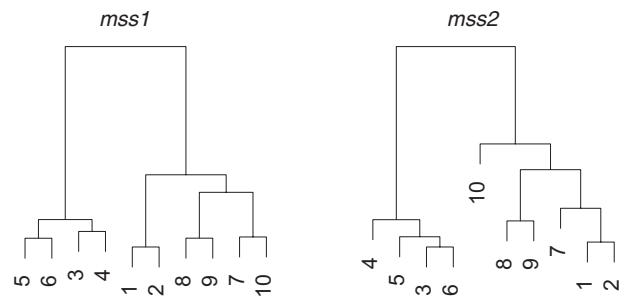


FIGURE 6. Ward hierarchical clustering of the production music excerpts, based on eight standardized semantic variables from the quantitative results of the main study: (a) Mood/situation structure 1 (children); (b) Mood/situation structure 2 (adults).

division of the ten musical excerpts into what we call *mood/situation structures 1* and *2* (*mss1* and *mss2*, for short) (see Figure 6).

In both of the mood/situation structures, the highest branching of the tree points to musical excerpts {3-6} as forming a distinct cluster. Referring back to the above results, this *light classical/MOR* branch would roughly correspond to judgments of a relaxed and static mood, imagined features such as a small number of characters and a rural environment and, for *mss1*, a relatively increased bias toward ending action. The two clustering solutions nevertheless differ in the right-hand-side branches. On the one hand, in *mss1*, extracted from the children’s results, the hierarchically highest split on the right main branch separates excerpts {1-2} from

{7-10}. This corresponds to the genre distinction between *orchestral fanfares*, on the one hand, and *rock* and *techno*, on the other, roughly reflecting children's distinction between "beginning action" and "continuing action." On the other hand, *mss2*, based on the adults' results, shows the single *techno* excerpt {10} separated from a larger cluster covering both *orchestral fanfares* as well as *rock* and *techno*. On this level of analysis, the children's responses thus produce the clustering {{3-6}, {{1-2}, {7-10}}}, while the adults' responses yield the structure {{3-6}, {{1-2, 7-9}, {10}}}.

RESULTS: FREE RESPONSES

Semantic fields (Step 3). It is possible that some aspects of the mood/situation structures may not reflect the listeners' spontaneous topical understanding of the music, but rather represent effects of the preconceived forced-choice questions. It is also not self-evident that the clusters derived from a set of independent questions would represent such "coherent" meanings as required by our definition (MT). To evaluate the status of the clusters as semantically distinct and individually coherent topoi, we took the categorical structures arrived at above as the starting point for a qualitative analysis of the free written responses given in the main study. The purpose of the analysis was to find codes—here called *semantic fields*—emerging from the free response data such that would furnish each of the found clusters with more refined semantic content, supporting the notion that we are dealing with true topical distinctions. This qualitative analysis was conducted by one of the authors (AK) by following the three successive rules below, separately for both participant groups' responses:

- (a) Identify the most saliently shared *semantic features* in the free associations of each individual musical excerpt.
- (b) Group the semantic features identified within each cluster of musical excerpts into a limited number of larger *semantic fields* that are:
 - (i) *disjoint* (not overlapping) with respect to their constituent semantic features;
 - (ii) *intuitively coherent*;
 - (iii) *relevant* for at least one musical excerpt (receiving a minimum of 30% of the responses of either participant group);
 - (iv) *unique* to each cluster;
 - (v) *jointly exhaustive* with respect to the responses given within a cluster.
- (c) Judge the presence (yes/no) of the identified semantic fields in each individual free response given in the experiment.

To keep our discussion of this method simple, we will in the following use the term "semantic features" both for the simplest VVA-level units (e.g., SNOW from the response term "snowboarding") as well as for the most basic semantic macrofeatures derived from them (e.g., WINTER). After an initial coding of such semantic features, combinations of them were developed into more refined codes—semantic fields—by a process of constant comparison (see, e.g., Charmaz, 2006) between the codes and the data. The goal of the central interpretational rule (b) was, in sum, to construct sets of intuitively acceptable semantic fields that would together cover a large share of responses within a given cluster. Besides managing the obvious tradeoff between the intuitive coherence and the quantitative relevance of the semantic fields (for which the limit of 30% was settled by trial and error), the process would involve frequent restructuring of a number of nearby semantic fields in order to achieve more exhaustive coverage of the responses (cf. Kelle & Kluge, 2010)—all the time observing their disjointness (with respect to their constituent semantic features) and their uniqueness to the clusters to which they are assigned. Notice that at this stage, criteria (iv) and (v) are regulated with reference to the prior empirical clustering result, effectively excluding such intuitively coherent semantic fields that are not supported by the earlier quantitative results. Finally, rule (c) would allow a quantitative overview of the strength of the identified semantic fields within each cluster.

We may illustrate the analytical procedure by an example from excerpt No. 1, representing the *orchestral fanfare* genre. Here, children's responses such as "The King's parade arrives," "This music best depicts a parade/march," and "A procession moving in a city" were first grouped as indicating a semantic feature labeled as PARADE. Such semantic features roughly correspond in their level of specificity to Tagg and Clarida's (2003) VVAs, and would typically be represented in just a handful of free associations. With a slightly higher level of abstraction, however, it was seen that besides associations of parades and processions, excerpt No. 1 also had participants imagine other kinds of festive occasions (e.g., the children's "The music represented a big ballroom dance," "Perhaps a happy day such as a birthday," or "A great event in which people celebrate"). Grouping the parade responses together with these into a larger semantic field *FESTIVITIES* would seem to make intuitive sense, and given that the analyst found appropriate features in over 30% of children's responses in one of the excerpts in the cluster (No. 2, with 22 out of 58 responses: 38.0%), *FESTIVITIES* was accepted as a semantic field to the analysis.

Note that the disjointness criterion b(i) would only require that no semantic feature be placed in more than one semantic field; the individual responses themselves might still be connected to several semantic fields based on their fittingness in all of them via different semantic features. For instance, the response “The King’s parade arrives” was seen to exemplify not only the semantic field *FESTIVITIES* (via *PARADE*); by way of the semantic (macro)feature *REGAL*, it would also exemplify *ACHIEVEMENT*, *HEROIC*, *REGAL*—a semantic field perhaps suggesting overall congeniality with adventure movies, and covering responses such as “Victory in a great battle,” “The final scene in a boring Hollywood movie in which the hero returns and finds a woman,” or “The beginning of a medieval war campaign” (all in excerpt No. 2, adults). At the same time, the uniqueness criterion b(iv) would dictate that the semantic field *FESTIVITIES*, assigned to cluster {1-2}, be kept separate from other celebratory images that were found to characterize excerpts such as No. 10. In the latter excerpt, participants’ responses would often mention “parties” at “nightclubs” and “discos,” and these kinds of associations were consequently separated from the kinds of daytime formal *FESTIVITIES* that were common for excerpts 1 and 2, combining them instead with other associations of nightlife and metropolitan images into a separate semantic field *URBAN*, *NIGHTLIFE*, *BUSY*.

