Perception of a Comprovisation: The Ambiguity of Listening to a Composed Musical Piece Derived from Improvisational Material

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Abstract: *In this paper, we aim to reproduce and expand on some of the empirical experiments that have been used to address the aesthetics of listening to improvised music. We focus on a piece of music that we consider to be a comprovisation, a term used for music that is a blend of composition and improvisation. The responses offered by the participants in our experiment were somewhat ambiguous, as there was no clear consensus in regard to the suggested musical form or the quality of judgments about the compositional and improvisational aspects of the piece. The piece used for the empirical experiment was based on a free improvisation of two Brazilian musicians: Vinicius Dorin on soprano saxophone and Nenê on drums. The music was further reorganized (by means of digital audio edition) and orchestrated by American composer John Rapson. The final phonogram represents an interpretation of the composer's improvisation, but it still reflects the improvisational characteristics of the primary material. Our method is based on Canonne's (2018) empirical experiments, which departs from an analysis based on the grounded theory approach of multiple comparison. Our method is also based on the vision of the contextual information's influence on subjective evaluations (Anglada-Tort, 2018). We separated the participants into musicians and non-musicians, and then divided them into three groups, giving each group a different informational context. Despite using a small sample of participants and a qualitative analysis, we believe that the results show how ambiguity can exist among listeners who are exposed to music without any context information. However, because this research is a first step, we cannot generalize the results. In the future, we believe that this kind of experiment could be expanded to confirm our primary data.*

Key words: Comprovisation. Musical Perception. Improvisation. Composition.

Percepção de uma comprovisação: a ambiguidade na escuta de uma peça composta a partir de materiais improvisados

Resumo: Neste trabalho pretendemos reproduzir e expandir algumas das experiências empíricas que estão sendo utilizadas para abordar a escuta estética da improvisação, focalizando uma peça musical que consideramos ser uma comprovisação. Acreditamos que as considerações dadas pelos participantes da experiência serão um tanto ambíguas, no sentido de não existir um consenso entre eles, tanto na forma musical

FARACO, Arthur. Perception of a comprovisation: the ambiguity of listening to a composed musical piece derived from improvisational material. Opus, v. 27, n. 2, p. 1-27, mai./ago. 2021. http://dx.doi.org/10.20504/opus2021b2712.

Recebido em 26/1/2021, aprovado em 6/7/2021

sugerida quanto nos julgamentos de qualidade dos aspectos composicionais ou improvisados da peça. A peça utilizada no experimento empírico tem um processo criativo baseado na improvisação livre de dois músicos brasileiros (Vinicius Dorin e Nenê, saxofone soprano e bateria, respectivamente) que é reorganizada (por meio da edição de áudio digital) e orquestrada pelo compositor americano John Rapson. O fonograma final representa uma interpretação da improvisação pelo compositor, mas ainda reflete as características de improvisação do material primário. Nosso método é baseado nas experiências empíricas de Canonne (2018), que são fundamentadas na *grounded theory approach of multiple comparison* e na visão da influência das informações contextuais nas avaliações subjetivas (ANGLADA-TORT, 2018). Três grupos, entre músicos e não músicos, foram separados e para cada um deles foi dada uma informação contextual diferente. Apesar de termos uma pequena amostra de participantes e o caráter qualitativo da análise, acreditamos que os resultados podem demonstrar que a ambiguidade pode existir quando o ouvinte se depara com uma peça musical sem nenhuma informação contextual. Porém, esta pesquisa se mostra como um primeiro passo, dado que não temos meios para generalizar os resultados. Logo, acreditamos que no futuro essa experimentação possa ser expandida para confirmar nossos resultados primários.

Palavras-chave: Comprovisação. Percepção Musical. Improvisação. Composição.

Many have raised questions about various aesthetic experiences of those who listen to musical improvisations as compared to musical compositions. Empirical experiments have produced interesting results by focusing on how contextual information determines some aspects of listeners' subjective evaluation of music (ANGLADA-TORT, 2018). Thus, the aesthetic experience of a listener is influenced by the contextualization of how the piece was designed and presented; for example, if it was composed or improvised. Contextualization also influences the reception of the artwork, as seen by Kroger and Margulis (2016). Their experiment showed how extrinsic factors, such as information about a professional musician who performed a piece, can influence the listener's opinions and preferences. Other studies support these results, such as Aydogan et al. (2018), which shows how listeners' responses were more positive when a piece of music was described by a professional musician. Angladа-Tort (2018) presents a brief overview of research on the influence of extrinsic factors and contextualization in musical listening and perception, such as Duerksen (1972), Kirk et al (2009) and Margulis et al (2017). Thus, her conclusion provides empirical support for the notion that musical perception is context-dependent (ANGLADA-TORT, 2018. SLOBODA, 1999).

In regard to musical improvisation, we consider the works of Lehman and Kopiez (2010) and Canonne (2018) as references for empirically guided research on the aesthetic reception of improvised music. The first study shows that participants did not distinguish between the improvisational and compositional generative processes of the music pieces. Rather, listeners primarily observed the musical style or genre. Discernment between composition and improvisation, as generative processes, was found to be unclear. As the authors state: "Listeners do not have clear categories for improvisation and composition, but they can search for cues that may hint at the underlying generative processes" (LEHMAN; KOPIEZ, 2010: 124). In addition, these cues do not reside on "structural features of the work," but "emerge from its performative character" (LEHMAN; KOPIEZ, 2010: 124). Therefore, if no previous information is given to the listener, it is difficult to discern the generative process of the piece.

Canonne's (2018) research includes contextual information about the generative process of a piece in order to better understand how this information changes the listener's perception.

In his experiment, the same musical piece is exposed to a number of participants with each receiving different informational contexts. The music is a free improvisation that has an ambiguity in its final form, but also compositional aspects, as demonstrated by the author.[1] To one group, the music is described as a composition. To the other group, it is described as an improvisation. The results point to a significantly different aesthetic experience. The group for whom the music was described as a composition shared primarily negative responses about the experience. Due to the music's lack of structure, listeners perceived the musical form as merely uncorrelated blocks of sound. In contrast, the group for whom the piece was described as an improvisation shared generally positive responses about the music. In this case, the listeners, prior to the experience, were not expecting to hear or focusing on structure or form; rather, they focused on the relational aspects of improvisation— the process of real-time creation by means of interaction, with all its risks and imperfections.

It is important to notice that although there are differences between listening to improvisations and compositions, they are not completely obvious. Listening to music is a subjective experience that involves specific cognitive processes. Therefore, we cannot attest that the aesthetic experience of listening to a given piece will be unbiased or will be a definitive "way of listening." Lehman and Kopiez (2010) found that usually people do not listen by "searching" for the generative process of a given piece of music. Also, there is no clear separation between the perception of an improvisation and that of a composition. In Canonne's (2018) experiment, the change in the responses is due to contextualization. For this reason, our hypothesis is that there is a distinction between a perception of a composition and a perception of an improvisation. We sought to demonstrate that musical perception is context-dependent, and that without contextualization listeners experience ambiguity, a challenge to differentiate between composition and improvisation.

Given that musical perception and the aesthetic experience is context-dependent, this paper addresses questions about the generative process (composition or improvisation) of music. Our view is that listeners will judge the qualitative values of a musical piece based on information they receive about its generative process. So, in this paper we aim to reproduce and expand Canonne's (2018) experiment by addressing a musical practice that is being called *comprovisation.* This term is now frequently being used to describe artistic practices that involve musical composition and improvisation. The meaning of the term does not have a clear consensus, in part because there is a wide range of artistic practices that can be conceived of as comprovisations. However, the term is not new. It can be traced back to works by, for example, Paul Rutherford and Iskra in 1903, which included prominent free improvisation guitar player Derek Bailey and double-bassist Barry Guy (ALLEN, 2006). Another example is a piece by Butch Morris called *The Bartok Comprovisation*, which Papageorgiou (2015) compared to Morris's guided improvisation method called *conduction*. Our research (cf. FARACO, 2020), involves the belief that notions about comprovisation point to two distinct theoretical strands. We call these strands (a) **comprovisation as emergent practice by means of audio technologies** and (b) **comprovisation as description of open musical pieces.**

For the first strand, we compiled research and artistic practices from authors such as Hannan (2006), Dudas (2010), Mailman (2013), Dahlstedt et al (2015), Coleman (2016), Louzeiro (2017), and Goudard (2018). Their practices converge around using computer systems for digital

[1] To consider the piece proper for the experiment, Canonne (2018) provided a test with musicians. This test consisted of listening to improvisations without context and then answering whether they believed the music was an improvisation or composition. The one with the most "composition" answers was selected for the experiment (cf. CANONNE, 2018).

audio editing and processing to produce real-time scores and interaction patterns for musical groups who aim to balance or integrate aspects of compositional and improvisational character in music. Their methods vary, but they share a common view of what comprovisation is, namely a practice by which both compositional and improvisational aspects coexist. The integration of both aspects is mediated by computer systems, digital audio editing, or real-time processing.

