Expanding the concepts of *knowledge base* and *referent* in the context of collective free improvisation

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Abstract: Our goal in this article is to examine and expand two key concepts developed by J. Pressing on his studies about musical improvisation: *knowledge base* and *referent*. Through them Pressing defined musical improvisation in terms of constraints on human-information processing and action and of tools used by improvisers to overcome these restrictions. Our perspective is to examine these concepts in the context of free improvisation – which at first is opposed to the ideas of the *knowledge base* and referent - and simultaneously deepen and expand our understanding of these concepts towards a broader application.

Keywords: Free improvisation. Knowledge base. Referent.

Expandindo os conceitos de *knowledge base* e *referent* no contexto da livre improvisação coletiva

Resumo: Nosso objetivo neste artigo é examinar e expandir dois conceitos fundamentais desenvolvidos por J. Pressing em seus estudos sobre a improvisação musical: *knowledge base e referente.* Através destes conceitos Pressing definiu a improvisação musical em termos das restrições existentes nos processos de informação e ação humanas e das ferramentas utilizadas pelos improvisadores para superar estas restrições. Nossa perspectiva é examinar estes conceitos no contexto da livre improvisação – que, a princípio se opõe às ideias de base de conhecimento e referente - e ao mesmo tempo aprofundar e expandir o entendimento destes conceitos com vistas a uma aplicação mais abrangente.

Palavras-chave: Improvisação livre. Base de conhecimento. Referente.

1. *Knowledge Base* and *referent* – some preliminary remarks

In a celebrated article published in 1974 ethnomusicologist Bruno Nettl proposed to consider the study of musical improvisation from a perspective that went counter to some of the distinctly Eurocentric views that were prevalent at the time he was writing (NETTL, 1974). From the broad outlook that his knowledge of a variety of practices from around the world afforded him, he attacked the notion that improvisation and composition occupied two essentially distinct realms and proposed instead a framework from which a more universal, comparative approach of the field could be developed.

A central element of this framework was provided by the observation that "the improviser, /…/, always has something given to work from – certain things that are at the base of the performance, that he uses as the ground on which he builds" (NETTL, 1974, p. 11). This "something given" is what Nettl called the improviser's *model.* There are "very different kinds of *models* used in world improvisation": they can be theoretical construct, sets of formal conventions, stylistic characteristics, phrases or motives taken from a given "repertoire" etc.

Models not only represent bodies of (possibly implicit) information about a certain improvisational practices, but also provide each single one of its manifestations with "points of reference" that, depending on the tradition, will be more or less strictly paced in time and will exert a more or less predictable influence on the musical output.

The study of the *models* active in any given culture was central to Nettl's approach. But it was by taking the notion on a more "abstract" level – comparing its temporal characteristics and the degrees of commonality with the public that it might be endowed with [1] – that he obtained a tool through which to let common traits and differences emerge and cross-cultural comparison could be conducted.

When musician and cognitive scientist Jeff Pressing later set forth to describe improvisation from the perspective of the psychological processes that are engaged in its practice, he developed two central concepts that can be considered as reformulations and extensions of the notion of a *model*. In strict accordance with the cognitive perspective he adopted, Pressing described these as "tools" the (expert) improviser relies on to overcome the "rather severe constraints on human-information processing and action" improvisational behavior takes place under. The first of these concepts he called the *referent*: "a set of cognitive, perceptual, or emotional structures (constraints) that guide and aid in the production of musical material" (PRESSING, 1998, p. 52). The second, which he considered as "associated" to the first, is the *knowledge base*: broader in scope, it includes "materials, excerpts, repertoire, sub-skills, perceptual strategies, problem-solving routines, hierarchical memory structures and schemas, generalized motor programs…" that are built in the individual performer's "long term memory" (PRESSING, 1998, p. 53).