The two analyses, respectively guided by *mss1* and *mss2*, yielded a total of eight distinct semantic fields, which are listed in Appendix B together with examples of pertinent free descriptions. While the definition of the semantic fields and the judgments concerning their appropriateness for a given free response is, of course, a matter of interpretation, the reliability of the analyst’s choices was assessed by taking the chosen semantic fields as a basis for an independent analysis of the original free responses by the other author (EH). The inter-rater agreements for step (c) were thus found to lie between 88.1%–96.1%, with the Cohen’s kappa ranging between 0.61–0.86, which is “substantial” to “almost perfect” (Landis & Koch, 1977).⁵

Topical analysis of the clusters (Step 4). Supposing, then, that we can somewhat reliably judge the relevance of each semantic field to a given free response, we should

⁵The inter-rater agreements and Cohen’s kappa’s for the semantic features were as follows: *INTIMATE SOCIAL RELATIONS*, *SOLITUDE* (94.4%, $\kappa = 0.76$), *NATURE AND SEASONS* (94.6%, $\kappa = 0.86$), *SENTIMENTAL*, *DREAMY*, *FEELINGS* (91.6%, $\kappa = 0.69$), *ACHIEVEMENT*, *HEROIC*, *REGAL* (95.1%, $\kappa = 0.75$), *FESTIVITIES* (96.1%, $\kappa = 0.78$), *POTENTIAL FOR ACTION* (94.2%, $\kappa = 0.70$), *DANCE*, *SPORTS* (88.1%, $\kappa = 0.61$), and *URBAN*, *NIGHTLIFE*, *BUSY* (94.9%, $\kappa = 0.84$).

also be able to assess the relevance of the semantic fields to the individual musical excerpts that elicited these responses and, consequently, to the clusters of the excerpts that were constructed above. This is done in Table 2, which shows the strength of each semantic field within the various clusters as a mean of the two evaluators’ percentages. For each semantic field, the table shows the percentage of “hits” in the free responses of a given cluster of pieces—in the center columns according to *mss1*, and on the right additionally showing the percentages for the different right-hand branch of *mss2*. Notice that while each mood/situation structure was derived from the quantitative results of one participant group, we have evaluated both structures from the perspective of both the children’s and the adults’ associative responses: the percentages for the two participant groups are shown on two separate rows. Remember also that in the qualitative analysis of Step 3, each semantic field was assigned to a given cluster by design—these couplings between semantic fields and clusters are marked in Table 2 with gray areas. Hence we read on the first row, for instance, that for the children’s free responses, the semantic field *INTIMATE SOCIAL RELATIONS*, *SOLITUDE* was judged to characterize 23.1% of the responses in its appropriate cluster (encompassing excerpts 3–6), while it was found less relevant for the other excerpts (regardless of whether their structure is spelled out as in *mss1* or as in *mss2*).

Assigning semantic fields to clusters does not yet guarantee that the former actually effectively differentiate between the latter. In principle, some of the fields might turn out to be appropriate descriptors of other clusters, as well. As the final step of our research procedure, we therefore evaluate the distinctiveness of the semantic profiles emerging for the clusters by testing, for each of their assigned semantic fields, the difference in their relative frequencies of occurrence between the cluster in question and the rest of the musical excerpts. In other words, we want to see whether our set of semantic fields, as an interpretation of listeners’ free associative responses, would support the notion that the distinct groups of musical excerpts implied by our mood/situation structures are “coherently furnished with meaning” as the definition (MT) requires of musical topoi.

For the left-hand branches of the mood/situation structures, corresponding to musical excerpts {3–6}, Step 3 of our analysis yielded three different semantic fields: (a) *INTIMATE SOCIAL RELATIONS AND SOLITUDE*, (b) *NATURE AND SEASONS*, and (c) *SENTIMENTAL*, *DREAMY*, *FEELINGS*. As indicated by the exhaustiveness results on the bottom rows of the table, one or more of these

TABLE 2. Topical Interpretation of “Motivational” Production Music: Judged Fittingness of the Semantic Fields (a)–(h) to the Clusters of Musical Excerpts 1–10 as Clustered in Figure 6, Given as Mean Percentages of Two Evaluators’ Judgments. (Shaded areas: semantic fields assigned to the given cluster.)

Semantic fields	Participant Group	mss1										mss2, right branch					
		light classical		MOR		orchestral fanfare		rock		techno		orchestral fanfare		rock		techno	
		#3	#4	#5	#6	#1	#2	#7	#8	#9	#10	#1	#2	#7	#8	#9	#10
(a) INTIMATE SOCIAL RELATIONS, SOLITUDE	children		23.1			2.2			3.9					3.6			1.7
	adults		37.5			1.6			6.0					4.5			4.8
(b) NATURE AND SEASONS	children		44.6			21.1			14.0					17.6			10.3
	adults		37.5			15.3			14.9					17.4			3.2
(c) SENTIMENTAL, DREAMY, FEELINGS	children		29.0			9.5			5.8					8.3			0.9
	adults		30.4			4.8			5.2					5.5			3.2
(d) ACHIEVEMENT, HEROIC, REGAL	children		4.3			26.7			7.1					15.2			6.0
	adults		5.2			38.7			8.1					21.3			3.2
(e) FESTIVITIES	children		4.1			32.3			7.1					17.4			6.0
	adults		4.8			25.8			3.2					12.3			3.2
(f) POTENTIAL FOR ACTION	children		5.6			19.8			5.0					11.4			2.6
	adults		9.7			41.9			9.3					23.5			3.2
(g) DANCE, SPORTS	children		14.2			10.3			32.3					20.7			46.6
	adults		5.2			8.1			29.0					19.7			33.9
(h) URBAN, NIGHTLIFE, BUSY	children		1.1			5.6			38.1					21.2			57.8
	adults		4.0			11.3			52.8					33.2			67.7
Exhaustiveness of the semantic fields assigned to the cluster	children		76.1			58.2			56.0					54.1			57.8
	adults		71.0			77.4			69.8					60.0			67.7

three semantic fields characterized 76.1% of children’s and 71.0% of adults’ free responses within the cluster {3-6}. Now, is this a “significant majority” as required by (MT)? Yes: while there were differences in the relative strength of these semantic fields in the children’s and adults’ results, each of the three semantic fields did find significantly higher frequencies of occurrence in the musical excerpts {3-6} than it did in the rest of the excerpts. According to Mann-Whitney *U* tests, this was true for both participant groups (all *ps* < .01). In our view, this secures the theoretical connection between the semantic fields (a)-(c) and the cluster {3-6}, supporting the notion that these musical excerpts represent an extrinsically coherent musical topos. We will here call the topos *INTIMACY*, emphasizing that this is only a convenient label for the semantic content of the topos that is approximated by the semantic fields (a)-(c).

