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**TEMPORAL CORRELATION IN THE *GOLDBERG VARIATIONS***

A thesis submitted in partial fulfillment of the  
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*To my mother Victoria Yagling*



You know something, Glenn, I *felt* it. I don't know if I would have actually been able to spot what you did just listening to it, but there *was* a link between those variations. I could feel it in my bones.

Tim Page (after listening to Variations XVI–XVII–XVIII from Glenn Gould's 1981 recording of the *Goldberg Variations*)



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## ABSTRACT

An interpreter of the *Goldberg Variations* is almost completely deprived of such utterly important guidance as the composer's tempo markings, which are as rare in the *Goldberg Variations* as they are in the other works of Bach. The final goal of my study is to suggest a logical foundation, upon which an interpreter of the *Goldberg Variations* can make his/her choice of tempi. Upon the analysis of opus's structure, which reveals an impressive panorama of symmetries, I suggest *a multilevel system of temporal correlations*, such as the application of a constant pulse-rate to the entire work and the attainment of equality of duration between a number of the work's segments. Hence, the term *temporal* is used not only with reference to the establishment of tempi for the *Goldberg Variations'* movements, but also with regard to their temporal proportions in terms of duration. In order to support the concept of symmetrical interrelations between the Variations, I display the *motivic correlations* between those Variations, which are considered as symmetrically interdependent. At the end of the thesis, the suggested temporal correlations are displayed as a diagram.

The present study, which aims to highlight the exceptional interdependence of the *Goldberg Variations'* constituents, is addressed to the performers, researchers, and ultimately – via performers – to the listeners.

**Keywords:** *Goldberg Variations*, Correlation, Temporal, Motivic, Interdependence, Unity, Conception.

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## INTRODUCTION

It is hard to disagree with Walter Schenkman who claims that “among many problems that confront the editor or performer of the *Goldberg Variations*, none is more crucial than that of the establishment of *tempi* within the individual variations”.<sup>1</sup> The interpreter of the *Goldberg Variations* is almost completely deprived of such utterly important guidance as the composer’s tempo markings, which are as rare “guests” in the *Goldberg Variations* as they are in the other works of Bach. The only tempo indications the composer had given in this enormous cycle are: *al tempo di Giga* (Variation VII), *andante* (Variation XV) and *adagio* (Variation XXV).

While preparing the *Goldberg Variations* for a concert performance a decade ago, I experienced how intricate and at the same time inspiring its “temporal enigma” is. Thus, the present study has grown not only out of theoretical interest, but also (if not primarily!) out of my wish to investigate the work’s temporal problems in order to apply the acquired knowledge in a performance. It means that *ultimately* I address my research not only to the performers and music scholars, but also – via performers – to the listeners. My final goal is to suggest *a logical foundation*, upon which an interpreter of the *Goldberg Variations* can make his/her choice of tempi.<sup>2</sup> Hence, in this study I will propose *a multilevel system of temporal correlations*, such as the application of a constant pulse-rate to the entire work (the concept of Glenn Gould,<sup>3</sup> as well as Walter Schenkman<sup>4</sup>) and the attainment of equality of duration between a number of the work’s segments. Consequently, the term

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<sup>1</sup> Schenkman 1975, 3.

<sup>2</sup> This thesis is addressed to both harpsichordists and pianists, for the choice of the instrument and the issue of performance traditions’ authenticity have no relevance in my research.

<sup>3</sup> Page & Gould 2001.

<sup>4</sup> Schenkman 1975.

*temporal* is used not only with reference to the establishment of tempi for the *Goldberg Variations*' movements, but also with regard to their temporal proportions in terms of duration.

Naturally, my system of temporal correlations is a hypothesis, for none of us – performers/researchers – can verify Bach's original concept of the *Goldberg Variations*' temporal design. Nonetheless, I do hope that with the use of analysis we can, to a certain extent, “decode” Bach's ideas.

The analytical approaches on the subject of the *Goldberg Variations*' structure and conception differ. As Peter Williams observes: “It does seem to be the nature of the *Goldberg* to inspire a range of hypotheses.”<sup>5</sup> As a result, a performer or a researcher, apart from examining the *Goldberg Variations* him/herself and forming a personal approach, faces a multitude of analytical papers on the topic in question. To analyze this large number of analyses (pardon the tautology) is quite a laborious task, but, undeniably, the discussion of the work's temporal problems can only be based upon a knowledge of its structure (i.e. form), which reveals highly intricate, in many cases hidden, interdependencies (e.g. motivic), symmetries, well-considered recurrences of Variations' types (such as *Canons*, among others) etc.

My key reference with regard to the *Goldberg Variations*' structural analysis is the study of Boris Katz,<sup>6</sup> in which he discloses an impressive panorama of the work's multiple symmetries.<sup>7</sup> In order to support Katz's concept, I will demonstrate the motivic correlations between the Variations,<sup>8</sup>

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<sup>5</sup> Williams 2001, 48. For instance, Werner Breig (1975), contrary to many researchers (including the author of this study) who do not question Bach's original plan – Theme–XXX Variations–Theme – puts forward a hypothesis of the composer's initial design, which contained only XXIV Variations.

<sup>6</sup> Katz 1985.

<sup>7</sup> Due to the complexity of Katz's approach I prefer not to discuss it in the Introduction.

<sup>8</sup> *Motivic* is used as an umbrella term: the ties between the Variations can be thematic, gestural etc.

which Katz considers as symmetrically interdependent.<sup>9</sup> It is important to stress that I had no intention of analyzing the motivic correlations in depth; as said previously, in my research these ties are brought up in order to defend Katz's approach.

With regard to the temporal issues, the abovementioned Gould's<sup>10</sup> (as well as Schenkman's<sup>11</sup>) concept of one pulse that goes through the entire colossus of the *Goldberg Variations* is of key importance for me. Such a pulse – a quarter note of the Theme – constitutes a “constant rhythmic reference point”<sup>12</sup> and creates temporal unity of all the *Goldberg Variations'* movements (an “almost arithmetical correspondence between the theme and the subsequent variations”<sup>13</sup> – as Gould formulated it). This thought-provoking approach gives us a rich and demanding field for research, important not only in a purely intellectual, abstract sense, but helpful to performing artists who appreciate logic and conceptual thinking.<sup>14</sup>

My study is organized as follows:

Part I: Structural and temporal aspects of the *Goldberg Variations*

This part is divided into two sections: 1. Structure & 2. Temporality. Section 1 is dedicated to the overview of the *Goldberg Variations'* structural phenomena (i.e. the “construction” of the cycle) and the analysis of Katz's approach.<sup>15</sup> In section 2 I address Gould's, Schenkman's, as well as Don O.

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<sup>9</sup> I do not mention the researchers who display some of the motivic correlations shown in this study, because these scholars discuss such correlations in dissimilar contexts.

<sup>10</sup> Page & Gould 2001.

<sup>11</sup> Schenkman 1975.

<sup>12</sup> Page & Gould 2001, 21.

<sup>13</sup> *Glenn Gould in conversation with Bruno Monsaingeon (The Goldberg Variations. From Glenn Gould plays Bach. A film by Bruno Monsaingeon). Transcription by V.C.*

<sup>14</sup> I recall that in the end of 1980s, at one of the lessons at the Moscow Conservatoire, Mikhail Pletnev (with whom I studied) proposed to apply Gould's idea of a single pulse to the *Sinfonia* from Bach's C minor Partita No. 2. That was the first time I became acquainted with this Gouldian concept, which ever since I have applied to various (not only Bach's) works.

<sup>15</sup> Katz 1985.

Franklin's<sup>16</sup> concepts, and then explain the formula of the temporal correlations, which constitutes the core of my thesis.

## Part II: Temporal and motivic correlations

Part II likewise contains two sections: 1. The correlations & 2. Diagram of the temporal correlations. In section 1 I explain the temporal correlations of the *Goldberg Variations*' movements, made according to the formula of such correlations, which is described in Part I. In addition, this section contains the aforementioned motivic correlations between the Variations. In section 2 the temporal correlations, clarified in the previous section, are displayed as a diagram.

Since the *Goldberg Variations* disclose a rare unity of all its components, I believe it would be very naive to approach this opus as a kaleidoscopic sequence of “thirty very interesting but somewhat independent-minded pieces, going their own way”.<sup>17</sup> I do hope that the system proposed in my study can 1) convey a clear perception of the work's form to a performer (which is vitally important, considering the enormous scale of the work), and 2) highlight the abovementioned *exceptional* interdependence of the *Goldberg Variations*' constituents.

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<sup>16</sup> Franklin 2004.

<sup>17</sup> *Glenn Gould in conversation with Bruno Monsaingeon (The Goldberg Variations*. From Glenn Gould plays Bach. A film by Bruno Monsaingeon). Transcription by V.C.

**PART I**

**STRUCTURAL AND TEMPORAL ASPECTS OF THE *GOLDBERG VARIATIONS***

As I have specified in the Introduction, the conceptions of Boris Katz<sup>18</sup> (*Goldberg Variations*' structure) and Glenn Gould<sup>19</sup> (*Goldberg Variations*' temporal aspects) are of key importance for building the system of temporal correlations suggested in this study. Let us follow the pattern Structure & Temporality and examine Katz's, Gould's, as well as some other researchers' approaches in detail.

**1. Structure**

Before addressing Katz's approach, we have to uncover the *Goldberg Variations*' "surface" structural level, i.e. list the structural features which are visible to the naked eye:<sup>20</sup>

- The main basis of the Variations is the Theme's bass line and harmony.
  
