
Acoustic Chains in Acousmatic Music

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Abstract: The notion of ‘acoustic chains’ will be posited. It will be argued that ‘acoustic chains’ link certain acousmatic works at what Denis Smalley terms the ‘indicative listening mode’ through their common ‘affordances’ - a term originally used by James Gibson to interpret visual culture and adapted by Luke Windsor to acousmatic music. It will be contended that the listener to an acousmatic work, when presented with a sounding object, perceives its affordance in relation to previous works before considering what the sounding object affords within the internal structure of the work.

1.1

In 1988 Francis Dhomont was commissioned to compose a work to celebrate the fortieth anniversary of the ‘birth’ of musique concrète. In this work, *Novars*, Dhomont draws extensively on extrinsic references. Samples taken from Guillaume de Machaut’s *Messe de Notre Dame* and Pierre Schaeffer’s *Etude aux objets* are a means of drawing parallels between the revolution in music engendered by the ars nova in the fourteenth century and musique concrète in the twentieth, whilst also paying homage to Schaeffer as the ‘originator’ of the genre. More interestingly, Dhomont uses the sound of a door to pay tribute to Pierre Henry and his *Variations sur une porte et un soupir* (1963). This manner of referring to a composer not by means of compositional style or direct quotation but by a concrete object is an example of a perceptual phenomenon which I am calling an ‘acoustic chain’.

Throughout this paper I distinguish between the sound of a concrete object and its perception within an acousmatic context by the terms ‘sounding object’ and ‘sound object’. The term ‘sounding object’ refers to the physical source of the acoustic stimuli, and the term ‘sound object’ to a phenomenological unit given ‘meaning’ within the context of an acousmatic work. I will also draw on two sources outside of music theory to elucidate the concept of acoustic chains. The first of these is Jacques Lacan’s writings on structural linguistics and the second is James Gibson’s work concerning perception in visual culture. The appropriation of a theory from one discipline to elucidate another has many precedents. From an acousmatic perspective, the most significant of these is Luke Windsor’s adaptation of the work of Gibson, pertaining originally to perception in visual culture, to the perception of sound.

The notion of acoustic chains is an appropriation of Lacan’s metaphor of the signifying chain. Throughout his writings Lacan uses the term ‘signifier’ as a unit akin to a work or phrase and a signifying chain as groups of such signifiers linked in some culturally determined manner, for example, cat-lion-feline... Lacan described the model for this chain as ‘rings of a necklace that is a ring in another necklace made of rings’ (Lacan: 1977, 153). Within such a network it is the signifying chain that:

...limits the [listener's] freedom, and the concatenation of its links speaks of a rigid causal order in which he is powerless to intervene. Yet the chain is also mobile, sinuous, and able to loop back upon itself; any one of its links can provide a point of attachment to other chains... The 'vertical dependencies' of the signifying chain extend as far downwards into the hidden worlds of mental process as it is possible for the speculative imagination to descend (Bowie: 1991, 66-72).

The mechanisms of Lacan's signifying chain will be shown to be transferable to an acousmatic context. It will be shown that the hierarchies in Lacan's linguistic chain between signifier and signified can be used to illustrate the relationship of the sounding object to the sound object, and that an analogy can be drawn between a signifying chain and an acousmatic work: for just as each link in a Lacanian chain has the potential to join with other chains, so individual sounding objects within an acousmatic work have the potential to stimulate references within another. Though such referencing is intended in Dhomont's *Novars*, instances may occur in which such referencing is unintended on the part of the composer. It is this potential dichotomy in perception of a sounding object and its assigned 'meaning' as a sound object within a given work that is central to the theory that I term acoustic chains.

1.2

In developing this theory it is necessary to distinguish between poietic and esthetic poles, as outlined by Nattiez (Nattiez: 1990, 15). It is the esthetic mode, that which is concerned with a listener centric, empirical mode of perception, that is paramount to the notion of the acoustic chain. Previous models, such as that proposed by Schaeffer, developed new aural strategies for listening to acousmatic music as a consequence of compositional theory. Such composer-led models tend to focus on the aural structuring of sonic materials rather than the perception of such structures by a neutral listener. For example, an esthetic approach to perception problematises the Schaefferian structuralist notion of *écoute réduite* (Schaeffer, 1966) in its reductive approach to the sounding object. The negation of the sounding objects' 'meaning', and its socio-cultural associations, which follows from *écoute réduite*, is a consequence of apriorism, so relegating the notion to a logocentric construct rather than a perceptual reality. More esthetic centred perceptual theories that inform the sounding object / sound object dichotomy via linguistics, and aural and visual culture are proposed by Smalley (1992), Gibson (1966 & 1979) and Lacan (1977).