The second main branch in both mood/situation structures was marked by more dynamic, activity-related associations, suggesting an overall topical label such as *DYNAMISM*. Considering the structure laid out in mss1, our semantic analysis first of all found the cluster of musical excerpts {1-2} to be characterized by semantic fields named as (d) *ACHIEVEMENT, HEROIC,*

REGAL, (e) *FESTIVITIES*, and (f) *POTENTIAL FOR ACTION*. The exhaustiveness values on the bottom rows indicate that a majority of the responses satisfied at least one of these three semantic fields, and for both participant groups, Mann-Whitney *U* tests show each of these semantic fields to have significantly higher frequencies of occurrence within the cluster {1-2} than in the other excerpts (all *ps* < .05). We will here label this sub-topos *POTENCY*. The excerpts {7-10}, in turn, were found to be characterized by semantic fields (g) *DANCE, SPORTS*, and (h) *URBAN, NIGHTLIFE, BUSY*. Again, clear majorities of both groups’ responses satisfied one or both of these semantic fields, and again, there were higher frequencies of occurrence for these semantic fields in excerpts {7-10} than in the rest of the excerpts, for both participant groups (Mann-Whitney *U*, all *ps* < .01). This sub-topos will be called *SPEED*.

We have thus seen that mss1—the clustering solution based on the children’s quantitative data—was supported by *both* participant groups’ free associative responses. What about mss2, then—the structure derived from the adults’ responses? The question is whether its distinction between clusters {10} and {1-2, 7-9} would also qualify as a stable topical dissection of the suggested *DYNAMISM* topos. Instead of

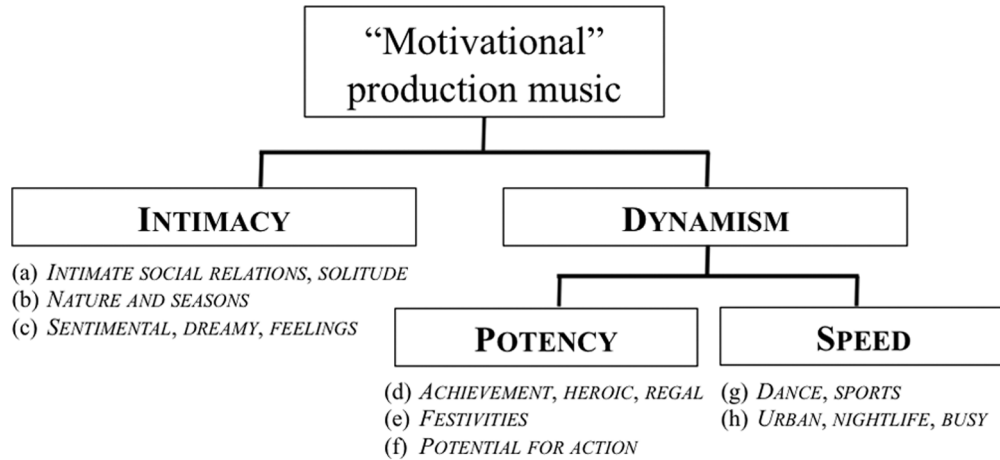


FIGURE 7. Topical structure of “motivational” production music.

wholly new semantic fields emerging from these clusters, our qualitative analysis suggested that the single-excerpt cluster {10} might just be more sharply characterized by the single semantic field *URBAN, NIGHTLIFE, BUSY* (see Table 2). This would, indeed, be in line with the adults’ judgment of excerpt No. 10 as “darker” than the others (Figure 3b). Nevertheless, our analysis failed to support mss2. While for the adult group the semantic field *ACHIEVEMENT, HEROIC, REGAL* did stand out as somewhat more frequent in excerpts {1-2, 7-9} than in the rest of the excerpts (Mann-Whitney U , $p < .05$), this was not so for any of the other semantic fields. In particular, the semantic feature *URBAN, NIGHTLIFE, BUSY* did not distinguish the single-excerpt cluster {10} significantly from the rest of the excerpts. (Applying mss2 for the children’s qualitative results yields a similar outcome: apart from *FESTIVITIES* appearing more frequently in {1-2, 7-9} than in the other excerpts (Mann-Whitney U , $p < .05$), none of the other semantic features supported the right-hand branch of mss2.) It appears that adults’ qualitative and quantitative responses were less in line with one another than those of the children.

DISCUSSION

In our main study, we collected both qualitative data in the form of free associative responses as well as quantitative forced-choice data concerning selected mood and situation variables. By hierarchical clustering, the quantitative results were then used to bring out structures of associationally cohesive clusters of musical excerpts in our sample of production music. Finally, an analysis of the qualitative data allowed us to examine whether the mood/situation structures arrived at could be coherently

supported by the free responses and, on this account, understood to have a topical status. For the two mood/situation structures mss1 and mss2, respectively derived from the children’s and the adults’ mood and situation responses, the results were different. It was found that mss1 (Figure 6a) was supported by the analyses of free responses in *both* participant groups, while mss2 (Figure 6b) did not receive similar support in *either*. The analysis therefore suggests that both of the participant groups, in their associative imagery, realized the topical structure $\{\{\text{INTIMACY}\}, \{\{\text{POTENCY}\}, \{\text{SPEED}\}\}\}$, the content of which would be approximated by the structure of semantic fields $\{(a-c), \{(d-f), (g-h)\}\}$. For “motivational” production music, our study hence suggests the topical structure shown in Figure 7.

The fact that mss2 was not supported by an analysis of the adults’ free responses could, in principle, reflect a failure on our part to find an appropriate interpretation for the latter. There is no guarantee that no set of semantic fields could be used to organize the adults’ free responses so as to conform to the structure based on the forced-choice responses. However, considering that the adults’ free responses in fact supported the “children’s clustering” mss1—even better than the children’s own responses did—it seems appropriate to suggest that the adults’ diverging quantitative results could be a matter of heightened sensitivity to particular musical and/or semantic features. Hence, while both groups’ free responses can be accounted for by the topical structure of Figure 7, the adults’ ipsative responses would additionally reflect their culturally developed semantic understanding of specific, stereotypical musical textures (cf. Hofmann, 2011, p. 181). Superimposed on a broader, culturally shared topical map, such particularized

understandings might have arisen from young adults' changing interests and living environments, as attested by their overwhelming association of *techno* excerpt No. 10 with INTERIOR venues and DARKNESS. According to this line of thought, enculturation processes could be expected to diversify listeners' extrinsic understandings, endowing them with increasing sensitivity toward such semantic features that are not all encodable in one hierarchical typology. Such increasing specificity of extrinsic response might also be suggested by the fact that between our two clustering solutions, the one derived from the adults' responses was farther away from our simple, tentative genre classifications.

One of the implications of our results is that similar semantic associations may, even within a single musical culture, be mapped onto several musical genres. Our clustering solutions grouped the *light classical* excerpts closely together with the *MOR* excerpts, and the qualitative analysis supported this grouping. The differences between the two musics are evident not only in different instrumentations—*light classical* using piano melodies over strings and french horn, *MOR* using popular band instruments—and the resulting timbral differences (see Table 1), but also in the distinction between a through-composed, “classical” structure and a laid-back “popular-tune-with-accompaniment” approach (see Appendix A). In our results, these genres nonetheless shared the same semantic fields, collectively abbreviated with the label INTIMACY. One might retort that such topical combinations of several musical genres could follow from the tendency to seek fewer clusters than the number of musical genres initially considered, but this would be to overlook the fact that our quantitative results (concerning, e.g., the imagined location or type of action) also suggest quite similar listener responses across the whole INTIMACY topos. While different musical genres are obviously capable of eliciting different extramusical associations (cf. Shevy, 2008), our study also suggests that fences between distinct semantic territories may *not* always be erected at musical genre boundaries. Musical topoi in the sense of (MT) do not necessarily have to be simply genres-cum-meaning.

