Characterizing musical gestures

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Abstract

Despite the widespread use of the term gesture in writings about music, the term is not defined in most musical dictionaries. Moreover, as this paper shows, the term is employed by different writers in a wide variety of ways. One common use of the term refers to sonic instances that are close analogies of physical gestures. These could be termed *expressive unit gestures* which, like physical gestures, are perceived as a short, unified, expressive events. To enable a more detailed study of these, this paper outlines a systematic approach to their description in the hope that these will open possibilities for a more detailed study of this aspect of musical gestures. The HamNoSys notation was developed for the systematic description of sign language. Gestures of sign language are notated through a systematic profiling of the actions involved (hand shapes, movement types, etc.). By analogy a musical gesture can be described through its auditory properties such as accent patterns, pitch contour, register, and so forth. This paper suggests that studying these *expressive unit gestures* offers a way of linking the dynamics of the music with expressive potential and can, therefore, contribute to an experiential account of music; could lead to new methods of investigating listeners engagement with music; and could potentially offer new ideas in the field of music information retrieval.

Introduction

The term *gesture* is commonly used by musicologists, performers and composers in discourse about music yet, surprisingly, it receives no definition in any of the major musical reference texts, including Grove, New Harvard, Oxford, or Webster music dictionaries. Music dictionaries define terms such as *texture* and *linear* because their specialized usage in the field of music requires it. I would argue that the same holds for gesture. For that purpose this paper will examine some examples of the use of the term gesture in discussions about music. We will see that different writers apply this term in a variety of ways to describe very different musical phenomena. A narrower application of the term would facilitate a more focused discussion of the role auditory gestures play in music. The final section of this paper will propose an outline for a systematic approach to the description of musical gestures to open new possibilities for studying these.

Webster's English Dictionary defines the word gesture as:

1. a movement or movements collectively, of the body, to express or emphasize ideas, emotions etc.

2. anything said to be done to convey a state of mind, intention, etc.; often, something said or done merely for effect or as a formality [a *gesture* of sympathy].

In discourse on music we find uses consistent with both of these definitions. Conductors communicate ideas and emotions to performers through their physical actions; sound production generally requires physical action. Even when action is not present (or not visible) music almost always implies human agency (Cadoz & Wanderley 2000). But there is more musically related physical action, including actions that modify sounds or movement, that supports sound production (though not directly involved in production) and ancillary movements. Jensenius (2010) includes all of these (and more) as types of musical gestures. They are an essential aspect of musical performance and studying them should inform research about the role of gestures in music. But many of these are not expressive as *body movements*. For example, operating piano pedals (sound modifying gesture, Jensenius, 2010, p. 24) is not a "movement that expresses ideas or emotions". This distinction is even more pronounced with regard to singing. To put it bluntly: the diaphragm is not engaged in *gesturing*. Labelling all movements as gesture dilutes the ability

to focus on the important link between action and expression.

Physical motion is also important from the listener's perspective. Stravinsky, for instance, observed that "The sight of gestures and the movements of the various parts of the body producing the music is fundamentally necessary if it is to be grasped in all its fullness"(Cone, 1974, p. 137). Indeed, recent research has shown that visible action by performers affects audiences' auditory perception[1] We also find use consistent with the second dictionary definition (although this meaning of gesture is less common), for example, when a composer writes a lament as a gesture of sympathy and remorse in response to a tragic event. In each of these cases, a general definition of gesture is sufficient. The first objective of this paper is to investigate usage that conforms less obviously to these general definitions.

Gestures in music writing

The word gesture, as an analogy for musical attributes, was employed at least as early as 1910 when H. Walford Davies discussed a strange new practice of dancing to music that was not written for ballet. He conjectured that there was "nothing indeed to prevent the translation of some of Beethoven's inimitably vivacious Scherzi into gesture" (Davies, 1910, p. 236). In Davies's opinion, however, "the ethereal gesture of the sonata or symphony is superior to the visible gesture of the most irreproachable set of human arms and legs." More recently, Roger Scruton stated that a thirty-bar melodic line from Beethoven's *Fifth Symphony* is a "gesture of comprehensive affirmation" (Scruton, 1999, p. 334). In general, Scruton's philosophy of music elevates the status of gesture as a musical concept; he writes that the "study of musical form is an attempt to understand the way in which musical gestures can be prolonged and brought to a conclusion" (p. 341). He argues that musical forms are not a priori structures, but rather reflect "a large scale working-out of forces that are brought into being by the musical material itself." In this context, gesture and musical material appear interchangeable, but we can probably understand gesture here as: raw material (melody, harmony, rhythm etc.) in combination with the expressive attributes of that material.

