



What are musical emotions? A proposal for a functional–teleosemantic approach*

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ABSTRACT

Listeners frequently report that instrumental music — apparently lacking explicit semantic or referential content — elicits profound emotional responses such as sadness, joy or awe. Eduard Hanslick (Hanslick, [1854] 1986) famously claimed that music's essence lies in “tonally moving forms,” denying that emotions reside in a musical work. By contrast, Susanne Langer (Langer, 1953) argued that music “presents the forms of feeling,” suggesting that its intangible structures embody the dynamic ‘shapes’ of emotion. This paper proposes a functional–teleosemantic account of musical emotion, drawing on the work of Ruth Millikan (Millikan, 1984), Karen Neander (Neander, 2017), and Nicholas Shea (Shea, 2018). The central claim is that musical emotions emerge as biological and cultural functions — musical forms acquire stable emotive meaning when their repeated use in contexts such as funerals or celebrations explains their continued reproduction. By synthesising insights from philosophy of music, cognitive science and evolutionary theory, I argue that musical motifs can mean sorrow or joy if their systematic, culturally valued use in eliciting affective states allows for their persistence. This teleosemantic account aims to reconcile Hanslick's emphasis on pure musical form with Langer's notion of music as a symbolic presentation of feeling, while accommodating criticisms from Paul Griffiths (Griffiths, 1997) and Lisa Feldman Barrett (Barrett, 2006) regarding the heterogeneous and constructed nature of emotion. Musical emotions, therefore, are best understood as functions within a cultural and biological lineage. Tonal patterns first become stable emotive signals — and ultimately symbols — precisely because they reliably serve a valued role over time.

KEYWORDS

meaning, affect, semantics, Hanslick, Langer, Millikan, Shea, representation, function

* The author gratefully acknowledges the generous support of the W. Bednarowski Trust for offering a Fellowship at the University of Aberdeen, which contributed to the development of this article.

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1. INTRODUCTION

Let's imagine the experience of listening to Bach's Double Violin Concerto in D minor.¹ As the two violins engage in an intricate interplay — one echoing, the other expanding upon its partner's phrases — the music seems to weave a tapestry of sound that stirs a profound mix of emotions. Listeners often describe being moved by feelings of joy, longing, melancholy or even transcendence (Is that an emotion?). What is striking is that these responses arise despite the fact that the music itself appears to have no direct reference to external events. Unlike a predator's roar or a loved one's smile, the sounds here are abstract, and yet they manage to resonate deeply with our emotions.

This evocative quality has long fascinated philosophers. Hanslick ([1854] 1986: 29) famously maintained that the essence of music is in “tonally moving forms” — in its purely formal structure — while any emotional reaction is merely projected by the listener.² In contrast, Langer (1953: 27) argued that music presents “the forms of feeling,” implying that its tonal structures embody the dynamic, unfolding shapes of emotion. For example, a slow, descending minor melody may be experienced as sad because it mirrors the very process of sorrow.

Yet, neither position alone is sufficient to explain how entire cultural traditions come to adopt certain musical forms as canonical expressions of emotion. If music is only a configuration of tones (as Hanslick argued), why do communities across centuries converge on labelling some progressions as ‘sad’? Conversely, if music presents feeling by mirroring the morphology of emotion (as Langer contends), what mechanism ensures that this symbolic resemblance becomes stable, taught and transmitted across generations?

This paper proposes a functional–teleosemantic approach that aims to resolve these issues by suggesting that musical emotions emerge as functions within biological and cultural lineages. In this view, a musical motif ‘acquires’ an emotional meaning³ when its repeated, effective use in eliciting or expressing

¹ The author would like to express his sincere thanks to the anonymous reviewers of *Argument* for their insightful and constructive comments.

² This is the ‘standard’ interpretation. For discussion see Guczalski, 2022.

³ In this paper, despite concentrating on sadness (which seems to be quite an ‘advanced’ emotion), we refer to a unified concept of ‘musical emotions’ that is understood broadly. This understanding aims to encompass a wide range of emotional phenomena related to music — from rapid, automatic and reflex-like reactions (e.g. startle reactions triggered by sudden changes in dynamics) to more complex, bio-culturally shaped emotions (e.g. sadness experienced during a funeral march). Following Juslin's (Juslin, 2019) comprehensive review, the approach here

an affect (such as sorrow at funerals) explains its persistence. Thus, while the notes remain ‘purely musical’ in a formal (or ontological) sense, their historical use as vehicles for particular emotional states ultimately imbues them with stable, shared meaning. This approach not only aims to reconcile Hanslick’s and Langer’s positions, it also provides a framework that is compatible with contemporary debates over the nature of emotion in general, including critiques by Griffiths and Feldman Barrett.