In Smalley's series of subject - object listening relationships (Smalley, 1992), a development of Schaeffer's *les quatre écoutes* (Schaeffer: 1966, 103-128), the above dichotomy is expressed through indicative and interactive perceptual activity. Whilst in Smalley's indicative mode the sounding object acts as message, or as information carrier, pertaining to environmental events or actions, the interactive mode implies 'an active relationship on the part of the subject in exploring the qualities and structure of the [sound] object' (Smalley: 1992, 520). The relationship between the indicative and interactive modes can be expressed in structural linguistic or semiotic terms as the relationship between the signifier and the signified, and the primacy of the indicative mode in perception, instrumental in the formulation of acoustic chains can be substantiated through Lacan's assertion of the primacy of the signifier over the signified.

One thing is certain: if the algorithm S/s [Signifier/signified] with its bar is appropriate, access from one to the other cannot in any case have a signification. For in so far as it is itself only the pure function of the signifier, the algorithm can only reveal the structure of the signifier in this transfer... it is easy to see that only correlations between signifier and signifier provide the standard for all research into signification... We are forced, then, to accept the notion of an incessant sliding of the signified under the signifier.' (Lacan: 1977, 152-154)

When appropriated in to an acousmatic context, Lacan's hierarchical model asserts the primacy of the perception of the sounding object over the sound object. Lacan's algorithm can only reveal the structure of the signifier - the sounding object, and only correlations between sounding object and sounding object enable signification.

It can be asserted that it is the indicative mode, where the sound acts as signifier, that is perceptually more pertinent than the interactive mode, where signification occurs.

...the signifier, far from being simply a self-bounded system, has an active colonizing power over the signified... meaning no longer emerges wraith-like from the impersonal operations of the signifier but acquires from them its force, its local character and the quality that Lacan describes as its *insistence*. Responsibility for the production of meaning no longer falls to both interactive components of the sign but to one component, hugely re-energized. (Bowie: 1991, 65).

In asserting the primacy of the sounding object, the signifier, it is evident that for a composer to assign specific meaning within an acousmatic work to a sounding object is necessarily a process that does not delineate a closed interpretation. Through choosing a sounding object to signify a specific intention central to the agenda of the acousmatic work, the composer must acknowledge the potential for such a sounding object to signify something *other* than that which was intended. The interactive relationship in which 'meaning' is assigned to these objects is necessarily fluid.

'The signifier' is the [composer's] domain, but it is everybody else's too. And if the signifier is subdivided according to its local modes of action, and thought of as a competitive interplay between the two slopes or rhetorical dispositions that Lacan...names *metaphor* and *metonymy*, it becomes still plainly a piece of public property over which the writer has no special rights (Bowie: 1991, 68).

Having asserted the dominance of the sounding object in perception it is now necessary to illustrate the mechanisms which account for how 'meaning' is assigned to a sounding object in a given context and examine how this context is fluid and subject to reassessment.

In circumstances when the indicative mode extends beyond the conventionally musical to include mimetic references from the everyday environment, the perceived sounding object may stimulate multiple significations that have resonances outside of the acousmatic work resulting in the formation of acoustic chains. Implicit in such a chain is the potential for the environmental structures inherent in mimetic sounds to be contradicted within the context of an acousmatic work. Such a potential for assigning different meaning to the same acoustic stimuli dependant on time-based perception is

evident in the theory of 'affordance' originally applied to visual theory by Gibson (1966 & 1979) and appropriated to acousmatic music by Luke Windsor (1995). Windsor states that an ecological approach to perception

assumes that the 'external' world, the environment, is structured and that organisms are directly sensitive to such structure...Objects and events are related to a perceiving organism by structured information, and they 'afford' certain possibilities for action relative to the organism... Sounds, as Gibson would assert, do not identify their causes, or signify them, they specify events or objects that 'afford' (Windsor: 1995, 57).

