Vella, R. (2003). *Sounds in Space, Sounds in Time*. London: Boosey & Hawkes

2 CAN I QUOTE YOU ON THAT?

The following descriptions show the diverse use of the word 'music'.[3] What is each speaker trying to say? Is the quotation telling you about music, what it can do or something else? Decide what each one is saying, with reference to the context, background and motivation of the writer. Can you group the quotations into categories?

1 Music is the medicine of a troubled mind. Walter Haddon

2 Music is well said to be the speech of angels. Thomas Carlyle

3 Music hath charms to sooth a savage breast. William Congreve

4 You just pick a chord, go twang, and you've got music. Sid Vicious

5 Music is a safe kind of high. Jimi Hendrix

6 If music be the food of love, play on. William Shakespeare.

7 If the word 'music' is sacred and reserved for eighteenth and nineteenth-century instruments, we can substitute a more meaningful term: organisation of sound. John Cage

8 All music is nothing more than a succession of impulses that converge towards a definite point of repose. Igor Stravinsky

9 Music is the arithmetic of sound as optics is the geometry of light. Claude Debussy

10 Music is a sublime art precisely because, unable to imitate reality, it rises above ordinary nature into an ideal world, and with celestial harmony moves the earthly passions. Gioacchino Rossini

11 Music tells no truths. P.J. Bailey

12 A distinguished philosopher spoke of architecture as frozen music, and his assertion caused many to shake their heads. We believe this really beautiful idea could not be better reintroduced than by calling architecture silent music. Johann Wolfgang von Goethe

13 A piece of music is simply a chink of time you are simply paying attention to with your ears. Barney Sanford Childs

14 A method of employing the mind without the labour of thinking at all. Samuel Johnson

15 Music is a kind of counting performed by the mind without knowing what it is counting Gothfried Leibniz

16 Mathematics is music for the mind; music is mathematics for the soul. Anonymous

17 Music is a complex of activities, ideas and objects that are patterned into culturally meaningful sounds recognised to exist on a level different from secular communication. Anonymous

18 Music is the incorporeal entrance into the higher world of knowledge which comprehends mankind but which mankind cannot comprehend. Ludwig van Beethoven

19 Music never expresses the phenomenon, but only the inner nature, the in-itself of all phenomena, the will itself. Arthur Schopenhauer

20 Music is your own experience, your thoughts, your wisdom. If you don't live it, it won't come out of your horn. Charlie Parker

21 Music is ... well I know it's better than working in Ford's. Ian Dury

22 Music is an organisation of sounds which is intended to be listened to. R. Murray Shafer

23 Music – that no one knows what it is – and the less he knows what it is, the nearer it is to music. Charles Ives

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2 WHO'S ASKING?

In Akan society, if someone scraped mud off a bottle with the lid of a cigarette tin, he would produce noise as a by-product. If he performed this act of scraping in the performance of ahyewa music, the sound, though similar, would have a different meaning. It would be purposeful in a musical sense.

J.H. Kwabena Nketia[5]

1 MUSIC IS... (SECOND VERSE)

As we listen to sounds, we allocate meanings to them. We need to do this for them to make sense. However, a sound might have a completely different meaning to two different people. This is why context and our relationship to the sound event are important. The process of listening has three aspects:

1 the music itself,

2 its context and

3 its meaning.

The music itself includes all its auditory qualities; its context is defined by where or how the music is positioned in relation to the listener and its purpose: listening to music through a pair of headphones, for example, is a very different experience from hearing it in the concert hall; and the meaning of the music is determined by who is listening and the cultural experiences and associations of the audience.

Consider this: do you think your national anthem would have the same meaning to each of the following listeners?

1 a tribe from a remote region who have never had any contact with your country,

2 a group of soldiers during World War Two,

3 you, when you were in junior school.

Conversely, do you think this music would have the same meaning for these listeners many years later? The complexity of meanings embedded in music and their relevance to different social groups is summed up by Alan P. Merriam in *The Anthropology of Music*. He argues that a universal music – one that can be understood and appreciated by any group of people in any culture – is unachievable because every cultural group assigns its own meanings and associations to the way sounds are used and heard.

2 MUSIC IS... (THIRD VERSE)

When music is viewed in these terms, one can begin to appreciate just how complex it can be. Its definition needs to take into account variables ranging from the cultural conditioning and expectations of the participants, the social function of the music and its familiarity to the listener, to the physiological factors that affect how we listen.