For the second strand, we gathered research from authors such as Dale (2008), Fuják (2011), Bhagwati (2013), Papageorgiou (2015), Antar and Oliveira (2016), Aliel (2017), and Obijiaku (2019). They tend to view comprovisation as a range of musical practices that presents "open" space for improvisation, specifically by using various kinds of musical notation. We highlighted work by Bhagwati (2013) because it provides a clear vision of this second theoretical strand. Bhagwati's research aims to show that musical practices—such as indeterminant, aleatoric, game, and intuitive—occur in a continuum of musical practices (NETTL, 1974, 1998. CANONNE, 2018b). This continuum, or spectrum, can serve as a possible way to characterize a musical piece according to whether it tends to be more compositional (with written elements, reproducibility, etc.) or more improvisational. According to Bhagwati (2013), musical notation can present a **contingency,** which can provide openness for interpretation/improvisation in some musical parameters, or **context-independent elements,** which are not amenable for change in the interpretation of a musical piece.

We believe that comprovisation, as a musical practice that involves the coexistence of compositional and improvisational aspects, directly alters what Falleiros (2012) calls **pact.** According to the author:

> The fictional narrative throws the event into the space of speculation. For that to occur, it is necessary for the 'reader' of the narrative to detach from a rational reference. That requires external and universal evidence that can immerse the 'reader' in the particularities of the fictional world, thereby helping the reader to establish a pact with the work. A narrative that aims to describe an event in its present moment, on its own time, should be formulated by a constant struggle to redo and reorganize in relation to an encounter between the rational and fictional narrative. To build a narrative that aims to present, for example, improvisation, it would require first an account of the understanding of the relationship between poetics and observation, and therefore the idiosyncrasies of each artistic act[2] (FALLEIROS, 2012: 74, our translation).

In that regard, the pact is a "tacit hint" for the listener during a performance. As we mentioned before, it has been empirically proven that musical perception is context-dependent, and that the pact directly influences the context of the performance. In an improvisational performance, the listener makes a pact to appreciate the work that he or she is exposed to in relation to the idiosyncrasies of that performance. Therefore, it appears to us that Canonne's

[2] "A narrativa ficcional lança o acontecimento para o espaço da especulação. Para isso, é necessário que o 'leitor' desta narrativa se desprenda da referência racional que exige provas externas e universais e imerja na particularidade própria do mundo ficcional, estabelecendo assim um pacto com a obra. Uma narrativa que pretenda descrever um acontecimento no seu instante presente, por sua vez, deveria ser formulada pelo embate constante do refazer e reorganizar que se sucederia do encontro entre a narrativa racional e a ficcional. Construir uma narrativa que pretenda apresentar o acontecimento presente, como a improvisação, necessita que primeiramente seja feito um relato do entendimento da relação da poética com a observação, e por conseguinte das idiossincrasias de cada fazer artístico" (FALLEIROS, 2012: 74).

(2018) experiment reveals a change in the pact, given that the piece is presented informationally as a composition when it is in fact performed as an improvisation. Following Lehman and Kopiez (2010), listeners do not perceive or discern the generative processes of music on their own. This implies that the pact is a tacit hint that gives the listener an opportunity to comprehend how a musical work was made. Hence, when there is a change to the pact, the listener tends to evaluate the piece in other ways. In regard to comprovisations, specifically in relation to the music piece that is the object of this research, we believe that the pact is not "consistent." In other words, we mean that the music piece doesn't present cues, as mentioned by Lehman and Kopiez (2010), for the listener to comprehend whether it is an improvisation or a composition.[3] Without informational context, the listener can be confused by some aspects of the music and unable to discern if the work is an improvisation or a composition. Thus, we believe that by providing contextual information, the responses of listeners would be similar to those in Canonne's study (2018); that is, the information would alter the listeners' judgment about the generative process of the piece.

Our analysis and experiment focus on a piece called "Nesta Rua Onde Mora Coltrane," which was included in the album titled *Mystery and Manners: Improvisations of Vinicius and Nenê.* The music was idealized and produced by American composer John Rapson. We believe that the pieces on this album represent our view of comprovisation, because the creative process of each consists of three steps: 1) free improvisations by Vinicius Dorin and Nenê; 2) transcriptions of those improvisations by the composer and the musicians who participate on the album; 3) rearrangements and orchestrations of the improvisations that still utilize the improvisational material (RAPSON, 2011). Other reasons for choosing "Nesta Rua Onde Mora Coltrane" for this research include the fact that it is the only piece on the album to appear with its original improvisation—the original duo—and with its final form (after the other two steps of the creative process). Thus, it was possible to analyze the music by comparing the original duo and the final phonogram. Furthermore, the composer made available one draft of the score for the purposes of our research. This enabled us to analyze the compositional process—the transcriptions and the orchestrations—so as to gather more data for the analysis. We labeled the composer's draft as a "draft" to indicate that it did not fully represent the final phonogram, and that it served as a guide for the musicians during the recording sessions. In other research, we produced a possible final score of the music based on our interpretation. This version was used for the synthetic musical analysis that we present here (cf. FARACO, 2020).

The composer's arrangement and orchestration might suggest some clues, as in Lehmann and Kopiez (2010) terms, or even provide structural evidence that this piece is in fact a composition. However, because the material derives from free improvisation, its final form can be misleading. Specifically, it does not contain aspects such as a formal coherence between thematic expositions, or repetitions of musical material. It can be said that these elements are somewhat conservative relative to new compositions. However, the piece is clearly situated in a local context, thus presenting popular characteristics such as its thematic repetition (FARACO; FALLEIROS, 2019). We consider "Nesta Rua Onde Mora Coltrane" to be an example of comprovisation as per our definition. It is a piece in which the compositional and improvisational elements are intertwined. Moreover, its presentation, with many ambiguous characteristics, can destabilize the "pact."

In this case, we raise our problem: How does the listener react when exposed to what we call a comprovisation? Our hypothesis is that if listeners receive information about the piece

[3] We conducted research on the definition of *comprovisation* by the destabilization of the pact, such as in Faraco (2020) and Faraco (2021).

(context), their reactions would be similar to those in Canonne's (2018) research. However, when listeners receive no information (context) about the same piece, the listeners would be "confused" by the material due to its lack of clear compositional and improvisational structures. In other words, the aforementioned pact would be "destabilized" thereby making the listener's answers more ambiguous in relation to other research participants. By ambiguous, we mean that the participants would probably not identify the qualities of the generative processes leading them to give answers that do not clearly define the true creative process of the piece. In addition, we aimed to verify whether listeners would describe the music according to the informational context that was presented to them. In this regard, we believe that those who had context information would describe the suggested forms in a manner that was similar to ours. This will be explained in the Method section of this paper.

To define ambiguity, we base our considerations on Margulis et al. (2017: 1): "[...] the capacity to sustain multiple interpretations." The authors also argue that ambiguity is "a central characteristic to art" (MARGULIS et al, 2017: 1). Studies have contradictory findings about whether ambiguity elevates or depreciates an interpretation of art. According to our hypothesis, different interpretations of a musical form will emerge, and different emotional expressions will arise among listeners. In the case of this study, we can assert that ambiguity occurred.

It is important to emphasize that, in this research, we do not aim to produce a generalized result. There is a need to account for numerous factors, which implies certain limitations. For example, subjectivity is present during a musical experience, stemming from factors such as the listeners' musical expertise, age, and gender, among others (Greasley and Lamont, 2016). Although we present a hypothesis that searches for similarities between the participants' answers, by applying a grounded theory approach of multiple comparison (HENWOOD; PIDGEON, 2004), we consider this methodology to be a qualitative approach that values the researcher's subjectivity and the participants' subjectivity. This approach enabled us to consider the aforementioned individual aspects and to consider the participants' musical preferences. Also, it is relevant that the individual aspects and musical preferences of the participants are informed and constructed by the cultural relations of the locality (MASSEY, 1993). As such, our approach primarily focused on musical relations that constitute a "eurocentric tradition" of music, in terms of harmonics and the melodic and rhythmic aspects of the music.

