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Comparative Study of Tempo Deviations in Four Recordings of Hans Werner Henze's *Du schönes Bächlein* for Guitar Solo (1958)

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Abstract

The objective of this paper is to offer a contribution to the study of performance and, more specifically, development of performance analysis methodologies and techniques through a brief comparative analysis of the tempo deviations in four interpretations of *Du schönes Bächlein*, a composition by Hans Werner Henze (1926–2012), as performed by four different guitarists. Graphs and representations are developed to demonstrate the tempo deviations in each of the selected recordings, followed by analysis of the respective collected information.

Keywords: performance analysis, agogics, interpretation, tempo deviations

Introduction

This study is the product of a research project undertaken in 2006 as part of the Special Topics in Performance (Tópicos Especiais em Performance) course administered by Professor Dr. Jmary Oliveira in the Post-Graduate Music Program at the Federal University of Bahia. As the majority of the academic researches in Brazil on musical performance explores the long-established interface between musical performance and compositional analysis, we sought to identify means to expand on the study of the field of musical performance by developing, enhancing, and developing methods to study and analyze performance itself.¹

For purposes of the study in question, we sought tools with which to analyze tempo deviations in recorded performances. At the time, only a narrow range of tools was available for the analysis of performance. In this light, we applied the Sound Forge 6.0 software to measure various aspects of the rhythmic deviations in each recording. Since 2006, significant advances have been made in the field and specific programs such as Software the precise time and duration

1. The methodology, characterized by the analysis of one or more musical pieces based on one or more established analytical methods, followed by observations on the psycho-physiological aspects of the interpretation of the selected works, has resulted in the consolidation of a repetitive pattern in the field of musical performance. This has contributed to significantly reducing the range of research questions and transforming that method into a monolithic model, resulting in the field's stagnation in Brazil.

of the notes in each recording.² All the data collected were entered in spreadsheets for purposes of calculating tempo, developing graphs, and closely observing Sonic Visualizer or plugins developed for sound editors have greatly facilitated the effort, without, however, invalidating the methodology or results obtained from this study.

To apply my personal experience and emphasis on the guitar, I sought to apply the experiments to a selection of celebrated guitar works. Moreover, the guitar has the advantage of facilitating the identification by the software of the beginning of a note (in contrast to bowed instruments, for example, in which the beginning of each sound is often difficult to ascertain). The executions of *Du schönes Bächlein* (Tento I) for solo guitar by Hans Werner Henze (1926–2012) have always captured my attention, as they often stimulate a tendency toward free and accentuated interpretation of tempo deviations. This is one of the most notable and distinctive interpretive aspects on the available recordings and reveals much about the style and personality of each individual interpreter. The composition *Du schönes Bächlein* was selected with a view to applying the performance analysis tools described in this study precisely because of the central role that tempo deviation plays in the interpretation of the piece.

The piece is one of the movements in *Kammermusik* (1958), for tenor, violin, and solo instruments.³ It is inspired by “In lieblicher Bläue,” a poem by Friedrich Hölderlin (1770–1843). Tento I (*Du schönes Bächlein*) is a programmatic piece aimed at representing a small river.⁴ It is likely for this reason that individual interpreters tend to take greater liberties in their interpretations of this short piece, in the effort to create a sound image capable of more clearly evoking the natural scene.

This study focuses solely on the similarities and differences between the four selected interpretations of the piece, without taking into account the aesthetic, stylistic, or extra-musical factors underlying the distinct interpretation. Further, the study is not intended to make any value judgments regarding the interpretation under consideration, but simply to register the differences, similarities, and peculiarities of each one.

For this paper, four recordings of Henze’s Tento I (*Du schönes Bächlein*) were selected for analysis and comparison, two performed by Brazilian guitarists (Sérgio Abreu and Aliéksey Vianna) and two by foreign guitar players (Timothy Walker and Eliot Fisk).

Despite the fact that it is not the objective of this study to perform a “horizontal analysis of the interpretations”⁵—i.e., an analysis of the piece executed at different moments in time for the purpose of identifying the different styles of execution applied in each period—it is worth noting that the selected recordings were made in the 1970s (Abreu), 1980s (Walker), 1990s (Fisk), and,

2. Time measurements were performed based on the spectrogram generated by the software, with precision to the fourth decimal value.

