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Acoulogie: an answer to Lévi-Strauss?

In his chapter ‘The Relation of Language to Materials’ from the book: ‘The Language of Electroacoustic Music’, Simon Emmerson quotes Claude Lévi-Strauss’ well-known and controversial criticism of *musique concrète*. This appeared in the Introduction, or as Lévi-Strauss called it, the ‘Overture’ to ‘The Raw and the Cooked’. Lévi-Strauss is referring to the process of changing ‘noises’ into what he calls ‘pseudo-sounds’ and the full passage from which the quotation is taken is as follows: ‘(...) but it is then impossible to define simple relations among the latter (pseudo-sounds), such as would form an already significant system on another level and would be capable of providing the basis for a second articulation. *Musique concrète* may be intoxicated with the illusion that it is saying something; in fact it is floundering in non-significance’¹ (Lévi-Strauss, 1970: 23).

As a comment on contemporary music in general, few practitioners or theorists will be unfamiliar or shocked with this kind of remark. It is worth noting that Lévi-Strauss also criticized serial music in the same section of the book. These criticisms of serial music have been answered by various composers and writers such as Henri Pousseur and Umberto Eco, and it is not my intention to examine these in the present paper (see: Eco, 1989: 217-235; Pousseur, 1970: 9-28). I would not be so arrogant as to put myself forward as the defender of *musique concrète*. However, I do feel that this genre has been misunderstood by many people who fail to place it in its historical context and, worst of all, have casually disregarded Schaeffer’s own writings. Lévi-Strauss is just one more example. I would, therefore, like to

¹ The final sentence from this passage in the original French is: ‘La musique concrète a beau se griser de l’illusion qu’elle parle: elle ne fait que patauger à côté du sens.’ The final phrase could be rendered into English without such an insistence on the term ‘non-significance’. Lévi-Strauss’ French could imply that *musique concrète* is at the edge or border of meaning, i.e. it is ‘splashing around by the side of meaning’ which, though equally negative as the translation by J. and D. Weightman, is less extreme than claiming it has already reached a state of ‘non-significance’.

examine Lévi-Strauss' comments as an exemplary case of such misunderstandings. In particular, I would like to examine their relationship with the linguistic concept of *levels of articulation* in order to see if there is any justification for Lévi-Strauss' criticisms and if so, for what kind(s) of electroacoustic languages? There are after all several distinct types of language within the subject area of electroacoustic music and rather than dismissing Lévi-Strauss' comments out of hand it might be instructive to see whether he was actually justified - up to a point - in the case of specific types of *musique concrète* 'language'. I would then like to suggest that Schaeffer might well have agreed with Lévi-Strauss' analysis of the problematic nature of how music needs to shift from one level of articulation to another but, of course, he believed that it should be attempted and indeed suggested how this could be achieved with his discipline of *acoulogie*.

There is no doubt that Lévi-Strauss valued music highly and its importance in his system must be emphasized. Music was, according to Edmund Leach in his book on Lévi-Strauss 'something of a test case' (Leach, 1996: 134). For Lévi-Strauss music is a 'language by whose means messages are elaborated'. 'It was natural' according to Lévi-Strauss 'that the search for a middle way between aesthetic perception and the exercise of logical thought should find inspiration in music which has always practiced it' (Lévi-Strauss, 1970: 14). In fact, the structure of the 'The Raw and the Cooked' followed, according to Lévi-Strauss himself, a musical form of organization - albeit an idiosyncratic one. Thus, the Introduction, as I have already noted, is called the 'Overture'. Part one, where he describes the Bororo myth - the key myth - with which the book starts, has subsections called 'Theme and Variations', 'First Variation', 'Recitative', 'Interlude' and 'Coda'. Part two contains sections called 'The "Good Manners" Sonata' and 'A Short Symphony'. Part three is 'Fugue of the Five Senses' and part four is entitled 'Well-Tempered Astronomy' which includes the 'Three-part Invention', 'Double Inverted Canon', 'Tocatta and Fugue' and 'Chromatic Piece'. Indeed, he even went so far as to describe music in the following terms: 'music itself the supreme mystery of the science of man' (Lévi-Strauss, 1970: 18). Thus, it would be foolhardy to dismiss Lévi-Strauss' comments as out-dated structuralist dogma.