Method

Our method has two parts: (a) the musical analysis of the aforementioned musical piece, "Nesta Rua Onde Mora Coltrane," and (b) the empirical experiment and the results analysis based on the **grounded theory approach of multiple comparison,** to be described.

For the musical analysis, we used the following objects: the final phonogram of the piece (after the editions, orchestrations, and a new recording); the original improvisation (the original duo that consists of soprano saxophone and drums); and the "draft" sheet music, kindly conceded to us by the composer John Rapson. Our main goal in this analysis was to point out whether some parts of the original improvisation, as interpreted and rearranged by the composer, were reframed in the final phonogram as compositional material. The process of orchestrating the free improvisation and editing it means, in our view, that some originally improvised material became, as Bhagwati (2013) said, context independent. Our method was based on White's (1994) tripartition: microanalysis, middle-analysis, and macroanalysis. However, for sake of length we summarized it in a table of contents. It contains the following: musical form; a comparison

between the suggested form and the rehearsal marks in the "draft" score; the orchestration, the harmonic, melodic, and rhythmic characteristics; and a comparison between the minutes of the original duo improvisation and the final phonogram. We think that this approach better summarizes the tripartition method while presenting a final form for comparing the results generated by the participants.

Importantly, there are some recurring aspects of the concepts in the analysis. First, the concept of musical form is not addressed in the means of a traditional view, as in Schoenberg (1970) or Bas (1947). For these authors, the concept of form is primarily related to a certain coherence of the musical piece. For that coherence to exist, there must be recognizable material that enables the listener to address recurrent themes that are designated by similarities in the melodic, harmonic, or rhythmic elements of the music. Therefore, a piece of music can be experienced by comparing elements that are similar or contrasting. Themes in a specific musical form usually refer to a material that is somewhat repetitive. However, our object of analysis is primarily improvisation (the material is derived from the duo's free improvisation). As a result, we do not address repetitive themes. Likewise, we do not address the musical form in relation to similarities between melodic material (except in one part, to be seen in the results), but by a similar intention of each part. Thus, although there are no melodic, rhythmic, or harmonic similarities in some parts of the piece, these elements could be used to make a musical transition, for example, in relation to the orchestration that was created for each specific part.

This kind of analysis was used to interpret what the composer created from the original improvisation. Some improvised material could be considered as context independent. Likewise, some improvised material may still have had its improvisational qualities. Hypothetically, these qualities could have appeared in another interpretation of the piece. Furthermore, because the primarily improvised material assumes a context-independent quality, we hypothesized that it would create ambiguity in the listeners' perceptions of the music. The music seems to be improvised, but it has compositional attributes, such as a countermelody, *solis*, and others. As we commented earlier, this can create an "instability" in the pact. The listener who approaches the piece as a composition could be confused by the improvisational character of the possible themes, and the listener who approaches the piece as an improvisation could be confused by the aforementioned compositional aspects. In other words, we believed that ambiguity would appear among listeners who lack context.

Regarding the second part of our method, we realized an empirical experiment based on traditional methodologies for qualitative studies: the use of questionnaires (FREIRE, 2010). For the results analysis, we utilized a grounded theory approach of multiple comparison (HENWOOD; PIGEON, 2004; CHARMAZ, 2006). We believe that this method of analysis is consistent given that it "results in an interpretation of the data that can be taken to an abstract level but that is profoundly grounded on, and emergent from the empirical data" (CANONNE, 2018: 6). In this way, the answers given in response to the questionnaires were analyzed so as to find similarities and recurring themes—that is, convergences between the answers—so to determine how the instructions affected each group's perceptions of the musical piece. We also considered the divergences of the answers, focusing especially on groups in which the participants were not given contextual information. Our assumption was that ambiguous answers would appear. By using those convergences and divergences as part of the framework, we categorized some of the most recurring themes and created abstract categorizations, such as "form," "quality," "value," and others.

Six questionnaires were produced, dividing musicians and non-musicians into three groups each. We represented the division of the groups in the following table:

Division of participants	Musicians with an academic background	Non-musicians	Total number of participants by type of context information
Context information given: piece as composition	2	3	5
Context information given: true creative process of the piece	2*	3	5
No context information given	4	2	6
Total number of participants by musician/non-musician	8	8	16

Table 1: Division of participants

As to be seen, we marked as two participants into the musicians group with the second questionnaire given that, initially, there were four. However, two of the answers given could not be used to our final analysis of the data, for reasons we explained in the Results section. We emphasized the musicians had an academic background as some of the participants in the non-musicians group had previous contact with informal music education (cf. WILLE, 2005), such as instrument lessons with private teachers or self-taught approaches. We decided to direct participants who had informal music education to the non-musician group because they did not have any kind of formal music theory training. We expanded the experiment for non-musicians, in light of the commentaries on Canonne's (2018) research made by Anglada-Tort (2018). We assumed that the musicians with formal study or training would have ambiguous answers; however, we also assumed that they might be more closely aligned with the analysis that we provided. This assumption was based on the fact that musical form is studied extensively in formal music education environments. In such programs, musicians attempt to distinguish themes and improvisations, even if they create their own parameters to do so. (To create one's own model of analysis can indicate the presence of ambiguity as a listener attempts to fit the musical piece in a "composition" scheme or "improvisation" scheme.) Non-musicians, on the other hand, do not have these kinds of categories to help them analyze a musical form, at least not in an academic sense. Thus, it was interesting to analyze the final results of this research and to compare the divergences between the answers of the two groups.

The questionnaires were divided based on the contextual information available in each. For musicians with academic background and non-musicians, the first questionnaire described the piece as a composition, in which interpreters (musicians) were playing with the use of a score. However, in some parts there were improvisations based on predetermined material. The second questionnaire described the piece as it really was conceived, as free improvisations with the use of transcriptions, editing, and new arrangements. The third questionnaire did not provide any contextual information. The differences between the questionnaires could be found in the suggested questions. For the musicians' group, the questionnaire asked for the following from the participants: age; academic formation; number of hearings; commentaries about the piece's construction; suggested form; minutes of composed or improvised parts; and general comments about the piece. For the non-musicians' group, the questionnaire asked for: age; academic formation; number of hearings; commentaries about the piece's construction; minutes of composed or improvised parts; and general comments about the piece. The only difference between the questionnaires was related to the question about musical form.

These questions were elaborated in a manner so as not to influence the participants' answers in any way. Anglada-Tort (2018) discusses how interviews, also being a proactive methodology in qualitative/subjective research (FREIRE, 2010), can lead to biased answers, given that the interviewer can sometimes redirect the questions in a way that produces the answers he or she was expecting. Taking this into consideration, we developed the questionnaires with very few instructions so as to allow participants to be "freer" in their answers. We used abstract words, such as "musical construction" or "musical qualities." The directions consisted of those described above, including commentaries about the piece's construction, minutes of composed versus improvised parts, and general comments about the music. As we searched for similarities between the participants' answers, we did not exclude answers that were long or abstract. Rather we extracted sections in the verbal reports that were recurrent.

The total number of participants was sixteen. In the group with formally educated musicians there were eight participants, with an age mean of 28.5 years (standard deviation = 5.95). One of them was still enrolled in a university, four had undergraduate degrees from music universities, one had a specialization in music, one had a master's degree in music, and one had a Ph.D. in music. Four of them considered themselves to be interpreters, one claimed to be a composer, and one claimed to be a music arranger. Three of them said their prominent musical practice was concert music and five said they created popular music. The mean of the number of listens was 6.87, ranging from three to thirteen listens (standard deviation = 3.35). The non-musicians group had eight participants with a mean age of 26.6 years old (standard deviation = 2.45). The academic and professional profile was very diverse, with areas of knowledge such as psychology, engineering, law, social communication, medicine, and political sciences. The mean number of listens was 4.7, ranging from two to eleven listens (standard deviation = 2.93).

Results
Musical Analysis

For our musical analysis, we provide a table of contents (Table 2) that summarizes most of the relevant information and that details the suggested form. The comparative division displayed in the table was undertaken based on the work of Jost (1994). The initial impulse for the composition is the original improvisation. The final form for this study follows a possible "improvisational logic" because there were no explicit changes in the trajectory of improvisation in relation to the final composition. For example, until the resumption of A', which occurred through a transition, the minutes were the same. The original melodic and rhythmic aspects of the piece were maintained with additional orchestration (the creation of texture and counter melodies) and harmony. This underscores the vision of free form music. In fact, we believe that the generative process of an improvisation occurs through concatenated events that vary according to the referent, and also according to the knowledge base[4], of the improviser (CLARKE, 2001; PRESSING, 1984). Although thematic repetition is a possible strategy for improvisation, this was not included in the original improvisation discussed here. According to the composer, he considered maintaining this logic of improvisation in the final result (RAPSON, 2011).