- Thirty Variations are divided into ten groups, each containing three Variations (henceforth referred to as the *groups of three*<sup>21</sup>). In the *groups of three* I–IX every third Variation is a Canon. The interval of the Canons is augmented from the unison (Variation III) to the ninth (Variation XXVII).

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<sup>18</sup> Katz 1985.

<sup>19</sup> Page & Gould 2001.

<sup>20</sup> The information is limited to the aspects relevant to the purposes of the present study.

<sup>21</sup> Peter Williams's term (Williams 2001, 40).

The last *group of three* (Variations XXVIII–XXX) ends with the Quodlibet (Variation XXX).

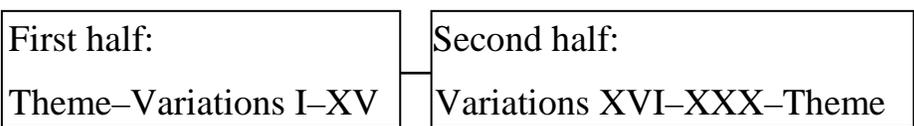
- Variation XVI, a French Overture, is the only Variation, which is comprised of two sections: the *Ouverture* (Bach’s title) in *alla breve* meter, and the *fughetta*-type section in 3/8 (it is the sole Variation to contain an internal change of meter). Variation XVI divides the *Goldberg Variations* into two halves, each containing fifteen Variations.

- The Theme contains 32 bars. The Variations have either 32 or 16 bars. (The first and second sections of Variation XVI contain 16 and 32 bars respectively.<sup>22</sup>)

- The Theme, as well as Variations I–XV and XVII–XXX, comprise two symmetrical halves (16 + 16 bars, or 8 + 8 bars), provided with a repeat sign. Variation XVI is an exception: its two sections are asymmetrical (16 + 32 bars); both sections are provided with a repeat sign.

- Of the thirty Variations, only three (i.e. one tenth) are in the minor mode (G minor): XV, XXI, XXV.

- The reappearance of the Theme after the Quodlibet (Variation XXX) creates an arch and contributes to the symmetry of the two halves of the work:



<sup>22</sup> See the footnote No. 50 for a more detailed explanation.

Following is the *Goldberg Variations*' overall scheme:

Example No. 1.

First half

Movements:	THEME	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV		
Canons:			<i>unisono</i>				<i>seconda</i>				<i>terza</i>				<i>quarta</i>			<i>quinta</i>
Time signatures:	3/4	3/4	2/4	12/8	3/8	3/4	3/8	6/8	3/4	C	♩	12/16	3/4	3/4	3/4	2/4		
Tempo markings:								↑								↑		
								<i>al tempo di Giga</i>								<i>andante</i>		
G minor Variations:																	*	

Second half

Movements:	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII	XXIX	XXX	THEME
Canons & Quodlibet:			<i>sesta</i>			<i>settima</i>			<i>ottava</i>				<i>nona</i>			<i>Quodlibet</i>
Time signatures:	♩ & 3/8	3/4	♩	3/8	3/4	C	♩	3/4	9/8	3/4	18/16-3/4	6/8	3/4	3/4	C	3/4
Tempo markings:										↑						
										<i>adagio</i>						
G minor Variations:						*				*						

The type of every third Variation in the *groups of three* is evident: Canons & Quodlibet (see Example No. 1).

When considering the second Variations within the *groups of three* (i.e. Var. II, V, VIII, XI, XIV, XVII, XX, XXIII, XXVI, XXIX), Katz points to their virtuoso character. Such a common feature enables him to classify these Variations as the *inner series of toccatas*.<sup>23</sup> The term *inner series*, introduced by Katz, is defined by him as follows:

<sup>23</sup> Katz 1985, 59.

*Inner series* implies a set of variations (adjacent and nonadjacent) united by a common attribute, not shared by the other variations. Inner series emerge in a variation cycle as a result of the projection of one or another paradigmatic class of variations onto the general syntagmatic axis of the cycle.<sup>24</sup>

Thus, the abovementioned *inner series* of *toccatas* is a paradigmatic (vertical, so to speak) class of Variations, projected onto the *Goldberg Variations*' syntagmatic (horizontal) axis (i.e. Theme – Variations I–XXX – Theme).

As concerns the first Variations in the *groups of three*, Katz asserts that despite their apparent diversity, these Variations reveal a recurrence pattern as well:

[...] the 4<sup>th</sup>, 10<sup>th</sup>, 16<sup>th</sup>, 22<sup>nd</sup><sup>25</sup> variations possess a common feature – active polyphonic development, which enables us to combine them into a single inner series, which, for convenience, we can call an *inner series of fughetts*. Therefore the scheme of the sequence of variations for the groups 4–6, 10–12, 16–18, 22–24 will be as follows: I fughetta – II toccata – III canon. A recurrence pattern can also be tracked in the first variations of the other groups [of three]: due to the common dancing features, variations 7 and 19 enter into the *inner series of gagues* [...]; variations 13 and 25, due to the textural and motivic similarities, can be included in the *inner series of arias*, which was commenced by the Theme. Consequently, the groups 7–9 and 19–21 have the following structure: I gigue – II toccata – III canon, and the groups 13–15 and 25–27: I aria – II toccata – III canon.<sup>26</sup>

As can be seen from the above quotation, the first and the last *groups of three* (Variations I, II, III and XXVIII, XXIX, XXX respectively) are

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<sup>24</sup> Ibid. 152. Emphasis in the original. All the quotations from Katz's paper are translated from Russian by the author of this study.

<sup>25</sup> Though in this study I use Roman numerals with reference to the number of the Variations, in the quotations from Katz's paper I have retained Katz's use of Arabic numerals.

<sup>26</sup> Katz 1985, 59–60. Emphasis in the original.

temporarily not considered, for they, according to Katz, do not reveal the recurrence patterns peculiar to the other *groups of three*.

Many researchers seem to have overlooked the recurrence pattern of the first Variations in the *groups of three*. For example, Breig,<sup>27</sup> who, like Katz, classifies most of the second Variations in the *groups of three* as the “virtuose Variationen”,<sup>28</sup> defines the majority of the first Variations in these groups as “freie Variationen”<sup>29</sup> and claims:

The opening Variations of the groups form no series, which could be considered from the perspective of progression.<sup>30</sup>

Peter Williams classifies the first Variations in the *groups of three* as “a dance or clear genre-piece (such as a fughetta)”.<sup>31</sup>

With the exception of Variation VII, which bears Bach’s indication *al tempo di Giga*, and Variation X, entitled *Fugetta* by the composer, Katz’s classification of the Variations simplifies their multifaceted constitution, and is therefore relative. Katz is well aware of this. For instance, when unifying the second Variations of the *groups of three* into the inner series of *toccatas*, he stresses that the term *toccatata* is applied *for convenience*.<sup>32</sup> Katz also notes that the use of the term *fughetta* with regard to Variation XXII and, especially, to Variation IV is “extremely conditional”.<sup>33</sup> Furthermore, Katz makes an important claim, stating that a single Variation can belong simultaneously to different inner series. He defines this phenomenon as an “intersection of the inner series”.<sup>34</sup> In order to exemplify such intersections,

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<sup>27</sup> Breig 1975.

<sup>28</sup> Ibid. 246.

<sup>29</sup> Ibid. 247.

<sup>30</sup> “Die Anfangsvariationen der Gruppen bilden keine Reihe, die sich unter dem Aspect der Progression betrachten ließe.” Ibid. 248.

<sup>31</sup> Williams 2001, 40.

<sup>32</sup> Katz 1985, 59. Emphasis mine.

<sup>33</sup> Ibid. 152.

<sup>34</sup> Ibid. 61.

Katz points to Variation XI, which, according to him, represents the intersection of *toccata*-series and *gigue*-series, and Variation XXIV, which combines *Canon*-series and *gigue*-series.<sup>35</sup>

I would like to add that in my view it seems questionable whether Variation XIX can be considered as a *gigue* (Katz's definition<sup>36</sup>). Williams is hesitant with regard to the genre of this Variation;<sup>37</sup> he designates it as a *minuet* and leaves this definition with a question mark.<sup>38</sup> Andreas Jacob regards Variation XIX as a *passepied*.<sup>39</sup> Whatever the right description of this Variation's genre, for the purposes of the present study (as will be revealed at a later stage) it is important to stress its interdependence with Variation VII. As I have pointed out in the Introduction, in the second part of this paper we will discover the motivic correlations between the Variations; such motivic ties between Variations VII and XIX are so close (see Example No. 21) that their interconnection cannot be questioned. Hence, I agree with Katz's attribution of both Variations to one *inner series*.

Katz's classification of Variation II as a *toccata* also seems problematic. This Variation, remarkable due to its *quasi-canonic* nature (which functions as a kind of preparation for the ensuing first *real* Canon: Variation III) is more complex than most of the other Variations, classified by Katz as *toccatas*.

A similar comment applies to Variation XXVI, which projects the saraband rhythm (in 3/4) onto the *toccata*-type texture (written in 18/16).

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<sup>35</sup> Ibid.

<sup>36</sup> Ibid. 59.

<sup>37</sup> Williams 2001, 75.

<sup>38</sup> Ibid. 41.

<sup>39</sup> Jacob 1997, 265.

Katz is aware of this Variation's divergence from the other *toccatas*,<sup>40</sup> but he does not provide the reader with his point of view upon this topic.

