

THE SOUND OF MUSIC By ANDY HAMILTON

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ABSTRACT

According to the acousmatic thesis defended by Roger Scruton and others, to hear sounds as music is to divorce them from the source or cause of their production. Non-acousmatic experience involves attending to the worldly cause of the sound; in acousmatic experience, sound is detached from that cause. The acousmatic concept originates with Pythagoras, and was developed in the work of 20th century musique concrète composers such as Pierre Schaeffer. The concept yields important insights into the nature of musical experience, but Scruton's version of the acousmatic thesis cannot overcome objections arising from timbral and spatial aspects of music, which seem to relate sounds to the circumstances of their production. These objections arise in part from music's status as a performing art rooted in human gesture and behaviour. Hence I defend a two-fold thesis of "hearing-in", which parallels Richard Wollheim's concept of "seeing-in": both acousmatic and non-acousmatic experience are genuinely musical and fundamental aspects of musical experience. Musical sounds are essentially part of the human and material worlds. While the acousmatic thesis is ultimately unpersuasive, however, the concept of the acousmatic places an interesting interpretation on traditional debates. It is also the case that a more developed musical understanding tends towards the acousmatic. I conclude by considering some implications for the metaphysics of sound, arguing that the two-fold thesis of the experience of music implies that one can experience the location and production of sounds through hearing alone.

"The hills are alive with the sound of music
With songs they have sung for a thousand years
The hills fill my heart with the sound of music
My heart wants to sing every song it hears"
(Oscar Hammerstein II)

1. The acousmatic experience of sound

When Oscar Hammerstein II succeeded Lorenz Hart as Richard Rodgers' lyricist, the artistic quality of Rodgers' song output declined, reaching a nadir with The Sound Of Music. Unlike Hart, Hammerstein made Rodgers compose the songs to fit the lyrics, and Hart would never have inserted redundant words to make the line scan, as he did with "the sound of music". The hills could have been alive with the sound of cow-bells, rally cars, log-rolling or avalanches, but music is the sound itself. Nonetheless the phrase became the song-title, musical-title, and film-title, and the rest is history.¹ But what exactly is musical sound? Or – perhaps an alternative way of asking that question – what does the experience of musical sound involve? Reversing Mr. Hammerstein's ill-conceived formulation, there is a persisting tendency within music aesthetics and musical thought in general to

¹See Wilder's classic (1972). Conductor Sir Thomas Beecham's delightful quip that "The English people may not understand music, but they absolutely love the noise that it makes" trades on the same redundancy (Watson (1991), p. 331).

say that musical sound is not really the sound of anything – at least not anything material. Music, the most abstract of the arts, is divorced from the material world.² On this view, while worldly sounds are characterised in terms of their producer, to hear sound as musical is to separate it from its producer. Hence the acousmatic thesis explored by this article: that to hear sounds as music involves divorcing them from the worldly source or cause of their production.

The concept of the acousmatic was made explicit in the 1940s and 50s by musique concrète composers such as Pierre Schaeffer. Musique concrète is early electronic music, which since it has no performers, has no visual element to engage audiences or listeners. Its exponents believed that "listening without seeing" allowed sounds to be more easily appreciated for themselves. In contrast, when traditional, non-electronic music is performed, the circumstances of its production are normally fully visible. The concept of the acousmatic is developed by Roger Scruton in The Aesthetics of Music and in the present volume, in the form of what I will term the acousmatic thesis. He writes that, in musical experience, "we spontaneously detach the sound from the circumstances of its production, and attend to it as it is in itself...The acousmatic experience of sound is precisely what is exploited by the art of music...The history of music illustrates the attempt to find a way of describing, notating, and therefore identifying sounds, without specifying a cause of them".³ Later he writes that "The person who listens to sounds, and hears them as music, is not seeking in them for information about their cause, or for clues as to what is happening. On the contrary, he is hearing the sounds apart from the material world. They are detached in his perception, and understood in terms of their experienced order...the notes in music float free from their causes...What we understand, in understanding music, is not the material world, but the intentional object: the organisation that can be heard in the experience".⁴ Zuckerkandl, quoted by Scruton, in some ways anticipates this general position: "Tone... does not lead us to the thing, to the cause, to which it owes its existence; it has detached itself from that; it is not a property but an entity".⁵ The key thought behind the acousmatic thesis is this: An economy of meaningful sound appears to liberate sounds from the need to have a worldly source, and so music escapes the gravitational pull of its causal origin. What remains is its non-worldly or musical cause or rationale.

The acousmatic thesis does not yield a criterion that distinguishes music from speech; it seems equally plausible to claim that to experience sounds as meaningful speech involves divorcing them from the source of their production. Music and speech are distinguished by the fact that although both impose a structure on sounds, speech is a cognitive matter while music is essentially the object of aesthetic attention. What makes a sequence of sounds into speech is that they are meaningful, and it is not essential – indeed it may be a distraction or a barrier to understanding – to appreciate the

²A thesis extended to sound itself by Strawson (1959) and Nudds (2001) – on which see the final section.

³Scruton (1997), pp. 2-3.

⁴Scruton (1997), p. 221. In fact, Scruton's commitment to the acousmatic thesis is not totally clear, as he sometimes speaks of it as ideal rather than actualised: "in day-to-day matters, we leap rapidly in thought from the sound to its cause, and speak quite accurately of hearing the car, just as we speak of seeing it. But the phenomenal distinctness of sounds makes it possible to imagine a situation in which a sound is separated entirely from its cause, and heard acousmatically, as a pure process" ((1997), pp. 11-12).

⁵Zuckerkandl (1969), p. 273. The acousmatic thesis is implicit in the work of a number of writers, such as Spitzer (2004), and Edward Lippman: "Hearing is satisfied with its own objects, and has no need to relate them to further objects and events of the outside world. This is especially evident in the case of tone and tonal configurations...[Sonority's] ontological status is clearly that of an object peculiar to hearing; it can not be located at all in environmental space...many objects of hearing alone – even of binaural hearing – tend spontaneously to be perceived as immanent rather than external, while multisensory objects are normally perceived as external, and special effort is required to apprehend them as immanent". However, he adds that "Music abstracted entirely from the environment...is a [Western] creation of the 19th century" (Lippman (1977), pp. 46-7, 50).

sounds "as sounds". With music, in contrast, it is essential to appreciate the sounds as sounds, in the sense that we do not attend to them for the information they yield, whether through their non-natural meaning (as in the case of speech) or natural meaning.⁶ (It is not clear how one should take the suggestion, inspired by Murray Schafer's work on soundscape, that before the Renaissance, speech and music were not divorced.⁷)

In fact, while no one would deny that musical experience involves attending to sounds as sounds as opposed to attending to them to gain information through their non-natural or natural meaning, the claim that experiencing music involves "hearing sounds as sounds" may be resisted. There is a real dispute here, and many composers and musicians will take a stand against contemporary proponents of soundart. For it might be argued that there is a non-musical soundart which involves hearing sounds as sounds in some distinct non-musical sense. Soundartist Francisco Lopez, for instance, explains how he is "fighting against a dissipation of pure sound content into conceptual and referential elements...trying to reach a transcendental level of profound listening that enforces the crude possibilities of the sound matter by itself".⁸ From a very different perspective to that of soundartists, in contrast, Roger Scruton asserts that in a vital sense musical listening precisely does not involve hearing sounds as sounds. While Jerrold Levinson's persuasive account holds with modernists and postmodernists that no intrinsic properties of sound - melody, rhythm, harmony - are required for something to count as music, Scruton, agreeing that no intrinsic properties of sound are required, argues in opposition to modernist conceptions that melody, rhythm and harmony are necessary yet non-intrinsic.⁹ For him, these qualities are properties not of sound, but of tones, that is, pitched sounds, and sound becomes musical tone when organised by pitch, rhythm, melody and harmony.

Scruton develops an acousmatic account of tones through traditional defining features of pitch, rhythm, melody and harmony. Timbral and spatial aspects of music, which seem to relate sounds to the circumstances of their production, are interpreted by him in a manner which he believes is compatible with the acousmatic thesis. He makes various distinctions between the acousmatic and non-acousmatic realms, distinguishing acoustical experience of sounds (non-acousmatic) from musical experience of tones (acousmatic); the real causality of sounds from virtual causality between tones; the sequence of sounds from the movement of tones that we hear in them. Scruton links the acousmatic thesis with the claim that tone is the intentional object of intrinsically metaphorical musical perception. For him, the objective but phenomenal acousmatic realm exhibits a "virtual causality" between tones, in contrast to the real causality between sound-producers - musical instruments included - and sounds. Virtual causality is found in melody, where we hear not just change, but movement - a rising and falling in pitch, and tension and resolution. It is also found in rhythm, where talk of movement is metaphorical - only the performer's body and limbs, the instrument, and air molecules, literally move - but essential to the experience of music.¹⁰ This

⁶Clearly the issue is a complex one. There is speech that is art – drama and poetry – and speech that is not, and one can attend to the actor's or poet's voice aesthetically. But music is essentially an art at least with lowercase "a", a claim defended in Hamilton (2007a). It is also true that in contrast to music, speech shows no fixed pitches – see for instance Lippman (1977), p. 52.

⁷R. Murray Schafer (1969), (1977). "In The Middle Ages and the Renaissance the voice was still a musical instrument and music was embedded in every aspect of everyday life, just as many 'less developed' cultures had and still have songs for grinding grains, songs for harvesting crops, songs for constructing houses...But as clerical plainsong, the cries of night-watchmen, and the chanting of the ABC in schools were replaced by reading aloud, speech was divorced from music, and much flattened in the process" (van Leeuwen (1999), p. 1).

⁸Lopez (accessed 2004).

⁹Levinson (1991). The issues in this paragraph are discussed in Hamilton (2007a) and (2007b).