Sometimes the concerns that affect composing are not crucial to listening or performing. Compare it with a car race. Is watching the race the same for the spectator as the driver? The driver requires different skills from the spectator. And does the driver need to know the same things as the designer of the car?

Activity 1

Sing the first line of the Christmas carol 'Silent Night', sliding from syllable to syllable:

Si／＼lent＼night／ho／＼ly＼night

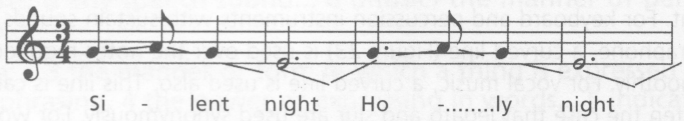

Figure 25: *'Silent Night' notated with pitch bends.*

The expressive power of the glissando and even more so, the portamento, cannot be underestimated. In many types of music the whole style is defined by pitch slides. Most popular and folk singing styles capitalise on pitch bends in various ways for their expressiveness (e.g. guitar solos and blues singing). A very famous example of a pitch slide can be found in the opening of George Gershwin's *Rhapsody in Blue* (1924).

Listening Example 40: Vocal demonstration of pitch bends

The melody is sung first with pitch bends and then without. The expressiveness of this solo is created by the slight pitch bends between the notes.

Listening Example 41: Trombone melody using pitch slides

The trombone's use of a slide to articulate notes makes it an ideal instrument for portamento.

Listening Example 42: *Asp 3*, Brigid Burke and Rainer Linz (1996)

This duet for clarinet and electronics is completely based on glissando. Movement is created by various types of slides using different speeds and register sweeps. It is hauntingly beautiful, full of harmonic colour and invention.

Activity 2

Listen to someone speaking, especially if it is in a language you don't understand. Listen to the subtle pitch inflections, the changing rhythms of the voice, the vocal utterances and sounds and the creation of accent by exclamation.

Special Topic 1

Glissando or Portamento?

Which term is used depends upon the type of instrument in question

Portamento is used for slides on instruments which do not have frets or fixed gradations of pitch, such as violins, trombones and the voice. Glissando is used for instruments such as the piano, harp and guitar. No matter how quickly a glissando is played, one can still hear a progression through the discrete pitches. The portamento, on the other hand, is one continuous slide in which no discrete progression can be heard. Quickly running your hand over a piano keyboard is an example of a glissando whereas a wailing police siren is an example of a portamento. A pitch bend such as stretching a string with the finger while playing on a guitar is a portamento, but sliding the finger up or down the guitar string over the frets is a glissando.

There is a lot of ambiguity in the use of these two terms. In many situations, a glissando is used to refer to a large sweep while small slides between two adjacent pitches is referred to as a portamento. Although technically incorrect, you should be aware of such vernacular uses of these terms. *R.V.*

Special Topic 2

4'33" by John Cage (1952)

4'33" for any soloist or group of instrumentalists by the American composer John Cage (1912-92) is a landmark of twentieth-century musical aesthetics. The score has three movements, each with the instruction tacet (remain silent) and a period of time. The total of the three movements equals four minutes and thirty-three seconds. The musician or musicians enter, open their scores, prepare to play but do nothing. At the end of each movement, they adjust their seats before proceeding on to the next movement. The work caused a sensation when it was premièred. Instead of asking the audience to listen to the music as an object of reproduction, 4'33" acts like a framing device for all the sounds that fill the concert hall: people breathing and coughing, the rustle of programs, embarrassed laughter and passing cars. 4'33" questions the word 'music' by demanding that the listener abandon the strategy of screening out sounds and listen instead to all sounds as musical events and with equal intensity, not just those specified by the composer or musician.

R.V.

3 TIME AND RHYTHM

Music is a temporal art. Without time, there can be no music. Every culture has its own understanding of time and rhythm and a comprehensive study of the two in music is a book in itself.

RHYTHM: The temporal relation between one point in time and another which can be regular, irregular or both.

Between any two sound events a period of time must elapse. The frequency of events can be repetitive or variable. 'Tick, tock, tick, tock' is repetitive whereas the rumble of thunder in a storm is variable.

PULSE: One of a series of regularly recurring, precisely equivalent stimuli. A series of pulses divides time into exactly equal units.

The pulse is the measuring stick of any music based on counting. A good example of a pulse is a metronome. Each new click is exactly the same as the preceding one. Pulses should not be confused with beat (see below).