The fact that Pressing's approach engaged two entities where Nettl only needed one may in part be explained by the different directions he proceeded to extend each of the two terms. Indeed, the *referent* could be "a musical theme, a motive", but also, "a mood, a picture and emotion, a physical process, a story, /…/ – virtually any coherent image which allows the improviser a sense of engagement and continuity" (PRESSING, 1984, p. 346). The *knowledge base*, for its part, is extended to include, not only what a performer might *know about* a particular style, but also the whole "history of compositional choices and predilections defining [his] personal style" (PRESSING, 1998, P.54).

Despite these two different directions what, exactly, distinguishes the *knowledge base* from the *referent* isn't always clear. Both scholars agreed that individual proficiency is acquired in the long run, through repetition and familiarization with aspects of a *model* or with a set of *referents*. Since Pressing considered the *knowledge base* as the "encoding" of

such proficiency it follows that any given *referent* might be incorporated into its realm. A distinction based on the "internal/external" dichotomy is thus highly unstable: today's (external) *referent* might indeed become part of tomorrow's (internal) *knowledge base*. What, then, permits to distinguish between the two?

A preliminary answer to this question is given by Pressing himself when he points out that the *referent* is "specific to a given piece," (PRESSING, 1984, p. 346) strongly implying that it might even be specific to a *given performance*. In all cases, it serves as a "guide and aid" to the unfolding in time, not only of a improviser's individual production but also – in the case of a collective performance – to the coordination of the various parts into a collective whole. Beyond incorporating information that could be expressed in terms of *referents*, the *knowledge base* also includes the means to engage them creatively. In this later capacity, it might be referred back to explicit, transmissible, bodies of knowledge characterizing certain styles or traditions, but might also extend beyond them and correspond to more diffuse capacities and "know-how" about improvisation.

2. The environment of free improvisation

Let us imagine a performance of free improvisation: in the beginning there is nothing. In a specific spatiotemporal environment, there are the musicians with their instruments, ready to start an interactive musical practice. Some might know each other, have practiced together before or even shared stage on previous, more traditionally oriented, performances. None of them know, however, much of anything of what is about to unfold musically.

We know that free improvisation is a collective musical practice, non-hierarchical, democratic, empirical, and with a strong emphasis on process and continuous sound flow. We also know that it is a kind of musical practice that *does not rely on pre-established systems* (*grammars*, languages and styles), that there is no restriction on the type of sound that can be used, and that any combination of sounds is possible. Thus, unlike idiomatic improvisation in which the *game* is bounded by a specific musical *grammar,* a more or less strict sonorous repertoire and governed by rules established in the context of delimited socially formed systems (such as blues, Jazz, Flamenco music etc.), in free improvisation, the rules are collectively and spontaneously created *during the performance* and the constraints seems to relate more with an ethic of collaboration and interaction than with specific traits of a musical syntax.

So, the fact that the musicians don't know anything related to what is about to happen is not due to the fact that they have forgotten, but to the fact that they have consciously decided that the *new rule* of the game is *to forget*. Well known improvisors like Eddie Prevost and Derek Bailey would say almost the same thing in other words: "Now, nothing is more dead than yesterday's improvisation…Most of the time…I think an improvisation should be played and forgotten" (in PETERS, 2011, P. 37, 38). In the words of Gary Peters:

> *…the ingenuity of origination must find ways to erase or forget the presence of the given in order to both avoid imitation and open up the path to be followed/…/As an ideal-type in this regard free-improvisation is able to achieve, or at least strive to achieve, a prior degree of aesthetic erasure beyond the reach of other forms art forms precisely because its primary aim is not to produce works. Its primary aim is to produce beginnings* (PETERS, 2011, p. 37).

And then, in our imagined performance, something happens: a musician outlines a preliminary sonorous/musical idea, not related to any idiom. From this moment, it begins the interactive game. From now on, the interventions of each musician are meant to keep the energy of the sonorous flow. Obviously, each performance will be setting up in a specific way, creating an identity (of flow) and a singular sonorous path.