2. HANSLICK’S FORMAL AUTONOMY

Hanslick’s classical account, as presented in *On the Musically Beautiful* ([1854] 1986), insists that music is nothing more than an arrangement of “tonally moving forms.” According to Hanslick, music has no other object than itself; the content of music is purely musical — belonging to its tonal relations, not to external references or emotional states. For Hanslick, the beauty of a musical composition lies in its structure — the interplay of melody, harmony and rhythm. Any emotional response, he argues, is a subjective overlay imposed by the listener. In his view, analysing a work should involve examining its formal elements rather than attempting to identify inherent emotional properties. However, Hanslick’s view faces a critical question: If music is solely defined by its forms, why do entire traditions converge on labelling certain tonal sequences as, for instance, ‘sad’? Works like Chopin’s Funeral March or specific ‘lamentation passages’ in Bach’s compositions are not only appreciated for their formal beauty but are universally recognised as expressions of sorrow. Hanslick’s position does not provide a satisfactory explanation for how such intersubjective and historically stable emotional attributions develop if the music itself remains purely formal.

3. LANGER’S PRESENTATIONAL SYMBOLISM

Susanne Langer, in *Feeling and Form* (Langer, 1953), offers a contrasting account by asserting that music is fundamentally a presentational symbol of feeling. She famously claims:

proposed does not deny the existence of multiple underlying cognitive mechanisms. Instead, it aims to offer a unifying functional framework that explains how diverse emotional responses become stable through selection and cultural practices, without claiming exclusive explanatory power over the full diversity of emotional phenomena elicited or represented by music.

The tonal structures we call “music” bear a close logical similarity to the forms of human feeling — forms of growth and attenuation, flow and arrest, of conflict and resolution. They are not feelings themselves, but presentations of them (Langer, 1953: 27).

Langer contends that when we listen to music, we are not merely hearing sequences of tones but experiencing a symbolic unfolding of emotions. A slow, descending melody, for example, is described as ‘sad’ because it mirrors the very dynamics of sorrow — declining energy, with a gradual fall in pitch and a quieting of intensity. This idea was expressed earlier in her *Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art* (Langer, 1942), where she proposed that music, in its most subtle form, transforms abstract sound into a vehicle for the — linguistically — inexpressible; the form conveys, in its very structure, the profound significance of human feeling. Langer stated explicitly that the emotional character of music is derived from its form which, by resembling the dynamics, communicates emotion. While such morphological mapping explains why a listener may sense sadness when hearing a particular piece, it does not fully account for how such a pattern becomes standardized within a cultural tradition. In other words, while agreeing with the general philosophical assumptions of the model provided by Langer (with some improvements by Guetzalski, 1999), we aim to develop the model further towards its operationalization within a naturalistic framework.

4. WHAT ARE EMOTIONS?

The challenge of musical emotion is compounded by broader debates over the nature of emotion itself.⁴ Various theoretical models offer divergent explanations. Somatic theories (James, 1884; Schachter & Singer, 1962) argue that emotions arise from bodily changes. According to this view, a minor chord progression might be considered (or experienced as) ‘sad’, because it induces physiological responses such as tears or a slower heartbeat. One can easily imagine that the recognition, or feeling, of specific features of a musical structure leads to changes in heart rate which are then the source of the emotional experience. Somatic theories are built of rather proximate explanations, however. They answer the question *how* emotions ‘arise’ — i.e. what physiological

⁴ Here we concentrate on contemporary perspectives. For an overview of earlier philosophical accounts, please see Dąbrowski, 2016.

mechanisms might be causing emotions. Yet they struggle to explain *why* similar musical forms consistently trigger similar musico-emotional responses with different listeners. Somatic theories seem to lack explanatory power when it comes to Tinbergen's (1963) 'ultimate explanations' of musical emotions — accounting for the intentionality this paper assumes musical emotion possesses.