GROUPING: The organisation of counts into even or uneven collections.

Grouping arranges material into units and is a crucial aspect of any rhythmic organisation. These grouped units can be even (Figure 74), uneven (Figure 75) or combine even and uneven numbers. Clap on each count of 'one' in the following two examples:

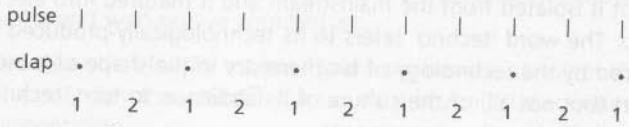

Figure 74: *Grouping pulses into regular counts of 2.*

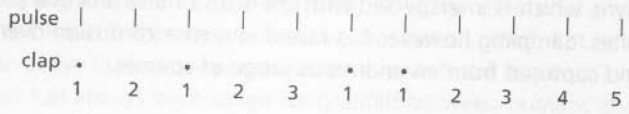

Figure 75: *Grouping pulses into irregular counts of 2, 3, 1, 5.*

BEAT: The regular or irregular organisation of a pulse into a repeating pattern.

It is very common to confuse beat with pulse. In simple parlance, the beat is what the body feels and is the most common main reference for counting time. Generally the beat is regular and manageable because the body has its physiological limits. So long as this is the case, the pulse and the beat can be the same. However, there are many types of music in which the beat is grouped into a repeating irregular count. A typical beat pattern in a lot of Greek music organises the pulse into a repeating seven count: 2 + 2 + 3. This means the pulse is grouped into a cycle of seven in which the beat is even for two counts and uneven for the third. Figure 76 groups the pulse into counts of seven.

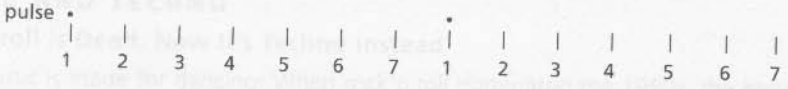

Figure 76: *Grouping of a pulse into counts of seven.*

Instead of counting 1, 2, 3, 4, 5, 6, 7, it is easier to count as 1, 2, 1, 2, 1, 2, 3:

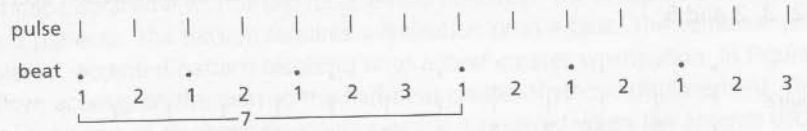

Figure 77: *Repeating irregular counts of 2 + 2 + 3.*

TEMPO: The speed of the pulse. It is measured in terms of number of pulses per minute.

SUBDIVISION: The division of the beat or pulse into smaller equal units. These units can be any value: two, three, four, five, etc.

The next example shows a beat occurring regularly at ♩ = 60. The subdivisions are evenly spaced within each beat:

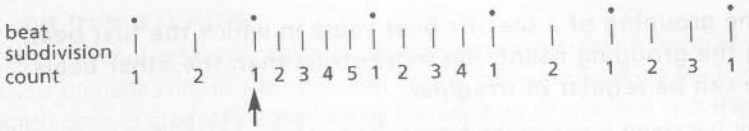

Figure 78: *Various subdivisions of a beat.*

In traditional notation this rhythm would written like this:

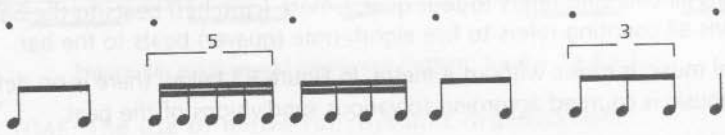

Figure 79: *Traditional musical notation of Figure 78.*

ACCENT: An action or quality applied to a sound event to create emphasis or draw attention.

Accents can occur on a subdivision or a beat. Dynamic accents are the most common, indicating a sudden change in loudness, and they are sustained for the value of the note to which they are applied. For example, the following pulse is dynamically accented at irregular intervals. The accent indication > means 'articulate louder than the unaccented notes'.