3. The composition was also published separately from *Kammermusik* as part of a set of three solo pieces titled *Drei Tentos*. The solo version is more widely disseminated and has been the subject of innumerable recordings currently available.

4. A loose translation of *Du schönes Bächlein* would be something like “You Beautiful Stream.”

5. The term was created by José Bowen, a pioneer and one of the most important researchers in the field of performance analysis.

most recently, 2000s (Vianna). That said, the analysis focuses only on the manner in which each of these distinguished interpreters applied tempo deviation to their executions and avoids any value judgments regarding the aesthetics or styles of execution adopted in the respective time periods. All remaining interpretive resources, including dynamics, articulation, tone, and others, were not considered for this analysis. Rather, the sole selection criterion for the recordings choice was the recognized artistic value of each interpretation.

Review of the Literature

The research on tempo deviation in musical interpretations dates back to the original studies on musical performance published in the United States and Europe in the early twentieth century. The studies performed by Carl Seashore in conjunction with other researchers include analyses on the differences and consistencies between notable pianists executing the same piece. The primary contribution of this effort is the study of deviation—i.e., all of that which diverges from mechanical reproductions and confers on the interpretation artistic quality and value—referred to in the current literature as expressive or systematic deviation.

In the 1960s, the topic was revisited by Igmarr Bengtsson and other Swedish researchers in joint studies on systematic deviations in duration and intensity parameters and their relationship to harmonic structures, the variations in the microstructure of time durations, asynchronization, etc.

In the 1980s, Sundberg and Verrillo conducted studies on the anatomy of *ritardando*, which centered on the rules governing the artistic execution of this expressive resource.

In the 1990s and the first decade of the 2000s, David Epstein, Bruno Repp, Eric Clark, Nicholas Cook, Caroline Palmer, L. H. Shaffer, Dirk-Jan Povel, José Bowen, and others conducted studies on timing in executions and recordings and their relationship to musical structure, including its application to popular music and jazz. Each researcher explored the various aspects of rhythm during a given execution based on their own methodologies and conclusions, resulting in a rich tapestry of possible approaches and information for future studies.

More recently, the field has witnessed a dramatic increase in the volume of research. This has included research conducted in Brazil. In a 2000 doctoral dissertation presented in the United States, researcher Fredi Gerling offers a comparison of the recorded interpretation of Heitor Villa-Lobos' *Bachianas Brasileiras No. 9*. The study was followed by additional works, including dissertations by Guilherme Ávila, 2007, Josias Matschulat, 2011, José Luis Arias, 2014, Arturo Yep, 2015, and articles such as "O tempo rubato na Valsa de Esquina N.º 2 de Francisco Mignone," authored by Gerling, and other publications.

Although the topic has been the focus of research for decades and notwithstanding the steady increase in the number of works in the field, there are still a host of issues to be explored and considered. The development of means, techniques, and methodologies is certain to contribute significantly to the study of performance. As part of this quest, technology will, without question, play a vital role.

Comparative Analysis

The tempos selected by each interpreter reveal that, despite specification by the composer in the musical score of a quarter note from 63 to 66 (Tranquillo), only Fisk's recording, in which the initial average tempo has a quarter note equal to 66 BPM (an arithmetic average of the first three measures), adheres to the indicated tempo. Walker plays the piece at 50 BPM, Vianna at 48 BPM, and Abreu at 46 BPM. Thus, the general tendency of the guitarists is to use significantly slower tempos than indicated by the composer.

If we assume the initial movement is maintained over the entire piece, we can calculate the total estimated duration of each execution. However, as expected, the total estimated forecast duration of the pieces (based on the initial tempo of each execution) differs substantially from the real duration of the recordings. The initial tempos, real durations, and forecast durations (based on the initial tempo) in the four interpretations are shown in example 1.