¹⁰Scruton (1997), p. 92.

important and persuasive thesis of the necessary metaphorical perception of music is touched on in section 4 of this paper, but reserved for fuller discussion elsewhere.¹¹

It is essential to recognise that the acousmatic thesis is a claim about how musical sound is experienced – with or without reference to its physical cause – and not about how it is known to have that cause. In acousmatic experience, according to the thesis, the listener knows that the sound has a physical cause, but it is not that which they attend to. Rather, they attend to the imagined or virtual causality present in the musical foreground, and which is "heard in" the medium. What motivates the acousmatic thesis – I would argue – is this process of "hearing-in", which shows interesting parallels, and contrasts, with the concept of "seeing-in", the two-fold experience of painting and picturing, developed by Richard Wollheim. While the latter phenomenon is much discussed, its aural equivalent is almost entirely neglected, and it is a valuable feature of the acousmatic thesis that it corrects that neglect. However, my conclusion is that aesthetic experience embraces the non-acousmatic, just as it embraces the non-representational element in painting, and so ultimately I reject the acousmatic thesis. Nonetheless, I show that it yields significant insights into the nature of musical experience, and expresses an important dichotomy in terms of which the experience of music can be understood. I conclude by proposing a two-fold account of musical experience involving both acousmatic and non-acousmatic – a duality apparent in other sound arts and sound-design, and in any aesthetic experience of sound.

Scruton's discussion has received surprisingly little attention. In musicological as opposed to philosophical circles, this is in part because of his opposition to certain core features of musical modernism, and the account of tonality and atonality which results.¹² However, the acousmatic thesis conforms with an enduring strand of thought about music, which detaches it from the world, making it the most abstract of the arts – a pure "art of tones". This strand of thought reached its apogee with the ideology of absolute music in the 19th century. Both Kant and Hanslick subscribed to it, drawing opposite conclusions about the status of music in conformity with the opinion of their time. Scruton's commitment to a pure art of tones is qualified by his humanism – the understanding that the very concepts of music, dance and human gesture are interlinked. My argument is that this commitment to a pure art of tones is insufficiently qualified – that the acousmatic thesis neglects the importance of the human production of musical sounds, to which appreciation of music makes essential reference, and which therefore limits music's abstract nature. (Note for instance Scruton's comment quoted above that to hear sounds as music involves "hearing [them] apart from the material world".) It also neglects the way that our experience of music relates it not just to the human body and behaviour, but also refers to the nature of sound-producers – the instruments – as physical objects, and the physical phenomena of sound-production. It is not true that music is the object only of metaphorical perception, therefore; attending to sounds as part of the human and material worlds is a genuinely musical part of musical experience.¹³

2. Pythagoras and musique concrète

¹¹In the case of movement, the metaphorical transference is not just one way. To say "The music moves" is a projection of human bodily movement; but the description of the human bodily behaviour is a musical one. One does not just think of music as behaving like a human body, but the human body as behaving musically. The issue is pursued in Hamilton (2007b), Ch. 5.

¹²The issue is discussed in Hamilton (1999).

¹³Philosophical humanism concerning music is defended in Hamilton (2007b).

Composers in the tradition of musique concrète did not espouse the acousmatic thesis in the form that Scruton presents it. Musique concrète used electronic means to extend the composer's resources to non-tonal sounds. (Non-tonal in the sense of "not based on tones" – as opposed to atonal, "not based on the tonal system of major and minor keys".) Unlike traditional composition, it did not depend on performers to interpret or realize a notated score. When Pierre Schaeffer founded the "school" of musique concrète in the 1940s, he used the primitive recording technology of disc-cutters and tape-recorders to create compositions from a montage of everyday and natural sounds – doors slamming, steam trains puffing and people talking, as well as more traditional musical materials such as the piano and other instruments. These sounds were modified in various ways – played backwards, cut short or extended, subjected to echo-chamber effects, varied in intensity, and certain frequencies were filtered out or reinforced – which in later musique concrète had the effect of obscuring or destroying clues about the source of the sounds.¹⁴ The term concrète is meant to convey the idea of working directly or concretely with sound material, in contrast to the composer of traditional music who – according to exponents of musique concrète – works indirectly or abstractly through a system of notation which represents the sounds to be made concrete. Concrète also conveys the genre's concern with natural, real-world source-sounds, though in theory recorded electronic sounds were not forbidden.

While musique concrète typically treats and often transforms "worldly" sounds from everyday life such as footsteps, trains, and doors slamming, pure electronic music from the Stockhausen tradition – initially known by its German designation elektronische Musik and sometimes referred to as sound synthesis – is produced at least in part by computer synthesis. However, despite the ideological divide between musique concrète and pure electronic music, most practitioners were not purists. Stockhausen's early "Gesang der Jünglinge", which uses recordings of a child singing, has a close affinity to musique concrète; and in Hymnen from 1966-7, Stockhausen used recordings of various national anthems that, although transformed, were recognisable as such. Although the French and German traditions have since merged, some distinct tendencies are still apparent.¹⁵ But the historic divide between musique concrète and elektronische Musik now centres on how the composition is realised in the performance space as much as the kind of material exploited – hence the contrast between sound diffusion of acousmatic music and sound reproduction of taped music.¹⁶

For Schaeffer, a composition is experienced acousmatically when a curtain has been lowered between its constituent sounds and their previous worldly existence. In this situation, which the medium of recording privileges, sounds are treated as objects divorced from their sources or causes. Schaeffer took the term "acousmatic" from descriptions of Pythagoras' practice of lecturing to students from behind a screen, so that they would attend to the words and not the speaker; the esoteric or religious sect of Pythagoreans were called akousmatikoi, "those willing to hear". According to Burkert, Timaeus tells of a five-year period of probation, during which the new disciple was obliged to listen in silence, and did not even see Pythagoras; the sage's voice emerged from behind a curtain. Thus Schaeffer wrote: "We can, without anachronism, return to an ancient tradition which radio and recording follow in the same way today, restoring to hearing alone the entire

¹⁴ See for instance Wishart (1986), p. 45.

¹⁵ On the history of electronic music, see Holmes (2003).

¹⁶ Diffusion of a stereo source over a multi-channel loudspeaker system is the norm in musique concrète, and implies live control during performance and interaction with the performance space. In the electronic music tradition, in contrast, each channel on the tape is mapped on to a single loudspeaker, implying an attempt to replicate the composer's conceived space within the performance space – intervention in performance is concerned solely with balance, not with exploiting the individuality of the performance space. See Harrison (1999).

responsibility of hearing a perception ordinarily leaning on other sensory evidence".¹⁷ In music, Pythagoras is best known for his discovery of the natural harmonic series, according to which consonant musical sounds are related by simple number ratios. The followers of this shadowy figure split into Acousmatics and Mathematicians, and it was the scientific mathematikoi who endured.¹⁸ Correspondingly, two distinct lines of musical influence can be derived from Pythagoras' thought. The first is the regimentation of the natural harmonic series, resulting in tonal music in its broadest sense, music based on tones, that is, determinate pitched sounds of a certain stability and duration.¹⁹ The second way of thinking, not influential until many centuries later, is so-called acousmatic music, which explores the inner nature of sound. In contributing to the latter conception through the development of musique concrète, Schaeffer sought an alternative to the tonal music which sprang from the Pythagorean proportions of intervals.

The musique concrète tradition took up the term "acousmatic", and later exponents often described their work as "acousmatic music".²⁰ They use the term in a much more restricted sense than Roger Scruton, for whom all music is acousmatic.²¹ Musique concrète composers tend to describe "acousmatic listening" as "listening without seeing" – though Schaeffer is concerned not just with how listeners should perceive sounds, but also the attitude which composers should adopt towards their material. In both cases, he maintains, one should ignore the physical origin of the sounds employed, and appreciate them for their abstract properties. Schaeffer also termed the process "reduced listening", arguing that recording encourages it both through the possibility of listening without seeing, and of indefinite repetition. Sound reproduction has a double role: "to retransmit in a certain manner what we used to see or hear directly and to express in a certain manner what we used not to see or hear".²² In this way Schaeffer seeks to reconcile technology with nature, treating the medium of analogue recording like the curtain which concealed Pythagoras from the akousmatikoi – excluding visual experience while at the same time enhancing experience of the sonorous object in the way to which we have now grown accustomed through the telephone, tape and radio.²³

¹⁷ Burkert (1972), p. 192; Schaeffer (1966), p. 91, my translation.

¹⁸ Unlike other pre-Socratics, there are no statements by Pythagoras which later authorities agree in attributing, and only after Plato is he represented as the head of a philosophical school. Burkert (1972) writes that modern controversies over Pythagoras as shaman or philosopher are "basically nothing more than the continuation of the ancient quarrel between acusmatici and mathematici...the Platonists...attribute to Pythagoras himself a more sophisticated version of the Pythagorean number theory. Plato and his pupils thus stand in the tradition of the mathematici, and it is not surprising that their version carried the day" (p. 197). Burkert himself sides with the acusmatici: "the 'wisdom' of a shaman-like 'divine man' can stand without the prop of science...Greek science, including Greek mathematics, may well have had another and non-Pythagorean origina" (p. 208).

¹⁹ Palombini (accessed 2004) refers to "The musical note, a notable assortment of pitch, duration, and intensity, [which] has borne sway over European tradition and laid claim to universality". This most crucial direction of Pythagorean influence is discussed in Hamilton (2007b), Ch. 1.

²⁰ According to Dhomont (accessed 2002), the term "acousmatic music" was introduced by musique concrète composer François Bayle in 1974.

²¹ There are different uses of the term even within the rather esoteric domain of electronic music. While "acousmatic" has particular associations with the variety of recorded electro-acoustic composition known as musique concrète, some writers extend it to all electro-acoustic music existing in recorded form and designed purely for loudspeaker-transmission - as opposed to live electronic music in which sounds, originating electronically or from voices and traditional instruments, are generated, triggered or transformed in the act of performance. Surprisingly, one such writer, quoted in Sadie and Tyrrell (2001) (entry on "Electro-acoustic music" by S. Emmerson and D. Smalley) is François Bayle, head of the Groupe de Recherches Musicales (GRM), leading current practitioners of musique concrète.

²² Quoted Palombini (accessed 2004).

²³ John Dack reiterates Schaeffer's view, writing that after recording and musique concrète or radiophonic transformation, sound "can now attain the status of a sound object [and] acquires an autonomous identity..."