In addition, we must remind ourselves of the chronology of this publication. The original French version of 'The Raw and the Cooked' appeared in 1964 as part of 'Mythologiques'. During this period, therefore, Lévi-Strauss would not have had the opportunity to read

Schaeffer's most significant work the 'Traité des Objets Musicaux' which was first published in 1966. However, I should add that Schaeffer's 'A la Recherche d'une Musique Concrète' which was published in 1952 could have been read by Lévi-Strauss (though I have no information that this is the case). This is relevant, as Schaeffer's intentions in this early work are very consistent with later publications and the experiences he had whilst developing *musique concrète* as well as his ambitions for music were outlined with considerable accuracy. There is the exception of the final section, of course - 'Esquisse d'un solfège concret' - written in collaboration with Abraham Moles and which set out to catalogue all sound types. This was replaced by his 'Programme de la Recherche Musicale'. Thus 'A la Recherche d'une Musique Concrète' does provide important clues to the way Schaeffer's sophisticated system developed. This paper must, of course, examine Lévi-Strauss' statements on *musique concrète* in the light of Pierre Schaeffer's comprehensive *Programme de la Recherche Musicale*. The increasingly sophisticated nature of Schaeffer's later investigations of music as a social practice via technology are in fact very relevant to a rebuttal of Lévi-Strauss' criticisms. Even had Lévi-Strauss been aware of them I suspect they would not have resulted in a 'road to Damascus'-like conversion. Lévi-Strauss' taste in music was too Wagnerian for that! He referred to Wagner as (he was, admittedly, quoting Mallarmé) 'that God, Richard Wagner' and one can easily imagine why Lévi-Strauss thought Wagner was 'the originator of the structural analysis of myths' (Lévi-Strauss, 1970: 15). But it is the nature of Schaeffer's later researches which allow the issues identified by Simon Emmerson to be challenged in detail.

First, we should examine the claim on which Lévi-Strauss' criticism is based. Lévi-Strauss maintained that both language and music required two levels of articulation. This, of course, raises the age-old question about whether music can be considered a 'language' – and if it is, then what exactly is it *saying*? Though I should at the outset point out that even this comparison has not received general agreement. Lippman for one, argues that: 'Double articulation in music, for example – if it exists at all – is certainly different from double articulation in language' (Lippman, 1992: 372). As far as language is concerned, Lévi-Strauss suggested the first level of articulation consists of 'phonemes', basic fragments which in themselves have no meaning (though some phonemes in certain languages do have meaning such as 'a' in English denoting the indefinite article.) These phonemes are combined into significant structures - 'words' - at the second level according to rules of combination and as a

result meaning, it is hoped, will emerge. I should add immediately that phonemes might be combined into morphemes which are not in fact words as such. Words are usually larger than morphemes but smaller than phrases. But linguistic terminology is not the issue here. As far as language is concerned, if there is the complete set of sounds that exist at the first level of articulation as potential phonemes in any language this level must contain all sounds that can be uttered by humans. The largest total of segments that can be identified in one language has been suggested by David Crystal as 141 in the language ‘Khoisan’. By contrast, the lowest number is 11 – most languages have about 25 to 30 (Crystal, 1987: 165). Thus, the first level of articulation in language considered in total, the ‘raw’ sounds, must contain all the sounds possible unless some have been discarded already due to the fact that only a specific language is being considered. In the case of English, for example, tongue clicks and phonemes such as the Welsh ‘ll’ are simply not valid sounds. Does this mean, therefore that there is a level below the first or that selection by means of culture and ‘rules of combination’ has already taken place at Lévi-Strauss’ first level? This is not at all clear. Moreover, a further problem can be identified in the notion of ‘levels’. The concept of ‘levels’ in language has led various linguists to posit the existence of anything from two to six levels. For example, Crystal suggests that there are levels operating with each of the following: phonetics, phonology, morphology, syntax (Crystal, 1987: 82-83). In reality, even though each level could be studied separately there will be a certain overlap between the various levels and analysis would take place on more than one level at a time. In my view, two levels seems inadequate with ‘meaning’ appearing suddenly at the second level rather than emerging gradually during a process of transition from basic materials.