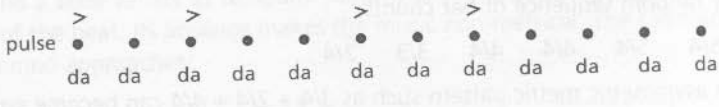

Figure 80: *Groupings created by dynamic accents.*

Accents group rhythmic values together. In the last example the dynamic accents grouped the pulses into counts of 2, 3, 2 and 5, but there are other ways of creating an accent and grouping notes, using a distinctive articulation, rhythm, register, pitch and silence:

Articulation

In this example the small dot •, indicating a staccato attack, creates articulation accent groups of 2, 3, 2 and 5.

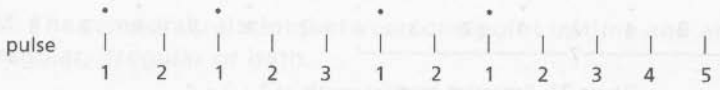

Figure 81: *Grouping created by staccato articulation.*

Register

The distinctive register of the high bongo in this example, groups the following pulse into counts of 4 and 3:

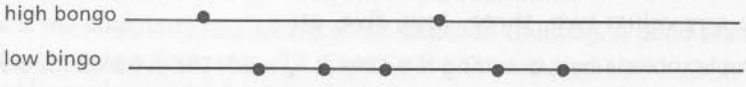

Figure 82: *Grouping created with register.*

METRE: The grouping of a specific beat value in which the first beat, indicating the grouping count, has more stress than the other beats. The metre can be regular or irregular.

The metre or bar count is one of the basic building blocks of Western music. It enables performers to keep together by using the first beat of each bar as a common reference point. The metre consists of two components: the number or beats per bar, and the value of the beat to be counted:

4/4 means all counting refers to four quarter-note (crotchet) beats to the bar;
5/8 means all counting refers to five eighth-note (quaver) beats to the bar.

Non-metrical music is music without a metre. In Figure 83 below there is no definable metre. The music is counted according to various subdivisions of the beat.

Figure 83: *Non-metrical music.*

SYMMETRICAL METRE: The sequence of regular metres.

ASYMMETRIC METRE: The sequence of irregular metres.

Asymmetric metres are quite common. An asymmetric bar structure can consist of a completely random sequence of bar counts:

4/4 5/4 5/4 4/4 4/4 3/3 2/4 ...

However, an asymmetric metric pattern such as 3/4 + 2/4 + 4/4 can become symmetrical if it is repeated:

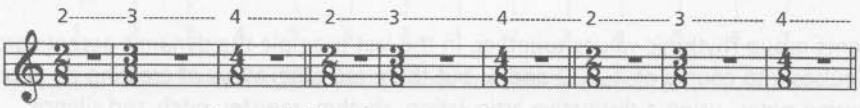

Figure 84: *Repeating asymmetric metres.*

SYNCOPATION: The placement of accents off the beat requiring resolution on the beat.

Syncopation is a type of rhythmic dissonance. The off-beat accents in a pattern create a rhythmic displacement. This produces tension between the accepted beat and the accented off-beat patterns. The tension requires a resolution onto a beat. The combination of a displaced, accented pattern resolving onto a beat creates syncopation. In Figure 86 the shift from accents on the beat to the half-beat creates rhythmic displacement. One hears and feels a sense of rhythmic dissonance which is resolved when the accents occur on the beat again.

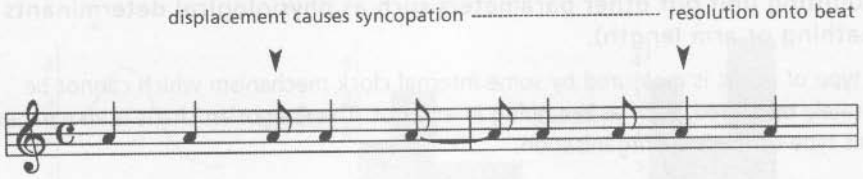

Figure 85: *Syncopation.*

ADDITIVE AND SUBTRACTIVE RHYTHMS: The addition or subtraction of a rhythmic unit from a rhythm.

The expansion and contraction of rhythmic patterns or values create a sense of elasticity as events become unpredictable in their duration. In the following example the basic counting unit, an eighth note, is gradually expanded by the addition of a quaver. It is then reduced to the original rhythm by the gradual subtraction of a quaver.

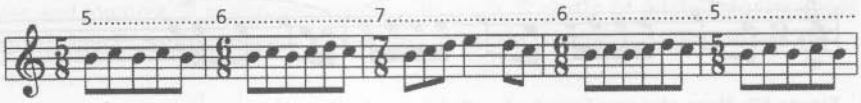

Figure 86: *Additive and subtractive rhythms: 5 + 6 + 7 + 6 + 5.*

METRICAL TIME: The use of metre for rhythmic organisation.

