

## Outils nouveaux (et plus anciens) de programmation musicale et visuelle

OpenMusic (OM) est un langage de programmation visuel basé sur le logiciel LISP conçu et développé par le groupe de recherche IRCAM Music Representation. Les programmes visuels sont créés par assemblage et connexion d'icônes représentant des fonctions et des structures de données. La plupart des programmes et des opérations se font en faisant glisser une icône d'un endroit à un autre. Des structures de contrôle visuelles intégrées (par exemple des boucles) assurent l'interface avec celles de LISP.

<http://repmus.ircam.fr/openmusic/home>

Spécialisé dans la composition assistée par ordinateur et la synthèse sonore, PWGL est un langage visuel gratuit basé sur Common LISP, CLOS et OpenGL. Intégrant plusieurs paradigmes de programmation (fonctionnel, orienté objet, basé sur des contraintes) avec une représentation visuelle de haut niveau des données, il sert à résoudre un large éventail de problèmes musicaux.

<http://www2.siba.fi/PWGL/>

Tous deux sont des logiciels libres proposant un environnement de programmation graphique comme aide à la composition en temps différé.

Live est un séquenceur audio qui présente deux espaces de travail : 1) un mode « arrangement » classique disposant d'une ligne temporelle et de pistes habituelles, sur laquelle on effectue les traitements audio ; 2) un mode « session » sur lequel on ajoute des instruments et clips MIDI. On a la possibilité de jongler d'un écran à l'autre pour ajouter de nouveaux instruments aux pistes et faire des mixages, appliquer des effets, etc.

Développé par l'ingénieur Miller Puckette à la fin des années 1980, Max/MSP est un langage de programmation graphique en temps réel pour la musique, l'audio et les objets multimédias. Logiciel musical parmi les plus utilisés, il permet de faire de la synthèse sonore, de l'analyse, de l'enregistrement, ainsi que du contrôle d'instrument MIDI.

Autre produit de Puckette, Pure Data (Pd, 1990) est également un logiciel OpenSource proposant un environnement de programmation en temps réel pour le traitement audio et graphique. Dérivé du système Max/MSP, servant à la création musicale et multimédia interactive et pouvant être modifié, développé à volonté, il traite aussi bien des données à base de textes, d'images fixes ou de vidéo, de son, de capteurs et génère textes, images fixes ou vidéo, son. Il permet en outre de constituer ses propres instruments sonores (modélisation d'instruments électroniques type synthétiseurs) ou visuels. Gérant tant les signaux entrants dans un ordinateur (signaux de capteurs ou événements réseau par exemple) que les signaux sortants (par des protocoles de réseau ou protocoles électroniques pour le pilotage de matériels divers), il autorise la gestion d'échantillonneurs (samplers) et d'effets, la composition musicale, ou la création de séquenceur MIDI.

<https://www.flossmanuals.fr/media/files/puredata/puredata.web.pdf>

L.-J. L. - H. Z.

## How To Remain Successfully Unsuccessful

Andrea Cera

*Judge Carter:* Well done, well done indeed. Effective, efficient, and I'll say at the very least... entertaining! I do love the smell of the hunt, and the taste of the shunt!

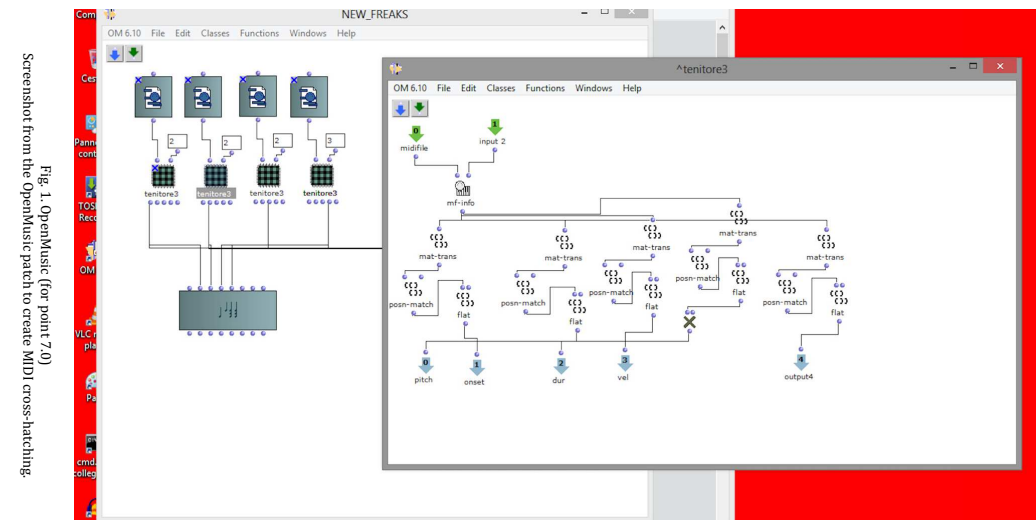
*Billy:* What's going on?