In this sense it is possible to say that free improvisation would seem, at first glance, to aim, precisely, at putting the *knowledge base*, in its explicit components (repertoire, musical structures, grammar, syntax, stylistic characteristic etc.), and the idea of a *referent* in check, since one of the *rules of the game* is exactly to avoid models, repetition and the use of known systems. And this *rule* not only includes literal repetition of sound material or tone successions but also extends to ways of structuring musical discourse based on known idioms, stylistic characteristics, themes etc. In the next item, we are going to consider these two concepts from the perspective of free improvisation, which, though mentioned by both Nettl and Pressing's, was not subjected to any particular focus on their part.

3. Free improvisation and referent

As we have seen above, a superficial interpretation would seem to deny the relevance of the *referent* for free improvisation. This could happen, for example, if we identify the *referent* in a more restrict way as a *melodic theme* or a *sequence of chord changes*. However, in a broader definition, the *referent* can be understood as any local and specific strategy that is established by the musicians during or at the beginning of a given performance. In this context, the *referent* may establish different kinds of relation with the temporal dimension [2]

(clocked, sequential, synchronized etc.). Graphical notation, such as the ones used by Vinko Globokar, may be used as a *referent* for a particular type of free improvisation. A *game piece* that includes improvisation such as John Zorn's *Cobra* could also be thought as a kind of *referent*. Words or images may also function as *referent*, either to guide the temporal flow of the improvisation, to divert the participants' attention from any existing form of musical thinking, or both. And why not think about the looks and signs exchanged between performers as providing a *referent*?

Nevertheless, it is noteworthy that in its most radical forms, free improvisation does not use explicit *referents*. Even in the cases described above in which there is some kind of previous instructions, their nature is radically different from a established musical *corpus* such as a song, a theme or a sequence of chord changes. How could we, then, in these most radical forms of free improvisation, redefine and expand the idea of a *referent*?

Considering that the *referent* is something that is shared[3] by all the performers and serves to guide the temporal unfolding of the present performance, in free improvisation, the past *of the current performance* (involving all *collective*, short and long term memory) could be thought as the only *referent* for that specific performance.

The image of walking backwards into the future could be used to evoke this idea: all performers *share* the experience of the sonorous past of that particular performance, which has been constructed collectively. Then, in the continuous flux of the performance, the past becomes a kind of ever growing reservoir of resources, forms, figures, gestures, sounds, textures, procedures etc., ready to be used as material for creation, re-creation, transformation, variation, development etc. From this point of view, the current performance, according to Peters, *brings into view the productive interpenetration of origination and re-novation as the new and the old are engaged simultaneously* (PETERS, 2010, p. 2).

4. Free improvisation and knowledge base

On the other hand, in spite of its dialectical links with the *referent*, in its original meaning, the *knowledge base* is something of a more general and global nature. In the context of idiomatic improvisation, it refers to a theoretical dimension (an abstract system which includes certain syntax rules and musical materials such as scales, chords, sonorities etc.) and a practical dimension based on all the musicians' active experiences in performances in that particular idiom. For free improvisation we should broaden this concept that it would then involve *all the performers' musical background*. In this sense, it can be said that, for free

improvisation, *knowledge base* is not bounded by one (or more) specific musical language[4], but is constituted by all the improvisers sonorous and musical experiences and by what is "before and behind" these languages, namely, pure sound, its nature and its attributes. Furthermore, our redefinition of *knowledge base* would have to include also the *know-how*: to deal with time (past and present), to interact with the others, and to listen to sound as an essential and unlimited material for musical practice.

In relation to this last item (sound as an essential material) we could say that, in free improvisation a dive occurs in the molecular[5] dynamics of pre-musical[6] sound. Therefore, the *knowledge base* of the free improviser is based on pre-musical sound thought as "raw" material. In this context, for the free improviser it is important to have knowledge of the phenomena of sound: its acoustic qualities in all of its parameters. And this knowledge of sound is acquired namely from practice: by listening to it, producing it, manipulating it, transforming it and combining it (with other sounds) from his/her instrumental practice.