Appraisal theories (Frijda, 1986; Lazarus, 1991), on the other hand, posit that emotions result from cognitive evaluations of the significance of events. While instrumental music lacks propositional content, it may still present structured auditory phenomena that listeners appraise as emotionally significant. For instance, sudden dynamic changes, dissonant harmonies, or low-frequency timbres can function as affective cues — akin to salient auditory events in the environment which elicit appraisals of threat, tension or sorrow. From this perspective, the affective response to music depends on perceived relevance or resemblance to real-world stimuli (cf. Bregman, 1990; Juslin & Västfjäll, 2008). Even 'abstract' music may evoke emotions through appraisable features, though the mechanisms and norms of appraisal likely differ from those guiding responses to overtly referential events, for example 'Big bear attacking!' It might be questioned, however, whether music itself⁵ provides a clearly distinct *significant event* for appraisal — it being unclear how it can be uniformly assessed as 'scary' or 'sad'.

Finally, the currently most widely-known basic-emotion models (Ekman, 1999; Panksepp, 1998) propose that discrete, universal emotional states are biologically hardwired. Proponents of this theory hold that a relatively small set of emotions (the number varies depending on the version of the theory in question) — fear, anger, joy, sadness, disgust, surprise, as well as (for Panksepp) primary systems such as SEEKING and PANIC/GRIEF — are biologically evolved, universal and instantiated in dedicated neural circuits. These states are characterised by distinctive facial expressions, autonomic patterns and action tendencies that appear early on in development, are shared across cultures and can even be observed in other mammals. On this view, emotion categories are natural kinds: they exist independently of language or culture because evolution has hard-wired them into human beings to solve recurrent adaptive problems (avoiding predators, promoting social bonding, etc.).⁶

⁵ I.e. music drawn from contexts where the significant event is clear, besides the music, e.g. a wedding or funeral. It could also be the case, however, that this kind of link is historically at the root of 'purely musical events'.

⁶ On the one hand, while this might suggest that certain musical cues could naturally elicit a *specific* affect, the variation in 'sad' musical codes across cultures seem to challenge the universality of any single response. On the other hand, it is worth noting that there are

In contrast to somatic, appraisal and basic-emotion accounts, constructionist approaches (Barrett, 2006; 2017) hold that people do not discover or feel ready-made emotions. They instead experience a fluctuating state of core affect (valence and arousal) and then — drawing on culturally learned emotion concepts — construct an interpretation. The most recent work in this area (Barret *et al.*, 2025) stresses that this conceptual act cannot be assimilated to basic-emotion mechanisms: the two frameworks rest on incompatible assumptions about how brains regulate bodies and make sense of sensations. From this standpoint, a musical passage is ‘sad’ because listeners have learned to label it or its acoustic features that way, rather than because the music symbolises or evokes ‘sadness’. Furthermore, Griffiths (Griffiths, 1997) cautions that even the term ‘emotion’ itself may refer to a heterogeneous mix of processes, ranging from basic affective reactions to elaborate, socially mediated sentiments.

These diverse accounts emphasize the fact that whether we consider emotion to be an innate module or a socially constructed phenomenon, the question remains: How do musical forms consistently come to *mean* a particular affect, such as sadness? A good answer must account for both the immediate phenomenal experience and the historical, cultural processes that stabilise the meanings.

5. TELEOSEMANTICS: A PROPOSAL FOR A FUNCTIONAL–TELEOSEMANTIC MODEL OF MUSICAL EMOTION

A teleosemantic approach might offer a promising resolution by shifting our focus from inherent musical properties to the historical functions that stabilise representations in a cultural lineage. Within this framework, a musical motif acquires meaning not because it intrinsically ‘contains’ an emotion, but because its repeated, effective use in particular contexts explains its continued reproduction. Three interrelated contributions underpin this view: Millikan’s

studies indicating the existence of cross-cultural similarities in emotional evaluations of music (Balkwill *et al.*, 2004; Balkwill & Thompson, 1999; Fritz *et al.*, 2009; Wang *et al.*, 2022), and even in somatic responses (Putkinen *et al.*, 2024). In the light of these studies, emotions — and the associations between certain emotions and specific musical features — cannot be treated as culturally arbitrary — there is indeed evidence pointing to the significant role of culture in shaping the emotional interpretation of structural musical features (Lyu & Egermann, 2024). Moreover, cross-cultural research points to numerous functional similarities in the uses of music (Passmore & Savage, 2023; Savage *et al.*, 2015; Singh & Mehr, 2023) related to emotional contexts.

concept of proper functions, Neander's informational perspective and Shea's detailed model of information mapping.