In her paper "Metric gesture in Mozart", Wye Allanbrook links the high Baroque *Affektenlehre* with the emerging *galant* style to show how Mozart evokes types of movement associated with musical styles, such as the march, minuet, and gigue, to create meaning through their attendant, culturally understood connotations. These connotations are wide ranging, suggestive of social class, character, and mood. One instance is the transference of the sacred *learned style* (in the form of the slow, processional *alla breve*) to evoke solemn passion in Mozart's secular works. She provides two examples: in the string quartet K. 387 the *alla breve* gesture, in particular its metric attributes, has been transferred from the ecclesiastical domain into the world of the *galant* (Allanbrook, 1981); and, in *Don Giovanni*, Donna Anna "adopts the white notes *alla breve* gesture for an aria in a grand, rather archaic idiom" in which "the two slow half-note beats of near equal accent in the *alla breve* choreograph a dignified, but passionate, march". Allanbrook's use of the term gesture is metonymic: the metric qualities of the *alla breve* are an attribute of the sacred *learned style*. What is interesting here is how music is seen to refer to physical actions to achieve meaning. To convey "sacredness", Mozart transplants a stylistic musical convention of religious music into his secular work because we connect that style with the solemn physical actions of religious duty. For Allanbrook, Mozart's metric gesture points toward an associated physical gesture, which in turn points toward a culturally understood meaning.

Gesture features prominently in Kofi Agawu's account of the opening movement of Mahler's tenth symphony (Agawu, 1986). In one application of the term, short material units(1–2 measures each) are gestures (p. 228). This use of the term, similar to Scruton's, is a straightforward analogy with Webster's first definition quoted above and is what we might call an *expressive unit gesture*: a short, unified sonic entity that has a characteristic shape and identity. In a second application,

1 See for example (Schutz & Lipscomb, 2007).

however, the word is used to describe entire sections. For instance, the final 62 bars are considered "an elaborate closing gesture" (p. 227). That is, the signification of closure – the gesture – is here protracted. Likewise, in a passage where two musical materials successively alternate, Agawu states that "the essential gesture is one of juxtaposition" (p. 228). That is, more than simply featuring a juxtaposition of musical gestures, this passage, as a totality, expresses the concept of "juxtaposition". What is interesting here is that we have "large" and "small" gestures, with the "small" gestures as constituent parts of the "large" gestures. But the fact that, in some sense, both types are gestures seems to be central to Agawu's analysis of the movement when he states that the "movement traces a metaphorical dramatic scenario whose gestural sense looms so large that it dwarfs the specific means by which individual gestures are realized" (p. 223). What unites the two applications of gesture is that each communicates through a non-verbal mode much as a physical gesture would. With the "large" gesture, however, the analogy is not nearly as strong. It has only an indirect relationship with the general meaning – physical gestures are not five minutes long, nor do they have numerous constituent parts. Considering then that the "large" gesture functions in a way quite unlike physical gesture and that two related applications of the word gesture in the same context is confusing, a clearer explanation of what gestures are would clarify the analytical insights offered into the music.

In the epilogue of his book *The Composer's Voice*, in a section entitled "Utterance and Gesture", Edward T. Cone speculates, "If music is language at all, it is a language of gesture" (Cone, 1974, p. 164). Verbal language, he contends, comprises semantic content, which conveys conceptual content, and gestural components, which convey expressive content. Furthermore, "verbal gesture communicates the speaker's (or the writer's) attitude toward what he is saying" (p. 163). "Verbal gesture" is not covered within the dictionary definition of gesture[2], but one understands what Cone means: speakers may inflect the meaning of what they say through their tone of voice in a way analogous to bodily gestures[3]. Extending this idea, Cone conjectures that music operates wholly in the gestural dimension: music communicates through "the direct actions of pauses, of startings and stoppings, of rises and falls, of tenseness and slackness, of accentuations" (p. 164).