[4] We take the concept of a referent from Pressing (1984). Clarke (2001) presumes that the generative process of an improvisation is based on low-level cognitive processes that lead to decisions in the moment that are based on the reference. The referent is the "underlying formal scheme or guiding image specific to a given piece, used by the improviser to facilitate the generation and editing of improvised behavior on an intermediate time-scale" (CANONNE; GARNIER, 2015: 1). Thus, the concatenation of events depends on the referent but also on the knowledge base of the improviser.

In our view, the most notable aspect of a possible compositional clue is the repetition of theme **A,** marked as **A'.** We considered it as a theme due to the composer's orchestration on the final phonogram. The melody was realized by the soprano saxophone and the tenor saxophone (as a countermelody), with some interventions by the trumpet. The harmonic and rhythmic patterns conveyed with the melody a sensation of intentionality; that is, a significant thematic characteristic. Parts were marked as **Tr.** and **Conv.,** and those parts represented transitions. The **Conv.** parts were *solis*, whereas the melodic and rhythmic aspects of each instrumental lines were similar. Those were derived from the original improvisation and then orchestrated in a manner that presented the intentionality of transitional aspects. In other words, there was no theme or melodic line that had a clear intention that could be considered thematic. Two transitional parts were not present in the original improvisation. Marked as **Tr2,** they were piano transitions that were added in the final phonogram.

In addition, we believe that other themes in the piece did not repeat throughout the music. Those themes were described within the same categories that we described as **A** and **A':** specifically, the orchestration, the use of countermelody, and texture leading to thematic intentionality. Those parts are **C, D, D', G,** and **G'.** Alongside those elements, which we considered to be context independent on the final phonogram, there were parts that in our view did not "lose" improvisational character. This means that, according to the interpretation of the composer, the orchestration and recordings of the new parts, and some aspects of the original improvisation, were maintained as improvisations. As a result, there was no context-independent theme. However, we perceived that some aspects of the music, such as the accompaniment by the double bass, piano, and drums, and the melodic characteristics, could have led listeners to perceive a concatenation of events as described by Clarke (2001). The parts mentioned as improvisations were labeled as **B, B', E, F'.** We emphasize that this was our interpretation, meaning that this analysis is also derived from our perception of the piece, even though we had access to the "draft" score and the original improvisation. As result of our analysis, we present the table aforementioned:

Suggested Form	I	A	B	Tr. 1	C	Conv.	Tr. 2	A'	B'	D - D'	Tr. 1	E	Tr. 3	F	F'	Tr. 2	G	G'
	Intro.	Theme Exposition	Imp.	Transition	Theme Exposition	Transition	Transition	Theme A	Imp.	Theme Exposition	Transition	Impr.	Transition	Transition	Imp. e CP	Transition	Theme exposition	Final
L.E.		A - B	C - D - D1	E	F – G	G1	H	I	J	K - L – L1	M - M1	N – N1 – N2 – N3 – N4	O - O1	O2 – P - P1	Q	R	S – S1 – S2 – T - U	V
Soprano Sax		//////		//////////	//////////	//////////		//////		//////////	////// ///	Imp.	//////////	//////////	Imp. on CM.		//////////	//////////
Drums	//////////	//////	//////////	//////////	//////////	//////////		//////	//////	//////////	//////	//////////	//////////	//////////	//////////		//////////	//////////
Tenor Sax		///////////		//////////	//////////	//////////		//////	Imp.	///////////	//////			//////////	//////////			//////////
Trumpet		//////	Imp.	//////	//////	//////		//////		//////	//////			//////	//////			//////
Piano	//////////	//////////	///////	//////////	//////////	//////////	//////////	//////	//////	//////////	//////	//////////	//////////	//////////	//////////	//////////	//////////	//////////
Double Bass	//////////	//////////	///////	//////////	//////////	//////////		//////	//////	//////////	//////	//////////	//////////	//////////	//////////		//////////	//////////
Rhythmic Character	Strict on 3/4	Strict on 3/4	Strict on 3/4	Strict on 3/4	Strict on 2/4	Strict on 2/4 with conventions	Free	Strict on 3/4	Strict on 3/4	Strict on ¾ with conventions	*Rubato*	Strict on ¾ with *jazz* conduction	Free	*Strict on 2/4 and Rubato*	Strict on 2/4 and 12/8 after	Free	Strict on 2/4 - *march*	Strict on ¾ - *waltz*
Harmonic Character	C with quartal chords and chromatic motion	Quartal chords with cromatic motion; melody alternating in Cm and Bb minor	F lydian with quartal chors	Chromatic	Tonal center in A major (lydian)	G flat cadence	Free (with characteristics from A)	Quartal chords melody alternating in Cm and Bb minor	A'	F pedal (phrygian)	F pedal with chromatic motion	A lydian	Free	C phrygian	C pedal with quartal chords	C pedal with quartal chords	D flat major	D flat major
Minutes on the record.	0'00''	0'14''	0'45''	1'17''	1'29''	1'55''	2'04''	2'38''	2'56''	3'11''	3'46''	4'09''	4'52''	5'14''	5'40''	6'07''	6'26''	7'05''
Minutes on the improv..	0'00''	0'14	0'45'' - only drums	1'17''	1'29''	1'55''	No match	0'14''	0'45'' only drums	0'45''	1'17'' - 1'29'' / 2'05''	2'16''	2'59''	3'20''	3'49''	No match	4'16''	5'00''

Table 2: Table of Contents – Musical Analysis, Source: Faraco (2020: 113)

Musicians with Academic Backgrounds

We'll begin with the results from the musicians who had academic backgrounds. They produced a suggested form that can be compared to ours, as demonstrated in the musical analysis (Fig. 1). We labeled the participants "P" followed by each person's number (e.g., P1). We describe each person's group (G) followed by the respective group number (e.g., P1G1 would be participant one of group one). We also added "(m)" to distinguish these participants as musicians.

In G1, one of the suggested forms was similar in every aspect to our analysis, although we used different letters to label some of the parts. This same participant (P2G1[m]) highlighted that the piece seemed to have been more "written" than improvised, although this participant had difficulties in perceiving similar parts or parts that could be considered as themes. This information can be interpreted as being influenced by the contextual information. In other words, the participant was predisposed to search for themes and similar parts because the participant was informed that the piece was a composition. The subdivision of the musical form was delimited, according to the participant, by the numerous conventions and transitional parts, and especially by the textural movement of the piece. This suggests that the orchestration had influence on the perception of the form. Furthermore, although the participant perceived the piece as being mostly compositional, the participant said: "Still, there are moments that sound like the written parts and the improvisation mix; that is, sections in which all the lines were determined by the notation still have spaces for improvisation within the same section"[5]

[5] "Ainda, alguns momentos soam como se a escrita e a improvisação se misturassem, ou seja, sessões em que existem pontos onde todas as linhas foram determinadas pela escrita, porém existem espaços de improvisação ainda dentro da mesma sessão" (P2G1[m]).

(P2G1[m], our translation). This statement demonstrates the possibility of "ambiguous" listening, even though the contextual information was provided beforehand.

In comparison, P1G1(m) focused much more on the improvisational character of the piece, even though the participant previously received contextual information that described the piece as a composition. The suggested form of this second participant was reduced, compared to our form as that of P1G1(m). This participant's form was subdivided in four themes (A – B – C – D) with transitioning parts between them (Tr. – Tr1 – Tr2), and with an introduction and a final coda. P1G1 described the piece as being composed for a group that accompanied a soloist (the soprano saxophone). Although the piece had this characteristic, the participant also emphasized that other instruments had solo parts. Similar to P2G1(m), the delimitation of the form included the *solis* and transitional parts, as they seemed to be the most prominent instruments playing similar melodies. Compared to P2G1(m), it appears to us that P1G1(m) considered the improvisations not as "individual" parts of the piece, separated from the themes, but as structural parts of the form. This can be deduced because the participant stated, "[...] the C part seems to be the densest in terms of themes, improvisations, and rhythms. The soprano sax improvises in conjunction with the rest of the group"[6] (P1G1[m], our translation). The "C part" referred to by the participant consists, as he mentioned, in the minutes 3'13" to 5'15". In our analysis, it refers to parts **D - D' - Tr. 1 - E - Tr. 3.** In those parts, there are multiple textures and different improvisations, encompassing even a free part (**Tr. 3**), as mentioned.