Ruth Millikan (1984) argues that a representation's content is determined by its proper function — the role for which it was selected and that explains its persistence over time. The proper function of a device is the effect it is supposed to produce — that which accounts for the device's (in our case: music and its emotional function) existence and persistence in a population of devices. In evolutionary biology, a beaver's tail-snap means danger-here-and-now, because it was naturally selected for it. Millikan extends this reasoning to linguistic and cognitive phenomena: on a higher level, a word continues to work because it reliably conveys a specific concept, and its meaning is grounded in its historical function/usage, in its *normal condition*. Applied to music, if a chord progression is repeatedly employed at funerals because it reliably induces or symbolises sorrow, then its sustained usage explains its continued presence and stable labelling as 'sad'.⁷ In this way, the complex sound form gains a 'sorrow function' that is not necessarily inherent in the notes themselves but arises from the repeated success of its usage. Like with the beaver's splash.

One might object, however — following Millikan's own criteria — that merely inducing sorrow seems maladaptive and thus an unlikely candidate for a proper function. After all, selection (biological or cultural) is expected to retain traits whose *ultimate* effects increase fitness or social cohesion — not heighten distress for its own sake. One possible line of response could be that the lament motif's proper function is not necessarily to generate sadness *per se*, but to realise the downstream social advantages that sadness reliably produces: strengthened communal bonds, ritual affirmation of shared values and coordinated behaviour surrounding loss (cf. Huron, 2001; Eerola *et al.*, 2021). In other words, sorrow could be understood as a mediating function for a bundle of evolutionary-older mechanisms. Under this reading, the lament's persistence could be compatible with Millikan's notion of proper function, if we are allowed to interpret the concept more broadly, or hierarchically.

⁷ We understand here Millikan's notion of proper function as allowing the same musical type to possess two distinct, but historically related, functions: (i) affect-induction — its *direct* proper function is to *cause* a sadness-like affect in hearers, much as a soothing infant-directed melody is selected for its ability to calm (this is a causal mechanism — acoustic cues reminiscent of a subdued human voice (low pitch, low intensity, narrow range) trigger the emotion (Robinson, 2005; Juslin & Västfjäll, 2008)); and (ii) symbolic representation — once audiences reliably interpret such laments as 'signals of mourning', cultural selection can layer on a *derived* function, to stand for the condition of grief regardless of whether listeners actually feel it. Hence the same piece may function *indexically* — producing sadness during a fresh bereavement — and *symbolically* when quoted in, say, a film score to represent death.

Karen Neander (2017) builds on Millikan's account by emphasising that for a representation to have content, it must carry information about the condition it is meant to signal. Neander argues that a system represents something if it was selected to detect or signal that feature. Although her primary examples involve perceptual systems — such as colour vision detecting specific wavelengths — the principle applies equally to cultural symbols. A melodic line, if repeatedly used in contexts of mourning, informs listeners that they are in a setting of grief. Its informational function is secured by its consistent correlation with a sorrowful outcome. So, once again, the musical form does not contain sadness *per se*; it stabilised as a representation of sorrow because its use reliably conveyed and represented that affect.

Nicolas Shea (2018) further refines the teleosemantic approach to mental representation by focusing on mapping relations. As he claims:

the content of a representation must depend somehow on the way it is produced in response to input, the way it interacts with other representations, and the behaviour that results (Shea, 2018: 6).

According to this view, the persistence of a representation in a cultural lineage may arise because it systematically delivers outcomes that the users of that representation find valuable. A representation (or symbol) is maintained if it consistently maps onto an outcome valued by the community. In the case of musical emotion, let's consider again a chord progression that is repeatedly used in funerals because it reliably evokes a sense of lament. The community values this outcome — effective mourning is essential for communal bonding — and thus the progression is retained, taught and reproduced. Over time, the musical form becomes recognized and represented as 'sad' because its repeated use consistently produces the valued outcome of communal sorrow.