Strictly speaking, reduced listening should not be equated with listening without seeing; rather, it is listening that is enhanced by not seeing. The object of acousmatic or reduced listening is what Schaeffer, apparently discounting the commonsense assumption that sounds are temporal processes rather than things, calls a sound-object (objet sonore): "In order to avoid confusing it with its physical cause or with a 'stimulus', it seems that we have based sound objects on our subjectivity. But...far from being subjective, in the sense of personal [and] incommunicable...sound objects...lend themselves quite well to being described and analysed...Such is the suggestion of the acousmatic: deny the instrument and cultural conditioning, to put in front of us the sound and its musical possibility". Also: "When [sound recognition] is effected without the aid of sight, musical conditioning is shaken up. Often surprised, sometimes uncertain, we discover that much of what we believed was only in fact seen, and explained, by the context".²⁴ Schaeffer recognised that a Pythagorean curtain will not discourage our curiosity about causes, to which we are instinctively drawn. But he maintained that reduced listening counteracts this tendency: "the repetition of the physical signal, which recording makes possible...by exhausting this curiosity...gradually brings the sonorous object to the fore, [and] progressively reveals to us the richness of this perception".²⁵ (Compare the repetition of a word - its meaning is forgotten as one concentrates on the sound itself.) At first, where we are ignorant of what is causing the sound, we want to know what it is; with practice, however, the desire dissipates.²⁶ It should also be noted that one can desire to know the origin of the sound, while at the same time experiencing it acousmatically.

To reiterate, Schaeffer's conception of acousmatic music concerns not just how listeners should perceive sounds, but the attitude which composers should adopt towards their material - one which attempts to ignore the physical origin of the sounds they use, and appreciates them for their abstract properties. Schaeffer distinguished four modes of listening ("les quatre écoutes"): ²⁷

(1) Indexical mode of listening (écouter): concerned with identification of events responsible for the emission of sound.

(2) Symbolic mode (comprendre): sounds as signs, signifiers or signifieds that are extra-sonores.

(3) Naïve reception of a sound's occurrence (ouïr): "I heard something".

(4) Attention to qualities of the sound itself, without reference to its source or significance (entendre).

Both (2) and (4) are acousmatic, but only the latter involves the experiencing of sounds as sounds that is characteristic of musical listening. La recherche musicale which Schaeffer proposes is based on a return to "the sound itself". The objet sonore is an "in-itself" to be explored by "bracketing" both significations and causes. Schaeffer aimed to develop the everyday (banale) non-referential listening of entendre into a specialised semiotic system, equivalent to pre-existing musical and linguistic systems in its relational and abstract nature yet completely different in its development of "natural" listening.²⁸

After beginning his collaboration with Pierre Henry on "Symphony pour un homme seul" and other pieces, Schaeffer became preoccupied with creating a syntax for non-tonal as well as tonal sounds, a solfège or typology for objets sonores – sounds considered in separation from their sources and classified in terms of tessitura, timbre, rhythm and density (the degree to which the

(Dack (1994)).

²⁴ Schaeffer (1966), pp. 93, 97 (translation by Abigail Heathcote).

²⁵ Cox and Warner eds (2004), p. 78.

²⁶ Chion (1994), p. 32.

²⁷ Schaeffer (1967), pp. 103-28

²⁸ Schaeffer (1966), especially pp. 360-85.

sound-object fills out the sonic spectrum). He had begun developing this semiotic system of reduced listening in his preliminary studies of 1948, in which he recorded percussion instruments, and discovered that any single musical event is characterised not only by the timbre of the main body of the sound, but also by its attack and decay.²⁹ Schaeffer distinguished two elements of the sound object, the complex spectrum associated with a sharp attack or abrupt change in content, and the more ordered, slowly changing spectrum usually associated with the body of the sound and its decay; the former element can be so disordered as to be a semi-continuous spectrum of noise. In 1952 he produced a definitive syntax in the form of "Esquisse d'un solfège concret", the last chapter of A la recherche d'une musique concrète. He consolidated his formidable apparatus in the Traité des objets musicaux (1966). It involved three "plans de référence" – melodic (the evolution of pitch parameters with respect to time), dynamic (evolution of intensity parameters with respect to time) and harmonic (the reciprocal relationship between parameters of pitch and intensity represented as spectrum analysis). Thirty-three criteria for evaluating the three plans in total were suggested, resulting in around 54,000 possible combinations of sonological characteristics.³⁰ This syntax attempted to characterise non-tonal sounds independently of their sources.

In invoking the parallel of solfège in his taxonomy of musical and non-musical sounds, however, Schaeffer emphasised the connections with traditional musical creation. It seems that he did not consider the possibility that he was creating a category of soundart distinct from music – though that, arguably, was his achievement.³¹ Instead, he increasingly felt that he had failed to deprive sounds of their literal connotations, declaring in despair that "Musique concrète in its work of assembling sound, produces sound-works, sound-structures, but not music".³²

3. A broader definition of “acousmatic”

The concept of the acousmatic is not restricted to what for most listeners is the rather specialised domain of electro-acoustic composition. It has a broader application, as Scruton's work shows – and it is his thesis which is my main concern. In fact, Scruton and exponents of musique concrète differ in two ways, concerning both the definition of the acousmatic, and its application. First, the definition. To reiterate: in describing their work as "acousmatic music", those in the musique concrète tradition cite the Pythagorean definition of "acousmatic" as "listening without seeing".³³ Compare this definition with Scruton's broader and subtler characterisation of acousmatic listening as excluding both thought and awareness of the source or cause of the sound. On his account, such

²⁹Manning (1993), pp. 20ff. The implications of this discovery are discussed further in section 4.

³⁰I am indebted to Manning (1993) for this information.

³¹See Hamilton (2007a) and (2007b), Ch. 2. Indeed, Schaeffer's viewpoint was in many respects conservative. When asked "What is the exact moment at which something becomes music?", he offered a criterion even more restrictive than Scruton's appeal to tone, referring to the "traditional testimony... that a musical schema lent itself to being expressed in sound in more than one way. An example is that Bach sometimes composed without specifying the instruments: he wasn't interested in the sound of his music" (Schaeffer (1987)). This questionable understanding of Bach will be returned to later.

³²Quoted in Kahn (1999), p. 110.

³³Dack for instance writes that "[the] acousmatic situation must be extended to all those listening environments in which sounds are heard without any visual confirmation of their sources"; Michel Chion quotes Schaeffer's definition of acousmatic sound as "sounds one hears without seeing their originating cause", adding "[The opposite of] visualised sound... The acousmatic truly allows sound to reveal itself in all its dimensions" (Dack (1994); Chion (1994), pp. 71-2, 32; Schaeffer (1967), pp. 91-9).

listening could occur while the cause of the sound is visible; so while both Schaeffer's and Scruton's senses of acousmatic involve detaching the sound from its circumstances of production, they should not be equated. (A third possibility is listening without knowing the cause – "awareness" conflates the second and third possibilities.) Recall Scruton's description of the acousmatic character of musical experience: "The person who listens to sounds, and hears them as music, is not seeking in them for information about their cause, or for clues as to what is happening...the notes in music float free from their causes... What we understand, in understanding music, is not the material world, but the intentional object: the organisation that can be heard in the experience".³⁴ Clearly when someone hears musical sounds they may gain information about their cause, but Scruton's claim is that in musical listening we spontaneously detach such information. This descriptive claim contrasts with the more prescriptive claim of the Schaefferians. According to Scruton, we do not have to choose to listen to musical sounds acousmatically, but do so quite naturally and spontaneously; Schaefferians – thinking in terms of "listening without seeing" – believe that the listener has to make an effort to forget the origins of the sounds. However, as my later arguments show, I believe that the Schaefferians are nearer to the truth here.

Scruton and Schaeffer also differ fundamentally over the application of the acousmatic. Schaeffer focussed on our experience of non-tonal sounds or noise, which up to his time music had hardly considered, while Scruton applies his concept to what musique concrète composers regard as traditional music. When Scruton speaks of sounds that are detached from the circumstances of their production, he is referring to the way that tones are intentional objects of musical perception; for him, indeed, typical cases of musique concrète would not qualify as music. However, Schaeffer's followers at least on occasion have allowed that acousmatic experience can apply to traditional music. Bernard Parmegiani for instance comments that "To analyse the sound we have to forget the source, whether it be a note on the piano, the wind, the roar of a lion". In a piano concerto, he continues rather enigmatically, "we never question the sound produced by the piano – it's a habitual medium, likewise the orchestra... We forget the cause because we know it by heart".³⁵ Luke Windsor is more explicit, allowing that there is "both intentionally acousmatic music and music that is more coincidentally acousmatic..." – presumably he means musique concrète and traditional music respectively.³⁶ Moreover, musique concrète compositions are indeed compositions – that is, while reduced listening involves a concern with sound itself, in which one develops a heightened attention to individual sounds, one returns to the whole, incorporating that new attention into the complex totality. If musique concrète is soundart or a precursor of soundart, it shares many of the traditional concerns of music.

The distinction between acousmatic and non-acousmatic in Scruton's sense clearly requires further elucidation. Sound experienced in terms of its cause – as the sound of some event such as a door slamming, a dog barking or a clarinet being played – has been or might be described as: significant, anecdotal, associative or dramatic sound; or, conceived explicitly as a kind of experience, the purely acoustic, the practical, the literal, the documentary, the non-aesthetic. The description "purely acoustic experience" could apply just as well to the acousmatic as to the non-acousmatic case, and so is best avoided; I will return later to the suggestion that the acousmatic is simply the aesthetic. "Literal", "practical" and "documentary" have the right connotations.³⁷ Let's say I am walking in the

³⁴ Scruton (1997), p. 221.

³⁵ Talk given at Liquid Architecture Festival, Australian Centre for the Moving Image, Melbourne, 12 July 2003, quoted in Hamilton (2003b).

³⁶ Windsor (2000), p. 9.