In *Opera and Drama*, Wagner also discusses music's non-verbal mode of communication. Wagner suggests that instrumental music can bring out hidden meanings in the drama in a manner akin to an actor's gestures: "the Orchestra is just as able to impart to the Ear as the gesture itself imparts it to the Eye" (Wagner, 1852, p. 319). Cone's assertion (that music is a language of gesture) is also reminiscent of aspects of Schopenhauer's view (by whom Wagner was influenced) that music expresses emotions directly, "in the abstract, their essential nature, without any accessories, and so also without any motives for them" (Tanner, 1999, p. 48). It seems that for Cone, gestures are not musical units, but are rather the energies in music that create meaning. The opening movement of a romantic symphony (e.g., the first movement of Brahms' 3rd), for instance, could be seen as taking the listener on a journey through the ebb and flow of motion and tension, and for Cone it appears that these ebbs and flows are the gestural language of music. It is interesting to note that Johnson's (2007) chapter on music, 'Music and the flow of meaning', takes a similar approach but without referring to gestures.

Even though the term *gesture* is not always explicitly defined in these cases, one can generally infer the term's meaning in each case, and how that meaning relates to the everyday use of the word. For instance, although no physical gesture is anywhere near as long as the extended Beethoven passage that Scruton describes as a "gesture of affirmation", we nonetheless

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2 The Oxford English Dictionary identifies one usage of the word: "as gesture language, -sign, -speech, -syntax; gesture theory, a theory of the origin of language". The citations invoked refer to physical and non-verbal modes of communication.
3 This, of course, harkens back to the classical teaching of rhetoric: "It is by the raising, lowering or inflexion of the voice that the orator stirs the emotions of his hearers" (Quintilian, 1st century AD, 1922).

understand what he means: by analogy, this passage singularly expresses "affirmation" in the same way as a shorter physical gesture might. Allanbrook's usage, in contrast, is not analogical. In her paper, musical meaning is created by evoking the meaning of a specific physical gesture. Wagner and Cone, on the other hand, are concerned with gesture as a distinctive mode of communication. That is, they believe musical meaning is achieved in a manner similar to the way physical gestures communicate. Other usages, such as Davies's "ethereal gesture" and Agawu's "gesture of juxtaposition" are harder to pin down – unlike a physical gesture that conveys affirmation, it is difficult to imagine how juxtaposition would be expressed with a hand gesture – but perhaps we can understand gesture here on a more poetic level.[4]

It is important to also stress that in most of the examples quoted above the reference to gestures and their attendant connotations are germane to the analytical argument the author is making. The fact that it is possible casually to lump such different things all under the same term – gesture - results in vague and sometimes confusing discussions. Thus explicating what we mean by musical gestures and developing some analytical tools to examine these in more detail could provide a clearer discourse.

Narrowing the field

The increasing importance of gesture in writing about music led to some attempts to define the term more clearly. Robert Hatten arrives at the following definition for a human gesture: "any energetic shaping through time that may be interpreted as significant" (Hatten, 2006, p. 1). As John Rink (2007) observed in his review of Gritten and King (2006), casting such a wide net allows for embracing the wide range of application of the term at the price of detail. Nevertheless Hatten offers an interesting model for a cognitive basis for the role of gestures in music. The key features he identifies are the importance of gestures as affectively loaded temporal *Gestalts* which we acquire developmentally as sensorimotor schemata but are then able to apply to other domains. Following from that, Hatten identifies various types of gestures, only the first of which (which he names *spontaneous*) clearly relates musical attributes to attributes of physical gestures. Most of his discussion is devoted to types that are further removed from the cognitive-based description. For instance what Hatten terms *rhetorical gestures* include "the cadential 6/4 that marks the break for a cadenza in a concerto"(Hatten, 2006, p. 6). Seen as a gesture this would be more closely related to the second meaning of the word in Webster's definition, namely: "something said or done as a formality". Furthermore, since most of the gestures he identifies are synonymous with classical topics (e.g., *pastorale*) it is not quite clear what the role of the gesture is in his analysis beyond a marker for the topic.

An important characteristic of physical gestures is that they are short, unified motions with clearly understood meaning or intention (at least within the context they are used). Similarly the prototypical musical gestures would refer to short, self-contained, sonic units that are perceived to have a clear emotional or conceptual signification. We can refer to these as *expressive unit gestures*, to distinguish this narrower use from others.[5] It is within this use that we might observe that Beethoven's music is more gestural than Schubert's, or refer to the early music of Boulez, the music of Ferneyhough, and the expressionist music of the Second Viennese School as highly gestural. Indeed, in his preface to the score of Webern's *Six Bagatelles*, Schoenberg writes:

> Think what self-denial it takes to cut a long story so short. A glance can always be spun out into a poem, a sigh into a novel. But to convey a novel through a single gesture, or felicity by a single catch of the breath: such concentration exists only when emotional indulgence is absent.