In G2(m), the participants were given information about the piece's original creative process. This information suggested that the forms maintained the pattern of G1(m). One participant made a reduced form, and the other did a more fragmented form. P1G2(m) perceived two major parts (A – B) and variations (A1 – B1 – A2), with two transitions, marked by the solo piano. It is interesting that the participant made this subdivision because A is mostly on a ternary measure and B is quaternary measures in most parts. The participant also mentioned that he decided to not subdivide the form even though some parts seem like transitions. Also, those parts of the suggested form encompass improvisations, which the participant called non-notated parts, and themes (or notated parts). These improvisations were, according to him, derived from the melodic material and themes. The latter (themes) were perceived due to the orchestration and its predominant use of melodic instruments (woodwinds and brass). However, this participant mentioned that the rhythm section (drums, piano, and double bass) were constantly improvising. Given this form, the principal aspect that P1 highlights is the piece's unpredictability.

> Written and improvised elements are alternated at different moments, allowing the construction of the improvisers' discourse and at the same time giving movement to the piece given to the unpredictable aspects present not only in the improvisations but also in the written aspects[7] (P1G2[m], our translation).

Also, the participant stated that, "[...] the various moments of improvisation of the play are changed with a certain degree of unpredictability, which can camouflage the perception of

[6] "A parte C parece ser a mais densa em termos de temas, ritmos e improvisações. O sax agudo vai improvisando em conjunto com o resto do grupo" (P1G1[m]).

[7] "Elementos escritos e improvisados são alternados em diversos momentos, possibilitando a construção do discurso dos improvisadores e ao mesmo tempo dando movimento a peça dada aos aspectos de imprevisibilidade presentes não só nos improvisos mas nos aspectos escritos" (P1G2[m]).

written and improvised elements[8]" (P1G2[m], our translation). This shows that the contextual information given to P1G2(m) led this participant to consider the material as compositional, although not in a "conventional" way or form. The participant noted that the piece was also unpredictable, a "camouflaging" of his perception.

P2G2(m) had a suggested form similar to ours. It was fragmented in ten parts (A to K), dividing some parts as themes (A - B - G - J and K) and others as improvisations by specific instruments or by the group (C - D - F - H - I), with five transitional parts (Tr 1 twice - Tr 2 - Tr 3 and Tr 4). The transitional parts marked by the participant were exactly like the ones presented in our suggested form. The themes were also similar, with minimal differences in regard to the labeling of the parts. One difference was that the participant named the first solo piano part as E and the second as a transition. We believe this happened because the first solo piano transition has musical elements derived from the first theme (**A** in our suggested form and B in the participant's form). The participant said that he believed the piece was based on the theme he named as B (**A** in our form), but that after H (our suggested form relates H to **E**), he couldn't perceive this influence. There is a possibility that this kind of differentiation was influenced by the improvisational logic that the piece was based on, specifically that the piece did not have similar themes or recapitulations.

Two other participants in group two (P3G2[m] and P4G2[m]) did not describe possible musical forms. They also did not offer any additional comments about their perceptions of the piece. For example, one response to the proposed musical form was "Bebop." On the comments section of the form, the participant stated: "Given my lack of knowledge about musical styles that are focused on instrumental music of a 'jazz nature,' I will limit my comments in this regard"[9] (P3G2[m]). Moreover, P3G2(m) made a division of what he thought were composed (written) parts and improvisations, according to the minutes of the piece. Some of his answers matched our suggested form, if we consider that "noted" parts possibly referred to thematic materials. The piano transitions (**Tr.2**) in the P3G2(m) division assumed an improvisational character (the first transition) and a compositional character (the second transition). This division is interesting because the first transition had thematic elements and the second one did not. In general, P3G2(m)'s division was based on a sequence of written, improvised parts until the end (considered also as an improvisation). His division shows some aspects of what he considered in his perception, but the lack of other comments about the piece means that we cannot make any assumptions about his true perception or his parameters for the divisions. The other participant (participant four) did not provide answers to the perceived form or any comments. This participant also did not give information about whether it was difficult to answer the questions. Thus, it is possible that the participant simply did not want to answer the questions. Because our methodology is based on similar or recurring themes related to the answers, we did not approach those answers in the final analysis.

P1G3(m) described a musical form that is similar to our analysis. It is interesting that the participant's approach for delimiting themes was based on formal similarities. The thematic similarities, which the participant delimited as parts A1 and A2 refer to **A** and **A'** in our analysis. The improvisation and accompaniment character, which the participant delimited as B and B2 refers to **B** and **B'** in our analysis. And the soprano lead, which the participant delimited as C

[8] [...] os diversos momentos de improvisação da peça são mudados com um certo grau de imprevisibilidade, podendo camuflar a percepção de elementos escritos e improvisados" (P1G2[m]).

[9] "Por falta de conhecimentos mais aprofundados sobre os estilos voltados a música instrumental de caráter 'jazzístico', irei limitar meus cometários a esse respeito [sic]" (P3G2[m]).

refers to **C** in our analysis. The final form suggested by the participant was: Intro / A / B (tpt.) / *Ponte* / C (sop.) / *Ponte* / *Cadenza (pno)* // Intro2/ A2 / B2 (ten.) / *Ponte* / C2 / *Ponte* / D / *Cadenza (pno)* // E / *Ponte* / *Coda*. It is clear that the participant divided the piece in two, marked by the two dashes. The parts that are called "*Ponte*" (bridge) are similar to what we called transitional parts. The "*Cadenza*" parts refer to the piano transitions (**Tr2**). Thus, we can say that the suggested form is quite similar to ours, although the participant "condensed" the transitional parts. One of the most important elements in the discussion of P1G3(m) is what he called **discontinuity** or the **fragmentary aspect** of the piece. As stated earlier, those are clearly concepts used when describing improvisational processes. The participant also stated:

> [...] although some of the sections are clearly associated with each other by thematic similarity (such as section A; A2), the overall construction does not seem to connect continuously, but by juxtaposition, perhaps due to the improvisational character of most of the piece[10] (P1G3[m], our translation).

This participant did not have any contextual information. For this reason, we believe that this kind of answer marks the approach of the participant to the music. The participant had a compositional view, so the participant searched for thematic and formal similarity while dealing with some stated ambiguity about the music's improvisational character.

P2G3(m) suggested an extended form in which the improvisation sections were delimited as structural parts of the piece. It seems to us that, in this extended form, the participant tried to be specific about the division of the parts. The final form is similar to the one in our analysis, except in the final part of the piece. Both forms were equal our part called **F.** After that, in relation to the part we called **F'** (an improvisation), the participant divided it in F, Tr4, F1, G, H. Then, it culminated in the transitional part of the piano (**Tr2** in our analysis and D1 in the participant's analysis). It ended with a two-part final written section. Again, the theme we called **A** and **A'** marked the subdivision of the participant's form, and it also served as a reference for the subsequently perceived themes. The participant also divided the minutes of the piece and marked which were composition and which were improvised. Interestingly, it matched our analysis. In his comments, participant two stated that the piece's improvised parts were "freer" than others. This participant also said that the solo piano transitions were marks for endings of improvisations (and, consequently, beginnings for written or composed parts).

P3G3(m) wrote that "the piece is built on two principal themes, with other *soli* parts between improvisations, with a long and written ending coda"[11] (P3G3[m], our translation). In the participants writings, it was not made clear which parts were considered to be improvisations or written parts. However, based on the information provided, we could assume which parts of the suggested form were considered as written or as improvisations. The final form suggested the following: Tr, A, B, TR, C, TR, D, Tr, A2, E, B2, F, Tr, G, tr, H, in which A and B are similar to **A** in our analysis. The participant made clear that the music was built on the repetitions of these themes. As did other participants, he divided the piece in two parts. The participant assumed, as noted with letters (C, D, E, F, and G), that the other parts were improvisations. This can be seen

[10] "[...] embora algumas das seções sejam claramente associadas entre si por semelhança temática (como a seção A; A2), a construção global não parece se conectar de modo contínuo, mas por justaposição, talvez devido ao caráter improvisatório da maior parte da peça" (P1G3[m]).

[11] "A peça se constrói sobre dois temas principais, com outras partes de soli entre as improvisações, com coda final longo e notado" (P3G3[m]).

in the minutes and the description of parts offered by the participant. Parts noted as "Tr" were considered to be *solis.* These parts, in our analysis, were considered also to be transitional. H was considered as the aforementioned long-ending coda. Interestingly, participant three was the only one who mentioned that the piece "[...] brings a mix between a tonal and a non-tonal universe, in a balanced way"[12] (P3G3[m], our translation). Aspects of tonality were not questioned or mentioned by any other participant.