*Dr.Cleveland:* You see, Billy it's like this: «there's no business like show business» (...)

*Billy:* Who are you?

*Dr.Cleveland:* You must understand, don't you know... You are a different race from us, a different species, a different class, you are not one of us.

**Society**, a movie by Brian Yuzna (1989)



### 1.0 Many musical tools get a strange new life after someone starts using them in the wrong way.<sup>1</sup>

1.1 Wrong uses of a tool can arise from incompetence, ignorance, lack of proper understanding. However, they could be considered as responses to new problems, for which existing techniques are not useful. I will consider three examples: auto-tune, side-chain compression, and reverb.<sup>2</sup> These tools were born as invisible and transparent

devices, respectively to correct the pitch of an out-of-tune vocal performance, to help recognizing an individual track in a busy arrangement, and to add depth and space to a recording.<sup>3</sup> In the production of Cher's *Believe* (1998), auto-tune was used for the first time with wrong parameters, not suited to the nature of the vocal track. The resulting sound effect became the trademark of the song, a huge hit of the 90's.

French Touch producers like Eric Prydz, Daft Punk or Justice, started using side-chaining in a non conventional way, automatically ducking away every sound coinciding with the kick drum (instead of cleaning the arrangement). Peter Gabriel's *Intruder* (1980) is considered as the first song to use a gated reverb on the snare. This was the consequence of accidentally miking the snare with the heavily gated microphone normally used for talk-back between the mixing room and the recording room. These incorrect and non conventional uses of technology generated aesthetic values. Still today, unorthodox auto-tune and side-chaining settings are widely used. Gated-reverb snares became one of the sound-marks of 80s pop.<sup>4</sup> We could consider these mistakes as successful evolutionary mutations.

**2.0 Artistic choices, creation strategies, communication, archiving...: these are tools at the service of the activity and life of a musician. By stubbornly dreaming of bridges between different musical worlds, I used these tools in a wrong way.**

2.1 In other writings I described some of these wrong ways. Trying to create hybrids between contemporary classical composition techniques and popular music derived materials.<sup>5</sup> Using popular music as a tool to free contemporary classical composition from the ghosts of the aesthetics of the 19<sup>th</sup> century.<sup>6</sup> Transcend/transform popular music using bad imitation strategies.<sup>7</sup>

2.1.1 At the root of these wrong ways (hybridization, liberation, transcendence) there was a form of dissatisfaction with the musical worlds I visited. This dissatisfaction depended on my erratic activity. I made music for very different scenes: high brow vs. proletarian, commercial vs. experimental, easy to grasp vs. challenging to understand. I played piano in Italian country music bands(!); my compositions for choreographies were played at the Centre Pompidou. At each occasion, I realized how incomplete a particular musical world seemed to

be, and I dreamed of bridges between the differences I noticed.

**3.0 Bridges between musical worlds can be seen as maladaptive mistakes.**

3.1 Music can be seen as a strategy to maintain social cohesion.<sup>8</sup> A musical world defines a tribe. Tribes don't like to be hybridized, to be liberated from the very elements that constitute their identity, to be transformed. Tribes want to spread themselves as they are. For this reason, trying to hybridize musical worlds seems to be an effort vowed to failure: which group would want to shake the foundations of its own identity by embracing a hybrid culture?

3.2 Trying to hybridize musical worlds undermines the architectures of musical taste, and their foundations on distaste against non accepted musical preferences. Listeners of hybrid musical worlds have to swallow bits (the size of which depends on the completeness and honesty of the operation) of distasteful sonic content.<sup>9</sup>

3.3 Musical worlds are built on linguistic conventions, formal expectations, rules of communication. When a listener comes into contact with two musical worlds forced into coexistence, these information management systems enter a state of crisis. The product of this coexistence becomes rather difficult to comprehend, if not plain incomprehensible (again depending on the completeness and honesty of the operation).