4 Examining instances such as these as well as the wider role of metaphors builds on work by Lakoff and Johnsson (Lakoff, 1993). Examples of an applications of these ideas to music theory see Cook (2001), or Adlington (2003).

5 Using qualifying adjectives to categorize different uses of the term follows a practice proposed by (Godoy & Laman, 2010).

Gesture is here understood as a distillation, a concentrated action that expresses an idea or emotion. This link between action (physical or musical) and expression is what makes gestures such an attractive proposition for writers about music. Gestures feature prominently in David Lidov's discussions of musical expression (drawing, in part, on Kivy's synaesthetic theory of musical expression: Lidov, 2004, pp. 131–145; Kivy, 2002, p. 31). Lidov suggests that musical gestures reflect aspects of neurological emotional responses. Put simply, each emotional response has its own neurological process or "dynamic envelope". The anger "envelope", for instance, lasts for less than half a second, whereas grief occurs over a few seconds (and has a different shape). He speculates that one way in which a musical gesture might express a given emotion is by replicating the duration and shape of that emotion's envelope. Thus for Lidov musical gestures are characterized by their duration (though they are all relatively short) and expressive shape. But it is important to note that for Lidov musical gestures manifest themselves as nuances of dynamics and timing in performance measured, as it were, against the notated score. This view severely limits the usefulness of the term by excluding, for example, improvised music or music performed from graphical notation.

This approach draws on Manfred Clynes's '*sentic forms*' (Clynes & Nettheim, 1982). These, according to Clynes, are dynamic shapes expressing emotions directly without symbolic transformation (p. 51). The forms were derived from tracing finger pressure on a touch-sensitive device (sentograph). These were subsequently translated to the auditory domain through mapping of the shapes to both frequency and amplitude of an oscillator. Thus joy, for example, is expressed as "a downward modulation followed by a swing upwards, which then subsides to the starting point. Total perceived modulation range one octave" (p. 63). While Clynes applied these as continuous frequency changes he claims that these could also be mapped to discrete pitch steps by intersecting the dynamic forms with a pitch-time grid (p. 75). In this way it is possible to see some similarities between the sentic form for joy with a *horn-call* theme used in many pieces (e.g., Sigfried's hunting call). But equally, similarity can be found to the opening of Mahler's 5th Symphony, which most listeners would describe as ominous rather then joyful. In general the mapping from pressure measurements to frequency contours requires decisions on scaling (including direction up or down) and offset, which Clynes chose for each sentic form individually. This means that the relationship between the dynamic shape and the resulting sound depend to a very large extent on the mapping chosen. For example reverence and grief, both opening with a gentle increase in pressure, translate to a downward frequency contour for grief and an upward contour for reverence.

The application of sentic forms to music analysis "consists of recording the sentic forms of the work studied along with its pulse . . . [The person performing the analysis] is required to think the music in real time and to record sentoraphically the sentic forms and pulse of the music as it unfolds" (p. 76). How exactly the person is to arrive at the appropriate sentic form is not clear and seems to be even more subjective than most analytical approaches.[6]

Expressive unit gestures

To understand something as a musical gesture it needs to have a clear and self-contained identity. It has to be perceived as a discrete entity, with its own beginning and end, to have a coherent profile (shape or envelope), and it must draw attention to itself and have weight. An *expressive unit gesture* is understood as totality – its constituent parts all subsumed by the larger purpose. And often it has an expressive quality that is derived partly from the musical context in which we find it, but also from its inherent musical qualities. For instance, we can brand a given gesture as "frenetic" regardless of the context in which it is found.

The term *expressive unit gesture* needs to be separated from two other musical terms: motif and

6 See also Schneider (2010), especially p. 92, for discussion of Clynes's later work on pulse and note shaping.

figure. All three – gesture, motif and figure – can be ascribed to a specific short musical unit, and their meanings do overlap. The crucial difference between gesture and motif is the way they are employed. A motif is a unit that is treated as a "basic element from which a complete texture or even a whole composition is created.";[7] no such requirements are placed on the gesture. Confusion arises because motifs are often gestural: one can say that the opening unit of Beethoven's Fifth Symphony is a gesture that is subsequently treated motivically throughout the movement through transformations that weaken its gestural coherence while simultaneously reinforcing the motivic nature of the musical process. These terms need to be kept apart, however, as a gesture need not be treated motivically, and a motif need not be a gesture.