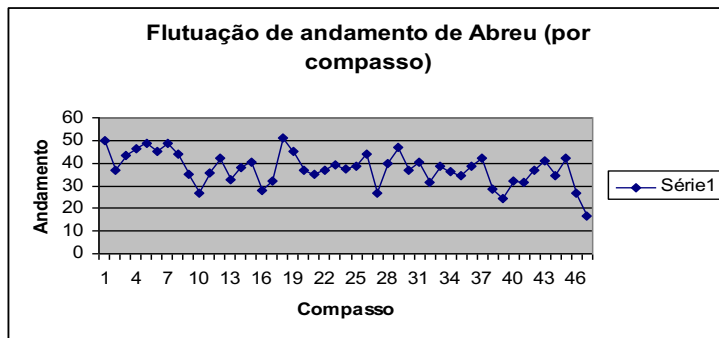
GUITARIST	INITIAL TEMPO	FORECAST DURATIONS	REAL DURATION
Eliot Fisk	Quarter Note = 66	1'19"	1'38"
Timothy Walker	Quarter Note = 50	1'44"	2'01"
Aliéksey Vianna	Quarter Note = 48	1'48"	2'07"
Sérgio Abreu	Quarter Note = 46	1'53"	2'25"

Example 1. Initial Tempos, Real Durations, and Forecast Durations in Four Interpretations of *Du schönes Bächlein*.

From the comparative analysis of the real duration and forecast duration of each interpretation, a rough variation in tempo during execution can be observed. The comparative study found that in all of the recordings under analysis the tempo tended generally to slow over the course of the piece, despite spikes in accelerando. This phenomenon is demonstrated in the tempo deviation graph (by measure) for Abreu's recording, as demonstrated below. Abreu's recording presents a discrepancy between the forecast duration and real duration of approximately 28%. Despite occasional increases in tempo, the general tendency results in an average reduction in tempo. It is interesting to note that the fall in tempo occurs gradually over the course of the piece. The same phenomenon is present, to a greater or lesser extent, in the other recordings under analysis. In general, the graph applied to measure the tempo deviation by measure indicates a slight downward trend, as shown in example 2:

The differences between real and forecast time in the recordings under analysis varied from 15 seconds (Walker) to 33 seconds (Abreu). Walker's execution of the piece registers the lowest tempo deviation throughout, as demonstrated by analysis of the tempo deviation graphs for each interpreter's recording.

While Vianna's interpretation shows significant tempo deviation throughout, curiously his execution achieves metronomic precision for each "a tempo" marking, consistently returning to



Example 2. Tempo Deviation by Measure in the Abreu Recording (Measure x Tempo).

the same tempo applied at the beginning of the piece. Fisk registers a difference of up to 17 BPM between patches in which the composer attaches the “a tempo” marking.⁶ The other two guitarists (Abreu and Walker) register substantial differences in tempo through those patches in which they should have returned to the original tempo.

In general, despite the significant differences in tempo, character, and agogics in each of the recordings under analysis, the interpretations reveal several points of convergence and others of absolute divergence. Below, we analyze the most important of these.

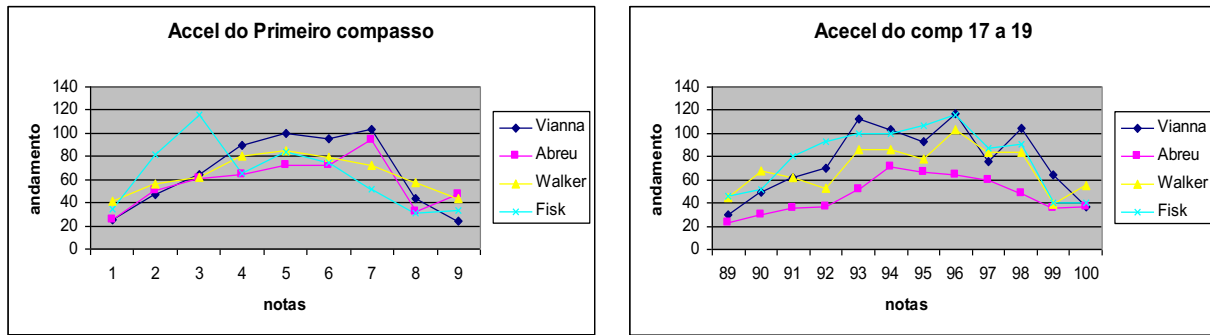
There is an interesting convergence point between the four recordings in the first measure. Instead of a gradual accelerando to the arrival note in the following measure (as indicated in the score), all of the interpreters opt for an accelerando curve followed by a reduced tempo at the end of the measure, in anticipation of the ritardando (retard), which does not appear until the second measure. The same phenomenon occurs in the piece’s second accelerando inserted in m. 17 (exx. 3a and 3b).