**4.0 Bridges between musical worlds can be seen as promising mutations.**

4.1 It seems that this socially awkward way of making music has provided me with skills potentially useful to solve new sets of problems. These problems arise in the world of sound design and are absent in the traditional forms of music-making I'm used to. In many sound design cases, the audience might be captive, non-willing to listen (i.e. the design of the seatbelt warning). Some-

times sound informations might have a residual, minimal value, and serve only as a soft integration to other media, almost like sound in a movie, but not quite in the same way (i.e. the design of the electric car's external sound). In certain projects an extremely distracted form of listening might be involved (i.e. designing the background sounds for a trade fair stand, or for an office). In many situations sound design aspires to be universally comprehensible, and doesn't care about musical tribes and social tastes (i.e. the design of a red-level alert). Sound design awkwardly resembles a form of music-making, deprived of the cultural, social and intra-personal features which sit at the core of traditional musical activities. Yet, cultural, social and interactive elements are present in different ways.

4.1.1 Between 2009 and 2010 my activity shifted. The change started with two collaborations, one with the CO-ME-DI-A EU project<sup>10</sup> and the other with Renault, for the sound signature design of Zoé electric car.

Further collaborations followed with Renault, and new projects like SkAT-VG with the IUAV (Venice University),<sup>11</sup> InfoMus lab (Genova University),<sup>12</sup> IRCAM's Urban Musical Game, Phonotonic, and many others.

**5.0 My activity as sound designer took advantage from a series of skills and techniques previously developed by working, as a composer, at the coexistence between different musical worlds.**

5.1 Sound design is a hybrid (again) between two seemingly incompatible forms of music-making: a distilled, evolved, scientific form of sonic creation on one hand, and primitive and collective one on the other.

5.2 Sound design is a distilled, evolved, scientific form of sonic creation.

5.2.1 During the lifespan of a sound design project it is necessary to concentrate on few specific micro-problems (i.e. the relation between urgency and pulsation



Fig. 2. Sound-design\_Symbioz\_collectif. Photo from a collective work session for Renault Symbioz

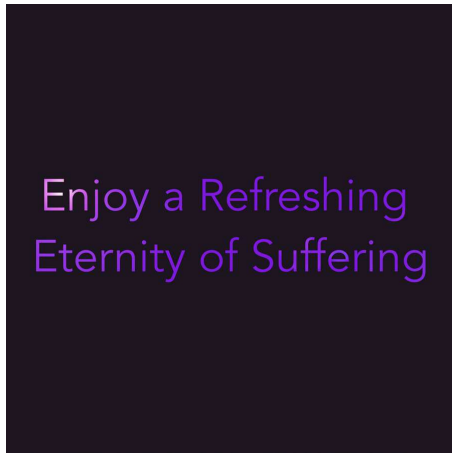


Fig. 3. Brown\_lipstick\_motto  
(for point 6.1)

when designing a hierarchy of alarms; the relation between gestural fluidity and audio spectral smoothness when designing a sonification system for movement; the relation between the spectral centroid of a collection of sounds and the size of objects associated with them, etc.). In a traditional composition project, this is impossible. The economy of a composition production, the logistics of it, its time constraints make impossible to concentrate exclusively on a same, small set of problems.

5.2.2 The activity of a sound designer is often connected with the production of very short amounts of sonic material: a 2 years project can end up with the creation of a few seconds long collection of sounds. This is, again, an economy incompatible with the logics of traditional music-making.

5.3 Sound design is a primitive and collective form of music-making.

5.3.1 In cases where a sound design project is directed to captive auditors, it cannot automatically count on commonly accepted communication systems. In these cases, sound designers must connect with any potential listener, independently from age, cultural status, musical tastes.

5.3.2 When very short durations are demanded (as in the case of the design of a collection of a smartphone's sound) the sound design process cannot embed complex symbolic relations: there isn't time enough to develop a context in which such relations can exist. The sound designer needs to focus on semantically and symbolically mid- or low-level forms of communication, not different, in my opinion, from animal shrieks.

5.3.3 In sound design projects to which I participated I experienced curious forms of collective music-making. During a sound design session everybody co-creates, using voice and movement (as studied in the SkAT-VG project).<sup>13</sup> The sound designer becomes an instrument to channel the desires and curiosities of the team. This form of pooling seems to have weakened in traditional composition's division of labor (composers write music, performers play it, audiences receive it). In sound design practices, some of the features of music-making in tribal societies (where everybody plays, sings, dances and listens) seem to come back in a new and weird form.