There is less standardized understanding of exactly what a *figure* is (referring here to the figure that constitutes musical *figuration* rather than the rhetorical *figure*). Webster's Dictionary of Music defines it as a "characteristic group of melodic notes",[8] whereas the New Harvard says it is "A motive or pattern that is ornamental in character". We can understand *figure* as a basic short musical unit which is distinct from a phrase because it is too short, not melodic in nature, or because it is an ornamental entity applied to a melodic note; and that figure is different to gesture because a figure need not be expressive or self-contained.

It is also important to note that while we often identify both motive and figure with their melodic content this is not the only musical option. Rhythm can become the prominent motivic element, as for example in *Ionisation* by Varese, or Berg's use of *haupt-rhythmus* in his opera Lulu or the violin concerto. Similarly the rhythmic profile of figurations can be the constant, unifying aspect as in the undulations of the Alberti bass, the dotted rhythms of a funeral march or the characteristic patterns of dances such as the tango or the gigue. The later two examples both relate to physical movement, whether the funereal halting walk or the stylized motion of dancing, in ways similar to Wye Allanbrook's discussion of Mozart above. But, just like the dancing itself, the expressive gestures exhibited are not found in the repeated basic patterns which identify the genre but are used, by the dancer or the composer, to work with and around the basic figuration.

The opening phrase of Grieg's *Albumblad* establishes the rhythmic profile of the main motive for the piece:

EXAMPLE 1

The melodic contour is inverted in measure 3, but the rhythmic profile maintains the very clear link. Measure 25–26 develop this motive further by extending the melodic motion upward instead of embellishing a single note. Measures 27–28 are a gesture. It continues the upward motion established by the previous measures but without the characteristic rhythm. It is self-contained and unified – texturally, rhythmically, melodically. This faster, denser texture is then used as the right-hand figuration from measure 29 until the return of the original material (measure 50).

Figure	Motive	Gesture
background	foreground	foreground
regular repetition	repeated	can be repeated
varying some dimensions.	developed	salient characteristics preserved when repeated
incomplete(fragment of larger whole)	can be complete but open to extension.	Complete - extension counters gestural identity.

Table 1: summary of main differences between stereotypical figure, motive, and gesture. The actual instances would not all have all these characterisations and there is some overlap (e.g. a gesture then is subsequently treated motivically, or a motive becoming a figure)

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7 *The New Harvard Dictionary of Music*. 2001, p. 513.
8 *Webster Dictionary of Music*. 1998, p.159.

We find many examples in music literature where the term *gesture* is used to mean *expressive unit gesture*. Here are a few examples. On Webern's opus 18: "The clarinet's opening gesture of repeated notes followed by a leap returns throughout the clarinet and guitar parts" (Webern Project). And on opus 21: "In a move away from the tiny individual gesture, Webern employs more sustained textures with material treated in canon and imitation" (Wells). "Like Webern, György Kurtág is the other kind of minimalist: he concentrates an emotional experience into the smallest possible musical gesture"(Shirley). On Schoenberg: "Even if in its expressionist syntax the gesture still draws upon elements of tonal music. . ." (Danuser, 1998), and "Shawn also offers easy-entry points into the work ["Pierrot Lunaire"] by illustrating how the opening piano gesture becomes transformed through the cycle" (Covell, 2002). "In Luca Francesconi's *Riti Neurali.3.studio sulla memoria*, violinist Arditti lunged into the opening bars slicing through each gesture as though his life depended upon his stabbing each and every note through the heart" (Valliere). Jonathan Harvey writes that Brian Ferneyhough is "as suspicious of the isolated expressive gesture which directly draws on well-established codes of signification, such as may be obtained through flirtations with tonality, as he is of dance-like body rhythms" (Harvey, 1995, p. ix.) And, in her paper on Scriabin's use of archetypes, Susanna Garcia writes that the fanfare archetype "is typically a gesture of one to three short note anacrusis to a sustained note"(Garcia, 2000, p. 278) and that this gesture obtains its identity through its familiar shape rather then its intervalic content.

We can see several threads running through these quotations. A musical gesture is first a sonic object, and one that is brief, having a clear profile that makes it identifiable and possessing expressive faculty. The sonic object is understood as a single entity where the purpose of each part is directed towards the whole; the type of action, then, may be more important than the content of that action. And, as an extension of that, the object becomes a gesture when the material is comprehended not just as musical material, but also as something that points towards an idea or emotion.