Music based on metrical time is very common. Popular music, marches and dance music are just some examples. An important aspect of metrical time is the presence of a perceived beat (i) to which all rhythms refer, and (ii) into which the beat is grouped. The metres can be either symmetrical or asymmetric in organisation.

DURATIONAL TIME: The use of a counting unit for rhythmic organisation to destroy any sense of regular beat groupings.

Much of the music of the twentieth-century Western repertoire has no perceptible beat or pulse. The beat or pulse, if present, is an abstract concept whose function is to hold all the parts together. In durational music it is common to see ties, freely accented notes, uneven groupings and a wide variety of temporal subdivisions. The purpose of these is to destroy any feeling of the beat. Its absence makes the music non-metrical. The following examples are two common approaches:

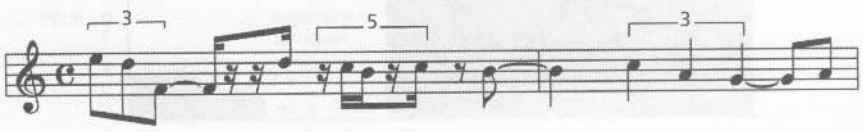

Figure 87: *Durational time with free accentuation in which the beat is abstract.*

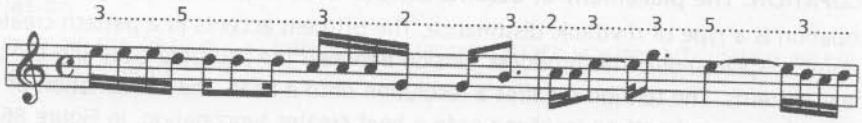

Figure 88: *Durational time using the sixteenth-note as a counting unit.*

ORGANIC TIME: The construction of sound durations based not on a pulse or counting unit but other parameters such as physiological determinants (breathing or arm length).

This type of music is measured by some internal clock mechanism which cannot be accurately measured, such as breathing in and out. The Gregorian chant is an early example of this type of rhythmic organisation.

PHRASE RHYTHM: The length of musical phrases measured in beats or bars.

Phrases are present in metrical and much non-metrical music. They can be very short or very long. The sequence of phrases creates a rhythmic structure which can be regular or irregular. The first note determines the length of each phrase. A phrase of two bars in 4/4 has a rhythmic value of a tied semibreve (4 + 4 = 8). Mozart's piano sonatas generally use irregular lengths of phrase. A good improvisation solo uses varying lengths of phrases to avoid predictability.

Figure 89: *Three phrases of regular length (phrase rhythm = 𝅗𝅥 + 𝅗𝅥 + 𝅗𝅥)*

Figure 90: *Three phrases of irregular length (phrase rhythm = 𝅗𝅥 + 𝅗𝅥. + 𝅗𝅥)*

IMPROVISATIONS

Start and finish the session with a free or structured improvisation.

1 Play a clapping game with another person so that you accompany each other, swapping parts around or playing together at the same time. The game will require you to decide when your playing is in the foreground, middleground and background. Try the game again with three or more people.

2 Do the same as in the previous clapping game with voices, instruments, sound-producing objects or a combination of all three.

3 Using at least two performers, perform the following graphic using any sustained note at any register. The length of the note is determined by the length of the dynamic indications. Discuss the sound structure that results.

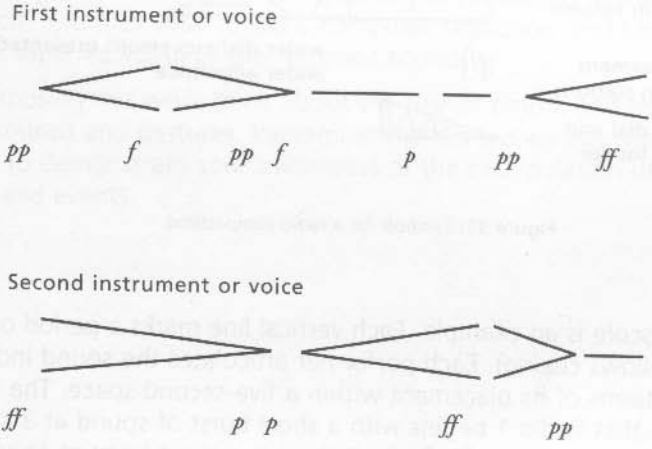

Figure 34: *A two-part work based on dynamics.*

Special Topic 1

Architectonic Structures and Metric Rhythm

The music with which we are mostly familiar (such as pop and nineteenth-century music) explores a temporal system based on metric hierarchy which is architectonic. This means that every level in the temporal hierarchy reinforces every other. The traditional hierarchical approach divides units of time into two and three which can in turn be divided into further units of two or three.