Shea's model, therefore, could be seen as providing a general mechanism for understanding how a musical structure is transformed into a stable emotive representation. It is not the physical properties of musical sounds that endow them with meaning but rather their functional role in delivering information about a specific emotional effect. The structural-musical design is labelled a 'sad' device when its success in producing sorrow is the very reason for its persistence in a cultural lineage. Of course, a question arises: Why, in the first instance, was a sound structure used in such-and-such particular way? At the earliest stage, it had to be random, but later it could as well have been the case that some preferences towards inherent similarities of form — perhaps

of sound, perception and emotion — appeared. This question is left to be answered elsewhere.

Integrating Millikan's, Neander's and Shea's insights, we may have arrived at a sketch of a model for musical emotion (CFSTR):

Cultural Benefit. A community has a functional historical benefit with stable, reliable expressions of particular emotions (e.g. sorrow at funerals).

Form Selection. Among various musical patterns, one is found to reliably elicit or express the desired affect. For example, a slow, descending minor progression may be initially selected. (Perhaps because its structure is in some relation with the natural dynamics of emotional/perceptual states that are called 'sorrow', as an external expression or an internal process, understood phenomenally, or as realized biologically in the brain, or body. The sound structure, however, doesn't alone fix the content at this level. What matters here, teleosemantically, is that the phrase succeeded often enough to be retained.)

Systematic Mapping. Through repeated usage in appropriate contexts — funeral ceremonies, lamentations — the musical pattern systematically 'maps onto' the negative affect the community calls 'sadness'. This successful mapping explains why the form is perpetuated.

Transmission and Stability. As the pattern is continuously reproduced, it becomes a stable, culturally shared signal for that emotion. Novices learn it as the canonical 'sad' motif (they inherit both sides — the motif and the expectation to feel/behave mournfully), ensuring its persistence and further reinforcing its functional role.

Representation. The intangible musical form, though purely formal in isolation, acquires representational content (i.e., 'sadness') because its continued use reliably produces the affect that the community values. (Intended misuse could become a musical joke, or a *false* token; erratic misuse could be seen as out-of-function, perhaps encompassing some aspects of amusia — rather than a content change).

This teleosemantic model shows that musical emotional meanings do not need to be inherent in the notes, but are rather emergent properties of cultural and biological processes that favoured the reproduction of effective emotive signals. So, the same chord progression remains 'sad' because its historical use in mourning consistently delivered a valued emotional outcome.

6. AN EVOLUTIONARY PERSPECTIVE

Evolutionary theorists have long argued that music might serve adaptive functions — facilitating social bonding, enhancing mother–infant interactions, acting as a form of nonverbal communication or simply signalling mate quality (Cross, 2009; Mithen, 2006; Szubart, 2019). David Huron (2001) contends that music manipulates expectation and reward circuits, producing emotional peaks that reinforce group cohesion.⁸ Within a teleosemantic framework, if a musical form reliably elicits sorrow in a communal setting, it is naturally selected by cultural evolution for its function. Some biological predispositions — such as an innate sensitivity towards descending, low-energy sounds⁹ — may predispose listeners to experience negative affect, but the final ‘sad’ code is cemented by the repeated cultural use of the form, for instance in contexts of mourning.

A particularly illuminating contribution comes from Huron’s ethological approach (Huron, 2012), an approach challenges the conventional Emotion Communication Model (ECM) which holds that emotional expressions function to directly communicate an affect from one individual to another. Huron instead introduces an ethological perspective that draws a crucial distinction between signals and cues. In his terms, a signal is an evolved, communicative behaviour — such as a rattlesnake’s rattle, which has been honed by natural selection to warn potential predators. By contrast, a cue is an incidental byproduct of a kind of behaviour that, while not intentionally communicative, still provides information to observers (a mosquito’s buzzing, for example).

Huron argues that this distinction is critical when considering musical emotion. In his Acoustic Ethological Model (AEM), he proposes that the acoustic properties of music — specifically pitch and intensity — can be understood along two dimensions that correspond to different affective outcomes. For instance, in the AEM framework, a musical passage with a high pitch

⁸ Additionally, Huron (2011) suggests that listening to *sad* music might trigger the release of the hormone prolactin, which is known for producing feelings of comfort and consolation. According to Huron, when listeners experience sadness without a real-life threat (as when listening to music), the brain compensates by releasing prolactin to mitigate psychological distress. This hormonal response might explain the uniquely pleasurable feelings associated with sadness in music: prolactin induces a sense of tranquillity and emotional warmth, thereby enhancing social bonding and emotional resilience.