There is some support for applying linguistic terminology to music – though we must be cautious. To quote Lippman, once again: ‘Tones can be compared, with some degree of accuracy, to phonemes, just as successive musical motives, themes, phrases, and so on, (in an articulated style) can be compared to morphemes, words, linguistic phrases and so on.’ (Lippman, 1992: 372). This is in itself a vast subject and for the present paper all I can do is summarize Lévi-Strauss’ argument whilst simultaneously noting that further clarification is needed. I can confirm that Schaeffer also referred to linguistic terminology and concepts in the ‘*Traité des Objets Musicaux*’. He quotes from Saussure and Jakobson (these are perhaps the best known) but also Malmberg, Martinet and Perrot.

Let us, therefore, accept the idea of two levels of articulation (albeit with reservations) for the sake of simplicity. What is clear is that Lévi-Strauss claimed the ‘noises’ of *musique concrète* (and the term ‘noise’ also demands a detailed examination!) excluded the possibility of a second level of articulation. For Lévi-Strauss nature produces ‘noises’ not ‘musical sounds’. The latter are produced by humans by means of cultural practices and it is Man who ‘recognizes physical properties and selects specific ones with which to build hierarchical structures’ (Lévi-Strauss, 1970: 22). Lévi-Strauss continues: ‘It is precisely in the hierarchical structure of the scale that the first level of articulation of music is to be found.’ (Lévi-Strauss, 1970: 22) The notes (another loaded term!) are at the first level and the hierarchy of the scale is the means by which the notes can pass from the first level to the second, or at any rate, a higher level. Thus, in music, the first level of articulation was established by cultural tradition. Just as societies select events from a huge number of potential ones to form myths, each society selects pitch materials in terms of scales with hierarchic functions. From this the composer (and I wonder if the composer’s role is universally the same in all societies?) selects intervals and basic durations (which come from the ‘natural’ framework of respiration!). It is this process of selection and combination by the composer which forms the second level of articulation where they become meaningful structures. But, a process of selection or valorization has already taken place at the first level facilitating the creation of structures at the second level.

There are two basic problems relating to *musique concrète* which Lévi-Strauss never really clarifies. First he claims that if *musique concrète* used ‘noises’ which retained their ‘representative value’ - that is, the listener can recognize where their origins – it would have a potential first level of articulation. There would be the raw material for meaning to emerge by combining these basic elements. But can every sound be regarded as a fundamental ‘phoneme’? Does this apply to an impulse as well as a sound of extended duration? Moreover, Lévi-Strauss then doubts whether the ‘stories’ that could be told by such noises would be ‘intelligible and moving’ (Lévi-Strauss, 1970: 23). If the problem appears to be in the use of recognizable sounds then it is self-evidently incorrect to claim that they cannot be used to create meaningful structures. Schaeffer himself acknowledged the power of ‘real’ sounds in radiophonic productions and that they had a certain ‘poetic’ quality. Personally, I find much aesthetic enjoyment in works which exploit the ambiguity of certain sounds or which relate sounds in ways that could not happen in real life. As a listener, there is the constant need to re-

assess a sound, to re-configure passages which seemed at first to suggest one thing but on second hearing or, in the light of new sections, suggest something else. This strikes me as a real contribution that a specific type of sound art can make. Lévi-Strauss might argue that such works are not ‘music’ per se. But while I disagree profoundly with Lévi-Strauss’ conclusion that the ‘stories’ would be neither intelligible nor moving he might well have a point about the difficulty of creating hierarchical structures on the model of ‘scales’. But the use of real-world sounds often exploits both concrete and abstract qualities – this is why they are interesting. These are works which might be located in the ninth box of Simon Emmerson’s grid of language types and which seem, to me at least, most likely to be considered as much *sound art* as electroacoustic music (Emmerson, 1986: 24). They are the least ‘abstract’ in the sense that the concrete features of the sounds are ‘abstracted’ to form higher level structures with no real reference (or very little) to external events.