In viewing the topical structure of Figure 7, one may ask whether it simply reproduces the three dimensions of meaning—Evaluation, Potency, and Activity—suggested by Osgood's research using the semantic differential technique (Osgood 1976; Osgood, May, & Miron, 1975; Osgood, Suci, & Tannenbaum, 1957). In particular, the labels for the right-hand side of the tree bear a clear similarity to Osgood's results, in which certain judgmental contexts (Osgood et al., 1957, p. 74) and certain subject populations (indeed Finns: Osgood

et al. 1975, p. 123) evoked a fusion of the Potency and Activity factors into a Dynamism factor.

Despite such apparent similarity of the labels used, there is nonetheless a clear conceptual difference between our model and the musical applications of the semantic differential approach (see, e.g., Eitan & Timmers, 2010; HaCohen & Wagner, 1997; Kendall, 2005; Nielzén & Cesarec, 1981; Tassarolo, 1981). First, topoi are not dimensions of meaning attribution. Unlike the factors emerging from the semantic differential approach, they are not based on coalescing pairs of oppositional concepts into scales that would become the basis for a semantic dimension. To the extent that adjectival judgments of MOBILITY, for instance, contributed to erecting the topical boundary between INTIMACY and DYNAMISM at step 2 of our procedure, it was by generally mapping STATIC to the former and MOBILE to the latter topical category (cf. Figure 3d), and not as in Osgood's scheme, where each *pair* of similar qualifiers (e.g., *fast-slow*, *active-passive*) would jointly contribute to *one* dimension of meaningful judgments. Likewise, the rule-based qualitative analysis at Step 3 of our procedure involved characterizing each previously formed cluster not with a set of semantic dimensions, but with a definite semantic profile—not determining only the variables, but fixing their values, too, so to speak. Second, our topoi also cannot be completely defined by values of ordinal variables: they would be hard to describe as points in a multidimensional space of ordinally conceived judgmental dimensions. This is because their content was not furnished solely by adjectival qualifiers, but by sets of semantic fields many of which are governed by nominal features (“nature,” “festivities,” “nightlife,” etc.). In sum, musical topoi are here understood neither as dimensions of meaningful judgments, nor as vectors of values along such dimensions, but rather as sets of entities potentially subjected to meaningful judgments (cf. the definition [MT] above). It is therefore understandable that Osgood's most important meaning factor, Evaluation—with typically high loadings for adjectival scales such as *good-bad*, *beautiful-ugly*, or *nice-awful*—should be absent from our model as such.

What does our research approach reveal, then, about the object of the case study—“motivational” production music? On one level, something can of course be learned from the individual mood and situation variables. For example, in the mood questions, the participants generally preferred responding with “positive” terms WARM, BRIGHT, RELAXED and MOBILE rather than with their “negative” opposites (cf. HaCohen & Wagner, 1997). Although this could reflect a more general tendency toward positive evaluations (Boucher & Osgood,

1969), we may note that the first three of these terms (but none of their opposites) also occurred in the producers' original descriptions of the excerpts (see Table 1). It thus appears that the producers demonstrate considerable success in evoking positive mood imagery. Beyond this general notion, the question concerning the predictive value of producers' editorial annotations is beyond the scope of our endeavor (see Saari, Barthes, Fazekas, Eerola, & Sandler, 2013).

More interestingly for our present concerns, the topoi emerging from our analysis suggest that the producers have also been able to tap more complex, but coherent areas of extrinsic meaning—areas that we have sought to abbreviate with the labels **INTIMACY**, **POTENCY**, and **SPEED**. The complexity of these semantic territories is shown by their being constituted out of various semantic fields, none of which by itself exhausts or even properly circumscribes the whole topos. In fact, only one of our semantic fields—*URBAN*, *NIGHTLIFE*, *BUSY*—managed to cover, by itself, as much as half of the responses in an individual cluster. In most cases, detecting “trends of shared extramusical associations in a significant majority of a given listener population” required the interplay of several semantic fields. Hence, the topical level of extrinsic meaning would correspond to a higher level of abstraction, on which the producers of this music are able to invoke fields of imagery concerning (1) delicate intimacy, emotional subjectivity, and nature, (2) efficacy, power, festivities, and future potential, or (3) speed, urbanity, darkness, and sportiness. One may suspect, indeed, that such a range of imagery well covers what could be sought by “motivational” music. At the same time, the range of “motivational” production music excludes learned associations, religious images, desperate sadness, unresolved excitement, eroticism, and many other semantic fields for which other parts of our musical cultures provide musical carriers. Almost certainly, different topical typologies would emerge from the extrinsic imagery evoked by modern concert music in Spanish concert-goers, by different ragas in Indian listeners, and so on.

It seems, then, that production music is capable of functioning as an independent and active agent of detailed meaning formation—even without carefully selected visual or linguistic complements. This has interesting implications for the audiovisual use of production music. It seems obvious that the commercial users of this music most typically aim at attracting attention to the intended messages of their audiovisual productions rather than to these productions themselves as creative outcomes. This goal, in turn, requires avoiding multimedial ironies and other conflicts arising

from incongruities between the music and other medial elements. Consequently, production music is likely to be used to reinforce visual and linguistic messages and thus, in effect, to duplicate information presented in other media—shifting the emphasis from “multimedia” to what could be called “lateral media.” Because of this, the semantic contents identified for production music may actually give a rather accurate picture of the visual and linguistic images and messages that would come to be conjoined with this music in its actual contexts of use.

GENERAL DISCUSSION

In the introduction, we proposed that the attribution of extrinsic meaning to music be approached not in analytical reductionist terms—as mappings achieved between musical and extramusical features, but rather in terms of how pieces of music are categorized within a musical culture on the basis of extrinsic meaning attributions. We chose to speak of such categorizations as topoi, hence defining a musical topos as a set of musical entities (such as pieces of music) that is delimited and coherently furnished with meaning by consistent trends of shared extramusical associations in a significant majority of a given listener population. For studying topical formations within a given musical domain, we suggested a typologization procedure in which (i) quantitative variables describing listeners' extrinsic associations are found and (ii) used to extract a category structure for the pieces of music in question—one that, in turn, (iii) guides another round of analysis of listeners' associations in terms of broader semantic fields, which (iv) can be used to discriminate between the categories in terms of their semantic content. Observing that commercial production music provides a good example of music in which the evocation of extrinsic meanings is appreciated and even purposefully engineered, we chose to demonstrate the procedure using a set of production music excerpts. Having carried out the exercise, we may now better evaluate the theoretical position that it was based on.