**6.0 Similar methodologies lie at the core of sound design and hybrid composition. The following sections explain how my socially mis-**

**taken way of making hybrid music became an useful tool for my activity as a sound designer.**

6.1 As I described in the past, hybrid composition provokes a collision between complex techniques (such as melodic profile and rhythmic interpolations, MIDI cross-hatching,<sup>14</sup> etc.) and communicative, simple, effective music materials. It is not easy to find interesting pairs of techniques and materials: not every riff (or drum pattern, or bass line, etc.) is resilient enough to withstand heavy processing forces; not every compositional operation is delicate enough to transform without killing. Performing this type of research is an anti-economical activity: it wastes huge amounts of time, often to generate useless results. Hybrid composition shares the same proclivity for limited, narrowed-down research described in point '5.2.1' for sound design. But this process has to stop at a certain point of the production, to give space to other phases of composition (mostly formal development).

6.2 In sound design, there are similar balances between complexity and immediacy to be found. It is easy to kill the timbral immediacy of a recording of a piece of wood with too much processing. It's easy to get stuck in a certain mapping strategy, losing the ability to communicate the initial idea. The musical tastes of a work team can be unexpectedly disparate. To achieve a consensus out of a group of very different co-workers it is necessary the same ability for synthesis and integration of aesthetic codes which is fundamental to hybridize musical styles.

6.3 Hybrid composition and sound design strive for simplicity and immediacy. These qualities need to be preserved in spite of complex operations. A successful sound design operation usually is complex from a technical point of view, but natural-sounding to the user. In hybrid composition it is the same: the result of a compositional operation has to protect the original materials' groove and impact, regardless of the number of transformations performed on it.

**7.0 My present activity as a composer is being influenced by ten years of sound design practices. I'm trying to develop a form of sound design for non-captive (willing to listen) audiences. This development is too immature to deserve a full description, so I will offer just a few small examples.**

As described in my article "Three years of fragments: music, sound design, and sketching. Musica/Tecnologia" (2018),<sup>15</sup> my composition projects are becoming shorter and articulated around sketches and unfinished mock-ups.<sup>16</sup> If I work on a long form, I tend to compose it as a database, or as a collection of sounds: in the following section I show some examples.

My project "The Brown Lipstick Sketches" (started at the end of December 2016) is made of very short videos. They can be assembled one after the other to form longer durations for the sake of a presentation, but in their pure form exist only as an online database.

In my last collaborations with choreographers and directors, I started to conceive sonic elements like signs, warnings, temporal markers, instead of "music". In "Vocazione all'Asimmetria" (Francesca Foscari, 2016),<sup>17</sup> I created extremely short musical elements (interleaved with long silences) which act as triggers, or signifiers saying "attention, something has shifted," without any other symbolic meaning.

In "PPP Ultimo Inventario prima di Liquidazione" (ricci/forte 2016),<sup>18</sup> I prepared a database of recordings of stones thrown close to the microphone, to be used live by the director as a "comma," a merely functional punctuation to the actors' voices and actions.

My reflection moved away from the "Popular Music vs. Contemporary Composition" problem and towards themes like "entertainment, boredom, distraction, stupidity",<sup>19</sup> which sound more like an industrial brief, than a series of music-inspiring concepts. My current experiments are today based on trying to transcode these four keywords towards concomitant musical dimensions.

Thanks to its mixture of stubborn, sophisticated research and primal effects, the "sound designerly way of thinking" is an useful tool: maybe a wrong use of this tool could lead to new musical forms.

## 8.0 At the beginning of this text there is a quote from “Society” (Brian Yuzna, 1989).

In this movie, a rich kid named Billy gradually discovers a weird society hidden behind his family's daily life. This society will repeatedly try to assimilate Billy in a bizarre rite where everybody fusions together in a gigantic blob made of oily flesh. Disgusted by this perspective, he will try to escape, forming a group where himself, Milo (a friend of lower social status) and Clarissa (a confirmed member of the freakish society) coexist together.

Billy is a mistake, a bastard, a specimen from a race separated from this society, for which “there's no business like show business” (the laws of entertainment identify obscure and primitive forces of fusion, social cohesion, exclusion, etc.). He is at the same time attracted by Clarissa, but repelled by her upbringing. This hesitation gives the movie its narrative force.

I see my activity in a similar position as Billy's: unable to detach myself from the violence and absurdity of society's entertainment, I dread it in a profound and visceral way. I'm looking for natural and authentic relations with the same entities I'm afraid of.

This gives a narrative force to my continuous mistakes and allows my activity to remain successfully unsuccessful.