The aforesaid notwithstanding, I believe that Katz's classification of the Variations, relative as it is, helps to grasp their common features, and consequently reveals the overall structure of the work. For this reason, in the present study I have chosen to adhere to Katz's categories, such as *toccata*, *fughetta*, *gigue* and *aria*.

Subsequent to the attribution of the Variations to the *inner series*, Katz shows his view of the *Goldberg Variations*' overall structure in the following graph, in which he delimits the *groups of three* by a colon, and the abbreviations imply: C – *canon*; T – *toccata*; F – *fughetta*; A – *aria*; G – *gigue*:<sup>41</sup>

Example No. 2.<sup>42</sup>

	Theme											
Introductory group	1,			2,			3:					
1 Sub-cycle	4,	5,	6:	7,	8,	9:	10,	11,	12:	13,	14,	15:
	F	T	C	G	T	C	F	T	C	A	T	C
2 Sub-cycle	F	T	C	G	T	C	F	T	C	A	T	C
	16, 17, 18:			19, 20, 21:			22, 23, 24:			25, 26, 27:		
Concluding group	28,			29,			30:					
	Theme											

<sup>40</sup> Katz 1985, 59.

<sup>41</sup> In the graph (Example No. 2) Katz does not display the above-mentioned intersections of the *inner series*.

<sup>42</sup> Katz 1985, 60.

As can be seen in the above graph (Example No. 2), in connection with the four *groups of three* (Variations IV–XV), and another four *groups of three* (Variations XVI–XXVII), Katz introduces the concept of the *sub-cycle*,<sup>43</sup> which I consider to be the core of his conception. Katz’s graph (Example No. 2) displays the striking fact that the Sub-cycles 1 & 2 disclose the *symmetrical sequence of Variations’ types!*<sup>44</sup>

Katz writes:

[...] the *first variations* [of the *groups of three* in the Sub-cycles] appear in the same order – fughetta, gigue, fughetta, aria. That explains the conundrum of the structure of variation 16: its first part – an overture – is needed to signal the commencement of a new sub-cycle, the second part – a fughetta – is needed for the second sub-cycle to begin in the same way as the first one.

[...] groups [of three] 1–3 and 28–30 are revealed as introductory and concluding groups.<sup>45</sup> The appearance of the Theme at the beginning and at the end of the cycle contributes to its completeness and integrity based on the principle of the periodic distribution of variations belonging to different inner series.<sup>46</sup>

At the same time, Katz emphasizes that his graph (Example No. 2) is no more than “the skeleton of the composition”.<sup>47</sup>

In the present context it is important to mention that the concept of parallels between Variations IV–XV and XVI–XXVII (sub-cycles – according to Katz) appears also in chapter XIII (“*Parallelen in*

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<sup>43</sup> Katz does not define the term *sub-cycle*, but, I believe, its meaning in the present case is quite clear: it is a smaller cycle within the main cycle.

<sup>44</sup> Though, as I have pointed out, I have a few reservations with regard to Katz’s classification of the Variations, further analysis will display that beside the symmetrical sequence of Variations’ types there are also other phenomena, which support the symmetrical correlation of the Variations of Sub-cycles 1 & 2.

<sup>45</sup> The first and the last *groups of three* are defined by Williams as a “symmetrically irregular framework” (Williams 2001, 42). – V.C.

<sup>46</sup> Katz 1985, 60. Emphasis in the original.

<sup>47</sup> Ibid. 61.

*Gesamtaufbau der Variationen*”)<sup>48</sup> of Ingrid and Helmut Kaußlers’ book *Die Goldberg-Variationen von J.S. Bach*, issued in the same year – 1985, the year of Bach’s 300<sup>th</sup> anniversary – as Katz’s article.

In addition, I must elucidate my approach to the first section of Variation XVI. In contrast to Katz, I do not attribute this section to the second Sub-cycle, which, I believe, commences with the second section of this Variation (*fughetta*).<sup>49</sup> Moreover, is the attribution of the first section of Variation XVI to the second half of the *Goldberg Variations* so straightforward? Let us analyze the pro & contra.

Pro:

1. The bass line of the entire Variation XVI follows that of the Theme. This fact suggests the integrity, the “indivisibility” of this Variation, and consequently its attribution to the second half of the work.
2. Due to the majestic character of this Variation’s first section (*Ouverture*) it is quite natural to perceive it as a grand opening of the second half of the *Goldberg Variations*.

Contra:

When studying the above-specified symmetries, we discover the highly remarkable fact that the quantity of bars in the Variations in Sub-cycles 1 & 2, as well as in the Introductory & Concluding *groups of three* is *always* symmetrical; the only seemingly “asymmetrical” element is the first section of Variation XVI (16 bars<sup>50</sup>):

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<sup>48</sup> Kaußler & Kaußler 1985, 229–230.

<sup>49</sup> I am aware that the affinity of Variation IV (which opens Sub-cycle 1) and the second section of Variation XVI (which, to my mind, commences Sub-cycle 2) is incomplete, because the second section of Variation XVI starts in the dominant.

<sup>50</sup> It is worth mentioning that the metrical function of bar 16<sup>II</sup> (or 16<sup>b</sup>) is quite complex. As Lauri Suurpää has pointed out in a conversation, in bar 16<sup>II</sup> there is a “metrical reinterpretation”: on one hand, this bar

Example No. 3.

Movement	Bars (the repeats are not counted)	Bars (the repeats are not counted)	Movement
		16	XVI 1 <sup>st</sup> section
<b>First Sub-cycle IV</b>	32	32	<b>Second Sub-cycle XVI 2<sup>nd</sup> section</b>
V	32	32	XVII
VI	32	32	XVIII
VII	32	32	XIX
VIII	32	32	XX
IX	16	16	XXI
X	32	32	XXII
XI	32	32	XXIII
XII	32	32	XXIV
XIII	32	32	XXV
XIV	32	32	XXVI
XV	32	32	XXVII
<b>Introductory group of three</b>			<b>Concluding group of three</b>
I	32	32	XXVIII
II	32	32	XXIX
III	16	16	XXX
<b>Theme</b>	32	32	<b>Theme at the end</b>

closes a preceding four-bar group (hence functioning as a weak bar in the hypermetrical level), on the other, it begins a new hypermetrical unit, thus functioning as a strong bar. In other words, in the 16+32 bar scheme of Variation XVI the actual sum is not the arithmetical 48 but rather 47 since bar 16<sup>II</sup> has a dual function.

In light of the above graph (Example No. 3), we must admit that in terms of the *Goldberg Variations*' symmetries, both the second Sub-cycle and the second half of the work begin with the second section of Variation XVI (*fughetta*)! But, as we know, the bass line of Variation XVI indisputably “attaches” its first section (*Ouverture*) to the second half of the work. As we can see, this issue is dualistic and unique in the *Goldberg Variations*. Being well aware of the bass line of the Variation in question, I interpret this movement's dilemma as follows: in view of the above specified symmetrical correlations between the movements of the 1<sup>st</sup> and 2<sup>nd</sup> halves of the work, the first section (*Ouverture*) of Variation XVI occupies a special place in the architecture of the *Goldberg Variations* – as a monumental bridge, it stays in the middle of the work, *between* its two halves, and consequently does not enter into the system of their symmetries.<sup>51</sup> Consequently, as the symmetrical relationships in the *Goldberg Variations* play a key role in this study, when discussing the second half of the work I will henceforth refer to Variations XVI (second section) – XXX – Theme.

To sum up the most obvious symmetries in the *Goldberg Variations*' structure:

- Theme – Theme at the end (the “frame” of the whole work)
- Two halves of the *Goldberg Variations*, each containing fifteen Variations