⁹ There is a body of empirical evidence for such a general function: (i) across birds and mammals, low-frequency, downward calls indicate hostility or defeat (cf. Morton, 1977) motivation–structural rules; (ii) the descending minor-second dominates infant cries and later appears as adults’ go-to ‘sad’ interval in music (Zeloni & Pavani, 2022).

and high intensity is typically associated with alarm or fear; high pitch with low intensity tends to evoke feelings of appeasement or friendliness; low pitch with high intensity is generally linked with aggression or seriousness; and low pitch with low intensity is most closely associated with states such as sadness, relaxation or sleepiness. Huron argues that much of music's affective power originates in acoustic cues. Through cultural ritualisation some of these cues become conventional signals for specific emotions. Huron's analysis is compelling because it demonstrates that the same acoustic feature (for example, low pitch) may signal very different states depending on the accompanying intensity.

By applying Huron's ethological insights to our understanding of musical emotion, we can see that the effectiveness of a musical motif in evoking a particular affect might be not accidental. Rather, its acoustic properties — whether they mimic the vocal cues of a sorrowful human or align with animal signals of submission — are biologically and evolutionarily significant. These acoustic features, when used consistently over time in culturally significant contexts (such as funerals or memorials), become stabilised as signals¹⁰ and — further on down the line — as representations. In other words, a melodic line that consistently features low pitch and low intensity may not innately 'contain' sadness, but it reliably functions as a sorrow signal because it has been repeatedly selected by the culture to induce such an affective state.

7. CONTEMPORARY NEUROSCIENTIFIC ACCOUNTS OF MUSICAL EMOTION

Modern neuroscience has greatly advanced our understanding of how music can evoke potent emotions. Rather than viewing musical affect as a mysterious projection or an inherent property of tonal sequences, current research suggests that emotional responses to music result from a dynamic interplay

¹⁰ In evolutionary biology, the transition from an incidental cue to a conventional signal is known as 'ritualisation' (Tinbergen, 1951). Cultural evolution could produce the same outcome: once a musical cue — such as the low-pitch–low-intensity lament discussed above — reliably elicits a socially valuable response (e.g. shared mourning), imitation and social learning favour its repeated use, gradually endowing it with the social function of intentional communication. Some models describe such 'cultural ritualisation' whenever (i) senders gain by coordinating group behaviour and (ii) receivers gain by correctly interpreting the affect (Jamie, 2017; Lehmann *et al.*, 2014). The pairing of low pitch and low intensity with sadness is therefore not merely associative but a culturally evolved signal that has developed into a representation.

between evolved neural systems, predictive cognitive processes,¹¹ and culturally mediated interpretations.

One influential line of research in affective neuroscience is provided by Jaak Panksepp (1998), who identifies a set of core emotional systems — such as FEAR, RAGE, CARE, and PANIC/GRIEF — that are deeply rooted in subcortical brain structures. These systems, shared across species, can be rapidly activated by certain acoustic cues. For example, a slow, descending melody in a minor key might tap into the PANIC/GRIEF system, eliciting a visceral reaction that we commonly label ‘sadness’ or ‘grief’.

Complementing this view is Joseph LeDoux’s (1996) dual-process model, which distinguishes between a fast ‘low road’ of automatic emotional responses and a slower ‘high road’ that involves conscious appraisal. In musical contexts, the low road might quickly trigger an immediate affective response to familiar acoustic features, while the high road allows the brain to integrate contextual and cultural information, thus shaping the final emotional experience. This dual pathway makes it clear that the emotional impact of music involves both rapid, biological reactions and more deliberate, cognitive processes.

A particularly influential framework in the field was offered by Juslin and Sloboda (2010). Their comprehensive model of music-induced emotion identifies several mechanisms that operate in parallel to produce the affective experience of music. These mechanisms include:

- 1) Brainstem Reflexes: automatic physiological responses to sudden changes in dynamics or timbre.
- 2) Evaluative Conditioning: learned associations between musical features and past emotional experiences.¹²
- 3) Emotional Contagion: processes whereby listeners ‘catch’ the emotion expressed by the music.

¹¹ Predictive coding is another promising account for the explanation of mind (hence — emotion) and recently a proposal has been made to integrate it with teleological theories (Pain & Mann, 2024).