³⁷ The term "literal" is used by electronic composer Trevor Wishart (1996). Schaeffer writes that "acoustic and acousmatic are not opposed like objective and subjective", suggesting that he does not want to equate the acoustic and the non-acousmatic; but the issue is not clear ((1966), p. 92).

woods and hear a creaking sound above me. An acousmatic response would be "That's a very interesting high-pitched sound, intermittent and rising in intensity" – perhaps it could be located in Schaeffer's taxonomy of sound-objects. A non-acousmatic response, in contrast, might simply be to look up, while thinking: "Is that a branch about to topple onto me?" Hearing is subservient to sight in information-gathering.³⁸ The acousmatic experience of sound excludes its literal qualities – as in the case of music, the listener detaches the sound from its worldly source or cause. In contrast, literal experience of sound involves a practical or technical interest. Rescuers listening for the cries of survivors buried by an earthquake treat those sounds practically and not acousmatically; a sound engineer's concern with a recording may be literal in contrast to that of a musician. Medical students are taught to listen for certain rhythmic patterns in a heartbeat, and their listening must be non-acousmatic; they are searching for information – for symptoms of a disorder. The important suggestion that non-acousmatic experience is essentially multi-modal – that it involves senses other than hearing – is discussed in the final section below.

Care must be taken to demarcate the "cause" of the sound. In the case of musique concrète, audiences of course realise that the proximate source is a sound system which they can see, but this is not the cause which concerns Schaefferians. Attention to more distant causal processes can become a technical concern with how the sound is produced – and clearly, to attend to the cause of a barking sound does not require an understanding of canine physiology. I can hear an unfamiliar engine noise and not have any idea about the fault in my car that is causing it; but I do at least attend to the engine. The paradox of musique concrète is that the source-sounds are worldly and therefore difficult to hear acousmatically, yet when subject to electronic manipulation and treatment, experience of them becomes quintessentially acousmatic. Perhaps in contrast to the sounds of pure electronic music, they defy clear attribution precisely because we know that in their original state, their attribution is only too clear – we know that in the genre of musique concrète there will be a worldly source and our inability to identify it may be frustrating or perplexing.

Is it really possible to experience non-musical sounds acousmatically, as I have just assumed? The raison d'être of musique concrète is that it is, while the impression given in Scruton's The Aesthetics of Music is that it is not. However, in his contribution to the present volume, he takes a different view. He writes that "our language for characterising sounds tends to describe them in terms of their normal source – dripping, croaking, creaking, barking. But reference to a source is not essential to the identification of the sound, even when it is compelled by the attempt to describe it. It is in some sense an accident if we can attribute a sound to a particular". He later continues: "the kind of 'streaming' that goes on in musical hearing is [not] the same as the streaming of ordinary sound perception...since it is shaped by spatial metaphors that are the product of a musical imagination. Nevertheless, music is an extreme case of something that we witness throughout the sound world, which is the internal organisation of sounds as pure events, [detached from a cause]".³⁹ Such a position opens the way to a genuinely non-musical soundart – not something close to Scruton's heart, one imagines – with elements describable by Schaeffer's taxonomy of non-musical sounds. Certainly it is the case that sound phenomena which are not music or soundart have acousmatic – one might say musical – aspects, such as the rhythm of a train engine or the melody of speech patterns. A heartbeat is a natural rhythm, birdsong is melodic; nature can be musical, even if it is not music, which has to be an intentional production.

³⁸As discussed in Lippman, "Spatial Perception and Physical Location as Factors in Music", in his (1999), pp. 26-39.

³⁹Scruton (2007).

4. Objections to the acousmatic thesis

The acousmatic thesis faces strong objections, and my conclusion is that it cannot be sustained – both the acousmatic and the non-acousmatic are essential aspects of musical experience. The issue is a subtle one, however, and needs careful handling. An overly sympathetic portrayal of the acousmatic thesis sees it as a two-fold account which holds that experience of music must be both acousmatic and non-acousmatic. However, in Scruton's version, only the acousmatic is a genuinely musical aspect of musical experience. So the question is not whether ordinary musical listening involves attention to cause - instrumental or vocal medium - and melodic, rhythmic and other aspects, but whether both of these are fully musical aspects of musical experience. I do not say that Scruton denies that there are these two aspects of listening. My argument is rather that he wrongly denies that the non-acousmatic aspect is genuinely musical.

The most important objections to the acousmatic thesis are these:

(1) Timbre. In its everyday sense, timbre is, precisely, the quality or tone colour of a musical note which distinguishes different types of musical instrument, or the individual qualities of different vocalists. Timbre comprises those qualities of a musical sound which relate it most directly to its source, even if pitch, rhythm and harmony also do so to some extent – a high pitch is unlikely to be produced by a tuba, for instance, though when it is, it has a special timbral quality. Experience of timbre must therefore be regarded as non-acousmatic; if it is an essential part of musical experience, as it surely must be, then the acousmatic thesis is undermined. When listening to a piano concerto or a jazz pianist, one cannot help thinking "piano", and so it is essential to the musical experience that one attends to its causal origin.

Some elucidation of the concept of timbre will be useful at this point. Timbral qualities include resonance – in the case of voiced sounds, for instance, the quality imparted by the action of the resonating chambers of the throat and mouth and nasal cavities – harshness, roughness, mellowness, nasality, reverberance, shrillness and stridency. Acoustically these qualities are "impure". Pure tones – those exhibiting only a fundamental frequency – can occur in music, but most musical tones are composites of partial vibrations of the vibrating body as well as vibrations of the whole mass. A typical violin tone is relatively rich in overtones while the flute, stopped diapason organ pipe and tuning fork produce a tone of greater purity – though even these have noise elements, such the breathy sounds of the flute. Although the development of analytic listening skills will enable one to hear overtones within a musical tone, most people listen "holistically", and recognise only a more or less rich tone quality within the fundamental pitch.⁴⁰ The final chord of a string quartet may be heard holistically as a single "tone", all four instruments fusing to create a complex sound; or at the analytic extreme, the individual contribution of the first violin could be further heard as a fundamental plus a large number of overtones and partials.

There are two kinds of response to the timbral objection. One is to bite the bullet and deny that experience of timbre is a central and fully musical part of musical experience; the other is to deny that timbre has to be experienced non-acousmatically. The second response involves the revisionary claim that timbral qualities may be described – and so with practice heard – acousmatically, under a description such as "exhibiting such and such a waveform". It did not take Schaeffer's exhaustive investigations to show that wave-form shapes – triangular, saw-tooth, sine-wave, square – offer a crude characterisation of different timbres. But especially after the

⁴⁰The contrast between analytic and holistic comes from Sethares (1997), p. 26.

example of his taxonomy, it could be argued that characterising timbre in terms of the instrument or voice that produces it is just a matter of convenience or convention; those who work in audio may struggle to characterise timbre acousmatically, but the difficulty may be a practical one. Since timbre turns out to involve a complex of auditory phenomena, however, the proposal is not straightforward. Without endorsing the deflationary concept of timbre as "the psychoacoustician's waste-basket" – a heterogeneous collection of factors some of which arise from the fact that we often hear what we believe we hear – one should question the simple, unifying claim of spectral theorists that timbre is not essentially distinct from pitch, and is unified with it in a sound-spectrum.⁴¹ The distinction between tone and harmonic spectrum, for spectralists, depends on whether the fundamental tone or the harmonic relationships of the spectrum are given more attention. This unifying account seems to focus on the "steady state" portion of the sound, and downplays the temporal aspects of each instrument's characteristic frequency envelope – attack, decay, sustain, release, and transients. The attack – the initial production of the note, such as the hammer hitting the piano strings or the first blat of the trumpeter's lips – is highly characteristic, and removing it from a piano or trumpet recording makes it much harder to identify the instrument. Noise content is also important, as Thomson stresses: "The friction of the bow as it is set into motion across the string, the eddies of air pressure within a horn's mouthpiece, or the hammer's impact on a piano string [are important]...After articulation, however, it is the presence or absence of overtones and their relative intensities that determine...timbre".⁴² Attack and noise are the least acousmatic elements of timbre.

The complexity of timbre makes it implausible that one could conceptualise it in terms of wave-form pattern, instead of in causal terms as "violin" or "saxophone". This negative conclusion is reinforced by the difficulty of synthesising credible instrumental tones – attempts to simulate the wave-form of a violin sound with an oscillator or other tone-generator, rather than by recourse to sampling, remain unconvincing. The response constitutes too radical a revision of traditional music practice. It cannot be just a matter of convenience or convention that timbre is characterised in terms of the instrument or voice that produces it. Beethoven in his string quartets asks for a cello, not a cello-like sound - the non-acousmatic element is essential.⁴³ (He was not in a position to ask for a cello-like sound not produced by a cello, but the point remains.) The only music which could properly be experienced acousmatically in this sense is music in which instrumental specification is arbitrary – such as Bach's, according to traditional scholarship at least, or more recently Anthony Braxton's – or electronic music which avoids traditional instruments.⁴⁴ Parmegiani's call, quoted earlier, to forget "piano" when hearing a piano concerto is unwarranted as well as unrealistic. The revisionary proposal is also undermined by a different response to the timbral objection, which I will consider later in this section.

⁴¹The spectralist view is expressed by Smalley when he writes: "The idea that 'notes', the bearers of pitch information, are clothed in timbral hues is not eliminated, [but] located in the wider perspective of spectral types" (Smalley (1986), p. 65). The crucial step from harmonic to inharmonic spectra or noise required electronic technology to become viable. Spectral composition is discussed in Harvey (1999), Ch. 3, and in Hamilton (2003a).

⁴²Thomson (accessed 2004).

⁴³ This is not quite the question whether a particular instrumentation is essential to a work - on which see for instance Davies (2001), pp. 47-71, which argues that a work's instrumentation is essential only from the time when composers could specify such things and expect performers to take notice, viz. the 18th century.

⁴⁴The received view of Bach's "arbitrary" instrumentation needs qualification. The fact that it is a solo violin for which he writes harmonic music is essential to the musical experience; what could be played effortlessly on the organ, becomes something almost miraculous on a four-stringed instrument. Another example is his profound sensitivity to the different ranges of the human voice, reflected in his settings of liturgical texts for specific vocal registers.