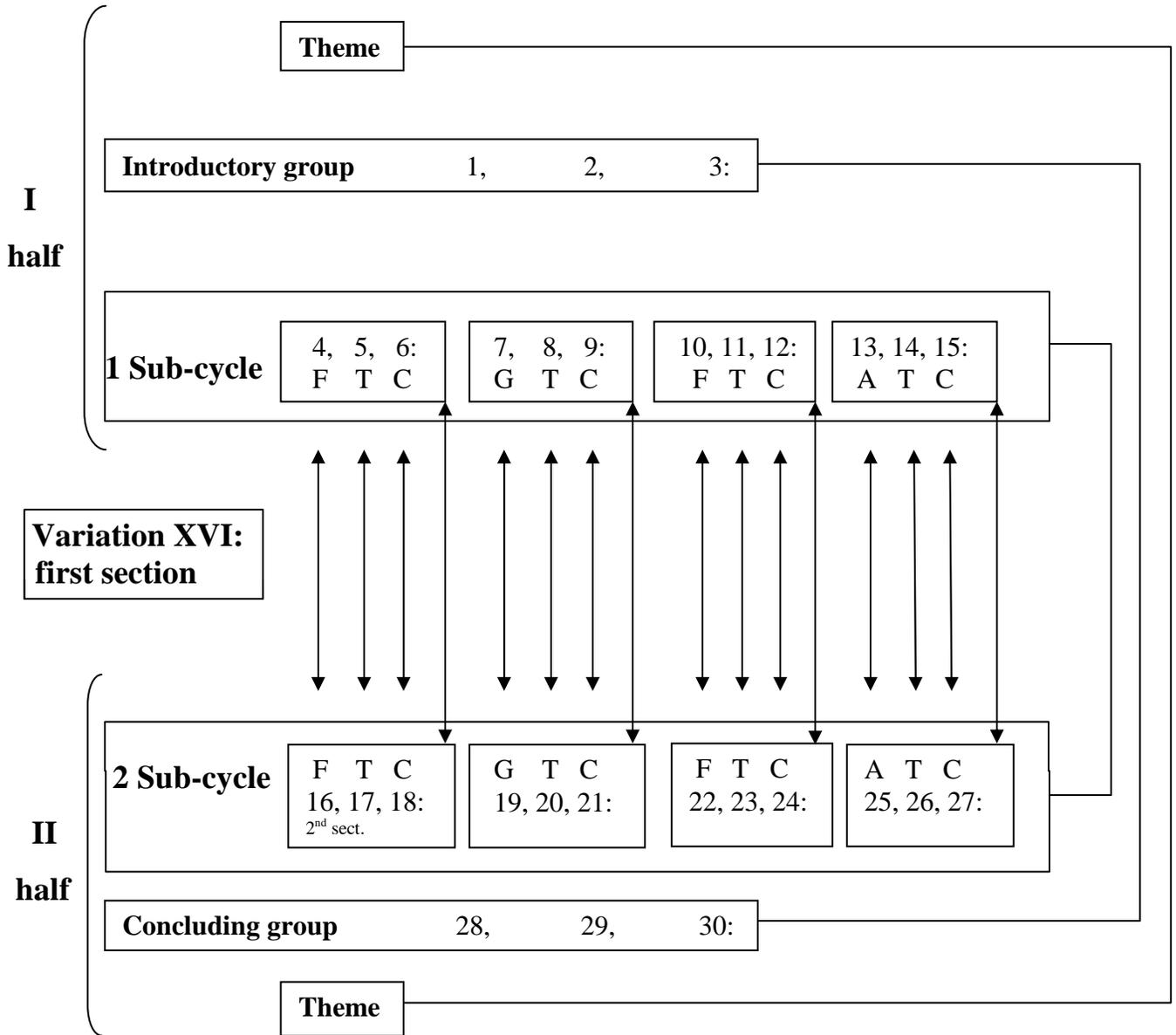
Katz's approach – with the exception of the dilemma of Variation XVI, which I interpret differently – enables us to discuss several additional levels

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<sup>51</sup> Although, the “independent” position of the first section of Variation XVI at the midpoint of the *Goldberg Variations* reveals a new symmetry: Theme – Variation XVI (first section) – Theme.

of symmetries (displayed together with the aforementioned “obvious” symmetries in the ensuing Example No. 4, and described thereafter):

Example No. 4.



- Two Sub-cycles: Variations IV–XV & Variations XVI (second section) – XXVII.
- The four *groups of three* in the first Sub-cycle and the four *groups of three* in the second Sub-cycle, revealing the symmetrical sequence of Variations’ types.
- The *pairs* of Variations (henceforth referred to as *pairs*), revealed by the superposition of the first Sub-cycle onto the second Sub-cycle; i.e. *Fughettas*: IV & XVI (second section), *Toccatas*: V & XVII, *Canons*: VI & XVIII etc.
- Introductory and Concluding *groups of three*.

In addition to the above symmetries, let me once again recall the symmetrical quantity of bars in the Variations in Sub-cycles 1 & 2, as well as in the Introductory & Concluding *groups of three* (Example No. 3).

As I have mentioned in the Introduction, Katz’s approach can be substantiated by quite striking motivic interdependences within several *pairs*, which, I believe, cannot be coincidental. Katz refers to such interdependences in the case of the *pair* XIII & XXV (*Arias*),<sup>52</sup> which, to my mind, demonstrates a lesser intensity of motivic ties than, for example, the *pairs* VII & XIX, VIII & XX, XI & XXIII, XII & XXIV. The fact that not all the *pairs* reveal intensive motivic interdependences does not obliterate, in my view, the existence of Bach’s plan regarding such motivic ties. I believe

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<sup>52</sup> Katz 1985, 60.

the articulated regularity of motivic interdependences within *all* the *pairs* would be too simple and *apparent* in such a complex entity as the *Goldberg Variations*. The motivic ties within the *pairs* will be addressed in the second part of this study.

## 2. Temporality

Let us commence the discussion of the multifaceted temporal phenomena of the *Goldberg Variations* with the explanation of Glenn Gould's approach, which he has clarified when in conversation with Tim Page:

[...] I've come to feel, over the years, that a musical work, however long it may be, ought to have basically ... I was going to say one *tempo*, but that's the wrong word ... one pulse-rate, one constant rhythmic reference point.<sup>53</sup>

If considered with reference to *all* musical works, Gould's affirmation is quite an exaggeration (which is by no means atypical for Gould). However, I believe that in the case of the *Goldberg Variations*, the concept of a constant rhythmic reference point is highly appropriate, as Gould claimed: “[...] with really complex contrapuntal textures, one does need a certain deliberation, a certain deliberate-ness.”<sup>54</sup>

In the following quote Gould elucidates the nucleus of his concept:

[...] I would *never* argue in favour of the inflexible musical pulse; that just destroys any music. But you can take a basic pulse, and divide it or multiply it – not necessarily on a scale of two, four, eight, sixteen, thirty-two, but often with far less obvious divisions, I think – and make the result of those divisions or multiplications act as a subsidiary pulse for a particular movement, or section of a movement, or whatever. [...] So, in case of the Goldberg, there is, in fact, one pulse which, with a few very minor modifications – mostly modifications which I

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<sup>53</sup> Gould to Tim Page; Page & Gould 2001, 21. Emphasis in the original.

<sup>54</sup> Ibid. 19. Emphasis in the original.

think take their cue from retards at the end of the preceding variation, something like that – one pulse that runs all the way throughout.<sup>55</sup>

The phenomenon of a single pulse which goes through the entire cycle opens up yet another dimension of great importance – that of the relationships between the adjacent Variations (subsequently we will analyze the example of Gould’s temporal correlation of Variations XVI–XVII–XVIII).

Evidently, the single pulse is established at the outset of the work, i.e. it is the pulse – one quarter note – of the Theme. The correlation to the Theme’s pulse automatically signifies *the temporal correlation of each individual Variation to all the other Variations*. As will be exemplified, such a single pulse does not obliterate the choice of tempi for the Variations, and such a choice – combined with the choice of dynamics, articulation and agogics – affects most significantly the character of each Variation, its relationships to the adjacent Variations, and consequently – the overall narrative of the work (i.e. the *dramatic arch* built by the movements of the *Goldberg Variations* as they succeed each other). I believe it is appropriate to define this overall dramatic arch as a *syntagmatic* (i.e. linear, or horizontal) *dimension* of the *Goldberg Variations*.

The “construction” of the dramatic arch from the beginning to the end of the work is a highly subjective matter, for, as mentioned above, in addition to the temporal problems, so much depends on the interpreter: on one hand – agogics, dynamics, articulation in each individual Variation, on the other – relationships between the adjacent Variations, which form the groups not aligned with the *groups of three*! Such groups of adjacent Variations lead to

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<sup>55</sup> Ibid. 21. Emphasis in the original.

the *intermediate climaxes*. The determination of the intermediate climaxes and the formation of the groups of adjacent Variations which lead to them are in many ways matters of the interpreter's choice. Here are two examples:

1. According to my perception (I repeat – it is perfectly subjective), Variations I–V form a group (not aligned with the *groups of three* I–III and IV–VI), in which the accumulation of tension and energy leads to the intermediate climax – the first in the work – in Variation V. Hence, this group of five Variations has its own *dramatic line*, which is a constituent of the overall dramatic arch of the *Goldberg Variations*.
2. The same can be said about Variations XXVI–XXX. It seems to me that this group (not aligned with the *groups of three* XXV–XXVII and XXVIII–XXX) possesses a dramatic line, which reaches its peak in the final climax of the *Goldberg Variations* – Variation XXX (*Quodlibet*).

Consequently, exemplifying the nonalignment of the above groups of Variations with the *groups of three*, we are speaking about the contradiction between the two dimensions of the *Goldberg Variations* – *paradigmatic* (symmetries displayed in Example No. 4) and *syntagmatic*. Williams refers to the “two shapes for the *Goldberg*, a perceptual and a conceptual.”<sup>56</sup> Nevertheless, it is obvious that both dimensions are intertwined: the knowledge of the *Goldberg Variations*' paradigmatic phenomena affects the construction of the relationships between the adjacent Variations.

In addition to the above-said, it seems appropriate to name the main pillars of the *Goldberg Variations*' syntagmatic architecture, as I perceive them:

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<sup>56</sup> Williams 2001, 40.

- Theme
- Variation XIII
- Variation XV
- Variation XVI: the first section.
- Variation XXV (the most significant of the thirty Variations)
- Variation XXX
- Theme

Since the *Goldberg Variations*' syntagmatic dimension could be a subject of an autonomous dissertation, I limit the information about it to the above paragraphs, which suffice for the purposes of the present study. Let me repeat the important formula:

- a) The single pulse correlates the Theme to all the Variations and vice versa, as well as correlating each individual Variation to every other Variation.
- b) Within the single pulse, the tempi of the Variations can be "adjusted" according to the individual perception of the *Goldberg Variations*' syntagmatic dimension (as will be exemplified at a later stage).

Now we can tackle the aforementioned Gould's correlation of Variations XVI–XVII–XVIII:<sup>57</sup>

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<sup>57</sup> See Page & Gould 2001, 22–23. The Example No. 5 is compiled by the author of this study in accordance with Gould's explications given to Page.