A sounding object's 'affordance' may change within the context of an acousmatic work. When a sounding object is perceived it is assigned an affordance. Initially this affordance will be drawn from known, most commonly environmental, structures. However, when perceived in conjunction with other structures that contradict known environmental models, new affordances may be assigned. The perception of these new affordances within the acousmatic work may not be immediately evident if the work is new to the listener. In such instances when the listener is presented with insufficient structural information to assign an affordance, Gibson maintains that the perceptual system 'hunts' within both the natural and the socio-cultural environment to assign such an affordance (Gibson: 1966, 303). This hunting mechanism accounts for the fluidity of perception of the sounding object - the signifier.

A blueprint for the structures that enable such perceptual 'hunting' are evident in the vertical dependencies of Lacan's signifying chain metaphor. The recognition of similar signifiers from one acousmatic work to another may stimulate a similar chain of signification at an indicative level. The creation of such a chain may result in signification within one work that is an intersection of the all of the acousmatic works belonging to such a chain. Such an intersection has significant impact on the autonomy of the acousmatic work as numerous other works feed the 'first listening' of a new work. Though the process of signification may be reassessed once the work can be interpreted as a perceptual whole, the chains formed and the signification initially stimulated during the process of auditing the work cannot be disregarded.

Acoustic chains may also form when a similar affordance is stimulated even though the sounding object is not exactly the same in the respective works. Such instances occur when generic environments are presented within an acousmatic context. Although specific elements within these environments may differ, it is the recognition of similar geographical locations, temperature, wildlife, or presence of technology within a given environment that stimulates the assigning of similar affordance.

2.1

Through assimilation of Smalley, Lacan, and Gibson, it can be asserted that an acoustic chain is formed when a sounding object is perceived in two or more acousmatic contexts. The indicative perception of the sounding object implies an affordance relative to a known environment resulting in signification. In an acousmatic context the structures establishing the listening environment and consequently the relationship between elements within that environment are perceived through time. Only when the work can be

interpreted as a perceptual unit can signification be recovered relative to the structural systems established within the work. As insufficient information is available to the listener to establish the relationship of the signifier to the signified when the work is being auditioned for the first time, then the listener is forced to assign to the sounding object affordances and signification from previous know models, be they from other acousmatic works or environmental or socio-cultural models. Such indicative perception of the signifier is reliant on extrinsic references. These references form acoustic chains which enable the listener to assign signification within a temporal frame that is still in the process of assessment. Though the intrinsic signification of a sound object may conflict with the extrinsic signification originally assigned, such initial signification nevertheless leaves its mark in the perception of the acousmatic work. An overview of the formation of an acoustic chain is illustrated below. (figure 1)