P4G3 suggested a synthetic form expressed as A, A1, A2, A3, A4, B, C, Tr, with A being the theme of the piece and A1, A2, A3 and A4 being improvised variations on this theme. In the participant's words: "B would be a change of character and rhythm [...]. C is another transitional theme, but in the middle of the music it expands, and it is used to end it. Tr, I characterized as the piano transitions for returning to theme A and other parts"[13] (P4G3[m], our translation).

With these explications, we believe that the suggested form is not in a "chronological" line of events. Thus, if the participant suggested that the Tr part was the piano transitions, it would appear at least two times. Interestingly, this was the most divergent suggested form. The perception of the participant seemed to have been directed to numerous variations of a specific theme (A). Also, it is important to notice that the participant mentioned that he was "confused" when trying to suggest a possible musical form. In commentaries about the piece, the participant suggested that, after the theme A, "[...] the piece goes on showing different sessions with melodic themes also, with a lot of rhythmic variations, melodic and in character"[14] (P4G3[m], our translation). Also, the participant mentioned that (still after the theme A), "the piece goes on in a kind of mix between composition and improvisation, with transitional parts on the piano, with the [objective] progression of transforming it in the most improvised as possible"[15] (P4G3[m], our translation). We believe that these commentaries made by the participant are explicitly ambiguous in regard to questions of perception. The comments shows that the differentiation between what should be written or what is improvised was not clear by just listening to the piece.

Non-Musicians

For the non-musicians groups, we'll used the same abbreviations, with P being the participant followed by a corresponding number and G being the group, followed also by a number. We also added "(nm)", which designates the participant as a "non-musician" as opposed to the musicians group.

P1G1(nm), according to the participant's statement, listened to the piece with the purpose of identifying improvised parts. The context given to group one was that the piece was a composition with some possibly improvised parts. This participant's emphasis on searching for improvised music shows that the informational context had an influence in his perception. More specifically, he assumed that the piece was a composition and that the improvisational

[12] "[...] traz uma mistura entre o universo tonal e não tonal de uma forma equilibrada" (P3G3[m]).

[13] "[...] B seria uma mudança de caráter e ritmo [...]; o C é mais um tema de transição, mas no meio da música ele se expande e é usado para finalizá-la. O Tr eu caracterizei como transições que o piano faz para a volta do A e em outros momentos" (P4G3[m]).

[14] "[...] a peça vai mostrando outras sessões [sic] com temas melódicos também, com bastante variação rítmica, melódica e de caráter" (P4G3[m]).

[15] "[...] a peça segue numa ordem de mescla entre composição e improvisação, com transições improvisadas no piano, com a progressão de transformá-la no mais improvisado possível" (P4G3[m]).

content would diverge from the whole context of the piece. The participant went on to say that the music had

> [...] great fluidity, alternating between more evident moments of improvisation and others in which the melodic connotation of the phrases, the synchrony between the musicians, or the repetition makes me question whether they would be written phrases, conventions or even quotations to some other piece[16] (P1G1[nm], our translation).

We believe that what the participant called the "melodic connotation of the phrases" referred to possible thematic expositions of the piece. P1G1(nm) also emphasized that the principal characteristic of the piece was the "dynamism and fluidity" of the music. This could be related to what the academic musicians called the fragmentary aspect of the piece. Thus, in our view, this indicates a possible ambiguity in the perception of P1G1. This view is supported by the fact that the participant raised questions about whether some parts of the piece were written, a citation, or a convention. The context provided to this participant led him to assume that the piece was a composition. Therefore, the participant directed his perception toward believing that improvisational parts were somehow written, but he demonstrated ambiguity and couldn't state for sure that his views were accurate. However, this ambiguity did not influence the participant's analysis of the minutes of the piece. In his division of improvised minutes versus composed minutes, all of them, with minimal alterations (seconds), matched the analysis we made. In regard to the contextual information, we believe that the participant's ambiguity did not stem from whether the material was improvised or composed, but in the qualitative aspects of the composed material.

P2G1(nm) described the piece as being a "circle of improvisations." That is, there is a "previous composition" in which the musicians base their improvisations. For participant two, the compositional and improvisational moments alternated between a part that the musicians played, according to a compositional direction and a subsequent improvisation. According to the perception of participant two, all of the musicians improvised, "[...] be it an improvisation while the whole was kept in the composition or be it a set of improvisations on top of the composition's theme"[17] (P2G1(nm), our translation). In our view, this could have been a typical description of improvisation and accompaniment that people use when describing jazz standards. It is also possible that free improvisations with a predetermined referent played on top of the theme during a set of improvisations. In the division of composed and improvised parts by the minutes, P2G2(nm) answered in a way that diverged slightly from our analysis. For example, P2G2(nm) considered what we called **B** an improvisation; however, in the part that we called **B'** (the improvisation with the tenor sax instead of the trumpet), P2G2(nm) considered that part to be a composition (written). Also, some transitions in the final part of the piece were considered to be improvisations (parts where a *soli* was present).

P3G1(nm) described the piece as follows:

[16] "[...] grande fluidez com [que] se alternam momentos mais evidentes de improvisação e outros em que a conotação melódica das frases, a sincronia entre os músicos ou a repetição fazem me questionar se seriam frases escritas, convenções ou mesmo citações a alguma outra peça" (P1G1[nm]).

[17] "[...] seja um improvisando enquanto o conjunto se mantém na composição, seja um conjunto de improvisações em cima do tema da composição" (P2G1[nm]).

> I imagine that the creative process has been to write/choose a composition and then perform with all the musicians. It seems that in the execution each musician adds small improvisations and has some freedom in the interpretation, besides parts of the music where an instrument makes a longer improvisation[18] (P3G1[nm], our translation).

Because the piece was described as a composition, we believe that P3G1(nm) perceived that the music had numerous improvisational elements and thus believed that the piece was a written composition with possible interpretation/improvisation within. In addition, P3G1(nm) mentioned that he was "not used to listening to jazz." This shows that his perception was influenced not only by the contextual information, but also by a stylistic approach. Given that he characterized the piece as "jazz," we could assume that the participant looked for improvisational aspects, given that improvisation is a prominent characteristic of jazz. The division of minutes in composition and improvisation made by P3G1(nm) matched our analysis.

The contextual information given to G2(nm) represented the true creative process of the piece. P1G2(nm) had a similar answer as the answer by P2G1(nm). In this participant's view, the piece had a "cyclic" character, with "a clear theme that is repeated in the end of each period, delivering the music to an improvisation phase. This, in turn, is finalized with the return of the theme"[19] (P1G2(nm), our translation). Similar to P2G1(nm), there are compositional or improvisational elements in the description of the minutes. This "cyclic" approach was demonstrated by the fact that there was a composed session and then an improvisation session that continued during this "concatenation" until the end of the music. However, in the case of P1G2(nm), the division of compositional and improvisational moments in the minutes of the piece is clearly different from our analysis. For example, in the analysis by P1G2(nm), there was a written part from the beginning of the music until 1'30". In our analysis, those minutes refer to the **Intro, A, B, Tr1.** All other participants described what we called **B** as an improvisation. P1G2(nm) described it as a written part. Then P1G2(nm) described the minutes from 1'30" to 2'40" as an improvisation. In our analysis, those minutes corresponded to **C, Conv., Tr2.** C was described as a thematic motive, **Conv.** was a *soli,* and **Tr2** was the solo piano ending that led to **A',** which returned to the principal theme. In 2'40" to 3'55", P1G2(nm) described the music as a composition that retained the qualities of the first part. This participant referred to what we called the theme repetition, with some variations: **A', B', D, D'**. In our view, contrary to the P1G2(nm) analysis, those are thematic sessions. The section comprising minute 4'10" to 4'50" was described as a composition whereas in our analysis those minutes refer to **F,** an improvisation. After this part, the analysis coincides. Thus, P1G2(nm) was the most distinct answer when compared to our analysis of the piece. One interesting point raised by P1G2(nm) was that he could perceive the written parts, especially the lines of the piano and the double-bass, while the horn instruments would "talk" or double their melodies. We believe this "talk" represents a perception of a contrapuntal kind of movement in the horns.

P2G2(nm) focused on the instrumentation. As he described:

[18] "Imagino que o processo criativo tenha sido escrever/escolher uma composição e depois executar com todos os músicos. Parece que cada execução cada músico adiciona pequenos improvisos e tem certa liberdade na interpretação, além de partes da música onde um instrumento faz um improviso mais longo" (P3G1[nm]).