Physical and musical gestures

An *expressive unit gesture* is the auditory analogue of physical gesture, as defined in the dictionary. In other words, it is literal usage one degree removed, as it is a sonic rather than a physical action. Nevertheless, in a musical world gestures operate very differently from their physical analogues. It is, to some extent, comparable to the difference between how we view commonplace physical objects in everyday life as opposed to how we view those same objects in works of visual art (two famous examples are Duchamp's urinal and Warhol's *Brillo Boxes*). Art philosopher Arthur C. Danto believes that in everyday life one views such objects with a "practical attitude", whereas when they appear in artworks a "psychic distance" is created, "a special insulation that a transformation of attitude puts towards us and the objects of our attentions"(Danto, 1983, pp. 21–22). In other words, in the everyday, we treat most objects simply functionally, whereas in art they are objects of contemplation. Likewise, a physical gesture in everyday life is generally functional in purpose and refers fleetingly to a specific situation. In Danto's terms, we view physical gestures with a "practical attitude" while we hear musical gestures with a psychic distance that allows us to perceive both their expressive and aesthetic aspects. However, unlike the transplanted visual object – which is the same thing appearing in a new context – musical gestures are merely sonic analogies to physical gestures.

As in any analogy, there are similarities between musical and physical gesture that give rise to the labelling of musical gesture as *gesture*. Musical gestures are similar to physical gestures to the extent that a given action can, with differing levels of precision, produce a meaning. The *expressive unit gesture* is the kind of musical gesture that comes closest to the first dictionary definition: "a movement or movements collectively, of the body, to express or emphasize ideas, emotions." Like their physical counterparts, musical gestures are short, unified sound utterances, characterized by their dynamic envelopes, and they have an expressive potential realized in a

specific musical context. But, as in any analogy there are also limits to the comparison.

Within the construct of an artwork it is a common assumption that everything has intended interrelational value, which is not something we would say of physical gestures in everyday life (where the specific meanings are usually localized). Music is a temporal medium with *structured* and *bounded* time. The temporal boundaries of a musical work allow for repeated experience, and in turn, the meaning of a gesture can be re-evaluated. In comparison, we hardly ever refer back to a physical gesture after the event, and when we do, we seldom consider its role in a larger context. Within the musical work, a gesture will have different meaning and weight depending on where in the piece and in what context it takes place. We respond differently to a gesture appearing at the start of a work, compared with somewhere in the middle; a gesture may have greater rhetorical value if it appears with silence either side; the impact of an overblown gesture at the end of a minute-long piece is not the same as when it appears at the end of an hour-long piece. Musical gesture is also different from its physical counterpart because we assume that a composer (who is working on a piece outside the time of its realization) acts with greater intention than a speaker in casual conversation. Furthermore, the focus of these intentions usually takes a different nature. A composer may be concerned with a gesture's narrative function or with its integration into a network of connections; a gesture may establish characterization or evoke natural phenomena; its purpose could be argumentative or harmonious, to signal change or reaffirm the status quo. Musical gestures are also different from physical ones because they are both an expressive unit and the musical material from which the fabric of time is spun. It is because of these circumstances – as well as the fact that "gesture studies" is becoming more prevalent as an apparatus with which to consider music – that the term *expressive unit gestures* is useful.

Classifying musical gestures

Agreeing on the meaning of the term is a first step towards understanding what musical gestures might be and what role they are perceived to play in various musical contexts. Having a systematic way of identifying and characterizing musical gestures could offer a departure point for studying gestures as a musical phenomenon. Again, looking at physical gestures offers a potential paradigm.

The Hamburg Sign Language Notation System (HamNoSys; Prillwitz, 1989) was developed over many years for the purpose of studying the gestures of sign language. Now in its third version, its basic principle is to capture a gesture by notating its components, creating a profile of a gesture. Thus the system includes notational symbols for the various hand configurations, arm positions, body orientation, and movements involved in signing. A gesture would be notated as a set of symbols referring to its attributes – for example the spatial location in relation to the body left or right, high or low, or the various possible shapes of the hand. The sequences become an identifying profile of the gesture but can also serve as a basis for comparison: the more attributes two gestures share, the closer they are (visually, though not necessarily semantically).