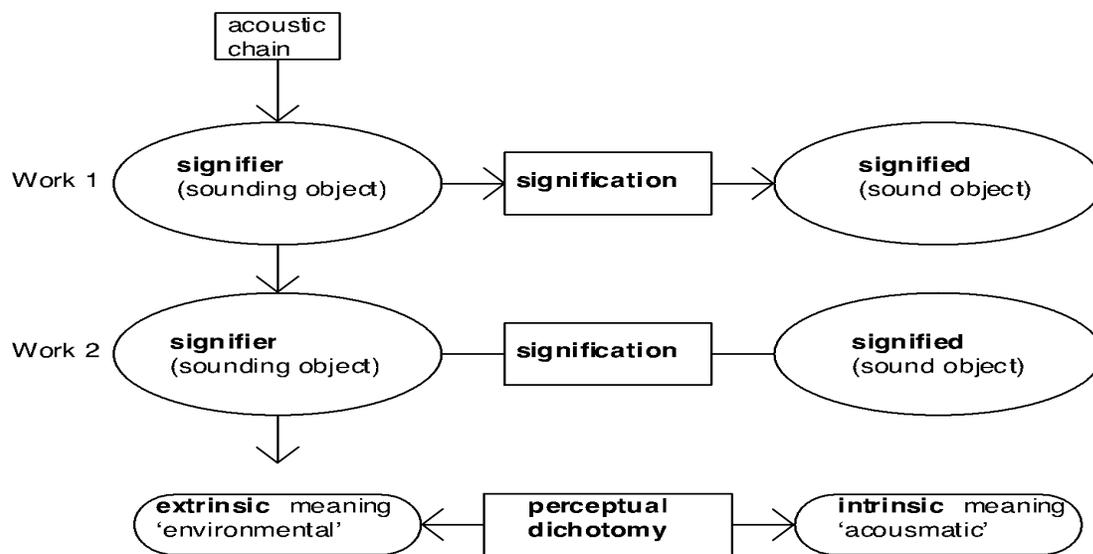


Fig. 1

2.2

Three acoustic chains will now be illustrated: the first stimulated by the perception of a concrete sounding object, the second by an abstract sound object, and the third by the presentation of a similar environment within an acousmatic context. Mimetic, or concrete sounding objects forming acoustic chains can be illustrated in the opening of Robert Mackey's *Environs* (1997). In this work, the juxtaposition of a closely recorded external environment which documents the unlocking of a door followed by the sound of casserole dishes stimulates an acoustic chain with vertical dependencies to Jonty Harrison's *Unsound Objects* (1995) and *Klang* (1981). The acoustic chain is formulated as the stark juxtaposition of two listening contexts is perceptually confusing. The previous models established in the Harrison works are drawn upon to assign interpretation to the current work. Taken to its logical conclusion this means that once a concrete sounding object has been used within an acousmatic context, then all subsequent works that make use of the same object can potentially stimulate acoustic chains that link back to that first work (provided the listener knows the antecedent contexts).

An acoustic chain stimulated by the perception of an abstract sounding object is formed by means of timbral and spectromorphological similarity. Such a chain is evident in the opening of the second movement of Aquiles Pantaleo's *Three Inconspicuous Settings* (1997), which has a link to the opening of the equivalent movement of Denis Smalley's *Névé* (1993). In this instance the chain is strengthened by the similar structural placement of the sounding object.

Although the above chains contain merely two links, the connection is nevertheless made. An extended acoustic chain can be perceived through the presentation within the acousmatic context of a constellation of what may be termed homologous environments. *Sud* by Jean-Claude Risset and *Still Water* by Ambrose Field present a close recording of lapping waves followed by a sub-continental environment. As above, the acoustic chain is made stronger by the similarity in structural placement of these sounding objects. The acoustic chain also extends links to *Hot Air* by Jonty Harrison, *Signé Dionysos* by Francis Dhomont, *Tangram* by Robert Normandeau, *Near and Far* by David Lumsdaine, *Children's Corner* by Yves Daoust, *La Création du Monde* by Bernard Parmegiani, *Associations Libres* by Gilles Gobeil, *Les Couleurs de la Nuit* by François Bayle, *La Disparition* by Christian Calon and *VIT* from *Life Forms* by the Future Sound of London. The last two examples in this acoustic chain associate a sub-continental environment with an aeroplane. The inclusion of the aeroplane may stimulate examples which may extend this chain further.

Even though the signified meaning of the sub-continental environment engenders different affordances in each of the above works it is the initial perception of the signifier that links them in this acoustic chain. Though the 'meaning' of the sub-continental environment differs in each work, the listener brings with them an historical baggage of previous models of signification. It is only by being aware of the formation of acoustic chains can we begin to investigate some of the complex ways in which meanings are sedimented into acousmatic works. Acoustic chains enable the exploration and interpretation of the semiotic effects of sound material beyond the intentions of the composer and go some way to the formulation of an esthetic perceptual framework.

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Works referred to in musical examples:

Example 1

- Harrison, J. *Unsound Objects* On *Articles indéfinis*, Diffusion i Média: IMED-9627 and *Klang* on NMC D035
- Mackay, R. *Environs*. On ICMC 98, University of Michigan, ICMA.

Example 2

- Panteleo, A. *Three Inconspicuous Settings*. On *Prix Ars Electronica 98*, ORF
- Smalley, D. *Névé*. G.M.E.M. E1-03

Example 3

- Risset, J.-C. *Sud*. Wergo: WER 2013-50
- F.S.O.L. *VIT*. On *Life Forms*. Virgin Records: CDV-2722
- Gobeil, G. *Association Libres*. On *Electroclips*, Diffusion i Média: IMED-9004
- Harrison, J. *Hot Air*. On *Articles indéfinis*, Diffusion i Média: IMED-9627
- Normandeau, R. *Tangram*. On *Tangram*, Diffusion i Média: IMED-9419/20
- Calon, C. *La Disparition*. On *Ligne de vie: récits électriques*. Diffusion i Média: IMED-9001
- Parmegiani, B. *La Création du Monde*. INA-GRM: INA-C-1002
- Lumsdaine, D. *Near and Far* (with the composer)
- Dhomont, F. *Signé Dionysos*. On Diffusion i Média: IMED-9608
- Daoust, Y. *Children's Corner* (with the composer)
- Bayle, F. *Les Couleurs de La Nuit*. On *François Bayle vol. 0*. INA-GRM: INA-C- 1001

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