Scruton's response to the timbral objection seems to be to deny that experience of timbre is a central and fully musical part of musical experience. For him, timbre is not one of the fundamental elements – pitch, rhythm, melody and harmony – by which sound is organised into tone, and he grounds it in the character of sounds rather than in their organisation. Scruton's neglect of timbre perhaps reflects a realisation of its threat to the acousmatic thesis, but it also expresses his opposition to certain key aspects of modernism. For while timbre was secondary in importance to pitch in the pre-modernist history of Western art music, modernism, in the form of Schoenbergian klangfarbenmelodie and more importantly Debussy's mature work, elevated timbre to structural status. In Debussy, motivic particles replace themes, harmony ceases to be an agent of musical motion and instead becomes static, atmospheric and coloristic, and texture, colour and dynamic nuances assume unprecedented importance; it is often said that there is a concern with sound for its own sake.⁴⁵ Edgard Varèse, greatly influenced by Debussy, had a more abrasive conception of timbre; for him, it has been said, sound was "a physical phenomenon...there was always [a] very palpable sense of sound as vibration". Varèse commented on how "color or timbre would be completely changed from being incidental, anecdotal, sensual or picturesque; it would become an agent of delineation, like the different color on a map separating different areas, and an integral part of form".⁴⁶ A more recent illustration of the centrality of timbre is found in spectral composition, which like musique concrète grew out of the French musical tradition, though many of its foremost practitioners have come from elsewhere; composers such as Grisey, Radulescu, Harvey and Saariaho, building on the intuitive deployment of tone-colour by Debussy, Varèse, Messiaen and Boulez, have exploited the harmonic spectrum in a systematic microtonality. (Hence "spectralism".)

Timbre also has an important structural role in some non-Western musics such as the Japanese shakuhachi tradition, where as an organising principle it may be at least as important as pitch or rhythm; a piece may be regarded as a series of timbres as much as pitches.⁴⁷ However, the recognition that timbre can have structural status both in modernist and non-Western music in fact helps the acousmatic thesis, since it is precisely the character of sounds which relates them to their causal origin, while organisation divorces sounds from their cause. So in such music, timbre is experienced acousmatically. A dilemma thus opens up for proponents of the timbral objection: either timbre has a structural role, and is experienced acousmatically, or else it is musically less significant, and experienced non-acousmatically. The timbral objection is therefore not decisive in refuting the acousmatic thesis.

(2) Space. It turns out that the same dilemma confronts the objection that acousmatic experience cannot involve awareness of the spatial origin or movement of sounds, which clearly concerns their cause or source. Acousmatic experience, the objection continues, is not sufficient for the appreciation of those kinds of music which aim to achieve spatial effects through placement of groups of performers or sound-producers – where it is important that one attends to the direction of the sounds.

Despite the examples of Baroque antiphonal music and 19th century compositions with offstage musicians, such a purpose was not prominent before the 20th century. But it is central to contemporary compositions beginning with Stockhausen's Gruppen and Carré, though prefigured in some ways by the work of Charles Ives. Almost from the start of his career, Stockhausen wished

⁴⁵See for instance Morgan (1991), pp. 42-6.

⁴⁶James Tenney, quoted in Clark (2005), p. 40; Varèse, "New Instruments and New Music" (1936), quoted in Cox and Warner (2004), p. 18.

⁴⁷As discussed in Lee (1988).

to undermine traditional concert hall listening. Describing Gruppen rather grandiosely as the first example of "spatial music", he demands specially designed halls with moveable seating to allow his music's "theatrical polyphony" to be realised: "The function of space has been neutralized [in the western tradition]...most of the audience can't even stand, let alone move during a concert, so our perspective on musical space is utterly frozen... If I have a sound of constant spectrum, and the sound moves in a curve, then the movement gives the sound a particular character compared to another sound which moves just in a straight line. Whether a sound moves clockwise or counter-clockwise, is at the left back or at the front...[are] configurations in space which are as meaningful as intervals in melody or harmony".⁴⁸

Sonic architecture in Stockhausen's sense did not figure in the traditional craft of the musician, nor was it part of the necessary equipment of the listener. As Trevor Wishart comments, "the control and composition of landscape [the experienced source of the perceived sounds] open up large new areas of artistic exploration and expression".⁴⁹ However, it does not seem entirely correct to say, as Wishart does, that artistic control of landscape or soundstage depends on the advent of recording. As the example of Baroque antiphony shows, sound recording fosters a concern with landscape, but is not essential for it; exploitation of stationary, dispersed sound-sources, and indeed moving sound-sources, is possible without it. Thus a trumpeter, strapped in a harness attached to a high-wire and playing their instrument while propelled across the auditorium – a trick that admittedly will require some practice - gives a real impression of a moving musical sound, including Doppler effect. Non-electronic compositions such as Xenakis's Metastasis and Stockhausen's Carré have created an acoustic illusion of this kind of movement, but electronic composition achieves an imaginative leap in such possibilities. The plasticity of the sounds – their malleability and manipulability as objects – and the vividness of sound projection can generate a brilliant impression of their propulsion across the sound-stage.⁵⁰

However, it is not clear that the experience of spatial effects, integral to such music, is non-acousmatic – for the same reason as in the case of timbre. Since organisation divorces sounds from their cause, in music where spatiality has structural status, spatial aspects are experienced acousmatically. Sonic landscapes are strictly illusory artistic representations or mediations of the anecdotal or literal, and so one does not attend literally to the causal origin of the sounds.⁵¹ As

⁴⁸Stockhausen (1989), pp. 101-3.

⁴⁹Wishart (1996), p. 136. In his (1986) Wishart breaks down perception of landscape into three components: the nature of the perceived acoustic space, the disposition of sound-objects within that space, and the recognition of individual sound-objects. In a recording or electro-acoustic composition whose landscape is a forest with sounds of birds and animals, he distinguishes three ways of disposing sound-objects: "unreal objects/real space" (animals and birds which cannot exist in close proximity, or animal and bird sounds replaced by arbitrary sonic objects), "real objects/unreal space" (original animal and bird sounds assigned different amplitudes, reverb or filtering to create a different kind of imaginary landscape), and a surrealist "real sounds/real space" in which the relationship between sound-objects is impossible (an extreme version of "unreal objects/real space" – though it seems hard to distinguish from the former).

⁵⁰There are many examples of the control of "landscape" or soundstage in contemporary electronic composition. Jonathan Harvey's "Mortuos Plango, Vivos Voco" is a modern classic of the genre, and special mastery of landscape is shown for instance in Rolf Wallin's recent "Phonotype 2".

⁵¹In fact, Stockhausen denies that landscapes generated by electronic music are illusory: "Our conception of truth of perception is entirely built on the visual...[hence] most people listening to [electronic] music...when they hear the sounds in a given hall are moving very far away, and coming very close, they say well, that's an illusion...We now have the means technically to make the sound appear as if it were far away: 'as if', they say. A sound that is coming from far away is broken up and reflected by the leaves of the trees, by the walls and other surfaces...A sound that is very close to my ear reaches my ear directly, without reflections, and [this] can also be produced artificially...[Now] when they hear the layers revealed, one behind the other, in this new music, most listeners cannot even perceive it because they say, well, the walls have not

with timbre, however, this still leaves the case of music where spatiality lacks a structural role. While traditional concert music involves the construction of a soundstage – for instance through orchestral layout – this process is not a means of artistic expression, since the concern is simply with clarity and balance rather than the exploitation of spatial effects. There is a parallel with the traditional rectangular cinema screen format; since this is the norm, only divergences from it can be artistically expressive. Nonetheless, one can appreciate how both the improvising and non-improvising musician respond to the room's acoustic, adjusting their performance to its idiosyncrasies; this is an aspect of one's enjoyment of the music which is non-acousmatic.

(3) Virtuosity. Acousmatic experience cannot involve awareness of virtuosity in performance, so it will not allow for appreciation of music where this is a significant element in the listener's appreciation. It is part of one's experience of Liszt's Transcendental Studies, Louis Armstrong's "Swing That Music" or Ferneyhough's "Unity Capsule", that these are technically extraordinarily difficult; a recording of Liszt's pieces where the right-hand part was overdubbed using two hands would lose the elements of devilry, risk, excitement and relief. This point applies to other expressive qualities too: the sense of strain generated by the first violin part in the "Cavatina" of Beethoven's op.130 string quartet – which calls for very high positions on the lower strings of the instrument which are very taxing for the performer – is an intrinsic part of that quartet's expressive power. These qualities are apparent audibly, but they are also apparent visually, and thus give rise to the final objection:

(4) Experience of music is not purely auditory. We feel as well as hear sounds; indeed some music seems to emphasise this fact. As noted earlier, in the music of Varèse, a sense of sound as vibration is integral. The fact that sounds are felt allows exceptional hearing-impaired musicians and dancers, such as Evelyn Glennie, to make a career; rhythm does not have to be sonic when expressed in bodily movement.⁵² As we saw earlier, Schaeffer's concept of the acousmatic was built on the assumption that where sight is involved, it is difficult and perhaps impossible to experience sounds while abstracting them from their causal origin. When we witness a musical performance, experiencing musical sounds as humanly produced seems inescapable. We see, as a direct causal process, how the music is energised by the actions of performers. The visual aspect of performance creates tension, as when we see the percussionist raise the beater to strike the drum, or a pianist perform a daring leap. The gyrations of the conductor and pianist are vital to the audience's comprehension, and an accent accompanied by an outflung arm seems to become more intense. Many of these effects arise through music's primitive connection with bodily gesture, and especially dance.⁵³ But electronic music creates its own kind of tension since listeners cannot prepare themselves mentally for the sounds that will occur. What is seen – or not seen – affects what is heard. (Clearly I would not argue that non-acousmatic experience always involves senses other than hearing; this issue is taken up in the final section.)