Expressive unit gestures, as defined above, can be described in a similar fashion. Among the attributes that can profile musical gestures are stress patterns, amplitude envelopes (dynamycs), acceleration/deceleration (time stretch), pitch contours, register, and more. As a tentative first step towards developing such a system the following examples illustrate how this approach might work, but they also show the difficulties arising from the difference in nature of sonic gestures and their musical context as compared to their physical analogues.

EXAMPLE 2

In Debussy's 6th Prelude from the second book ("General Lavine" – *eccentric*) a very short gesture (a) is repeated prominently and consistently throughout. The iambic stress pattern is the most obvious characteristic of this gesture. It is also very brief indeed even in the context of gestures that are mostly short utterances. It is mostly repeated verbatim or in transposition (b) of

an octave or a fifth (essentially from dominant to tonic). The only transformation is by extending the action (c). This extension brings out two additional features of this tiny gesture: the importance of the overall downward pitch contour despite the initial upward leap, and the gradual decay of the sound which is inherent in the instrument. Thus the decrescendo marked in the score makes explicit the percussive-type amplitude envelope of the original gesture – a sharp attack followed by an immediate decay. Or – to use ADSR terminology common in computer music application – a sharp Attack, rapid Decay, little or no Sustain, leaving a relatively long Release. Still missing in the profile are the harmonic relations of the notes. Surely a similar pattern built on tritones and sevenths instead of the fifths and octaves would be heard quite differently. We can describe this attribute as a measure of harmonicity – noting that the constituent notes of this gesture are essentially the lowest overtones.

EXAMPLE 3

The third example, from Scriabin's Sonata Number 8, shares some attributes with Debussy's: the downward pitch contour – even more pronounced here – and the decrescendo. The latter is not in the score and could be a performance choice (Ashkenazy's complete sonatas recording) but the initial left hand arpeggio provides a sonic impulse which gradually dissipates. A comparison of different performances could provide a clearer picture of this aspect. The overall dynamic context *p* or *pp* in Scriabin compared with Debussy's *f* marking, together with the relative longer duration in Scriabin's case, make the gesture sound less percussive but they do share a similar dynamic envelope. One obvious difference between these two examples is in the stress pattern. The absent of the anacrusis makes this a trochaic as opposed to Debussy's iambic pattern. In this example the 'internal' stress of the gesture does not match the metric accent pattern of the measures. But the overall fluid nature of the music, the arpeggiated left hand chord, the legato and the pedal contribute together to establishing the trochaic nature of this gesture. While this gesture appears in various transpositions it is consistently presented in roughly the same registration. This maintains the fleeting or ethereal quality of this gesture which would have been lost if the downward motion were transplanted much lower. The pitch content of this gesture is much less harmonic (not in the functional sense but in relation to the overtone series) than Debussy's, and varies to match the preceding chord. The intervals composing the descending pattern are mainly perfect fourths interspersed with the occasional tritone or third (some spelled as diminished fourths), yielding various pentachords and hexachords. Still they are all heard just as different manifestations of the same gesture. In other words the gestural qualities are more prominent than the harmonic context in which they appear.

EXAMPLE 4

While Examples 2 and 3 shared many characteristics with each other the final example (a), from Liszt's Piano Sonata in B, differs from both in more attributes. The gesture here is longer than either and the melodic contour moves slightly up but is mostly static. The stress pattern corresponds to the bar structure with a strong stress on the downbeat of the first measure and a lesser one on the final note. The amplitude envelope here is similar to that of a sustained note: sharp Attack, only minor Decay, long Sustain, and short Release. The pitch content is very chromatic (with minor adjustments when transposed) and is thus furthest away from the harmonicity of the first example. This gesture is mostly presented in the low register which, with its muddy sonority, masks the regular rhythm of the repeated note to an extent. Liszt repeats this gesture several time in its purest from in the sonata, but he also uses it as source material for weaving the music fabric. A common thread in the way Liszt does this is to reduce the gestural qualities of the material. Removing the head and the tail of the gesture (b) leaves a much more generic figure amendable to motivic transformations. This truncation removes the strong stress pattern as well as the clear envelope shape of the original gesture. The higher register highlights the rhythmic regularity further emphasized by the changed pitch on the third (accented) beat. Another version (c) is even further from the original and serves, eventually, as a fugal theme. The

pattern is stretched by doubling the rhythm and extending the melodic contour up. Again the initial upbeat is missing and the register is even higher than the previous version.