Listening Example 68: Demonstration of an architectonic structure

Tap out the time strata you hear or feel in this piece – there will be more than one. For example, the four beats to the bar, the downbeat of every fourth count or the brass chord accent on every sixteenth count. This example is a rigid demonstration of an architectonic structure using multiples of two. As a result, its concept of time is uniform, each level reinforcing the next. In most music, these levels are only implied.

The rules of perspective are to traditional landscape painting what architectonic structures are to metrical music. Landscape paintings all conform to the same rules of perspective: a sense of infinity is created as all of the lines converge at the vanishing point.

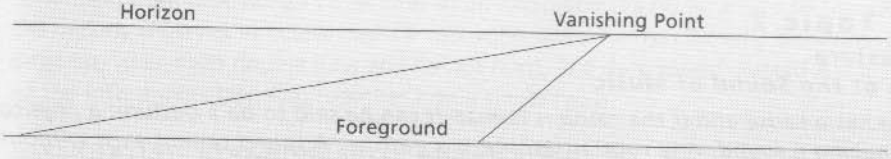

Figure 40: *The vanishing point*

Similarly, a sense of infinity is created when rhythmic values are divided sequentially according to a rule in which the rhythmic relationship is constant. In Figure 41, each rhythmic value can be subdivided into multiples of two or three to form a new layer. Conversely, each group of two or three notes forms another layer. This creates unity and theoretically can go on indefinitely.

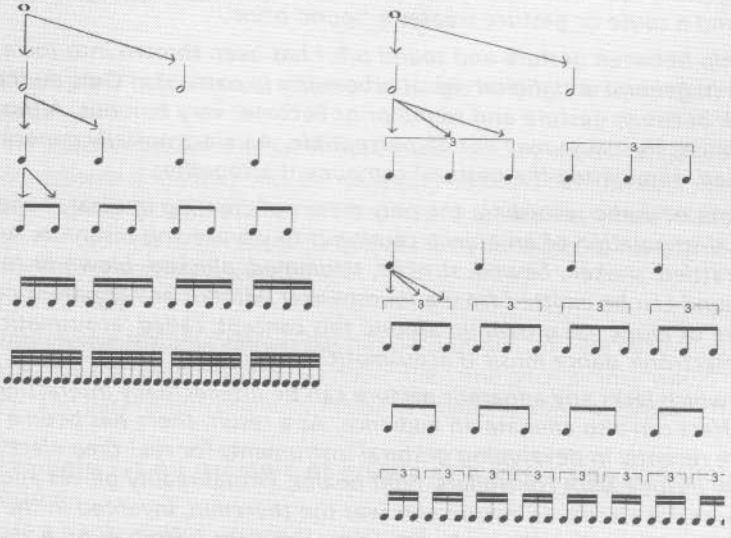

Figure 41: *Table of rhythmic values.*

and wind are the determinants. It doesn't matter if the temperature is five degrees or two degrees, it is still cold! Another example of an archetype is the concept of a soloist as someone performing in the foreground, accompanied by other musicians. This can apply to a soloist for a concerto or a lead guitarist in a rock'n'roll band. Both have a period of time in which to show off technique and musicianship.The purpose of these texture archetypes is to help identify the parts or strands of a piece of music or soundscape and their relationship to each other.

SINGLE STRAND: SINGLE AURAL FOCUS

Single aural focus is created by a single source of sound such as a melodic or rhythmic line, someone speaking alone, or even the sound of a buzzer on a film soundtrack.

Listening Example 69: *Ricercare a 6*, J.S. Bach

This is a traditional example of a single-strand texture. It is stable in that the listening focus is primarily on the totality of the opening melody. Each note is played so that it is even and well balanced against the next. The result is the homogenous, smooth surface.