All of the preceding objections to the acousmatic thesis arise from the fundamental fact that music is an art of performance. We do not attend musical events simply to experience an auditory realism or perfection unattainable through recordings; rather, we want to see as well as hear the creation of musical sounds.⁵⁴ So the acousmatic thesis, in the strong form in which

moved, so it is an illusion. [We need to believe] in what we hear as absolutely as we formerly believed in what we see or saw...What makes it so difficult for new music to be really appreciated is this mental block" (Stockhausen (1989), pp. 107-8).

⁵² The vibratory sense is closely connected with hearing, and is discussed in Lippman (1999), *op. cit.* The claim concerning rhythm is considered in Hamilton (2007b), Ch. 5.

⁵³ A claim defended for instance by Lippman (1977), Ch. 7, and Nettle (2001); it is discussed in Hamilton (2007b).

⁵⁴ It is notable that Walton (1988) omits the dimension of performance from the non-abstract features of

Scruton presents it, seems obviously false. This reaction is premature, however. There is a further defence of the thesis, one which involves a broadening of the concept of the acousmatic. Consider again the timbral objection (1). According to this further defence, in listening to a piano concerto one abstracts from the particular cause but not the general one – one experiences the sounds as those of a piano, but not necessarily of that piano, the particular instrument causing the sound. To experience the sounds as those of a particular instrument is to adopt the attitude of a piano-tuner, piano salesperson, piano-maker or pianist in professional mode, looking for the best instrument to use – an aesthetic concern, certainly, but only indirectly an aesthetic concern with the improvisation or work being performed. (In the case of the salesperson, aesthetic judgment is totally at the service of getting and giving information about the quality and market value of the piano.) Acousmatic experience can be disrupted by such experience of the particular cause - thus we say that an out-of-tune piano spoils one's pleasure in the music. It is true that the fundamental aesthetic concern with a particular piano is that, at least potentially, it allows the performer to make good music. But the artistic order of importance – in the case of composition - is: first the work, then the performance or interpretation, finally the recording (if any).

The result of this line of argument is a qualified acousmatic thesis: to hear sounds as music is to abstract from their particular cause, but not necessarily from their general cause. As it stands, however, this qualification is not sufficient. The experience of a general cause – "piano" but not "that piano" – can occur with improvised music as well as composition; but in instrumental and especially vocal improvised music, the particular and not the general cause seems essential to musical experience. When I am listening to the singing of Billie Holiday, Mose Allison or Bob Dylan, it is part of my musical experience and enjoyment that I do not abstract from the particular cause, and do not abstract from its production by a particular individual. I do not for instance experience the sounds as just having some generic cause, for instance, "African-American jazz singer". It may well be that vocal sound, with its intimate connection with the performer's body, emphasises the non-acousmatic.⁵⁵

There is a further development of the acousmatic thesis which, though elusive, offers a response even to this seemingly decisive objection. It is based on the claim of a necessary metaphorical perception of music – which in one form is central to Scruton's treatment – and argues that the perception of "piano" is metaphorical not literal, and that the content of perception is culturally mediated. This consideration applies to experience of general and particular causes alike. A vivid example is the experience of piano sound. Keyboard music of the Classical and Romantic eras, from Haydn up to Bartók in fact, which has decisively shaped our perception of the piano, is so concerned with the projection of a legato sound that it makes us forget that true legato is impossible on the instrument. In the case of strings, brass and woodwind, the envelope of sound is extinguished as the player moves from one note to the next, without overlap and, if they wish, without any gap. This is not possible with the piano. However, listeners ignore the decay of the piano's sound, and accept the aspiration to a perfect legato as real. The gestures of the pianist help to sustain this illusion – and so the visual experience of an illusory cause supports rather than opposes the acousmatic thesis. Charles Rosen comments that "we hear the sounds in a Beethoven piano sonata as if they were sustained by string instruments or voices...More than any other composer before him, Beethoven understood the pathos of the gap between idea and realization, and the sense of strain put on the listener's imagination is essential here". A piano of Beethoven's time is ideal because of its greater inadequacy for conveying such an effect, he continues, but

music, when surely it is of the first importance.

⁵⁵ Lippman argues that "the solo voice has a pronounced externality [non-acousmatic nature]...an individual singer remains an object that insists on an external status" ((1977), p. 70).

adds wryly that the modern piano is sufficiently inadequate to convey Beethoven's intentions.⁵⁶ The sound of the piano is perceived metaphorically, as akin to a legato string sound, even though on reflection, listeners recognise that the instrument cannot really produce this sound. The phenomenon is one of the mysteries of Western art music.

There is another kind of metaphorical perception which does not, strictly speaking, involve illusion – the experience of the residue of historical practice, for instance in declamatory French horns in a Bruckner symphony. Here one immediately perceives a horn-call, with its connotations of hunting and the chase; the sounds are heard as organised into a distinctive musical phrase, with conventional or cultural connotations. Of course this is not literally a horn-call, but a cultural construct derived in part from historical practices such as hunting. Even sounds which appear to call particular attention to their causes, such as "dirty" sounds – the bottle-slide technique of the blues guitarist, or the growling or squeaking noises produced by a free jazz saxophonist - are objects of metaphorical perception. Dirty sounds tend to be stylised imitations of the human voice by an instrumentalist. It is perhaps no coincidence that Western art music, with its profound structural concerns, has a preference for pure rather than dirty sounds – hence for instance the alien nature of John Cage's prepared piano sounds, which he intended as subversive.⁵⁷ But still, to say that dirty sounds are stylised is to regard them as possessing a cultural overlay – to regard them as objects of a metaphorical perception. Although the preceding considerations would be cited by proponents of the "psychoacoustician's waste-basket" conception of timbre mentioned earlier, which I would not endorse, we do often hear what we believe we hear. (Michel Chion's discussion of cinema sound, and the McGurk effect, make the same point, on which more below.)

5. The two-fold thesis

The preceding responses, I believe, are not sufficient to preserve the acousmatic thesis. There is a literal as well as metaphorical dimension to musical experience; but since the claim of necessary metaphorical perception does not strictly imply that all aspects of musical perception are metaphorical, the latter thesis is both weaker and more plausible than the acousmatic thesis. The acousmatic thesis is too prescriptive about what musical experience involves. Part of the pleasure in listening to music is a sensuous pleasure in sounds, which may not involve acousmatic experience. There is also a further issue. Attempts to broaden the acousmatic – such as the qualified acousmatic thesis described earlier, which admitted experience of causes in a general sense – may succeed simply in equating "acousmatic" with "aesthetic (as relating to sound)". On this view, musical experience is not experience of sound divorced from its cause, rather it is experience which involves an aesthetic attitude towards its cause. A Kantian conception of the aesthetic holds that aesthetic experience of sounds divorces them from their original context, and does not treat them as providing information. If the acousmatic is interpreted as "not involving an interest in information about the cause of the sound", it then becomes the Kantian aesthetic as applied to sound. This is a definition towards which Scruton himself sometimes inclines.⁵⁸

⁵⁶ Rosen (1999), pp. 2-3.

⁵⁷ As Jonathan Harvey put it, "A smooth unchanging stream of neutral timbre invites attention mainly onto metaphysical events" (private communication – and see below).

⁵⁸For instance in the passage quoted earlier: "The person who listens to sounds, and hears them as music, is not seeking in them for information about their cause, or for clues as to what is happening." (Scruton (1997), p. 221).

Although it must be the case that genuinely musical experience is essentially aesthetic, the upshot is that the acousmatic ceases to be distinctive.

In place of the acousmatic thesis, I propose a two-fold thesis, which states that listening to music involves both non-acousmatic and acousmatic experience, and that both are genuinely musical aspects. (In the case of singing which involves a text, the experience becomes three-fold; one can listen non-acousmatically to the voice, attend to its musicality acousmatically, or focus on the meaning of the words.) This two-fold thesis is implicit in the work of various writers. For instance, Thomson comments that tone differs from noise mainly in that it possesses features that enable it to be regarded as autonomous: "Noises are most readily identified, not by their character but by their sources; e.g., the noise of the dripping faucet, the grating chalk, or the squeaking gate. Although tones too are commonly linked with their sources (violin tone, flute tone, etc.), they more readily achieve autonomy because they possess controlled pitch, loudness, timbre, and duration, attributes that make them amenable to musical organization".⁵⁹ And composer Jonathan Harvey writes: "One is constantly alternating as a listener between delight in the sound and delight in the structure, depending on the composer's emphasis (and the player's)".⁶⁰ Even Pierre Schaeffer's sympathisers have recognised that musical experience is two-fold in this sense. In his investigation of musique concrète, Luke Windsor holds that "for the listener at least, attempts to break through the acousmatic 'screen' in order to ascribe causation to sounds are an important facet of musical interpretation".⁶¹

The analogy with Richard Wollheim's two-fold thesis of "seeing-in", concerning the experience of pictorial representation, is deliberate. Wollheim's claim is that one experiences a picture non-representationally and atomistically, as a set of marks on a surface, and also representationally. For Wollheim, "seeing-in permits unlimited simultaneous attention to what is seen and to the features of the medium...if I look at a representation as a representation, then it is not just permitted to, but required of, me that I attend simultaneously to [pictured] object and medium...though of course [my attention] need not be equally distributed between...".⁶² The analogy with musical experience is that just as looking at a painting involves experiencing or being involved in both the represented scene (the Nativity or the peasant's boots) and the means of representation (paint-marks on canvas) so listening to a piece of music involves experiencing the sound as part of a musical world of tones, and as having physical properties and origin. This two-foldness reflects the contrast between atomistic and holistic experience – the acousmatic is holistic experience of musical structure, while the non-acousmatic is atomistic experience of individual, merely causally related and meaningless sounds.

Now, as noted earlier, the question is not whether ordinary listening involves attention to both cause or medium and tonal aspects, but rather, whether each is a fully musical aspect of musical experience. My objection is not that Scruton rejects two-foldness, but that he wrongly denies the genuinely musical status of the non-acousmatic aspect. He does indeed seem to hold with Wollheim that there is a single act of attention. Thus while Wollheim argues that I must be able to see the cornfield in the picture in the same act of attention that reveals to me that it was produced by means of pallet knife working on chrome yellow paste, Scruton argues that I must be able to hear the phrase

⁵⁹ Thomson (accessed 2004).