[19] "[...] um tema claro que se repete ao final de cada período, entregando a música a fase de improvisação. Este, que por sua vez, é finalizada com a volta ao tema [sic]" (P1G2(nm)).

> The piece as a whole seems to have been created to create an environment where the horns appear in the foreground and can stand out in improvisation, always trying to maintain a dialogue with the drums, which also seems to be privileged to occupy the space of improvisation[20] (P2G2[nm], our translation).

Also, P2G2(nm) mentioned that the piano seemed to have a background function, and that it accompanied the melodies in most cases, except in two moments of solo improvisation. As for the double-bass, the participant described it as also having a background function without any improvisational or solo moment. We will highlight some interesting information provided by P2G2(nm). When describing the horns' "function" in the piece, he mentioned that there were moments when the instruments were synchronous, having a common theme that could "somehow" be executed together by the musicians. Furthermore, when describing the piano part as background, P2G2(nm) said that he could not "even imagine when it's reproducing a score or improvising." Because the contextual information provided to the G2(nm) represented the true creative process of the piece the following description made by P2G2(nm) is compelling:

> I had the impression that these two instruments were the ones that were expected to stand out during the composition/improvisation, when one is occupying the foreground, the other seems to encourage him to act in an increasingly intense way, but at the same time, not to hide[21] (P2G2[nm], our translation).

This shows that the basis for the creation of the piece—the soprano saxophone and drums' free improvisation—stood out (as also described in his first citation). Finally, P2G2(nm) also described the piece as "jazz," which demonstrates that he referred to a known music style in order to make his analysis. In the minutes description, P2G2(nm) considered that from 0'00" until 2'00" the piece was composed; after that, his view was that the entire piece was improvised.

The contextual information given to G2(nm) was especially important for the P3G2(nm) analysis. As he stated:

> Because of the harmonization of certain melodic lines, I had the impression that they were composed and I would not have guessed that instruments were added to improvised segments if I had listened to the piece without the previous knowledge of how it was made[22] (P3G2[nm], our translation).

This clearly demonstrates that the perception of the piece was different because of the contextual information. P3G2(nm) also described the first theme (**Intro** and **A** in our analysis) as a melodic theme among the horns that was harmonized later. After that, in his opinion, the piece was mostly improvised, although he marked some parts (that matched our analysis) as being

[20] "A peça como um todo parece ter sido criada para criar uma ambientação onde os metais aparecem em primeiro plano e possam se destacar na improvisação, procurando sempre manter um diálogo com a bateria, que também parece ser privilegiada para ocupar o espaço da improvisação" (P2G2[nm]).

[21] "Tive a impressão que estes dois instrumentos eram os esperados a se destacarem durante a composição/improvisação, quando um está ocupando o primeiro plano, o outro parece incentivá-lo a agir de forma cada vez mais intensa, mas ao mesmo tempo, não esconder-se" (P2G2[nm]).

[22] "Por causa da harmonização de certas linhas melódicas, tive a impressão de que elas foram compostas e eu não teria adivinhado que instrumentos foram adicionados a segmentos improvisados se eu ouvisse a peça sem o conhecimento prévio da forma em que ela foi feita" (P3G2[nm]).

mostly written. This was "[...] due to the presence of harmonization between wind instruments (together with the melody or in accompaniment to a soloist) and because of the articulation used in these section"[23] (P3G2[nm], our translation). This aspect of instrumentation and articulations (due to the *solis* and transitional parts) was one of the principles of our analysis. The division of written parts and improvisations in the minutes of the piece by P3G2(nm) was the closest to our analysis. We believe that his approach to perceiving these elements of the piece was similar to ours. Therefore, a similar form was delimited.[24]

For the third group in the non-musicians, no contextual information was given. For P1G3(nm), there were only three written or thematic parts: the beginning of the piece (from 0'00" to 0'44" that corresponds to **Intro** and **A,** in our analysis; after the solo piano part from 2'38" to 2'58" that corresponds to **A'** in our analysis; and the final part from 7'10" to 7'20" that corresponds to **G'** in our analysis. The rest of the piece, according to P1G3(nm) was totally improvised. Also, the participant mentioned that the drums and the double-bass played a type of "free" form. However, he didn't perceive any solo moments for those instruments. The improvisations were made by multiple musicians. No further information was provided.

P2G3(nm) considered the piece to be interesting given its structure, "without obvious repetitions." For this participant, one of the prominent characteristics of the piece was a "symbiosis" of the musicians. This person added that "[...] it is difficult to affirm that is a natural symbiosis of a unique performance or if (per example), there was an instrument recorded after"[25] (P2G3[nm], our translation). We believe that what P2G3(nm) called a symbiosis would be the musical interaction existent in improvised pieces. The last affirmation is interesting given that the participant could not describe if it was a real-time creation (a musical interaction realized by the musicians in one recording take) or if it was created by the manipulation of sound (recording instruments one after another). Also, P2G3(nm) criticized the quality of the recording: "It seems to me that 'three-dimensionality' is missing in the recording. It is as if everything is compacted in the same plane. This negatively influences the subjective perception of symbiosis among musicians"[26] (P2G3[nm], our translation). The participant seemed to attribute his difficulties in perceiving the quality of the music—improvised or composed—to the quality of the recording. In his division of improvisational and compositional parts by the minutes, some differences showed up in comparison to our analysis. For example, parts **D** and **D'** in our analysis, which we considered to be thematic material, was perceived to be an improvisation by P2G3(nm). The participant had the same view about the music between 5'40" until 7'10", which comprises parts **F', Tr2, G** and **G'.** In our analysis this section was improvised. Interestingly, P2G3(nm) was the only participant who perceived that the ending of the piece was an improvisation, not written.

[23] "[...] devido à presença de harmonizações entre instrumentos de sopro (junto com a melodia ou em acompanhamento a um solista) e por causa da articulação usada nesses trechos" (P3G2[nm]).

[24] We believe that is interesting to mention that P3G2(nm) had previous contact with music that has a similar approach in its creative process (adding an instrumentation and rearranging an improvisation), as he mentions that this is the process in the album "From This Place", from prominent jazz guitar player Pat Metheny.

[25] "[...] seja difícil afirmar que se trata de uma simbiose natural de uma performance única ou se (por exemplo), houve algum instrumento gravado separadamente" (P2G3[nm]).

[26] "Me parece faltar 'tridimensionalidade na gravação, é como se tudo estivesse compactado num mesmo plano. Isso influencia negativamente a percepção subjetiva da simbiose entre os músicos" (P2G3[nm]).

Discussion

In the group of musicians with academic background, all of the answers indicated that the predominant aspect of the music was improvisational. Even by approaching the piece with a "compositional view" that led participants to search for formal similarities, as described by P1G3(m), the participants perceived the improvisational structure of the piece more than its possible "written parts." The most remarkable thematic similarity, as predicted by our hypothesis, is the repetition of theme **A** with a subsequent improvisation (first by the trumpet and second by the tenor saxophone). Even in group one, which had contextual information describing the piece as a composition, the fragmentary character of the piece led the participants to perceiving the improvisational sections more than to search for what would be the written parts.

A recurring theme in the participants' answers was that there were many propositions made by assumptions. For example, there are participants who marked a session as a transitional part but without giving clear explanations for those answers. P2G3(m), as mentioned, described that he was confused about giving a suggested form. P1G1 mentioned difficulties in recognizing themes and said "it seems to be . . ." (used also by P2G1[m]), which clearly marks the ambiguity of the perception. P3G2(m) mentioned the "camouflaging of the perception" due to the unpredictability of the piece. This could mark what we called the ambiguity in the musical perception of a comprovisation, or instability in the pact generated by the lack of contextual information. Importantly, this cannot be attested as concrete evidence of a perceptive behavior. As mentioned earlier, this experiment is a first step toward possible ways of analyzing the perception of music with improvisational and compositional structures. We attest that, in our small sample, ambiguity showed.

Group one received contextual information stating that the piece was a composition. This perhaps made it difficult for participants to find recurring themes. In contrast, if participants had been informed that the music was an improvisation, participants would be less likely to search for recurring themes, as observed by Canonne (2018). The answers from group three, which did not receive contextual information, were interestingly similar to our analysis. Perhaps, with no contextual information of the creative process, the participants tended to be "freer" with their assumptions. The fragmentary aspects of the piece led participants to perceive the music as an "improvisation-driven" piece; but, because there was a recurring theme and *solis*, they could also perceive written parts and derive their form based on these marks. Although they could take a "freer" approach to the piece, the participants' remarks suggest a possible "ambiguity": that is, an indefinite or clear assumption about why the parts of the piece were context independent or improvised. Finally, group two had the "correct" contextual information, the true creative process of the piece. Among them, we saw that the answers were more incisive and similar to our analysis. This perhaps shows that the perception of the participants led them to search for improvisational aspects which were turned into "context-independent" elements—even as the improvisational parts still maintained their character.