Example No. 5.<sup>58</sup>

Variatio 16. Ouverture. a 1 Clav.

Variation XVI: second section

Variatio 17. a 2 Clav.

Variatio 18. Canone alla Sexta. a 1 Clav.

The image displays four musical excerpts from the Goldberg Variations, arranged vertically. Each excerpt is connected to the next by a vertical red line. The first excerpt, 'Variatio 16. Ouverture. a 1 Clav.', shows a quarter note in the first section of the first staff. The second excerpt, 'Variation XVI: second section', shows three eighth notes in the first section of the first staff. The third excerpt, 'Variatio 17. a 2 Clav.', shows a quarter note in the first section of the first staff. The fourth excerpt, 'Variatio 18. Canone alla Sexta. a 1 Clav.', shows a quarter note in the first section of the first staff. The red boxes and lines illustrate the correlation of these notes across different variations.

As we can see from the above example, Gould correlates one quarter note of the first section of Variation XVI to three eighth notes (= one bar) of its second section. With regard to the further correlation to Variation XVII, Gould explains that initially he wanted to correlate one bar of the second section of Variation XVI to one quarter note of Variation XVII. Since for Variation XVII such a correlation implied a tempo, which Gould considered

<sup>58</sup> The excerpts from the score of the *Goldberg Variations* are taken from the *Urtext der Neuen Bach-Ausgabe* (Bärenreiter 2000); the exceptions will be specified.

too slow, he opted for a more sophisticated correlation: two eighth notes of the second section of Variation XVI are equal to one quarter note of Variation XVII. Such a correlation renders the second section of Variation XVI and the ensuing Variation XVII more homogeneous, for the pace (viz. the velocity) of the eighth/sixteenth notes is the same in both of them.<sup>59</sup>

Subsequently Gould correlates one quarter note of Variation XVII to one half note of Variation XVIII.

Tim Page's reaction, having listened to Variations XVI–XVII–XVIII from Gould's 1981 recording of the *Goldberg Variations*, seems of great significance to me:

You know something, Glenn, I *felt* it. I don't know if I would have actually been able to spot what you did just listening to it, but there *was* a link between those variations. I could feel it in my bones.<sup>60</sup>

Thus, the *conceptual* becomes *perceptual* (recalling the terms used by Williams),<sup>61</sup> even if it is felt "in the bones", i.e. non-verbalized.

Gould adds:

I think it's a technique – the idea of rhythmic continuity – that's really only useful if everybody does feel it in their bones (to use your [Tim Page's] words) – experiences it subliminally, in other words – and absolutely nobody actually notices what's really going on.<sup>62</sup>

As Gould's correlation of Variations XVI–XVII–XVIII demonstrates, we have discussed a type of correlation, which I would call syntagmatic: viz.

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<sup>59</sup> It is worth remarking that Gould's correlation of the second section of Variation XVI to Variation XVII contains one mistake: Gould ignores the fact that in the last bar of Variation XVI Bach brings back the *alla breve* meter of its first section. Consequently, since in the entire work the single pulse is omnipresent, the correct correlation should have been made via the last bar of Variation XVI: 3/8 (second section of Variation XVI) – *alla breve* (last bar of Variation XVI) – 3/4 (Variation XVII).

<sup>60</sup> Page & Gould 2001, 23. Emphasis in the original.

<sup>61</sup> Williams 2001, 40.

<sup>62</sup> Page & Gould 2001, 23. The Gouldian idea of the technique's "invisibility" seems significant to me at a more general level, for it can be applied to the other art forms. For instance, when I look at Leonardo da Vinci's Portrait of a Young Women with an Ermine, as a non-professional admirer of painting I adore the beauty of this portrait without analyzing its strict mathematical proportions.

one correlates *Goldberg Variations'* adjacent movements (Theme–Variations–Theme) as they succeed each other.

In addition to Gould's ideas, I should mention Don O. Franklin's paper,<sup>63</sup> an important constituent of which is the researcher's explanation of his view on the phenomenon of existence or nonexistence of a fermata sign at the end of the *Goldberg Variations'* movements.<sup>64</sup>

Franklin:

[...] the presence or absence of a fermata at the juncture between successive movements transmits essential information about the temporal relationship of two successive movements. Its presence signals that the pulse or beat stops at the double bar, where it is replaced in the succeeding movement by a new beat, and, subsequently, a new tempo. Its absence, conversely, signals that the beat carries over to the next section, either in the context of a new metrical grouping or in a new note value that is proportional with the beat of the succeeding movement.<sup>65</sup>

Undoubtedly, Franklin's hypothesis apropos the fermatas' function is very interesting. However, many fermatas create many *temporal units* (Franklin's term with regard to the groups of adjacent movements that share a single pulse, or single movements that have their independent pulse<sup>66</sup>), this works as a disruptive factor, since no temporal unity of the whole work can be achieved. Hence, I favor Gould's idea of "one pulse that runs all the way throughout".<sup>67</sup>

Nevertheless, Franklin proposes very subtle temporal correlations between the Variations. Let us take Variations XVI–XVII (Gould's

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<sup>63</sup> Franklin 2004.

<sup>64</sup> See the first edition of the *Goldberg Variations* (Schmid 1741).

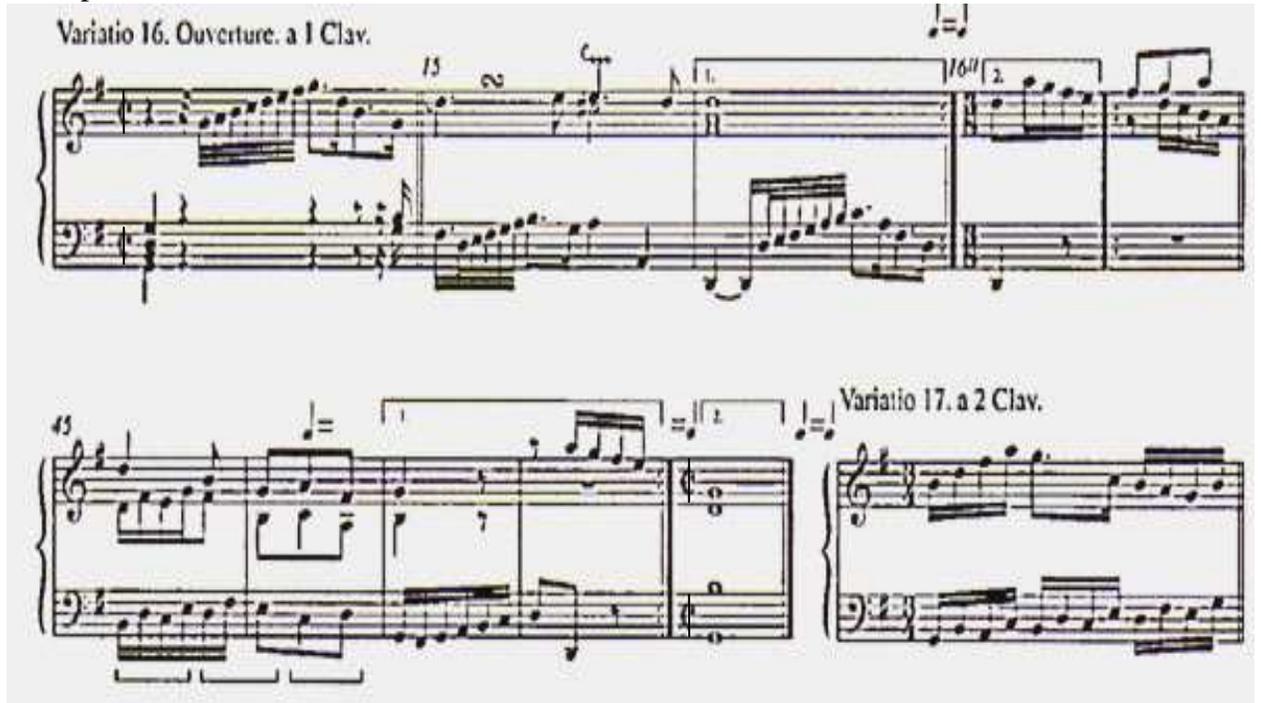
<sup>65</sup> Franklin 2004, 113.

<sup>66</sup> See Figure 6.2 Temporal Units of the Goldberg Variations in Franklin's paper (Franklin 2004, 109).

<sup>67</sup> Page & Gould 2001, 21.

correlation of which has been displayed previously, see Example No. 5), and study Franklin's approach to them:

Example No. 6.<sup>68</sup>



Franklin:

[...] the quaver pulse in the  $\text{C}$  section [the first section of Variation XVI] carries over into the  $\frac{3}{8}$  section, with no change in notational value, where it is grouped in threes rather than twos – in essence a large-scale hemiola in the form of a group of three crochets every two bars – and where the harmonic motion is more often per quaver than per dotted crochet. [...] In Var. 17, the beat is given yet another grouping, this time as three crochets per bar. The progression can be summarized as follows:  $\text{♩}$  in  $\text{C} = \text{♩}$  in  $\frac{3}{8}$  whose  $\text{♩} = \text{♩}$  in  $\frac{3}{4}$ .<sup>69</sup>

As can be seen in Example No. 6, the single quarter note pulse contradicts the local 3/8 meter of the second section of Variation XVI. At first sight

<sup>68</sup> Franklin 2004, 123, Example 6.4. Emphasis in the original.