Example 3a. Henze, *Du schönes Bächlein*, mm. 1–2 and 17–19.

Note that the piece’s second accelerando is, in fact, marked as *un poco accel.*, although the executions apparently make no such distinction.

Another interesting example of convergences and divergences in the four recordings under analysis involves the phrasing used by the interpreters. Surely, the form in which the structure of the piece, and, by extension, its phrases, is understood by different interpreters represents one of the most important aspects in the study of tempo deviation. Henze’s *Du schönes Bächlein* does

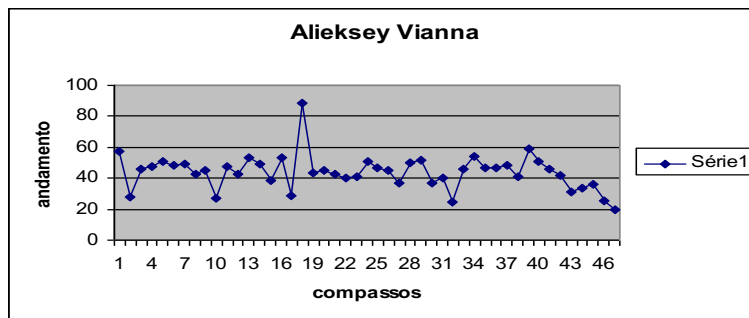
6. Three *a tempo* markings occur throughout the piece. They are located in mm. 3, 20, and 33.



Example 3b. Change in Tempo (x axis), mm. 1–2 and mm. 17–19 (individual notes of the entire piece were numbered).

not present any explicit markings from the composer with respect to phrasing, but does include some clues that could be viewed as suggestive of phrasing.

With respect to the points of highest movement retard, we found that certain points, such as mm. 10, 16, 27, 32, 38, and 47, were interpreted by all four musicians, or at least three of them, as the end of a phrase. These phrase endings are evidenced by the sudden drop in tempo on the graph for Vianna's recording, in which the interpreter significantly reduces the tempo, clearly marking and separating each phrase or musical gesture (example 4):



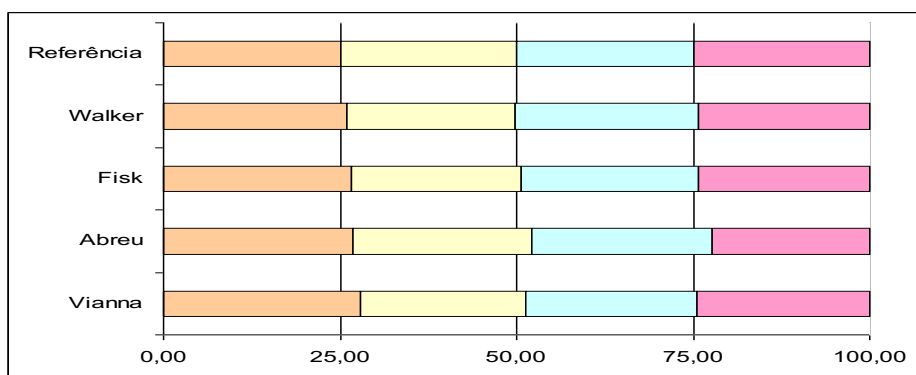
Example 4. Tempo Deviation by Measure in Vianna Recording (x axis = measure).

Other possible phrase endings or phrase groups identified from the analysis of the graphs include: 1) a subdivision of the phrase extending from mm. 7 to 9 in the middle of m. 8 (Vianna and Abreu); 2) another subdivision of the phrase extending from mm. 28 to 33 in the middle of m. 30 (executed by all of the interpreters).