Special Topic 2

Musical Gesture

The Cause of the Sound of Music

Every sound has a cause and if the cause is human it can be said to be a gesture: a physical action for making a sound. Any vocal utterance is a gesture. A sound cannot exist without a cause, which is silent, although the cause can exist alone. In most cases a cause or gesture without a sound would be musically meaningless. John Cage contributed to this debate with 4'33", *a silent piece comprised of gesture alone.*

Gesture does not define a sound. Hitting a cymbal results in a different sound from hitting a piano string. But equally hitting a cymbal results in a different sound to stroking *a cymbal. The main parameters that define the 'personality' of a sound are its physical shape, and the material and gesture applied to stimulate it sonically. The combination of the sonic properties of an object and a cause or gesture creates a 'sound print'.*

The relationship between gesture and sound print has been thrown into focus by electronic music-making in general and digital signal processing in particular. Outside the real acoustic space, the link between gesture and sound print becomes very tenuous. Although every sound has a cause, the cause may not be perceptible. An electronically generated sound can be programmed, eliminating the gestural component altogether.

Until the advent of audio recording, the only means of creating musical sound was through the mechanical stimulation of an object, causing it to vibrate and resonate. An object can be banged, hit, rattled, shaken, bowed, stroked, strummed, plucked, blown or tongued; but now a recorded sound can be emitted from a loudspeaker without any apparent cause or gesture. A whole genre of music has grown up around this concept, called 'acousmatic' music. It could be said that electronic dance music is acousmatic.

Whilst music which lacks any apparent gesture can be intellectually interesting, disconnecting cause from effect can also alienate an audience. As a result, there has been a lot of energy invested more recently in developing gestural instruments for real-time electronic music-making. These include MIDI controllers, light beams, virtual-reality gloves and so on. One of the earliest gestural electronic instruments was the theremin, invented in the 1920s. In the 1980s the performance artist Laurie Anderson replaced the horsehair on a violin bow with magnetic tape, and the violin strings with a recording head. The sound sampler is a hybrid gestural instrument which plays the 'voice' of another musical instrument with the gestural characteristics of the keyboard.

Listening Example 73: 'When I Was a Young Boy', Richard Vella (1999)
This listening example utilises all three of the texture types discussed so far:

1 a single-strand male voice solo,
2 alternating strands between the male solo and choir,
3 parallel moving strands in the male choir consisting of two pitches sung at the same time in the low bass voices.

STRANDS STRUCTURED HIERARCHICALLY

This type of texture uses a relatively stable foreground, middleground and background structure, with the middleground and background clearly supporting the foreground. Three archetypes belong in this category:

1 melody and drone
2 melody and accompaniment or fixed foreground with supportive middleground and background.
3 chordal style or vertical sonorities blending together to form a single unit in which one note stands out from the rest.

A Melody and Drone (Stable)

Melody and drone is essentially a combination of a single-strand texture with a sustained tone or group of repeated notes. One hears the drone as an accompaniment providing harmonic support and resonance to the single-strand texture. The drone functions like a pivotal point creating tension and relaxation between itself and the melody.

Listening Example 74: 'High Up', Richard Vella (1998)
This example uses a long sustained note sung by a male voice choir as a drone behind a lead singer's voice. Drones can be used beneath any kind of texture.

B Melody and Accompaniment (Stable)

This is a very common texture found in many song styles.

Listening Example 75: *If you want me,* Niqi Brown
After the introductory crescendo played by the synthesiser, the primary focus of the music is with the female vocal melody which clearly is in the foreground. The accompanying drums and guitar chords support the vocal line. Notice how the listening focus momentarily shifts whenever there is an accent in the drums or accompaniment. When the accompanying vocals sing in unison with the melody, they intensify rather than detract from the focus on the vocal melody. This piece is an excellent example of hierarchical organisation. Can you imagine how it would sound if the voices were absent or the accompanying lines were louder than the main vocal parts? Changing the hierarchical structure would change the way the texture is meant to be heard.

C Chordal Style (Relatively Stable)

In chordal style a melody is harmonised with other parts. Although the role of the parts is always to support the main melody, at times they can be heard independently. Whereas the parts in parallel strands play the same material at different pitches, in chordal style they are free to play different material from the main melody.

THE SOUND OF MUSIC AND THE MUSIC OF SOUND

Now I will do nothing but listen ... I hear all sounds running together, combined, fused or following, sounds of the city and sounds out of the city, sounds of the day and night...