<sup>69</sup> Ibid. 123–124.

such a “conflict” may appear artificial, but, paradoxically, this temporal correlation makes both sections of Variation XVI homogeneous, because the velocity of the eighth/sixteenth notes remains the same<sup>70</sup> (as I have previously pointed out, Gould’s correlation of the second section of Variation XVI to Variation XVII produces a similar effect, see Example No. 5). Whereas according to Gould’s suggestion the second section of Variation XVI “runs” faster than the first, for Gould correlates one quarter note of the first section to three eighth notes (=one bar) of the second section. Hence, we see that within the correlation to the single pulse in Variation XVI, Gould opts to emphasize the contrast between its two sections, while Franklin makes them more homogeneous. Both solutions are logical.

Following is another thought-provoking example of the temporal correlations, suggested by Franklin:

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<sup>70</sup> Considering the temporal correlation shown in Example No. 6, it seems more logical to me to speak of a quarter note pulse, instead of an eighth note pulse, as Franklin does (though, he summarizes the progression in question using the quarter notes). Obviously, if I discussed the eighth note pulse, in the present context it would make irrelevant the issue of the “conflict” between the single quarter note pulse and the 3/8 meter of the second section of Variation XVI.

Example No. 7.<sup>71</sup>

Variatio 2. a 1 Clav.

Variatio 3. Canone all' Unisuono. a 1 Clav.

Variatio 3 (cont.)

Variatio 4. a 1 Clav.

Variatio 4 (cont.)

Variatio 5. a 1 ô vero 2 Clav.

Having presented the above correlations of the adjacent Variations, let me return to the correlation of the Variations to the pulse of the Theme. In this context I should mention that the perception of Walter Schenkman<sup>72</sup> coincides with the Gouldian concept of “one pulse-rate, one constant rhythmic reference point”.<sup>73</sup> Schenkman claims:

[...] an initial commitment must be made in the *Aria*, and the *tempi* of the *Variations* that follow would be determined by reference to the pulse established at the outset. If the various metrical relationships can be worked out satisfactorily, an inexorable rightness will result as one variation succeeds

<sup>71</sup> Franklin 2004, 126, Example 6.6. Emphasis in the original.

<sup>72</sup> Schenkman 1975.

<sup>73</sup> Page & Gould 2001, 21.

another; and a more logical sense of continuity will have been achieved in the work as a whole.<sup>74</sup>

As an appendix to his article, Schenkman presents a table of “possible tempo relationships between the *Aria* and *Variations* in Bach’s *Goldberg Variations*”.<sup>75</sup> The term *possible* stresses once again the freedom to choose the tempi of the Variations within the correlation to the pulse of the Theme.

Obviously, the single pulse increases the sense of continuity (using Schenkman’s expression) in the *Goldberg Variations* immensely. However, upon which logical basis shall we establish the correlation of the Variations’ tempi to the pulse of the Theme? For instance, shall one quarter note of Variation I be equal to one quarter note of the Theme? (See Example No. 8.)

Example No. 8.

The image shows two musical staves. The top staff is labeled "Aria" and is in 2/4 time. A red bracket highlights a quarter note in the treble clef. The bottom staff is labeled "Variatio 1. a 1 Clav." and is in 3/4 time. A red bracket highlights two quarter notes in the treble clef. A vertical red line connects the two brackets, illustrating the comparison of pulse lengths between the two pieces.

Or, shall two quarter notes of Variation I be equal to one quarter note of the Theme? (See Example No. 9.)

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<sup>74</sup> Schenkman 1975, 8.

<sup>75</sup> Ibid. 9–10.

Example No. 9.

The image shows two systems of musical notation. The top system, labeled "Aria", is in 3/4 time and features a melodic line with a red box around a single quarter note. The bottom system, labeled "Variatio 1. a 1 Clav.", is in 3/4 time and features a more rhythmic line with a red box around three quarter notes. A vertical red line connects the two boxes, indicating a comparison of their durations.

Or, to demonstrate to the reader the third, “extreme” possibility, which I personally do not support: shall three quarter notes of Variation I (i.e. one bar) be equal to one quarter note of the Theme? (See Example No. 10.)

Example No. 10.

This image is identical to the one for Example No. 9, showing the same musical notation and red annotations for comparison.

The third correlation (three quarter notes of Variation I = one quarter note of the Theme) is realistic only in the case of a sufficiently slow pulse of the Theme, for, NB: *the key issue with regard to the correlation of the*

*Variations' tempi to the pulse of the Theme is the choice of the tempo (i.e. pulse-rate) for the Theme itself.*

All three correlations shown above (Examples No. 8, 9, 10) are based upon the Theme's pulse-rate, and therefore are in compliance with the principle of "one pulse-rate, one constant rhythmic reference point".<sup>76</sup> Hence, the question is: how should we choose among these solutions? Should we be guided solely by our perception of the character of each individual Variation and its "role" in the construction of the *Goldberg Variations'* overall dramatic arch (syntagmatic dimension)? That is Gould's principle, as I perceive it. Or, is there still another level of correlation, viz. a principle, which would render the choice of tempi more deliberate and logical? In my opinion the answer to this question is positive, and the introduction of such a principle constitutes the aim of my study. Prior to the explanation of this new level of temporal correlation, I would like to make yet another short observation: alongside the multiple symmetries of the two halves of the *Goldberg Variations* (which have been addressed in the previous section) even the pagination of the *Goldberg Variations'* first edition<sup>77</sup> is symmetrical – Variation XVI appears on the page 16 of the 32 pages (see Example No. 11).

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<sup>76</sup> Page & Gould 2001, 21.

<sup>77</sup> Balthasar Schmid 1741.

Example No. 11.<sup>78</sup>

The image shows a page of handwritten musical notation. At the top left, the number '16.' is circled in red. The score consists of several systems of two staves each. The first system is a complex piece of music with many notes and ornaments. The second system is labeled 'Variatio 16.' and 'a 1 Clav.' and is also circled in red. Below this is the title 'Overture' in a larger, decorative font. The rest of the page contains several more systems of musical notation, including various rhythmic patterns and ornaments.

Williams, who supposes that Bach controlled the pagination of his *Clavierübung* volumes, comments on this curious fact:

<sup>78</sup> Ibid. 16. Emphasis mine.

In considering the four *Clavierübung* volumes as a group, there emerges a (so to speak) worrying question. In the middle of each volume, and nowhere else but here, is a piece in the French style – the *stile francese* as the editors of the posthumous *Art of Fugue* called it – complete with the characteristic rhythms and rhetorical gestures of a French overture:

the 4th of 6 partitas in Part I	p. 33 out of 73 pages
the 2nd of 2 pieces in Part II	p. 14 out of 29
the 14th of 27 organ pieces in Part III	p. 39 out of 77
the 16th of 30 variations in 'Part IV'	p. 16 out of 32

[...] The symmetry is there to be seen on paper and is probably more theoretical than practical: it need not mean that if one timed a performance of all the music, those pieces would hit halfway point.<sup>79</sup>

With regard to the *Goldberg Variations*, I would like to question Williams's above assertion that the "symmetry is [...] more theoretical than practical".<sup>80</sup> Having analyzed the multiple symmetries between the two halves of the *Goldberg Variations* according to Katz's approach, I suggest rendering these symmetries into practice by equalizing the duration of the two halves of the work, as well as the smaller segments within these two halves (the explanation follows). Thus, the *structural* symmetries will become *temporal* (in terms of equality of duration).

Naturally, the pagination, or even the equal number of movements in the two halves of the work, are insufficient arguments for the justification of the *temporal parity* (i.e. equality of duration) of the *Goldberg Variations'* two halves. However, I believe that the examination of the smaller segments of the work, such as Sub-cycles 1 & 2, the *groups of three*, and above all the *pairs*, reveals that such temporal symmetry is by no means an artificial

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<sup>79</sup> Williams 2001, 30–31. Emphasis in the original.

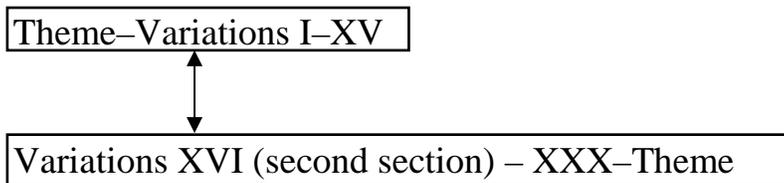
<sup>80</sup> Ibid.

invention! *Ad exemplum*: the Variations within the *pair* of Toccatas V & XVII share 1) an identical quantity of bars 2) identical meter and 3) a similar *density of texture*. I strongly believe that this example suggests that the tempi (i.e. pulse-rate) of Variations V & XVII should be equal, which will result in equality of duration of both Variations. (Consequently, as all the Variations' tempi are correlated to the pulse of the Theme, the identical tempi and duration of Variations V & XVII imply the identical temporal correlation of both Variations to the pulse of the Theme – see the diagram on p. 84.)

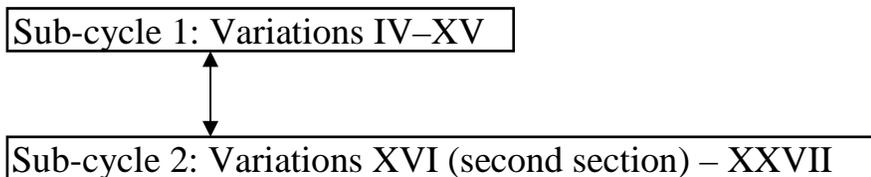
Not all the temporal correlations are as unproblematic as in the above-specified case. Nevertheless, I am convinced that *all* such correlations can be worked out in accordance with the inner logic of the *Goldberg Variations*, revealed by Katz's approach.