These examples, while very limited in their scope, serve to illuminate how adapting the principles of the HamNoSys from the domain of physical gestures to the description of musical ones might work. The profiles generated for different gestures could serve as a starting point for categorizing the relationship between different types of gestures – with the degree of shared attributes offering a measure of similarity. The examples above also illustrate the need for a musically informed translation that takes into account the musical context of the gestures as well as their sonic identifiers. Furthermore, while a video recording should provide all the necessary information for codifying physical gestures, an informed discussion of musical gestures would benefit from examining both the notation of the music (where it exists) and audio recordings.

Conclusions

The term *gesture* is used extensively in discussions about music and its importance seems to be increasing. In most cases the way in which the word is used relates to the commonly accepted notion of physical gestures but the result is sometimes ambiguous, and different authors use the word to mean different things. Using the term *expressive unit gestures* to describe short, self-contained musical units would allow for a clearer and more consistent discourse about what is gestural in certain types of music, how these gestures relate to other musical parameters, and how they affect our perception of the music.

A method for identifying and characterizing musical gestures would serve as a basis for studying the role they play in the music. This paper suggests adopting an approach inspired by the HamNoSys, where gestures are described by enumerating their basic sonic attributes, creating a distinctive profile forming a basis for identifying individual gestures but also relationships between different types of gestures. Examples 2, 3 and 4 above identify some of the basic attributes for systematically characterizing gestures: stress patterns, melodic contours, amplitude envelopes, or the degree of harmonicity/chromaticism. Unlike Clynes' essentic forms discussed above, which rely on identifying within music a predefined set of forms, additional features (dimensions in a vector representation) can be added to the profile of gestures enabling the vocabulary to develop with new insights. Taking this system forward would require a detailed examination of a large number of gestures from a wider selection of musics.

But this is not just a tidying-up exercise to allow music theorists to communicate more effectively with each other. Studying musical gestures and the role they play in music is important for the same reasons that the term is increasingly common in the first place – gestures are expressive. Musical gestures, therefore, offer a potential for linking music as an audio phenomenon with its potential for expressive communication. At least for music that is gestural, and not all music contains gestures prominently, codifying gestures and then examining the interrelationship between gestures, musical processes, and the unfolding of musical drama could offer ways of examining the experiential nature of music.

One potential field of study is much contemporary music. Compared with the extensive studies devoted to earlier periods of western art music, critical scholarship of recent music is fairly rare. Much contemporary music, especially of composers who eschew a strong metric grid, has strong gestural qualities, making these a fertile ground for collecting gestures to start building a broader understanding of musical gestures. Conversely, understanding gestures and how they relate to larger musical context could provide an interesting angle for the study of the music of composers such as Harrison Birtwistle or Luigi Nono. While we do have detailed studies examining the composition techniques used by these and other composers, giving a useful account of the methods they employed in assembling their work, examining what kind of gestures are used and how they work in the musical context could provide insights into the experiential nature of

listening to these pieces.

More broadly, recent research suggests that the perception of motion informs aspect of music cognition (e.g., Bharucha, Curtis, & Paroo, 2006; Leman & Camurri, 2006). If that is indeed the case then using the method proposed here to describe musical gestures – profiling the spectro-temporal characteristics that identify gestures – could provide a basis for new experimental studies in music cognition.

Finally gestures could contribute, in conjunction with other musical parameters, to the developing field of music information retrieval. It is possible, for example, that certain musical styles or even specific musicians (e.g., jazz performers) use typical gestures, or a specific mixture of gesture types that would help identify them. It is also possible that different sections of a piece (of a specific genre) contain different gestures, or use gestures in a typical way, or that the density of gestures varies significantly between sections.

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Example 1
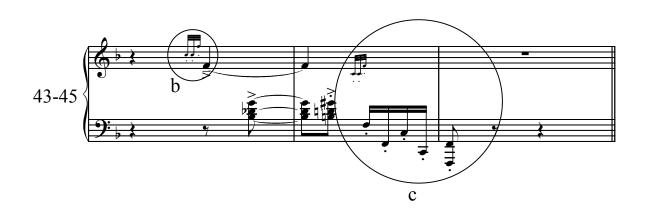## Grieg - Albumblad (Lyric pieces Op. 47/2)

Example 2
Debussy - second book of preludes #6

Example 3
Scriabin - Sonata no. 8

Example 4
Liszt - piano sonata in B.