The second problem is that Lévi-Strauss is also concerned about the ‘solution’ of making the sounds ‘unrecognizable’, making them into ‘pseudo-sounds’, which are incapable of ‘defining simple relations’. Here, I believe, Lévi-Strauss is simply wrong. He has identified Schaeffer’s project: to ‘pursue musical research based on the concrete (...) in order to reclaim the indispensable musical abstract’ (Schaeffer, 1966: 24). By deliberately making the sounds unrecognizable (though rarely entirely separating a sound from a ‘possible’ real-world origin) new features for hierarchical structures could be obtained from concrete sounds – or ‘noises’ to use Lévi-Strauss’ term. These hierarchical structures, scales or calibrated orderings, can be applied to texture, vibrato etc. and possibly (there is no guarantee, of course) lead to the second level of articulation. Schaeffer’s own ‘Etudes aux allures’ (1958) demonstrates this perfectly as it is the contrast between various allures or types of vibrato which forms an important part of the work’s meaning.

Thus, Schaeffer thought it was possible to go from the raw materials to meaningful structures². This was by his discipline of ‘Acoulogie’. According to Michel Chion: ‘The subject of acoulogy is the study of the mechanisms of listening, properties of sound objects

² Schaeffer was always aware of the need to ask questions regarding the sounds’ potential to form such structures – to go from the first to a higher level of articulation. Daniel Teruggi (the present director of the GRM) commented after my presentation at EMS07 that when he witnessed Schaeffer’s teaching this issue was raised frequently in discussions on composer’s works. I am grateful to Daniel Teruggi for this personal insight.

and their musical potential in the natural perceptual field of the ear. Concentrating on the problem of the musical functions of sound characteristics, acoulogy relates to acoustics in more or less the same way as phonology relates to phonetics' (Chion, 1983: 94). He continues: as phonetics is 'the study of sounds of language as physical expression independently of their linguistic function' and relates to phonology which is 'the study of sounds from the viewpoint of their function in the system of language' so acoustics is 'the study of the physical production of sound' and relates to the new discipline of acoulogy which can be defined as 'the study of the potential in perceived sounds for producing distinctive characteristics which can be made into music' (Chion, 1983: 94). (Chion does qualify his remarks by stating that the latter disciplines relate to each other in 'almost' the same way as the former ones.) The important word in the definition of acoulogie is 'potential'. While the system of language to which phonetics and phonology refer is established, that of the new music needs to be discovered and possibly *rediscovered* for practically every new work which, as all composers realize, is a difficult and challenging task.

Significantly, Schaeffer also referred to 'levels' though in his case there were three. In the final part of the *Traité* he identified: the acoulogical level of the basic sound objects, the level in between this and the next of the code and 'referential structures' and the highest level of 'meaning'. In the case of traditional music (and I summarize from Chion) the 'referential structures' of the intermediate level are those of the dominance of pitch as a value with other features as secondary characteristics. As a result the lowest level will only permit objects that are of 'tonic' mass and with durations conforming to 'balanced objects'. In the case of experimental music these intermediary structures are, of course, yet to be discovered.

Consequently, it is possible, even likely that in the case of traditional music - especially 'pure' music - Schaeffer might well have agreed with Lévi-Strauss' analysis. The lowest level of articulation will indeed contain only tones that are related with the system of tonality. Moreover, this kind of music is the most suitable for being notated as its values of pitch and duration are the easiest to transcribe.

This paper has only scratched the surface of what is a fascinating criticism of *musique concrète*. I repeat, Lévi-Strauss' comments should not be disregarded but I cannot help but feel that are based on personal prejudice rather than sustained intellectual analysis. I can only

conclude by saying that in my view Schaeffer was not simply floundering ‘near the edge of meaning’ he got a lot closer to it than many experimental musicians realize.

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