¹² Our aim is to integrate mechanisms such as evaluative conditioning — extensively described by Juslin and Sloboda (2010) and earlier by Sloboda (1986), and further developed in (Juslin, 2019).

Evaluative conditioning describes how specific musical features become linked with emotional responses through repeated associations. The teleosemantic approach could complement this account by providing an additional explanatory layer: it clarifies why certain associations persist culturally, thereby acquiring representational content, due to their success in fulfilling culturally valued emotional functions. Rather than standing in conflict, this model integrates and extends the evaluative conditioning framework.

- 4) Visual Imagery and Episodic Memory: the evocation of personal memories and mental images in response to musical stimuli.
- 5) Cognitive Appraisal: the reflective interpretation of music based on cultural and contextual cues.

Juslin and Sloboda's model illustrates that the emotional experience elicited by music is multi-determined. For instance, the same slow, descending melody might trigger a quick, reflexive response (via brainstem mechanisms) while also engaging higher-order processes that interpret the passage as 'sad' based on learned cultural associations. The convergence of these mechanisms suggests that musical emotion functions both as an automatic, embodied response and a product of cognitive construction — a perspective that fits neatly with our teleosemantic approach.

In contrast to these integrative models, Vladimir Konečni offers a pointed critique of the nature of musical emotion, arguing that the affective responses induced by music are primarily aesthetic in nature. Musical emotions involve a unique blend of pleasure, intensity and cognitive engagement that distinguishes them from the more 'basic' emotions such as fear or anger experienced in everyday life. In his view, while the neural mechanisms underlying musical emotion may overlap with those for other emotions, the emotional experience of music is 'refined' or 'elevated', and cannot be equated directly with ordinary affective states.¹³ In *'Music Causes Emotion': A Reasoned Critique* (Konečni, 2015), he challenges the prevalent claim that music directly elicits basic psychobiological emotions (e.g. anger, sadness, fear, joy) and argues that many studies and popular claims overstate music's emotional power without sufficient methodological rigor. They often neglect contradictory evidence and the critical perspectives of musicians, musicologists and past theorists who emphasize that music is as much a source of contemplation, rational enjoyment and analytical appreciation as it is of emotional arousal. The claim that music 'causes' emotion tends to ignore the significant role of contextual variables. For instance, in many real-world settings — such as concerts or social gatherings — music is experienced alongside other potent stimuli (e.g. lyrics, alcohol, drugs, dance, and even situational factors like the aftermath of traumatic events). These factors may be the actual drivers of the emotional responses frequently attributed solely to music. Konečni links the enthusiasm for the 'music-causes-emotion' thesis to a broader cultural trend he calls — rather liberally — 'emotivism', claiming that this stance privileges emotion and (subjective) sensitivity over reason and

¹³ This view is in line with some influential contemporary philosophical ideas, especially Peter Kivy's work (Kivy, 1989).

interpretative depth in artistic and media representations, thereby biasing both scholarly discourse and public perception. He stresses the need for more rigorous, empirically grounded investigations to disentangle the specific mechanisms by which music might influence emotional states. Konečni suggests exploring various ‘routes’ of emotional induction, including the effects of long-term exposure to musical pieces and the interplay between naturally induced moods and music-listening choices. These are indeed problematic obstacles that suggest we need further work to be able to identify a general — multilevel — integrated mechanism of the functioning of musical emotion, and we’d like to hope that our teleosemantic account could come in handy.

Furthermore, besides the divergent theories mentioned earlier, problems appear when we try to identify a common definition of ‘emotion’ itself. Most recently, in ‘Unlocking the Language: Key Features of Emotions’, Kajetan Hartmann (2024) explored diverse definitions — as many as 72! — and argues for a framework that captures their commonalities without reducing them to a single essence. Hartmann’s work underscores the complexity of emotional language and reinforces the idea that any theory of musical emotion must be flexible enough to account for this diversity.

Together, these contemporary neuroscientific accounts — spanning Panksepp’s affective systems, LeDoux’s dual pathways, Juslin and Sloboda’s multi-mechanism model and Konečni’s critique of musical affect — represent a rich neuroscientific picture of how music can (or cannot?) evoke emotion. They suggest that the emotional impact of music arises from an interplay of automatic, biologically prepared responses and higher-order cognitive and cultural processes and (aesthetic) evaluations. In our teleosemantic framework, this interplay might be seen as explaining how a musical motif ‘acquires’ an emotional meaning — such as ‘sadness’ — when its repeated use in culturally significant contexts reliably induces a desired affective functional state, here realised at the brain(s) level.