<sup>1</sup> B. ZIMMERMANN, “Expect the Unexpected: Experimental music, or the ignorance of sound design”, in M. GROSS & L. MCGOEY (eds.), *Routledge International Handbook of Ignorance Studies*, London, Routledge, 2015.

<sup>2</sup> Auto-tune is an audio processor which measures and alters pitch of vocal or instrumental recordings. It is primarily used as a plug-in in digital workstations to correct off-key vocal performances. See J. TYRANGIEL, “Auto-Tune: Why Pop Music Sounds Perfect”, *TIME*, Thursday, Feb. 05. On line. <http://www.time.com/time/printout/0,8816,1877372,00.html>; Side-chain compression is a technique consisting in controlling the output level of a track (ex. an accompaniment guitar) using the amplitude tracking of a second track. (ex. the main vocal track). In this example, side-chain compression will diminish the amplitude of the guitar track when the voice is singing, allowing a better mixing process. D. ABRAVANEL, “Sidechain Compression: Part 1-Concepts and History”. On line. <https://www.ableton.com/en/blog/sidechain-compression-part-1>

<sup>3</sup> Y. BROWNING, “Auto-tune, and why we shouldn't be surprised that Britney can't sing.”, *The Conversation* 17, 2014. On line. <https://theconversation.com/auto-tune-and-why-we-shouldnt-be-surprised-britney-cant-sing-29167>

<sup>4</sup> [https://en.wikipedia.org/wiki/Gated\\_reverb](https://en.wikipedia.org/wiki/Gated_reverb)

<sup>5</sup> A. CERA, “Deliverance, a monster in a war field: a hybrid composition born at IRCAM”, in T. MITCHELL & P. DOYLE (eds.), *Changing Sounds: New directions and configurations in popular music, Proceedings of the 10th International conference 9-13 July 1999 UTS Sydney, Australia*, Sydney, University of Technology-IASPM (The International association for the study of popular music), 2000, 410-415.

<sup>6</sup> A. CERA, “Composer avec la popular music, entretien avec Andrea Cera (propos recueillis par Nicolas Donin)”, in N. DONIN & B. STIEGLER (dir.), *Révolutions industrielles de la musique*, Cahiers de Médiologie / Ircam n°18, 2004, 47-52.

<sup>7</sup> A. CERA, “Écoutes et mauvaises imitations”, in É. DURING, L. JEANPIERRE, C. KIHIM, and D. ZABUBYAN (dir.), *actu. De l'expérimental dans l'art*, Dijon, Les presses du réel/Publications des Marquisats/Ecole supérieure d'art de l'agglomération d'Annecy, 2009, 259-267.

<sup>8</sup> I. CROSS, “The evolutionary nature of musical meaning”, *Musicae Scientiae* 13(2), suppl., 2009, 179-200; I. CROSS, “Music and Biocultural Evolution”, in M. CLAYTON, T. HERBERT and R. MIDDLETON (eds.), *The Cultural Study of Music-A Critical Introduction*, New York, Routledge, 2011; D. HURON, “Is Music an Evolutionary Adaptation?”, *Annals of the New York Academy of Sciences* 930(1), 2001, 61.

<sup>9</sup> P. BOURDIEU, *La Distinction. Critique sociale du jugement*, Paris, Les Editions de Minuit, 1979, italian ed., *La distinzione. Critica sociale del gusto*, a cura di Marco Santoro, trad. Guido Viale, Bologna, Il Mulino, 2001.

<sup>10</sup> A project focused on the use of high speed networks in musical works, for which I designed sounds to help remote users to interact using only body movements.

<sup>11</sup> A project aimed at enabling designers to use their voice and hands, directly, to sketch the auditory aspects of an object; for which I created mappings between vocal input and synthesis modules.

<sup>12</sup> Several projects focused on sonification of body movements and of expressive qualities of movement. Communicating Expressiveness and Affect in Multimodal Interactive Systems—Antonio Camurri Gualtiero Volpe Giovanni De Poli Marc Leman / IEEE MultiMedia / 2005.

<sup>13</sup> The EU SkAT-VG project (<http://www.skatvg.eu/>) aimed at enabling designers to use their voice and hands, directly, to sketch the auditory aspects of an object. In the frame of this project, the collaborative nature of sound design was also studied, using linkographic analysis. See C. ERKUT, “A Case of Cooperative Sound Design”, in C. ERKUT, D. ROCCHESSE, S. DELLE MONACHE and S. SERAFIN (dir.), *Proceedings of the 9th Nordic Conference on Human-Computer Interaction, Gothenburg, Sweden, October 23-27, 2016*.