Thus, the *knowledge base* of free improvisation comprises a *know-how* that is not expressed in any particular idiom or *referent*. With regard to the free improviser, we could say that *knowledge base* is comprised of all long-lasting personal musical memories, stored in the form of a *know-how* (perceptual, emotional and motor skills) and a *know-that* (of the unlimited universe of sound materials, that precedes the musical).

5. Final considerations

Despite the fact that, in its ideal form, collective free improvisation aims at putting both the *knowledge base* and *referent* in check, it is possible to revisit both concepts, expanding them to include specific features of free improvisation.

Whereas, according to Pressing, the *referent* is what allows the coordination of the collective, in the context of free improvisation, what becomes collective is the past and present of the current performance. Further, the *referent*, constructed during the continuous flow of the performance, allows in the present, the very act of collective musical creativity. On the other hand, the part of the *knowledge base* that could be considered essential to free improvisation is the capacity to turn the specific collective past and present of the performance into a gradually defined *referent*. In other words, for free improvisation, the past that accumulates, can be considered as one possible form of the *referent* and that there is an expanded concept of *knowledge base* that enables the musicians to participate in this kind of apparently unprepared practice.

It is worth to point out that an almost similar dynamism applies to idiomatic improvisation where this dialectical relationship between *knowledge base* and *referent* is what keeps the vitality of this kind of practice. The difference is that for idiomatic improvisation it is necessary to stay within the borders of a system and the collective past and present are related more strictly to an explicit *referent*.

As a complement we could also think about free improvisation in terms of the interpolation of two types of memory. The first kind –based on *knowledge base* – relates to the biography of each musician individually. The second, which dialogues intensively with the *knowledge base*, is a collective memory created interactively during the performance and relates to the succession of provisional sonorous states that are outlined continuously during the performances, thought of as a virtual *referent* that specifies itself at each moment in the present. So, in a certain sense it is possible to say that the *knowledge base* and the *referent* correspond to different *moments* in time: the first refers to whatever skill and expertise was gathered *before* the beginning of the session, while the second guides the music making *during* the session's specific unfolding.

Summarizing we could say that the *referent* is produced in the present of free improvisation and remains as a powerful force that guide the development of the performance. And the *knowledge base* can be defined as the capacity to turn the specific collective past and present of the performance into a gradually defined *referent*, which as an original and vital force, allows in the present, the continuity of the very act of collective musical creativity.

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[1] These two dimensions are what Nettl described as, respectively, a model's *density* and *audibility*. For more detailed descriptions see Nettl's original text (NETTL, 1974, p. 13-15).

[2] According to Pressing: "In strict improvisation contexts compatibility between *referent* and behavior is continuous, in freer contexts the expressive continuity of the improvised material may cause temporary abandonment of the referent". For further discussions about this issue, cf. PRESSING, 1984, P. 347, 348).

[3] It is useful to distinguish between explicit and implicit referent – when playing a jazz standard a lot may be "implicitly" collective (the sum of the famous recordings of the standard, for example), while only the score would be explicitly collective.

[4] About this issue, professor Christian Munthe states that: "The basic element of the free improvisers method can be found in their attitude with regard to musical traditions, languages, genres, etc. It has been pointed out, and correctly, that free improvisation cannot beforehand exclude traditional musical languages. The difference between one who is active within the borders of a particular idiom and the free improviser is in the way he/she deals with this particular idiom. Idioms are not seen as prerequisites for the music making, but as tools that, at any time can be used or not" (MUNTHE, 1992, p. 12).

[5] According to Deleuze, it is necessary to aim the molecular to overcome the idioms and systems. The well-known deleuzian idea that *art is not to reproduce or to invent forms but to capture the forces*, is essential to understand this concept of molecularity. For Deleuze, the *forces* are present at the molecular level. It is here that the sound thought of as a power line (with its energy history) becomes the original material, powerful for a musical practice free from any pre-established system.

[6] Derek Bailey would say that: "Historically, it pre-dates any other music – mankind's first musical performance couldn't have been anything other than free-improvisation (BAILEY, 1992, p. 83).