Walt Whitman[10]

1 THE EARS HEAR – THE BRAIN LISTENS

While our tastes, preferences and experiences make a distinction between music, noise and sound, our eardrums do not. All sounds are received indiscriminately. Our eardrums are designed to pick up everything. Every sound event, whether it be music or noise, is heard because it radiates vibrations. Hit a gong or bell and you can feel the metal shudder with vibrations. In order for an event to be heard, it must produce repeating vibrations that disturb the air particles in the atmosphere. If there are no air particles, as in a vacuum, no sound is produced. The repeated disturbance of the air particles creates sound waves that radiate in all directions. These sound waves are similar to the expanding waves created when a pebble is dropped into water. The greater the distance from the sound source, the weaker the wave's power. Our eardrums respond to these sound waves in the same way as microphones, translating the vibrations into electrical signals which are then sent to the brain for decoding.

Because our ears are indiscriminate receptors, we have to actively make decisions about what we want to hear. Some of these were discussed in 'Listening as Survival' in the previous chapter. In order to make sense of the chaos of information streaming into our ears, we have to differentiate, decode, make relationships and group all the incoming sounds as useful, useless, meaningful and meaningless. Listening to music is a highly specialised form of categorisation, but it still requires these same skills of separation and categorisation. When we listen to a piece of music, we create meaning or sense by perceiving or constructing relationships between sounds. We establish hierarchies, focus on interesting details and ignore some events.

This is precisely what happened in the examples given in Water Music in Chapter 3. The musical examples used water sounds in completely different ways. In order to reconcile the water sounds with the instrumental sounds, the listener had to find relationships. Some of the pieces demonstrated listening in which water sounds and instrumental sounds were treated equally. In others, one took precedence over the other. The important issue was the way the sounds combined with each other.

2 QUESTIONS TO ASK A PIECE OF MUSIC

Is it high?
Is it low?
Is it in the middle?
Is it soft?
Is it loud?
Are there two?
Are there more than two?
Is it a piano?
Why isn't it?
Was it an aeroplane?
Is it a noise?
Is it music?

John Cage[11]

Asking questions leads to answers, which only leads to more questions. The questions posed by John Cage come from a lecture he gave on his musical philosophy. Using questions and quotations only, Cage interrogates and meditates upon the nature of music and the cultural expectations we place on it. This technique is similar to Socratic interrogation in which understanding is achieved through continual questioning.

The questioning process is quite simple. Each question explores all the possibilities of a particular musical concept. If something is not high, it must be low or in the middle. Defining the unknown through what is known already creates a gradual expansion of awareness. This process of finding variations, alternatives or unknown solutions is a fundamental aspect of composition and creative thinking, which is why Cage entitled his lecture 'Composition as Process'.

Another American composer, Mark Sullivan (b.1954), elaborated on Cage's text with his *Questions to Ask a Piece of Music.*

Is it fast, slow or quickly changing in speed?
Is one sound fast and another slow?
Is it soft, loud, medium, or changing in loudness?
How does the sound begin and end?
Does it start gradually, suddenly, or something else?
Does it fade away or end abruptly?
Are all the sounds equally loud or can you hear some sounds further away or closer?
Do you hear the sound's various components layered or stacked on top of each other?
Do the various components of the sound blend or fuse together into a new unit?
Does it swell, fall or rise?

Many of the questions posed by Cage and Sullivan make no distinction between music and sound. All sounds exist in time. Therefore, they all have a beginning, middle and end; and each sound consists of a number of smaller units which combine to produce an infinite number of possibilities. Cage and Sullivan treat music and sound as equivalent entities in shape and time. Shape and time are convenient ways of thinking about sound: they allow us to engage with sound as if it were a physical entity. When we use an onomatopoeic word, like 'bang', 'clatter' or 'whip', the word imitates the sound.

Activity 1

Say the word 'splash'. It only has one syllable – but can you hear three different components? Sp-la-sh. If you had to draw the sound of 'splash', representing the loudness and speed of each part, it could look like this:

Sounds are physical. Sometimes you could almost touch them, walk through them or throw them like a ball across the room. They are like bubbles, ephemeral and unique.

Because they exist in time, more than one can be sounding at any given moment. Our ears are highly specialised in differentiating two or more sound events at once. Sounds can occur in succession, simultaneously, mix together, overlap or erupt in a chaotic explosion.

Activity 2

If you have access to a tape recorder, record a sound with the microphone as close as possible to the sound source. It could be your finger scraping along the teeth of a comb, water dripping or a pen writing on paper. Play the sound back. Try to describe the differences you can hear between the original and the recorded sound.