Hence, I suggest the following:

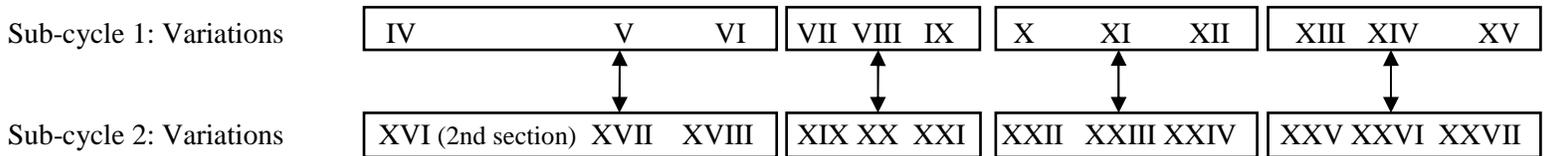
- a) The temporal parity of the two halves of the *Goldberg Variations*:



- b) The temporal parity of the two Sub-cycles:



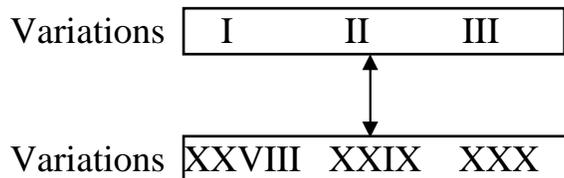
c) The temporal parity of the symmetrically correlated *groups of three* in Sub-cycles 1 & 2:



d) The temporal parity within the *majority* of the *pairs* in the *groups of three*: i.e. *Fughettas*: IV & XVI (second section), *Toccatas*: V & XVII, *Canons*: VI & XVIII etc.

Nota bene: the attainment of equality of duration within several *pairs* is problematic. The explanation is given below.

e) Temporal parity of the Introductory and Concluding *groups of three*:



According to my perception, the majority, but not all the *pairs* can be correlated temporally in such a way that the duration of both Variations constituting the *pair* would be equal (as in the above-discussed case of the *pair* V & XVII). The most eloquent example is the *pair* XV (*Canone alla Quinta*) & XXVII (*Canone alla Nona*). Nevertheless, with regard to this problem I must repeat the same argument I used when referring to the fact that not all the *pairs* reveal the motivic interdependences: the articulated regularity of motivic and temporal interdependences within all the *pairs* would be just *too simple*, if not to say trivial, for such a complex entity as the *Goldberg Variations*. My point is that the existing motivic and temporal

interdependences within the *pairs*, which will be tackled in the second part of this study, strongly suggest the presence of Bach's original plan regarding these phenomena.

If equality of duration could be attained within all the *pairs*, that would automatically result in the desired temporal parity of the two Sub-cycles. While the temporal parity within several *pairs* is problematic, I claim that the temporal parity of *all* the symmetrically correlated *groups of three* in the two Sub-cycles is perfectly attainable. I suggest that the temporal disparities of the "problematic" *pairs* can be "equilibrated" within the symmetrically correlated *groups of three*, which contain such *pairs*. The method of such *temporal equilibration* will be clarified. The temporal parity of the symmetrically correlated *groups of three* in the two Sub-cycles results in the temporal parity of the Sub-cycles. The Introductory and Concluding *groups of three* can be temporally correlated as well;<sup>81</sup> and the temporal correlation of the Theme & Theme at the end is evident. Consequently, the above temporal correlations imply the temporal parity of the two halves of the *Goldberg Variations*.

Thus, bearing in mind the fact that within several *pairs* the attainment of equality of duration is problematic, Example No. 4 can be considered as a graph of both structural and temporal symmetries.

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<sup>81</sup> As we have discussed, the quantity of bars in the Variations in the Introductory and Concluding *groups of three* is symmetrical (see Example No. 3), which is by no means a coincidence. At the same time these *groups of three* do not reveal the symmetry of the Variations' types (see Example No. 2), peculiar to the *groups of three* of Sub-cycles 1 & 2. However, it seems to me that Variations I & XXVIII can be considered as a *pair of Toccatas*. As concerns Variations II & XXIX and III & XXX, I propose to consider them as *pairs* for convenience, as this will facilitate the attainment of the temporal parity of the Introductory and Concluding groups.

In summary, we can conclude that the formula of the temporal correlations suggested in this study constitutes a “superposition” of two principles:

I. The correlation of the tempi of all the Variations to the pulse-rate of the Theme. (Since one quarter note of the Theme is the invariable reference unit, I will call it QT.)

II. The attainment of the temporal parity (equality of duration) of the *Goldberg Variations*' segments, listed on pp. 42–43: a, b, c, d (with a few exceptions), e.

I believe that such temporal interdependence of the above *Goldberg Variations*' segments (II.) constitutes a new correlation level, which renders the choice of tempi for the *Goldberg Variations*' movements more coherent and logical than it would be in the case of the syntagmatic correlation solely. For instance, within the correlation to the QT, the choice of tempo for Variation IV implies a tempo adjustment for the second section (*Fughetta*) of Variation XVI and vice versa; the same principle applies to Variations V and XVII, VI and XVIII etc.

In order to create a system of temporal correlations based upon the above formula, it is crucial to remember that since the architecture of the Theme–Variations correlations is established by the pulse of the Theme, *as soon as one changes the Theme's tempo, the entire design of its temporal correlations with the Variations changes as well.* The establishment of tempo, as has been discussed previously, is a matter of choice. When analyzing different interpretations of the *Goldberg Variations*, we encounter

an impressive diversity of approaches. Here are a few examples of tempo, chosen for the Theme:<sup>82</sup>

Glenn Gould:

Recording 1955: QT = approx. 63 M.M.

Recording 1981: QT = approx. 30–35 M.M.

Wilhelm Kempff: QT = approx. 80–84 M.M.

Wanda Landowska: QT = approx. 46–50 M.M.

Maria Yudina: QT = approx. 50–52 M.M.

Ralph Kirkpatrick: QT = approx. 50–54 M.M.

Schenkman suggests QT = 60 M.M.<sup>83</sup>

Regarding the personal perception of the author of this study, the option of a slow tempo for the Theme (close to that of the Gouldian 1981 recording) seems preferable. Obviously, it is a subjective decision.

Hence, let me establish the following pulse of the Theme, which will pass through the entire work: **QT = 40–44 M.M.** Naturally, a faster pulse-rate of the Theme (e.g. QT = 60 M.M.) would imply that the correlations of the Variations' tempi to the QT would be very different from those I propose in the ensuing Part II of this study. Nevertheless, the choice of the Theme's pulse-rate does not change the correlations' *formula* (see p. 45: I. & II.), which remains invariable!

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<sup>82</sup> For detailed information about the recordings listed on this page, please see the Reference list: Audio and video recordings of the *Goldberg Variations*.

<sup>83</sup> Schenkman 1975, 9.

## PART II

### TEMPORAL AND MOTIVIC CORRELATIONS

#### 1. The correlations

Following Example No. 4, let us compare the two Sub-cycles, drawing parallels between the Variations within each *pair*, and investigating 1) the temporal correlations of the Variations to the pulse of the Theme: QT (quarter note of the Theme), and 2) the temporal correlation between the Variations within each *pair* (to be shown with a dashed line); the aim is to reach equality of duration of the Variations within the *pairs*. The Introductory and Concluding *groups of three* will be examined subsequently.

The following pattern will be used for the comparison of the Variations within the *pairs*:

- Meter
- Quantity of bars (the repeats are not counted)
- Temporal correlation
- Motivic correlation

In case the Variations within a *pair* do not reveal motivic ties, the category *Motivic correlation* will be skipped.

Since the comparison of the Variations within the *pairs* of Sub-cycles 1 & 2 commences with the *pair* of *Fughettas* IV & XVI (second section), prior to addressing this *pair*, I must tackle the first section of Variation XVI, which would otherwise be left out.

## Variation XVI: first section (*Ouverture*)

Meter: *alla breve*

Bars: 16<sup>84</sup>

Temporal correlation:

Previously I have pointed out that – according to my perception – the first section of Variation XVI (*Ouverture*) does not participate in the symmetries of the *Goldberg Variations*' two halves (see pp. 22–24, as well as Example No. 4). Nevertheless, as the pulse of the Theme (QT) goes throughout the whole work, this section should be temporally correlated to the QT. I propose the following correlation: one half note = QT.

Example No. 12.



The correlation – one quarter note = QT – can be considered as well, but as I have chosen a pulse-rate for the Theme that is quite slow (QT = 40–44 M.M.), such a correlation does not seem suitable to me, because it deprives the first section of Variation XVI of the crucially important *alla breve* feeling. Consequently, the correlation – one quarter note = QT – can be considered should the Theme have a faster pulse.

## Variations IV & XVI: second section

### *Fughettas*

Meter: 3/8 & 3/8

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<sup>84</sup> See the footnote No. 50.

Bars: 32 & 32<sup>85</sup>

Temporal correlation:

The Variations of this *pair* share a common meter and an identical quantity of bars. Though the density of texture in Variation IV and in the second section of Variation XVI differs, I believe these movements can share an identical correlation to the QT: four eighth notes = QT.

Example No. 13.