7.1. INTEGRATING BIOLOGICAL AND CULTURAL DIMENSIONS

While many scholars have noted that certain acoustic features (e.g. descending lines, slower tempo, minor mode, legato) tend to be related to sadness, these features alone are insufficient to ensure that a given musical form indeed represents ‘sadness’. Teleosemantics bridges this gap by emphasising that the enduring emotional meaning of a sound-structure is not necessarily inherent in its physical properties but is derived from its repeated functional use. Even if a slow, descending progression elicits negative affect in a biological sense,

its stability as a ‘sad’ motif depends on its cultural functioning — its repeated adoption in mourning contexts and its systematic mapping onto a valued emotional outcome. This dual grounding in biology and culture explains why similar musical forms may be stabilised as sorrowful in some traditions (and contexts) while differing in others.

8. CRITICAL ACCOUNTS OF EMOTION — A CHALLENGE?

While many models of musical emotion focus on how specific acoustic features evoke affective responses, a number of critical accounts challenge the very notion that emotions are fixed or universally shared. Griffiths and Barrett argue that what we call ‘emotion’ is far from a single, homogeneous phenomenon. As mentioned earlier, Griffiths has argued that the concept of ‘emotion’ encompasses a heterogeneous mix of processes — from simple, reflexive responses to complex, cognitively mediated sentiments. There may be no single, unified ‘sadness’ that all individuals experience. Additionally, Feldman Barrett posits that discrete emotion categories, such as ‘sadness’ are not naturally given but rather are constructed through contextual and conceptual processes.

Claims like this could be viewed as a serious challenge to any ‘substantial’ theory of emotion. Our teleosemantic proposal for a model of musical emotions, however, seems compatible even with this critical perspective: a musical form is repeatedly used in contexts where negative affect is labelled as ‘sad’, and through this repetition it becomes a stable symbol. Even if sadness is a conceptual act, the consistent reproduction of a structured-sound-motif in sorrowful contexts ensures that it is maintained as a ‘sad-labelled’ representation. The teleosemantic framework thus explains stable emotional meaning without demanding that emotion is an inherent, objective or universal property (a natural kind). The framework thereby grounds this emotional meaning in both its biological and cultural *function*.

9. CONCLUSION

Coming back to Bach’s Double Violin Concerto in D minor, we can recall the experience of being immersed in the interlocking violin lines that seem to embody an interplay of tension and release — a musical dialogue that can evoke profound feelings of longing and melancholy. This paper has sought to explain the origins of such powerful emotional responses — how they arise

from intangible musical forms. Whereas Eduard Hanslick famously maintained that music consists solely of “tonally moving forms,” denying that emotions reside in the work itself, Susanne Langer argued that music “presents the forms of feeling,” thereby symbolically enacting emotion. Yet neither view, on its own, accounts naturalistically for the persistent intersubjective labelling of certain musical patterns as ‘sad’ or ‘joyful’.

By adopting the teleosemantic approach sketched above, we have shown that musical emotions may be understood in terms of both biological and cultural function. Drawing on Ruth Millikan’s notion of proper functions, Karen Neander’s emphasis on the informational role of representational signals and Nicolas Shea’s model of cultural mapping, I have argued that musical structures acquire stable emotional *meaning* when their repeated, effective use in specific contexts explains their endurance. A chord progression or melodic line is recognised as ‘sad’ if it is continually employed in, for example, funerary or lamentation settings — its repeated success in eliciting a valued affect is what has secured its transmission.

To sum up, while the structures of notes of Bach’s concerto remain ‘purely musical’ in the formal sense Hanslick envisaged, it is their historical, function-based use as representational vehicles for deep affect — perhaps mirroring the very morphology of human sorrow¹⁴ — that imbues them with lasting emotional power. This account reconciles the apparent divide between formal autonomy and expressive symbolism and offers a robust framework for understanding how musical emotions arise and endure. Ultimately and hopefully, this synthesis not only provides a new naturalistic philosophical understanding of musical emotion and meaning — but also opens promising avenues for empirical investigation in the cognitive sciences.

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¹⁴ Then how did it originate? Maybe by structural resemblance, à la Langer? This question remains to be answered elsewhere.

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