⁶⁰ Harvey adds: "A lot depends on changes in articulation. If Beethoven was the first for our ears to emphasise violent changes of playing articulation, he is also the most obvious start in history to 'listening to sound'. A smooth unchanging stream of neutral timbre invites attention mainly onto metaphysical events" (email communication with the author).

⁶¹ Windsor (2000), p. 9.

⁶² Wollheim (1980), p. 213.

that opens the second movement of Brahms' Symphony No. 4 as a melodic unity, at the same time as hearing that it is sounded on the horns. According to this concept of "double intentionality", acousmatic experience is available in one and the same act of attention that embraces the real-life causality of the musical medium; we focus on something real while attending to something that is imagined in and through it.⁶³

Perhaps Scruton is right to suggest that one should not or cannot pick out aspects like spatial properties and timbre, and treat them as non-acousmatic, as if they could be the object of a distinct act of attention. The issue is not clear. However, double intentionality does not, as he seems to assume, offer a kind of proof of the acousmatic thesis, for the reason that, as I have been arguing, "real-life causality" is a genuinely musical part of musical experience. For "genuinely musical" here, one could substitute "genuinely aesthetic". The genuinely musical is not entirely imagined, entirely the product of metaphorical perception, or essentially acousmatic. Nonetheless, it seems to be a consequence of the nature of sound that mediation through the concept of causality has a particular significance in musical experience that it does not have in arts such as painting and literature.

It is undoubtedly the case, for instance, that a more developed musical understanding tends towards the acousmatic. We say that the playing of a novice musician is beginning to make musical sense, that it is becoming less mechanical – we can experience it more acousmatically, though the mechanics of sound-production may later be exploited intentionally, as effects. (For instance, contemporary avantgardist Helmut Lachenmann's extended instrumental techniques draw attention to the means of their production - one of his primary reasons for exploiting them).⁶⁴ Likewise, a novice's appreciation of music is less acousmatic; a more developed understanding becomes more predominantly acousmatic. The novice in a particular genre – Western listeners confronted with Tibetan throat-singing, for instance – will want to know how the sounds are produced. If someone cannot recognise what instrument is being played, to that extent their musical experience is impoverished, even though they may be able to give a quite detailed description of the kind of sound – reedy, nasal, or whatever.

We saw earlier that there is an interesting tension in Scruton's account between his advocacy of the acousmatic thesis, and his assumption of what may be described as a humanistic conception of music, which stresses its origins in dance, ritual and gesture, and its connection with human life and activity. The autonomy of musical sound from its causes, which tends to separate music from the world, is one of several reasons why music is held to be the most abstract of the arts. The acousmatic is not the only dimension of musical abstraction, however. An abstract conception is implicit in the ancient Pythagorean concept of music as number, and received an impetus from the development of the work-concept in the 18th and 19th centuries, and the contemporaneous decline of the language-model and rise of absolute music. "Abstraction" proves an elusive target, however, in part because the opposition between abstract and humanly concrete is dialectical in Adorno's sense – the opposites turn out to be overlapping or interpenetrating, not diametrical. Thus what at first sight appears abstract in fact has concrete, sensuous or meaningful elements. So although Scruton's humanistic conception appears to be in

⁶³ Scruton argued this in discussion.

⁶⁴ Lachenmann, through his concept of *musique concrète instrumentale*, explores new possibilities of sound production using traditional instruments. The singing instrumental tone, which he regards as "domesticated by tradition", is replaced by "the detritus of sonic phenomena", with a preponderance of toneless sounds, mostly breathing, from wind instruments, and brutal grinding and scraping of the strings. (See Heathcote (2004).)

tension with his advocacy of the acousmatic thesis, the concept of musical form that arises from the acousmatic need not be abstract.⁶⁵

Totally synthesised electronic music, such as Stockhausen's early studies constructed from sine-tones, amounts to the limiting case of acousmatic abstraction considered in this article. Musique concrète draws music and life together by using everyday sounds as its material, and even electro-acoustic composers apparently committed to abstraction have adopted a humanistic standpoint. Jonathan Harvey, for instance, notes that sounds in electronic music often have only vestigial traces of human instrumental performance – no one can be envisaged blowing, hitting or scraping anything – but maintains that this process has necessary limits. Citing music's relation to rhythms of heartbeat and breathing, and to our sense of gesticulating, walking, running and dancing, he declares it "onomatopoeic through and through".⁶⁶ It follows that acousmatic listening, which abstracts from causes, constitutes an idealised approach even to electroacoustic music. Music's autonomy from its causes is an incomplete one.

6. Music and the metaphysics of sound

There is much more to be said on the question of the two-fold thesis. However, I will conclude with remarks on some implications of the preceding account of acousmatic experience for the metaphysics of sound. In his contribution to the present volume, Scruton develops the anti-physicalist position that sounds are secondary objects and pure events, and argues that this metaphysical status underlies the art of music. A secondary object is one whose properties are entirely comprised of ways in which it appears – yet which is not merely a subjective impression, but part of the objective world. A pure event is one which does not happen to anything, and which cannot be reduced to changes undergone by re-identifiable particulars – in contrast to physicalism concerning sound for instance, which reduces sound to the vibration of its source. Tastes and smells are other examples of secondary objects and pure events, Scruton argues. He claims that the essentially metaphorical nature of musical experience obliges us to treat sounds in this way. His metaphysical position should be contrasted not only with the physicalist identification of sound and mere vibration, and with claims of reification encouraged by recording technology.⁶⁷ It should be contrasted also with the more radical non-spatiality thesis that sounds have spatial properties only contingently, and need have none at all - that sounds are objects which are not part of the material world.

This anti-materialist thesis appears to find a basis in Strawson's metaphysical tour de force of a purely auditory world, presented in the second chapter of Individuals. Strawson's conclusion is that purely auditory experience alone cannot furnish objective concepts of a spatial world. One can experience sounds as located, only if one has already acquired objectivity-concepts from the

⁶⁵ Adorno "negative dialectics" are classically presented in his (1997), and discussed in Hamilton (2007b).

⁶⁶ Harvey (1999), pp. 57, 62, and Harvey (forthcoming). Dennis Smalley writes that "we detect the humanity behind [abstract musical structures] by deducing gestural activity" – presumably, gestures associated with the production of sounds: "Music is always related in some way to human experience" (Smalley (1986), p. 64).

⁶⁷ For instance Robert Worby's comments that "Recording makes sound tangible, concrete, almost tactile. It becomes data on a storage medium... composers have [used it] to make sound tactile and malleable, like paint or clay... What photography and sound recording enabled was the freezing of the moment... [turning] something that was fleeting, evanescent and transitory... into a thing, an artefact" (Worby (2004)).

other senses.⁶⁸ Matthew Nudds interprets Strawson's perhaps injudicious claim that "Sounds...have no intrinsic spatial characteristics" as the thesis that sounds could lack spatial properties altogether – the non-spatiality thesis. As Nudds says, we are not auditorily aware of empty places – there is no difference between not experiencing a sound at some place, and experiencing no sound there. As further evidence for the non-spatiality thesis, he claims that it is possible to attend to the sound of the oboe in an orchestral context without being able to distinguish its location from the location of other instruments; and one can experience ringing in one's ears without hearing it as having any spatial properties. Thus "We can hear a sound without hearing it to have any spatial properties at all... Not only can we imagine a world of sounds which is a no-space world but... we can imagine the actual world of sounds as a no-space world". He concludes that while there appears to be a unity to the objects of sight and touch, "sounds appear not to be part of [the material world]".⁶⁹

The non-spatiality thesis involves a radical affirmation of the acousmatic. Indeed, Edward Lippman links the fact that humans are not good at locating aurally the sources or producers of sounds with the acousmatic experience of music: "It is... the relatively poor capacity of the ear to locate sources of sound, even if it is aided by head movements and vibration, that is partly responsible for the peculiar prominence of immanent auditory objects, which have no location in environmental space and no really conformable counterpart in empirical experience or physical science".⁷⁰ It might be argued that source-location is now an almost vestigial function of hearing – in contrast, our ancestors had moveable ears – but it is also interesting to note how reliant on hearing people must have been in the not so distant eras before electric lighting. And I still wish to maintain my argument against the acousmatic thesis, that musical sounds are essentially part of the human and material worlds. Therefore I wish to resist the non-spatiality thesis, which I believe involves a misrepresentation of Strawson's position. Strawson was right to argue that hearing alone is insufficient to furnish objectivity-concepts. But this does not mean that – in a world of subjects equipped with the normal range of human sensory capacities – sounds have no intrinsic location. "On the basis of hearing alone" is ambiguous between "possessing other senses but not using them on this occasion" and "never having exercised other senses (and so not having developed objectivity-concepts)". When Strawson writes that sounds have no intrinsic spatial characteristics, he is referring to the latter situation, not the former; he means that on their own, without the assistance of the objects of sight and touch, sounds cannot furnish spatial concepts. He would, I think, allow that for a subject who does possess the normal range of human sensory capacities, hearing alone can yield knowledge of the location – or at least the apparent location – of sounds.

If the non-spatiality thesis is rejected, what does the attribution of spatial location to sounds involve? The spatial location of a sound is where it appears to come from. This is an objective question, answers to which are given by descriptions of sonic landscape, such as those of a recording's soundstage – the way the instruments in a group appear to be spread across the area in front of and between the loudspeakers. The saxophone appears – objectively – to come from between the two loudspeakers, for instance. So the apparent location of the sound is distinguished from the location of the sound-producer, although normally, the sound appears to come from where the sound-producer is, and in the case of the stereo soundstage, the dislocation is not so marked – there is a sound-producer in the close vicinity. Although we are not always good at working out the causal origins of sound with our eyes closed, therefore, sounds do generally appear to come from a

⁶⁸ Strawson (1959), p. 65.

⁶⁹ Strawson (1959), p. 65; Nudds (2001), pp. 213, 214, 215.