In the first non-musicians' group, with the exception of some parts in the minutes analysis by P2G1(nm), the division made between compositional and improvisational sessions matched closely to our analysis. Because the contextual information of the piece was clear for G1 (a composition), the participants perhaps tended to perceive thematic information and then compare that with sessions of the piece that did not have a clear a thematic construction. It is clear from the answers, especially from P1G1(nm), that thematic material was ambiguous. P1G1(nm) was confused by the material of the themes (e.g., written, conventions, or even quotes from another piece). P2G1(nm) could not describe exactly the basis for the improvisations, whether they were

based on composition or free improvisation. P3G1(nm) described the piece as a composition that allowed musicians great freedom to interpret or improvise. This indicates a possible ambiguity in relation to the "compositional" material, due to its primarily improvisational character.

In G2(nm), the answer of P3G2(nm) stands out because he mentioned that the contextual information was a guideline for his analysis. By knowing that the creative process of the piece consisted of an interpretation and a further orchestration of the piece, he directed his perception toward finding improvised material, which turned out to be context independent, and material that maintained its improvisational aspect. The result of this kind of analysis, driven by contextual information, was most similar to our final form and analysis of the piece. This was true not only in relation to the division of compositional and improvisational parts, but also in relation to the similarities of the arguments that participants used to define those parts. For example, they searched for conjunctive orchestration (*solis* and similar articulations), recurring thematic elements, and solo improvisations with accompaniment. Interestingly, the other answers of G2(nm) were most different in relation to our analysis. In the P1G2(nm), the participants' descriptions of the compositional and improvisational parts by the minutes were found to be "inverted" in relation to our analysis (and of other participants). P2G2(nm) mentioned that only the first two minutes were written, and that the rest of the piece was improvised. We believe that these two participants had difficulties in perceiving thematic information or distinguishing it from improvisational material. Perhaps the contextual information in this case—the real creative process of the piece—was not auxiliary to their analysis. Perhaps this made it difficult to perceive which parts of the orchestration were designed to create context-independent material. These divergences among the participants' answers clearly show that there are possible ambiguities in the perception of this piece.

P1G3(nm) gave one of the most concise possible forms in his description of minutes. His description included only three thematic parts (beginning, repetition of the theme, and ending) with the rest of the piece being improvisations. The answer, though, was limited. We could not distinguish if those improvisations were free, accompanied, or other forms because the participant did not offer any additional information. However, in debating the instrumentation, P1G3(nm) thought that the drums and double bass played freely, almost improvising, but without any solo moments. P2G3(nm) had an interesting approach because his answer criticized the quality of the recording, thus making it difficult for him to distinguish whether the piece was recorded in one take (i.e., an "open" composition with multiple improvisation sections), or if it was recorded in an overlapping manner. That was what P2G3(nm) called the "symbiosis" of the musicians, which we believe is the interaction that occurs during an improvisation. However, even by suggesting that the poor quality of recording made it impossible to distinguish whether it was a "natural symbiosis" (a real-time improvisation), we believe that this difficulty in perceiving such interaction derives also by the quality of the creative process of the piece.

In view of the recent literature on empirically guided research of musical perception in improvised music, we believe that the results we obtained during this research are in agreement with some of the hypotheses raised in our bibliographic analysis in the first part of this paper. First, we perceived that the contextual information given to listeners does have an influence in how the participants addressed the piece they received, as proposed by Canonne (2018), Anglada-Tort (2018), and Sloboda (1999). As described in this discussion, it was clear that some participants, when given the contextual information, proceeded to analyze the piece by searching for parts that are disconnected from contextual information. For example, P2G1(m) and P1G3(m) clearly addressed the piece as a composition and distinguished its improvisational parts by comparing them with the thematic motives. Also, P3G2(nm) explicitly described that,

without the information of the creative process of the piece, he would not be able to distinguish between compositional or improvisational parts.

Also, the hypothesis raised by Lehman and Kopiez (2010) is addressed in our research. At least six participants described the style of the piece as "jazz" (with one participant mentioning the presence of other music styles, such as "frevo"). This shows that the stylistic approach of perception precedes the discernment of generative processes. However, we believe that by conceiving the piece as "jazz," those participants tended to already search for improvisational elements in the piece, because it is common to "connect" jazz to improvised music. We believe that, even as the perception of the participant tended to "listen to the style" rather than the generative process of a certain style—in this case jazz—his perception was directed toward what would be improvisational parts and what would be thematic parts. However, in this research, we couldn't clarify if the participants' discernment was directed to structural parts or performative character. In the group of musicians with an academic background, we perceived that some of the answers tended to describe compositional/improvisational moments by the structure of the piece. However, in the non-musicians' group, we saw a tendency to evaluate aspects of performative character. Finally, we did not provide any information about how the piece was recorded or the performing musicians in the recording. Therefore, we didn't obtain any results from the participants about the overall quality of the piece. As a result, we couldn't compare our results to those of studies of Aydogan et al [2018] and Kroger and Margulis [2016]). Perhaps, in future research, it would be profitable to add contextual information about the performers and the overall recording of the piece (such as professional/non-professional musicians, or professional/non-professional recording).

Conclusion

We believe that this research contributes toward the exploration of possible musical perception in contemporary musical practices. It does so by considering a practice deemed "comprovisation" so as to explore the boundaries between compositional and improvisational materials in a musical piece. We first described our concept of comprovisation based on our latest research and on work by prominent authors who are applying this concept of musical creation. In our view, comprovisation can be considered to utilize both compositional and improvisational materials with a goal of an "instability" in what Falleiros (2012) called the pact, which is the tacit hint, or the contextual information given about an artistic narrative that helps the audience relate to an art form. A comprovisation doesn't "show" its true material (compositional or improvised). Therefore, our hypothesis was that this instability in the generation of the pact would lead to an ambiguous perception; that is, an impossibility to truly describe whether the piece was written (composed previously) or improvised in real time.

To test this hypothesis, we've elaborated a qualitative study by dividing musicians with academic backgrounds and non-musicians into three groups each. This division was based on previous empirical research about the musical perception of improvisation and composition. We especially relied on the work by Lehman and Kopiez (2010) who focused on the difficulties of distinguishing between composition and improvisation when listening, and of Canonne (2018) who focused on the influence of contextual information when listening to an improvisation. Thus, those three groups (adding six, given that there were three groups of musicians and three of non-musicians) had a different contextual information about the piece: a composition; the true creative process of the piece; no contextual information. The participants also received a

questionnaire designed to produce qualitative answers on the form of the piece and its principal aspects. The chosen piece was "Nesta Rua Onde Mora Coltrane," by composer John Rapson, which presents a free improvisation by saxophone player Vinicius Dorin and drummer Nenê. In our analysis, we considered this piece to represent a comprovisation.

Our analysis of the results was based on the grounded theory approach of multiple comparison (HENWOOD; PIDGEON, 2004), as we searched for recurring themes on the answers of the participants. We perceived that the analysis of the suggested forms was, in general, different, but with interesting similarities that were produced because this piece had a thematic information that repeated itself. Thus, most of the analysis of the participants was based on this repetition. However, multiple participants said they were "confused," "had difficulties in producing a form," or suggested a form but were not truly confident if the parts were composed or improvised. Also, we saw two extremes. First, there were musical forms (or division of the minutes, for the non-musicians group) that were practically identical to our analysis (such as P3G2[nm]). Second, there were forms that were distant from ours (such as P1G1[m], P2G2[m], P1G2[nm], P2G2[nm]).

We believe that the multiplicity of answers, the recurring reports on the difficulties of perceiving the form, and the extremities of answers in similarity or difference when compared to our analysis confirms that there is a possible ambiguity in the perception of this piece. As mentioned, we consider an ambiguity to be present when multiple interpretations emerge from one artwork (MARGULIS et al, 2017). However, as stated in the beginning of this paper, we do not aim to generalize our results. This research was too limited to obtain those types of results. We believe that to expand and generalize this hypothesis we would need a greater number of participants, and also a greater number of musical pieces with a similar creative process. Although those limitations and the impossibility of generalizing these research results, we believe it is a first step in the research of musical perception of pieces that mix compositional and improvisational processes.

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