First, the perceptive reader may have suspected a discrepancy between our provisional definition of topos (MT) and the end results of our case study: in effect, we defined topoi to be sets of pieces of music or parts thereof, but we have ended up with collections of semantic fields. This is exactly as it should be, and resonates with the traditional understanding of topoi as signs, encompassing both a musical “signifier” and an associated “signified” (e.g., Agawu, 1991, p. 49). Notice that (MT) is an extensional definition in the sense that it identifies a topos with a class of objects, or “signifiers”—namely, with sets of pieces of music that consistently elicit similar extrinsic meanings in a given listener

population. The reason for starting out with such an extensional definition was that our empirical methodology required operationalizing topoi as clusters of concrete, particular pieces of music. In reality, a set of pieces of music as referred to in (MT) would naturally have to remain open-ended. Assuming, for instance, that our INTIMACY topos has some psychological reality for a given person, one should not expect this person to be acquainted with all of the pieces potentially falling within this topos—any more than understanding the everyday concept *chair* requires acquaintance with all of the entities falling within its extension. Instead, any intuitive understanding of a topos such as INTIMACY might be demonstrated in exactly those kinds of actions that our participants carried out: in being able to specify some associative meanings that fall within a broad, interconnected, multidimensional semantic territory. That territory is what we have sought to elucidate by groups of semantic fields. To adopt a trusted Fregean distinction: while the *extension* of a musical topos consists of a set of musical works, passages, or the like, the *intension* of the topos—its “meaning” to a given musical listener, or “signified”—would better be approximated by what we have called semantic fields. It is only from this intensional perspective that musical topoi indeed are, as Ratner (1980, p. 9) described them, “subjects for musical discourse.”

Second, the reader may wonder if we could at this stage proceed to see what musical features lie behind the suggested topoi of our production music sample. While that would certainly be possible to some degree, it would be to misunderstand our endeavor—and most likely, to oversimplify the actual phenomenon. As Cook (2001, p. 183) suggests, different attributions of meaning to music may well be grounded on “different selection[s] of attributes from the musical trace.” Consider, then, that the musical attributes anchoring the listeners’ associations might potentially include anything from simple overall parameters (tempo, timbre, etc.) or changes in them (registral sweeps, ritardandi, etc.) through culturally entrenched individual features (a rising fourth to the tonic on the downbeat, a major seventh chord, etc.) or sound types (string orchestra, distorted lead guitar, etc.) to broad complexes of the foregoing such as genre or style (“Motown,” “Brahms,” “Italo western,” etc.), and more. Consider further that any culturally pertinent extrinsic meaning—LOVE, for instance—will have been evoked in countless different musical contexts in our listeners’ lives, and for each of the listeners, *love* may have become epitomized in quite individually experienced selections of music—all heard with varying degrees of attention to the various possibly relevant levels of musical detail. In order to approach

extrinsic meaning in music as a holistic cultural phenomenon, as has been the intent in this article, one should not expect the listeners’ understandings to be contingent upon musical entities of uniformly similar grain. Finally, while Cook (2001) may be right to suggest that meaning attributions are typically constrained by some “enabling similarities” between the musical and nonmusical domains, we cannot require individual listeners’ attributions of meaning to be *justified* with reference to such relationships—as might perhaps be required for musicological interpretations. In other words, although cross-domain metaphors in music often are “motivated and selected by properties of musical material,” listeners’ making sense of music by extrinsic means does not necessarily require such “isomorphic” relations (Spitzer, 2004, p. 66). A chosen extrinsic image might provide the listener with a “perceptual perspective” to the music even in the absence of tight correspondences between the musical and non-musical domains (Oberschmidt, 2011, p. 108).

As cultural constructs, musical *topoi* emerge from our musical environments only as filtered through the understandings of a multitude of individual listeners. Quite like musical genres (see Gjerdingen & Perrott, 2008), they can only be specified in reference to group norms. In terms of musical categories, then, it would be possible for some of the *topoi* to hinge on rough and generic attributions, while others might be contingent upon specific, code-like musical features, and yet others—as seems most realistic—might emerge in highly complex ways from the simultaneous cultural interplay of various types of intuitive understandings in the listener population. Any “muddiness” in the actual musical mechanisms that are operative in the formation of the topoi only represents a drawback from the analytical reductionist perspective, and has to be accepted if we believe that extrinsic musical meaning is “achieved, the product of interactive work” (DeNora, 1986, p. 90).

For this reason, topical structures such as the one summarized in Figure 7 are not akin to Tagg’s (1989, p. 25) “musically determined VVA classification” where the analyst would split a category into two as soon as *he* feels that “they are different in terms of musical symbolisation” despite similar verbal responses from the listeners. In our model, the music-structural coherence of a topos is left open, and the interpretational component of our procedure is only targeted toward understanding the extrinsic content of the topical categories as they emerge from listeners’ subjective interpretations. In this, our procedure resembles other research methodologies that involve a quantitative analysis of structure followed by a hermeneutic analysis of the structural categories revealed (e.g., Roller, Mathes, & Eckert, 1995).

All in all, our project could be seen as an attempt to provide an alternative to theories of musical categorization that proceed on an intramusical basis (e.g. Gjerdingen, 1988; Zbikowski 2002). In particular, we want to challenge the common assumption of extramusical signification as something ancillary to intramusical categories—quite like the ethnomusicologist John Blacking (1973) once opposed the research strategy of first identifying a musical style “in its own terms,” and only then viewing it in relation to its society. Previous theorists of musical meaning have tended to view topoi as if they were identifiable as bundles of intramusical, stylistic features—as “familiar style type[s] with easily recognizable musical features” (Hatten, 2014, p. 514). For example, Krumhansl identifies topics by musical characteristics and considers the perceptual role of the categories thus demarcated, leaving aside questions about “the specific connotations of the different topics” (Krumhansl, 1998, p. 133). Similarly, Mak describes the classical pastoral topos by listing musical features, and continues: “[t]hese features together constitute a single topical category, yet its signification is multivalent” (Mak, 2011, p. 63). In this and other similar accounts, the starting point is a musical category that is taken for granted as such, and only thereafter explored for its various potential significations in various cultural contexts. By contrast, we have sought to define topoi on an extrinsic basis, thus opening the door to potential “connotative synonymities” (HaCohen & Wagner, 1997) between different musical-stylistic complexes. Our topoi are not cross-culturally identifiable musical styles with multiple significations (in various cultural contexts), but rather intraculturally demarcated, semantically coherent categories which may or may not be musically homogenous.

How do people understand and use such categories? Responding to this question would be a whole other undertaking, but in closing we would like to point out one potential implication of our theoretical perspective. It is that some members of the musical world might in fact organize their expertise much more around topical, extrinsic meanings than on knowledge regarding some specific intramusical categories. To the extent that the production and dissemination of music relies on extrinsically focused expertise, the music-cultural system that revolves around musical topoi will involve a kind of a feedback loop from extrinsic understandings to further extrinsic organization of music use. Indeed, we have already seen an example of this. When a producer of production music labels music as suitable for particular contexts or moods, he or she is relying on extrinsically focused musical expertise—and in so doing, affecting the further shaping of our contextually specific sound environments. Here, we are touching a hugely influential area of musical expertise that will remain hidden as long as we refuse to consider the possibility that extrinsic meaning in music be extrinsically organized.

Author Note

We wish to thank Jyrki Linjama for a course on topical theory in 1993 and Olivier Lartillot for providing the brightness analyses for Table 1. We also wish to thank Eric Clarke, Sumanth Gopinath, Alan Marsden, Tobias Pontara, John Rink, Laura Sindberg, and three anonymous reviewers for their comments and suggestions.