<sup>14</sup> A technique consisting in creating MIDI files combining pitch, onset, duration, velocity informations from different songs.

<sup>15</sup> A. CERA, “Three years of fragments: music, sound design, and sketching”, *Musica/Tecnologia, [S.L.]*, 2018, 45-62, On line. <http://www.fupress.net/index.php/mt/article/view/23799>

<sup>16</sup> Audio material delivered to the public without applying the final polishing/refinement steps usually implemented in commercial productions.

<sup>17</sup> Vocazione all'Asimmetria/dance piece by Francesca Foscarini. Production: VAN. In co-production with: 3 Bis

F Lieu d'Arts Contemporains Aix En Provence (FR), Centro per la Scena Contemporanea di Bassano del Grappa (IT), Fondazione Fabbrica Europa per le arti contemporanee (IT), La Briqueterie (FR), Les Brigittines (BE), MASDANZA The International Contemporary Dance Festival of the Canary Islands & Sala Insular de Teatro-Cabildo de Gran Canaria (ES), Uovo e Next Laboratorio per la produzione e la distribuzione dello spettacolo dal vivo lombardo – Edizione 2015 (I), Tanzhaus Zürich (CH), TripSpace Projects London (UK). Con il sostegno di Istituto Italiano di Cultura Madrid (ES), Istituto Italiano di Cultura di Londra (UK),

Yasmeen Godder Studio Jaffa Tel-Aviv (IL), MiBACT - Ministero per i Beni e le Attività Culturali. First performance: 2016.05.18, Firenze.

<sup>18</sup> PPP-Ultimo inventario prima di liquidazione/by ricci-forte. Production: ricci/forte | CSS Teatro stabile di innovazione del Friuli Venezia Giulia-in co-production with Festival delle Colline Torinesi. First performance: 2016.01.28, Udine.

<sup>19</sup> A. CERA, “Three years of fragments: music, sound design, and sketching”, *op. cit.*

## La composition musicale comme expérience Frank Dufour

*De nombreux scientifiques, en intelligence artificielle, psychologie, psycho-acoustique, philosophie, sémiologie, consacrent aujourd'hui une part importante de leurs recherches à la musique. Placer l'auditeur et l'expérience auditive au centre de ces travaux devient l'approche la plus fréquente. Cette orientation n'est pas particulière au domaine musical : littérature, arts plastiques, cinéma et arts de la scène sont eux aussi largement considérés en fonction de leur réception et de leur interprétation. Comme le suggère le philosophe Mikel Dufrenne<sup>1</sup>, une esthétique générale pourrait être envisagée à partir d'une telle orientation. Cela même en dehors d'une acception centrée sur la création, l'artiste ou l'acte créatif, bien que les apports scientifiques obtenus par les investigations portées sur l'œuvre et son auteur, notamment en pédagogie des arts et en sociologie des pratiques artistiques, soient nombreuses et intéressantes. C'est donc majoritairement auprès du récepteur et de l'objet esthétique que la plupart des recherches s'orientent. Lors de la soutenance de thèse de Dufrenne, la critique principale d'Etienne Souriau, spécialiste en esthétique alors avait choisi de situer dans l'expérience contemplatrice et non dans l'expérience créatrice. Souriau objectait : « Comment l'objet esthétique s'est-il fait ? Vous nous le donnez tout fait<sup>2</sup> ! » Au reste, placer l'auditeur et l'expérience d'écoute au centre n'est pas une pratique récente. Elle existe depuis plus d'un siècle et possède un double ancrage théorique : à la fois dans la phénoménologie de Husserl et de ses élèves, dès le début du xx<sup>ème</sup> siècle, et dans le pragmatisme de John Dewey à la même époque. Depuis, dans ces deux disciplines, le centrage sur l'expérience du récepteur ouvre des perspectives riches et nouvelles pour l'étude de l'objet esthétique en soi, non seulement concernant son statut et ses qualités, mais aussi, plus spécifiquement, concernant ses dimensions sensibles, historiques, sociales ou politiques. Ces deux approches théoriques, phénoménologique d'une part et pragmatique de l'autre, visent l'essence de l'objet esthétique ou de l'objet musical. Dans cette visée partagée, on postule que cette réalité essentielle ne se manifeste de façon authentique que dans la rencontre avec l'objet et la perception de cet objet par son spectateur. Ainsi le phénoménologue Roman Ingarden définit-il l'expérience de l'écoute comme une « relation esthétique immédiate avec les œuvres musicales, une relation qui nous permet de*