An added point of convergence between the recordings involves what appears to be an error shared by all four musicians. A small distortion in the tempo at the one hundredth and first note (m. 19) can be perceived, as the duration of the dotted quarter note is not observed, lasting less than the expected time, which results in an inconsistent spike in tempo at this point (see the

graph of Vianna's recording above).⁷ It is not possible to determine if this was a conscious decision, but we can conclude that all the executions under analysis contradict what is written by the composer in the score. The most glaring example is Fisk, who abruptly transitions from 40 BPM to 125 BPM at the one hundredth and first note, only to subsequently drop back down to 53 BPM.

Another interesting point in the tempo deviation involves the study of agogics, i.e. how each interpreter organizes and relates the time values and parts of time values within a unit.⁸ Therefore, if we take a measure as the unit and the notes that divide it as the corresponding parts of that unit, we find that each musician organizes the individual parts in a distinct manner, even in cases in which an equal division would be expected. If we consider, by way of example, the third measure, which consists of a sequence of four eighth notes of the same time-span, in theory the following time organizations would be observed in the measure example 5):



Example 5. Organization of Agogics in m. 3.

Each part of the graph above represents the time-span of the eighth notes in percentage terms relative to the entire measure.⁹ The precise figures are provided in the chart below (example 6). The same comparison can be performed by analyzing how the same individual interpreter organizes the tempo in similar passages throughout the piece, as in exx. 7a and 7b.

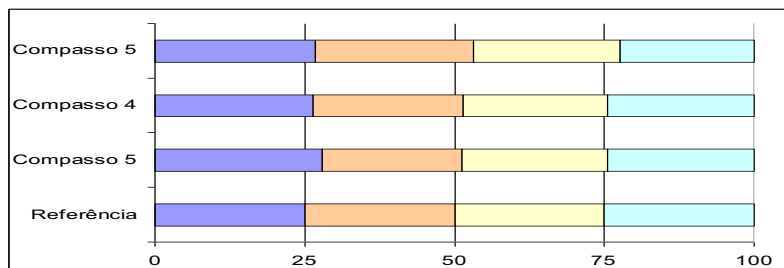
7. In addition, contrary to what is observed in the four recordings, the composer wrote in a *ritardando* (retard) for this patch.

8. The unit may consist of a measure, musical gesture, quarter note, etc., depending on the situation.

9. The proportional time duration in relation to the entire piece.

	Duração de Cada Colcheia em %				
	Vianna	Abreu	Fisk	Walker	Referência
1ª Colcheia	28	26,8	26,7	26	25
2ª Colcheia	23,3	25,3	24	23,7	25
3ª Colcheia	24,3	25,5	25	26	25
4ª Colcheia	24,4	22,4	24,3	24,3	25

Example 6. Organization of Agogics in m. 3.

Example 7a. Henze, *Du schönes Bächlein*, mm. 3–5.

Example 7b. Tempo Deviation Representation of Abreu's Recording, mm. 3–5.

We note that the motive of the major second, which seems to be the basis of this entire piece, is always played with a greater duration on the first note, with compensation in the other notes. Indeed, this is the pattern to which most of the guitarists adhere.

In short, there are innumerable convergences and divergences between the recordings under analysis, although for the purposes of this study we will limit ourselves to those described above, as a more in-depth examination would extend beyond the scope of this paper.

Conclusion

In conclusion, the tools offered by today's technology make it possible to "dissect" a recorded interpretation and analyze the corresponding interpretation down to its most nuanced elements. As such, details that could not otherwise be appreciated by the naked ear can be observed without the risk of falling into the trap of human perceptions, which are often mistaken.

The comparisons discussed in this study can be expanded and built on, and the corresponding methodologies applied in these pages enhanced. New considerations on the reasons that spurred the interpreters to take the decisions they did, study of execution styles, or comparative analyses with other recordings could also prove valuable.

Technology has the ability to serve art. Indeed, in the not-so-distant future effective and useful tools will be available with which to analyze performance, contributing not only to the study of performance itself, but to the study of styles, interpretive schools, musical phrasing, history, and other topics as well.

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