Correspondence concerning this article should be addressed to Erkki Huovinen, Department of Music, University of Jyväskylä, Box 35, 40014 University of Jyväskylä, Finland. E-mail: erkki.s.huovinen@gmail.com

References

- AGAWU, K. (1991). *Playing with signs: A semiotic interpretation of classic music*. Princeton, NJ: Princeton University Press.
- AGAWU, K. (1999). The challenge of semiotics. In N. Cook & M. Everist (Eds.), *Rethinking music* (pp. 138-160). Oxford, UK: Oxford University Press.
- ALLANBROOK, W. J. (1983). *Rhythmic gesture in Mozart: Le Nozze di Figaro and Don Giovanni*. Chicago, IL: University of Chicago Press.
- ALLANBROOK, W. J. (1992). Two threads through the labyrinth: Topic and process in the first movements of K. 332 and K. 333. In W. J. Allanbrook, J. M. Levy, & W. P. Mahrt (Eds.), *Convention in eighteenth- and nineteenth-century music: Essays in honor of Leonard G. Ratner* (pp. 125-171). Stuyvesant, NY: Pendragon Press.
- ALLESCH, C. G. & KRAKAUER, P. M. (2005-2006). Understanding our experience of music: What kind of psychology do we need? *Musicae Scientiae, Special Issue 2005-2006*, 41-63.
- ALMÉN, B. (2008). *A theory of musical narrative*. Bloomington, IN: Indiana University Press.
- BICKNELL, J. (2002). Can music convey semantic content? A Kantian approach. *The Journal of Aesthetics and Art Criticism*, 60, 253-261.
- BLACKING, J. (1973). *How musical is man?* Seattle, WA: University of Washington Press.
- BONNY, H. L. (2002). *Music and consciousness: The evolution of guided imagery and music* (L. Summer, Ed.). Gilsum, NH: Barcelona Publishers.

- BOUCHER, J., & OSGOOD, C. E. (1969). The Pollyanna hypothesis. *Journal of Verbal Learning and Verbal Behavior*, 8, 1-8.
- CAPLIN, W. E. (2005). On the relation of musical *topoi* to formal function. *Eighteenth-Century Music*, 2, 113-124.
- CHARMAZ, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Los Angeles, CA: Sage.
- CHION, M. (2013). *L'audio-vision: Son et image au cinéma* (3rd ed.). Paris: Armand Colin.
- CLARKE, E. (2005). *Ways of listening. An ecological approach to the perception of musical meaning*. Oxford, UK: Oxford University Press.
- COHEN, A. J. (2000). Film music: Perspective from cognitive psychology. In J. Buhler, C. Flinn, & D. Neumeyer (Eds.), *Music and cinema* (pp. 360-377). Middletown, CT: Wesleyan University Press.
- COKER, W. (1972). *Music and meaning: A theoretical introduction to musical aesthetics*. New York: The Free Press.
- COOK, N. (1998). *Analysing musical multimedia*. Oxford, UK: Clarendon Press.
- COOK, N. (2001). Theorizing musical meaning. *Music Theory Spectrum*, 23, 170-195.
- COOKE, D. (1959). *The language of music*. London, UK: Oxford University Press.
- COSTA, M., RICCI BITTI, P. E., & BONFIGLIOLI, L. (2000). Psychological connotations of harmonic musical intervals. *Psychology of Music*, 28, 4-22.
- CRATON, L. G., & LANTOS, G. P. (2011). Attitude toward the advertising music: An overlooked potential pitfall in commercials. *Journal of Consumer Marketing*, 28, 396-411.
- DE NORA, T. (1986). How is extramusical meaning possible? Music as a place and space for "work." *Sociological Theory*, 4, 84-94.
- DIBBEN, N. (2001). What do we hear, when we hear music? Music perception and musical material. *Musicae Scientiae*, 5, 161-194.
- EITAN, Z., & GRANOT, R. Y. (2006). How music moves: Musical parameters and listeners' images of motion. *Music Perception*, 23, 221-247.
- EITAN, Z., & TIMMERS, R. (2010). Beethoven's last piano sonata and those who follow crocodiles: Cross-domain mappings of auditory pitch in a musical context. *Cognition*, 114, 405-422.
- FERGUSON, D. N. (1960). *Music as metaphor: The elements of expression*. Minneapolis, MN: University of Minnesota Press.
- FLOWERS, P. (1984). Attention to elements of music and effect of instruction in vocabulary on written descriptions of music by children and undergraduates. *Psychology of Music*, 12, 17-24.
- FRANCÈS, R. (1988). *The perception of music* (W. J. Dowling, Trans.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- GABRIELSSON, A. (2011). *Strong experiences with music: Music is much more than just music* (R. Bradbury, Trans.). New York: Oxford University Press.
- GJERDINGEN, R. O. (1988). *A classic turn of phrase: Music and the psychology of convention*. Philadelphia, PA: University of Pennsylvania Press.
- GJERDINGEN, R. O., & PERROTT, D. (2008). Scanning the dial: The rapid recognition of music genres. *Journal of New Music Research*, 37, 93-100.
- GOMEZ, P., & DANUSER, B. (2007). Relationships between musical structure and psychophysiological measures of emotion. *Emotion*, 7, 377-387.
- GORBMAN, C. (1987). *Unheard melodies: Narrative film music*. Bloomington, IN: Indiana University Press.
- HACOHEN, R., & WAGNER, N. (1997). The communicative force of Wagner's Leitmotifs: Complementary relationships between their connotations and denotations. *Music Perception*, 14, 445-476.
- HARGREAVES, D. J., & COLMAN, A. M. (1981). The dimensions of aesthetic reactions to music. *Psychology of Music*, 9, 15-20.
- HARGREAVES, D. J., HARGREAVES, J. J., & NORTH, A. C. (2012). Imagination and creativity in music listening. In D. J. Hargreaves, D. E. Miell, & R. A. R. MacDonald (Eds.), *Musical imaginations: Multidisciplinary perspectives on creativity, performance, and perception* (pp. 156-172). New York: Oxford University Press.
- HATTEN, R. S. (1994). *Musical meaning in Beethoven: Markedness, correlation, and interpretation*. Bloomington, IN: Indiana University Press.
- HATTEN, R. S. (2004). *Interpreting musical gestures, topics, and tropes: Mozart, Beethoven, Schubert*. Bloomington, IN: Indiana University Press.
- HATTEN, R. S. (2014). The troping of topics in Mozart's instrumental works. In D. Mirka (Ed.), *The Oxford handbook of topic theory* (pp. 514-538). New York: Oxford University Press.
- HOFMANN, K. (2011). „Ein Esel galoppiert durchs Paradies . . .“: *Musikalische Hörfähigkeiten von Kindern im Grundschulalter* [“A Donkey gallops through the paradise . . .”]: Musical hearing skills of children in elementary age]. Augsburg: Wißner-Verlag.
- HOLTON, J. A. (2007). The coding process and its challenges. In A. Bryant & K. Charmaz (Eds.), *The SAGE handbook of grounded theory* (pp. 265-287). London: Sage Publications Ltd.
- HURON, D. (1989). Music in advertising: An analytic paradigm. *The Musical Quarterly*, 73, 557-574.
- JOHNSON, D. C. (2003). Fifth-grade instrumentalists' descriptions of music. *Bulletin of the Council for Research in Music Education*, 158, 81-95.
- JUSLIN, P. N. (2000). Cue utilization in communication of emotion in music performance: Relating performance to perception. *Journal of Experimental Psychology: Human Perception and Performance*, 26, 1797-1813.