⁷⁰ Lippman (1977), p. 69.

location.⁷¹ We often turn - without thought - in the direction of a sound, as when someone calls our name; blind people do not seem to be in a constant state of confusion about where sounds are coming from. Discrimination improves with training; one can instance, learn the difference between a recessed recording, where the orchestra appears to be at the opposite end of the hall to the listener, and a well-projected one where the listener seems to be in the front row.

Directional cues concerning the apparent location of the sound, or the location of the sound-producer, depend mostly on the fact that our hearing is stereophonic. Sounds to the right of the subject will be louder in the right ear than the left, and will arrive there fractionally earlier, though the brain equalises them and we are not conscious of the time-difference. But how easy it is to locate sounds on the basis of hearing alone depends on their pitch, timbre and volume. Sounds with a full frequency range lose the bass frequency when coming from a distance. Higher frequency sounds such as birdsong give more information about spatial origin – that is, they more clearly appear to come from a particular direction – than low frequency ones; thus sub-woofers in a speaker system do not have a critical placement in the room. Researchers at Leeds University have recently developed ambulance and police sirens which optimise directional cues, allowing other drivers and pedestrians to react more quickly to emergency vehicles, thus reducing delay and traffic accidents. The Leeds researchers concluded that traditional pure-toned sirens give very poor directional cues, and that for a sound to be localisable it should contain as much of the frequency range as possible – hence pitched tones should be separated by bursts of broadband noise.⁷² (I referred here to sound arriving at the ears from the source; this assumes the soundwaves model, according to which unheard sounds travel through the upper atmosphere, under water and so on. On this view, not all their properties of sounds are "ways in which they appear", as Scruton puts it. When sounds travel because they echo through the hall or because, like fire engines, we hear them first from a distance and the near to, this is closer to Scruton's model.)

The existence of sounds of indeterminate location is debatable, except in the sense of those which engulf one, such as the applause of the audience of which one is a member - and which therefore are not really indeterminate. Low, rumbling sounds can appear to come from all around – but that again is a case of immersion, like being in the swimming pool as opposed to seeing the water from the poolside.⁷³ Solo instrumental sounds tend to draw attention to their source; instruments in an ensemble do so less pronouncedly. In the orchestra, the French horn sounds most ethereal, as if coming from nowhere; a cello's location, in contrast, is easier to discern. But a listener can focus on the horn's general location, even though it is surrounded by other instruments whose relative locations are hard to distinguish aurally. It is not clear what one should conclude from Prospero's creation, in The Tempest, of sounds that beguile or confuse the shipwrecked crew. The fact that there are no physical sound-producers – Prospero produces them by magic – does not mean that the sounds appear to come from nowhere (unless, again, one is immersed in them). Illusions are mistakes about origins of sounds, and do not support the view that sound is not intrinsically located. A ringing in one's ears after a loud rock concert can be regarded as an auditory after-image, comparable to spots before the eyes after looking at bright lights. Furthermore, one cannot conclude that since some sounds appear to come from nowhere, then any sound can be imagined as lacking spatial properties - just as one cannot conclude from the fact of Thalamic Syndrome, in which pain is experienced as diffuse and lacking a location, that pains are not in most cases intrinsically located. Both are puzzling phenomena. In the case of sound, pitch and timbre are crucial here; as mentioned above, a cello sound has rather prominent

⁷¹As discussed by Lippman (1999), *op. cit.*, p. 31.

⁷²De Lorenzo and Eilers (1991); Withington (1998).

⁷³"If the speaker system [in an electro-acoustic concert] is cunningly devised, the sounds...will seem to come from nowhere and float invisibly around the hall like immaterial forms" (Harvey (1999), p. 57).

spatial properties. Not only that, but certain instrumental sounds have either projective or recessive qualities – the tone of the oboe is penetrating, while that of the French horn is recessive, with a spreading diffuseness. (Compare how the colour red seems to advance towards the observer and blue seems to withdraw.⁷⁴)

My conclusion, then, is that sounds do have intrinsic spatial location. However, while rejecting his non-spatiality thesis, I am sympathetic to Nudds' associated claim that experience of the production of sounds is essentially bi-modal, a claim which has an immediate bearing on the nature of acousmatic experience. He argues that "When we see a dog bark and hear the sound it makes we don't just hear a sound as coming from the same place we see the dog barking; we perceive the dog to be producing the sound that we hear... We never simply hear something as producing a sound because we can't hear the sources of sounds apart from hearing the sounds that they make."⁷⁵ Thus for Nudds, deaf people experience what they see differently to sighted people – they no longer experience the production of sounds. These claims are persuasive, insofar as they express the holistic or cross-modal nature of sensory perception – that the input of different perceptual channels cannot be absolutely separated, and so the onset of deafness, for instance, affects the content of vision. The claims are reinforced by observations on cinema sound made by Michel Chion concerning how strong visual cues override aural ones.⁷⁶ Chion comments that film-makers in the early days of sound worried that audiences would be confused about the location of screen-sounds – but that it turned out that footsteps are heard as coming from the location of the actor who is walking or running, and so on, rather than as coming from the cinema sound-system. We are not at all confused, in any doubt or hesitant – we experience the sounds as coming from the onscreen event. If this experience is an auditory illusion, it is just the "illusion" created by stereo sound reproduction, so "image" may be a better description. Chion also discusses "synchresis" – a combination of "synchronism" and "synthesis", which describes the use of unlikely sound effects for an actor's footsteps, for instance. When a situation sets up precise expectations of sound, he adds, "synchresis is unstoppable... In Mon Oncle Tati drew on all kinds of noises for human footsteps, including ping-pong balls and glass objects".⁷⁷

Clearly, vision dominates hearing concerning the location of sounds. Pierre Schaeffer would agree with Nudds that non-acousmatic experience is bi-modal, while acousmatic is uni-modal ("listening without seeing"). He also downplays the possibility of purely auditory non-acousmatic experience. But it cannot be the case that we rely almost exclusively on sight in this way, otherwise experience of a stereo soundstage, or sound-projection in electro-acoustic composition, would be a feeble affair.⁷⁸ The fact that we do not just hear a sound as coming from the same place where we

⁷⁴ Lippman (1977), pp. 54, 65. He also writes: "the arrangement and interplay of instruments has played an important role even in the more autonomous music of the West, in respect of both the varied character of the sounds and their contrasted physical locations...[in] the Baroque concerto, the opera buffa ensemble, or the early Neoclassicism of Stravinsky...[they] are heard as distinct physical entities with distinct locations relative to one another and to the listener, [while] in Impressionism...the instruments as multisensory objects play very little part in the conception and apprehension of the music" ((1977), pp. 60-61).

⁷⁵ Nudds (2001), pp. 218, 200.

⁷⁶ It is interesting to note also that many sonorous qualities have connotations of touch and vision – rough and sharp, or bright and dark, for instance – as Lippman discusses in his (1977), p. 51.

⁷⁷ Chion (1994), pp. 63-4. What has become known as the McGurk effect is the same phenomenon; when subjects hear the sound "ba" while seeing the lip movements "ga", they think that they are hearing "da" (McGurk and MacDonald (1976)).

⁷⁸ Compare Nudds' claim that our usual way of thinking of sounds is as of things which are distinct from their sources, with composer Robert Worby on the aesthetic consequences of sound reproduction. Worby argues that sounds are identified almost invariably with respect to their producers: "...we rarely have difficulty identifying the source of what we're hearing... But our language for articulating this experience is extremely

see the dog barking, does not mean that we have to see the dog in order to perceive the production of the sound. A deaf or blind person could perceive the dog making the sound by putting their hand on its throat, and experiencing the production of the sound by touch. More important for present purposes, there is also a sense in which one can experience the production of sounds through hearing alone. The two-fold account of the experience of music which I have argued for in this article - which qualifies or rejects the acousmatic thesis - suggests that this is so. Thus one should not simply distinguish between acousmatic experience through hearing, and non-acousmatic experience through hearing and other senses. To return to my comments on Strawson earlier, one needs to have other senses in order to develop objectivity-concepts, but those senses do not need to be exercised on a particular occasion in order for one to apply such concepts on that occasion. The distinction is made clear by Gareth Evans, commenting on Strawson's discussion of the purely auditory world: "We can think of sounds as perceptible phenomena, phenomena that are independent of us, because [unlike the subject in the sound world] we have the resources for thinking of the abiding stuff in whose changes the truth of the proposition that there is a sound can be regarded as consisting ...what enables us to think of sounds as being drowned out, and in this way, existing though unperceived, is the knowledge that their categorical basis – the scrapings [of the violin] – continues...".⁷⁹ Thus it is incorrect to claim that "We never simply hear something as producing a sound because we can't hear the sources of sounds apart from hearing the sounds that they make". I can simply hear the cello as producing the sound, since I can experience at least the apparent location of the sound – an objective matter - on the basis of hearing alone.

On the humanistic standpoint defended here, both acousmatic and non-acousmatic experience are essential to musical experience. But although we can have non-acousmatic experience through hearing alone, we also have non-acousmatic but genuinely musical experience of music through the other senses. Thus one should not necessarily agree with composers such as Witold Lutoslawski when they insist that their works belong to a purely auditory world, and that musical value resides in the "world of sound". Lutoslawski writes: "Some people are inclined to interpret music in an extra-musical way. The world of sound alone is not rich enough for them...music alone cannot encompass their idea of music. Less sensitive listeners feel alien in the world of sound; their thoughts escape to a realm of images or feelings that do not exist in a piece of music. This is a subjective reaction...".⁸⁰ These comments are correct and understandable as far as they go. At first one might assume that Lutoslawski is concerned to reject the naïve popular view that musical experience is not purely auditory but involves images or feelings. On closer examination, however, it turns out that on a deeper view also, music is not purely auditory, but through its non-acousmatic aspect addresses other senses in the act of performance.

limited - certainly compared with that of visual phenomena... We usually call [the sounds] trumpet, motorbike, telephone... Our vocabulary relating to sound is incredibly impoverished" (Nudds (2001), p. 221; Worby (2004)).

⁷⁹Evans (1980), pp. 104-5.

⁸⁰Lutoslawski (1989), p. 9.

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