- KASSABIAN, A. (2001). *Hearing film: Tracking identifications in contemporary Hollywood film music*. New York: Routledge.
- KELLE, U., & KLUGE, S. (2010). *Vom Einzelfall zum Typus: Fallvergleich und Fallkontrastierung in der qualitativen Sozialforschung* [From the individual case to the type: Comparison and contrasting of cases in qualitative social research] (2nd ed.). Wiesbaden: VS Verlag für Sozialwissenschaften.
- KENDALL, R. A. (2005). Empirical approaches to musical meaning. In R. A. Kendall & R. W. H. Savage (Eds.), *Perspectives in systematic musicology* (pp. 69-102). Los Angeles, CA: Department of Ethnomusicology, University of California.
- KOELSCH, S. (2011). Towards a neural basis of processing musical semantics. *Physics of Life Reviews*, 8, 89-105.
- KRUMHANSL, C. L. (1998). Topic in music: An empirical study of memorability, openness, and emotion in Mozart's String Quintet in C Major and Beethoven's String Quartet in A Minor. *Music Perception*, 16, 119-134.
- LANDIS, R. J., & KOCH, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33, 159-174.
- LANTOS, G. P., & CRATON, L. G. (2012). A model of consumer response to advertising music. *Journal of Consumer Marketing*, 29, 22-42.
- LANZA, J. (2004). *Elevator music: A surreal history of Muzak, easy-listening, and other mood song*. Ann Arbor, MI: The University of Michigan Press.
- LARSEN, C., & WHITAKER, N. (2013). Verbal responses to music listening by adult nonmusicians. *Bulletin of the Council for Research in Music Education*, 197, 77-95.
- LARSON, S. (2012). *Musical forces: Motion, metaphor, and meaning in music*. Bloomington, IN: Indiana University Press.
- LARTILLOT, O., & TOIVIAINEN, P. (2007). *A Matlab toolbox for musical feature extraction from audio*. Proceedings of the 10th International Conference on Digital Audio Effects (DAFx-07), Bordeaux, France.
- LINJAMA, J. (2002). *Topiikan juhla: Näkökulmia topoksen ja rakenteen suhteeseen* [A Feast of topics: Perspectives on the relationship between topos and structure] (Unpublished doctoral dissertation). Sibelius-Academy, Helsinki.
- MAK, S. Y. (2011). Pitching the sale: A cross-cultural comparison of operatic *topoi* in television commercials. *Musica Humana*, 3, 61-82.
- MARGULIS, E. H. (2014). Expectation, musical topics, and the problem of affective differentiation. In D. Mirka (Ed.), *The Oxford handbook of topic theory* (pp. 629-641). New York: Oxford University Press.
- MARSHALL, S. K., & COHEN, A. J. (1988). Effects of musical soundtracks on attitudes toward animated geometric figures. *Music Perception*, 6, 95-112.
- MARRADI, A. (1990). Classification, typology, taxonomy. *Quality and Quantity*, 24, 129-157.
- MEYER, L. B. (1956). *Emotion and meaning in music*. Chicago, IL: University of Chicago Press.
- MIRKA, D. (Ed.) (2014). *The Oxford handbook of topic theory*. New York: Oxford University Press.
- MONELLE, R. (2000). *The sense of music: Semiotic essays*. Princeton, NJ: Princeton University Press.
- MONELLE, R. (2006). *Musical topic: Hunt, military, and pastoral*. Bloomington, IN: Indiana University Press.
- MORRISON, S. J., & YEH, C. S. (1999). Preference responses and use of written descriptors among music and nonmusic majors in the United States, Hong Kong, and the People's Republic of China. *Journal of Research in Music Education*, 47, 5-17.
- MOTE, J. (2011). The effects of tempo and familiarity on children's affective interpretation of music. *Emotion*, 11, 618-622.
- NARDI, C. (2012). Library music: Technology, copyright and authorship. In S. M. Fernández, S. E. Castelo-Branco, P. Roxo, & I. Iglesias (Eds.), *Current issues in music research: Copyright, power and transnational music processes* (pp. 73-83). Lisbon: Sociedad de Etnomusicología.
- NIELZÉN, S., & CESAREC, Z. (1981). On the perception of emotional meaning in music. *Psychology of Music*, 9, 17-31.
- NORTH, A. C., HARGREAVES, D. J., & MCKENDRICK, J. (1997). In-store music affects product choice. *Nature*, 390, 132.
- NORTH, A. C., MACKENZIE, L. C., LAW, R. M., & HARGREAVES, D. J. (2004). The effects of musical and voice "fit" on responses to advertisements. *Journal of Applied Social Psychology*, 34, 1675-1708.
- NUCKOLLS, J. B. (1999). The case for sound symbolism. *Annual Review of Anthropology*, 28, 225-252.
- OBERSCHMIDT, J. (2011). *Mit Metaphern Wissen schaffen: Erkenntnispotentiale metaphorischen Sprachgebrauchs im Umgang mit Musik* [Creating knowledge with metaphors: Knowledge potentials of metaphorical language use in dealing with music]. Augsburg: Wißner-Verlag.
- OSGOOD, C. E., SUCI, G. J., & TANNENBAUM, P. H. (1957). *The measurement of meaning*. Urbana, IL: University of Illinois Press.
- OSGOOD, C. E., MAY, W. H., & MIRON, M. S. (1975). *Cross-cultural universals of affective meaning*. Urbana, Chicago, & London: University of Illinois Press.
- OSGOOD, C. E. (1976). *Focus on meaning, Vol. I: Explorations in semantic space*. The Hague: Mouton Publishers.
- PARK, C. W., & YOUNG, S. M. (1986). Consumer response to television commercials: The impact of involvement and background music on brand attitude formation. *Journal of Marketing Research*, 23, 11-24.
- PATEL, A. D. (2008). *Music, language, and the brain*. New York: Oxford University Press.
- RATNER, L. G. (1980). *Classic music: Expression, form, and style*. New York: Schirmer Books.
- RATNER, L. G. (1991). Topical content in Mozart's keyboard sonatas. *Early Music*, 19, 615-619.

- RAUTIO, R. (2007). Musiikin merkitys ja sen verbalisointi: Kognitiivisen semantiikan näkökulma musiikkia koskevien metaforisten luonnehdintojen tulkintaan [Music's meaning and its verbalization: A cognitive semantics perspective on interpreting metaphorical characterizations of music]. *Musiikki*, 37, 3-22.
- RODMAN, R. (2010). *Tuning in: American narrative television music*. New York: Oxford University Press.
- ROLLER, E., MATHES, R., & ECKERT, T. (1995). Hermeneutic-classificatory content analysis: A technique combining principles of quantitative and qualitative research. In U. Kelle (Ed.), *Computer-aided qualitative data analysis: Theory, methods and practice* (pp. 167-176). London: SAGE Publications.
- ROWLAND, J. C. (2007). *Listen and see: The musical provocation of visual imagery* (Unpublished doctoral dissertation). Princeton University.
- SAARI, P., BARTHET, M., FAZEKAS, G., EEROLA, T., & SANDLER, M. (2013). Semantic models of musical mood: Comparison between crowd-sourced and curated editorial tags. *Proceedings of Multimedia and Expo Workshops (ICMEW), 2013 IEEE International Conference on*. DOI: 10.1109/ICMEW.2013.6618436.
- SCRUTON, R. (1997). *The aesthetics of music*. New York: Oxford University Press.
- SHEVY, M. (2008). Music genre as cognitive schema: Extramusical associations with country and hip-hop music. *Psychology of Music*, 36, 477-498.
- SPENCE, C. (2011). Crossmodal correspondences: A tutorial review. *Attention, Perception, and Psychophysics*, 73, 971-995.
- SPITZER, M. (2004). *Metaphor and musical thought*. Chicago, IL: The University of Chicago Press.
- TAGG, P. (1989). An anthropology of stereotypes in TV music. *Svensk tidskrift för musikforskning*, 71, 19-42.
- TAGG, P. (2006). Music, moving images, semiotics, and the democratic right to know. In S. Brown & U. Volgsten (Eds.), *Music and manipulation: On the social uses and social control of music* (pp. 163-186). New York: Berghahn Books.
- TAGG, P. (2013). *Music's meanings: A modern musicology for non-musos*. New York: The Mass Media Music Scholar's Press, Inc.
- TAGG, P., & CLARIDA, B. (2003). *Ten little title tunes: Towards a musicology of the mass media*. New York: The Mass Media Music Scholars' Press.
- TARASTI, E. (1994). *A theory of musical semiotics*. Bloomington, IN: Indiana University Press.
- TARASTI, E. (2002). *Signs of music: A guide to musical semiotics*. Berlin: Mouton de Gruyter.
- TESSAROLO, M. (1981). The musical experience: The semantic differential as a research instrument. *International Review of the Aesthetics and Sociology of Music*, 12, 153-164.
- TRAINOR, L. J., & TREHUB, S. E. (1992). The development of referential meaning in music. *Music Perception*, 9, 455-470.
- TUURI, K., & EEROLA, T. (2012). Formulating a revised taxonomy for modes of listening. *Journal of New Music Research*, 41, 137-152.
- WARD, J. H. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association*, 58, 236-244.
- WICKER, F. W. (1968). Mapping the intersensory regions of perceptual space. *The American Journal of Psychology*, 81, 178-188.
- WYCH, G. M. F. (2012). Gender and instrument associations, stereotypes, and stratification: A literature review. *Update: Applications of Research in Music Education*, 30, 22-31.
- ZANDER, M. F. (2006). Musical influences in advertising: How music modifies first impressions of product endorsers and brands. *Psychology of Music*, 34, 465-480.
- ZBIKOWSKI, L. M. (2002). *Conceptualizing music: Cognitive structure, theory, and analysis*. New York: Oxford University Press.

Appendix A. Transcribed examples from the 10 musical excerpts (selected passages).

1 M.M. = 82 0'00"-0'18"

2 M.M. = 69 0'00"-0'21"

3 M.M.= 66 0'00"-0'17"

pno.

strs.

4 M.M.= 60 0'00"-0'20"

pno. pno. & fl.

strs.

5 M.M.= 82 0'12"-0'30"

class. gtr. gliss. gliss.

fl.

steel-str. gtr. G C D G Em Am F D G D G D Em Am

el. bass

6 M.M.= 94 0'32"-0'49"

vl. synth chimes

shaker ds.

A D/A A D/A C#m7 Dmaj7 Cmaj7

7 M.M.= 120 0'23"-0'40"

el. gtr. (Male voice:) Oh ye- ah!

ds.

A/b/Bb Bb A/b/Bb Bb C A/b/Bb Bb A/b/Bb Bb G7(sus4)

8 M.M.= 100 (rock beat) 0'26"-0'40"

slide gtr. (w/ flanger) gliss. gliss. gliss.

el. gtr. D G D G simile

5-str. bass

9 M.M.= 168
synth. (el. pno. w/ reverb) 0'33"-0'44"

drum machine hi-hat

5-string bass

10 M.M.= 138
synth (spacy) 0'06"-0'24"

synth (sawtooth)

drum machine hi-hat

synth bass

Appendix B. Sample written descriptions representing each of the eight semantic fields that emerged from the Main study.

Semantic field	Examples, adults	Examples, children
(a) <i>INTIMATE SOCIAL RELATIONSHIPS, SOLITUDE</i>	"Saying goodbye to a family member who is leaving for a long journey" [3]; "Idyllic family gathering in a mountain lodge" [5].	"Some people fall in love" [4]; "Old friends finally meet each other" [6].
(b) <i>NATURE AND SEASONS</i>	"A bird rises to the sky, soaring among the clouds" [4]; "The first day of spring. The sun is shining and I'm having a walk outside" [6].	"Beginning of the summer when flowers are blossoming" [3]; "It's snowing in a forest in the night" [5].
(c) <i>SENTIMENTAL, DREAMY, FEELINGS</i>	"An illusion: happy people without worries meet and live happily ever after together" [6]; "This music could fit with a homely and warm situation, where there are probably only a few people" [5].	"A girl is dreaming about something on a meadow of flowers" [4]; "This could be a person who is sad and then becomes happy" [3].
(d) <i>ACHIEVEMENT, HEROIC, REGAL</i>	"Leaving for a great adventure" [1]; "The end scene of a boring Hollywood movie, in which the hero returns after the victory and finds a woman" [2].	"The King's parade arrives" [1]; "Castle in which knights gather after winning the war" [2].
(e) <i>FESTIVITIES</i>	"Gala, prize-giving ceremony" [1]; "Birthday celebrations of a prince from a faraway country" [2].	"The music depicts a grand ball" [1]; "A carnival. The atmosphere is happy and there is a carnival parade of some sort" [2].
(f) <i>POTENTIAL FOR ACTION</i>	"A big sports event is starting" [1]; "Sounded like film music. Something significant is happening" [2].	"Perhaps a coronation. A new queen is coming and the people are waiting" [1]; "Wedding of Disney princesses. Just when the princess is arriving, that kind of fine music is played" [2].
(g) <i>DANCE, SPORTS</i>	"1980s 'hero' movie. The main character is training for the games of [his] life" [7]; "Disco. A lot of people dance around" [9].	"People are happy and dancing" [8]; "Snowboarding" [10].
(h) <i>URBAN, NIGHTLIFE, BUSY</i>	"Streets of a busy city" [7]; "First I think of a nightclub, dark, lots of people. Then I also think of a metropolis milieu and its characteristic bustle" [10].	"Two figures are dancing disco opposite each other outside on a roof wearing ninja suits" [8]; "A train station as a speeded up version. Time is flying by" [9].