The image shows two musical staves. The top staff is titled "Variatio 4. a 1 Clav." and the bottom staff is titled "Variation XVI: second section." Both are in 3/8 time. Red boxes on the top staff mark a "QT" (quarter tempo) interval of four eighth notes. A vertical dashed red line extends from the start of this interval down to the second staff, where another red box marks a "QT" interval of four eighth notes. This visualizes the claim that the tempo of these two variations is related to the quarter tempo by a factor of four eighth notes.

Such a correlation equalizes the duration of these *Fughettas*.<sup>86</sup>

As we can see, the QT pulse contradicts the 3/8 meter in both cases. Obviously, I propose this correlation because, to my mind, it provides the tempi, which – referred to the QT = 40–44 M.M. – correspond well to the characters of both Variations (for instance, the correlation – three eighth notes = QT – seems too slow for me). Yet it is only a part of the justification of this correlation. When discussing the *Goldberg Variations*' *syntagmatic dimention* (pp. 28–30), I have specified that – according to my perception –

<sup>85</sup> See the footnote No. 50.

<sup>86</sup> For the *very* accurate readers I have to point out that due to the last bar (*alla breve*) of the second section of Variation XVI (*Fughetta*) there will be 1.25 QT more in the *Fughetta* in question than in Variation IV. Consequently, the duration of these *Fughettas* will differ slightly; but let us beware of such schizophrenic pedantry!

Variations I–II–III–IV–V form a group, in which the accretion of tension leads to the *intermediate climax* in Variation V. In order to make this accumulation of energy gradual, I would like to achieve *homogeneity of movement* within these five Variations. Such homogeneity can be attained by rendering equal the pace of the eighth/sixteenth notes in all five Variations:

Example No. 14.

The image displays four musical staves, each representing a variation. A vertical red line is drawn through the center of all staves, with a red arrow pointing downwards from the bottom of the line. Red boxes labeled 'QT' are placed on the first staff of each variation, highlighting specific eighth and sixteenth notes. The variations are:

- Variatio 1. a 1 Clav. (2/4 time)
- Variatio 2. a 1 Clav. (2/4 time)
- Variatio 3. Canone all' Unisuono. a 1 Clav. (12/8 time)
- Variatio 4. a 1 Clav. (3/8 time)

Variatio 5. a 1 ô vero 2 Clav.

The correlation of Variations I, II, III and V to the QT will be addressed subsequently. Nevertheless, when discussing the temporal correlation of Variation IV, I needed to display the whole progression of Variations I–V, in order to show that the correlation – four eighth notes = QT – helps to retain the above-mentioned homogeneity of movement within these five Variations.

A similar argument is valid for the correlation to the QT of the second section of Variation XVI. The identical correlation of both the first and second sections of this Variation to the QT functions as a unifying factor:

Example No. 15.

Variatio 16. Ouverture. a 1 Clav.

Variation XVI: second section.

I realize that the temporal correlations in which the QT pulse contradicts the local meters of the Variations may appear somewhat tricky to execute. Let us take the *pair* IV & XVI (second section) as an example. In order to

render the correlation – four eighth notes = QT – simple, I advise disregarding the bar-lines for a moment, and imagine only the tempo of the eighth notes in both *Fughettas*, and then correlate the eighth notes to the QT. This method can be applied to all such “problematic” temporal correlations.

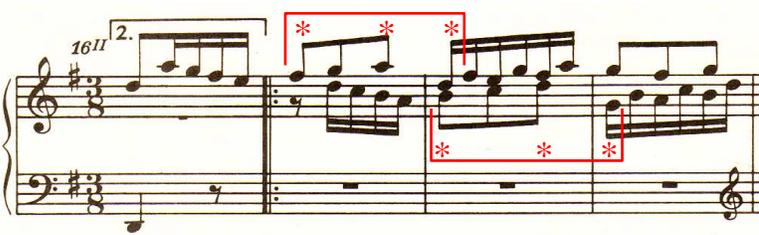
Motivic correlation:

Both *Fughettas* are built upon a similar broken chord motive.<sup>87</sup>

Example No. 16.



Variation XVI: second section.



## Variations V & XVII

### *Toccatas*

Meter: 3/4 & 3/4

Bars: 32 & 32

Temporal correlation:

Two quarter notes = QT – in both Variations.

<sup>87</sup> I am aware that when the bass line is considered, it would be logical to draw parallels between the *second half* of Variation IV and the second section of Variation XVI. Nevertheless, I deliberately permit myself the alogism of aligning the first half of Variation IV and the second section of Variation XVI, as this comparison displays in a clearer way the gestural affinity of these movements.

Example No. 17.

Variatio 5. a 1 ô vero 2 Clav.

Variatio 17. a 2 Clav.

Nota bene: the correlation – two quarter notes = QT – applies to all the *toccat*a-type Variations. Hence, the duration of all the *Toccat*as is identical.

## Variations VI & XVIII

### *Canone alla Seconda & Canone alla Sesta*

Meter: 3/8 & *alla breve*

Bars: 32 & 32

Temporal correlation:

*Canone alla Seconda* and *Canone alla Sesta* bear different time signatures: 3/8 and *alla breve*. However, the quantity of bars in both *Canons* is identical, and it seems logical to achieve the parity of their duration by equaling one bar of each *Canon* to the QT.

Example No. 18.

Variatio 6. Canone alla Seconda. a 1 Clav.

Variatio 18. Canone alla Sexta. a 1 Clav.

QT

Motivic correlation:

Example No. 19a.

Variatio 6. Canone alla Seconda.

Variatio 18. Canone alla Sexta.

Example No. 19b.

Variation VI: bars 17–18.

Variation XVIII: bars 17–18.

**Variations VII & XIX**  
*Gigues*<sup>88</sup>

Meter: 6/8 & 3/8

Bars: 32 & 32

Temporal correlation:

Variation VII:

Four eighth notes = QT

Example No. 20a.

Variatio 7. a 1 ô vero 2 Clav.  
al tempo di Giga

Variation XIX:

Two eighth notes = QT (NB: the tempi of the Theme and Variation XIX are identical.)

Example No. 20b.

Variatio 19. a 1 Clav.

The above correlations to the QT equalize the duration of these Variations.

<sup>88</sup> Previously I have pointed out that Katz's classification of Variation XIX as a *Gigue* does not seem quite persuasive to me (see p. 19).

Motivic correlation:

Example No. 21.<sup>89</sup>

Variatio 7. a 1<sup>o</sup> vero 2 Clav.  
al tempo di Giga

6

11

17

22

27

<sup>89</sup> Since due to technical reasons it was impossible to align Variations VII and XIX, Variation XIX is placed on p. 57.

Variatio 19. a 1 Clav.

The image displays a musical score for a single-clavier variation in 3/8 time. The score is organized into six systems, each consisting of a treble and bass staff. Red annotations are used throughout to highlight specific musical features:

- System 1:** Red boxes enclose the first two measures of both staves. A red arrow points from the end of the first measure in the bass staff to the beginning of the second measure in the treble staff.
- System 2:** A red arrow points from the end of the first measure in the treble staff to the beginning of the second measure in the bass staff.
- System 3:** Red boxes enclose the first two measures of both staves. A red arrow points from the end of the first measure in the bass staff to the beginning of the second measure in the treble staff.
- System 4:** A red box encloses the first two measures of both staves. A red arrow points from the end of the first measure in the bass staff to the beginning of the second measure in the treble staff.
- System 5:** A red arrow points from the end of the first measure in the treble staff to the beginning of the second measure in the bass staff.
- System 6:** Red boxes enclose the first two measures of both staves.

In this context I would like to permit myself yet another subjective comment from the performer's perspective. Considering the remarkable

motivic interrelations within this *pair*, if a performer observes the aforementioned correlations to the QT and plays Variation XIX *piano*, an interesting effect can be created: after a long “journey” from Variation VII, Variation XIX sounds like its remote, nostalgic reminiscence.

## Variations VIII & XX

### *Toccatas*

Meter: 3/4 & 3/4

Bars: 32 & 32

Temporal correlation:

Two quarter notes = QT – in both Variations (as in all the other *toccat*a-type Variations).

Example No. 22.

The image displays two musical staves, each representing a variation in a 3/4 time signature. The top staff is titled "Variatio 8. a 2 Clav." and the bottom staff is titled "Variatio 20. a 2 Clav.". Both staves feature a treble and bass clef. Red boxes labeled "QT" are drawn under the first two quarter notes of the bass line in each variation. A vertical dashed red line is positioned between the two staves, aligning with the end of the first QT in Variation 8 and the end of the first QT in Variation 20. This visualizes the temporal correlation between the two variations, showing that the same rhythmic unit (two quarter notes) is used in both.

Motivic correlation:

The motivic ties are as apparent as they are in the previous *pair* of *Gigues*.

Example No. 23.<sup>90</sup>

Variatio 8. a 2 Clav.

The musical score is for a two-clavier variation in G major, 3/4 time. It consists of six systems of two staves each. The first system (measures 1-4) shows a complex rhythmic pattern in the right hand and a simpler accompaniment in the left hand. The second system (measures 5-8) continues this pattern. The third system (measures 9-12) features red circles around notes in both hands, with lines connecting them to show cross-staff relationships. The fourth system (measures 13-16) shows a more active right hand. The fifth system (measures 17-20) has red boxes around specific notes in the left hand. The sixth system (measures 21-24) concludes the variation with a final cadence. Red arrows at the beginning of measures 1, 5, and 21 indicate the start of new phrases or sections.

<sup>90</sup> As in the previous case of the *pair* VII & XIX, due to technical reasons it was impossible to align Variations VIII & XX; Variation XX is placed on pp. 60–61.

Variatio 20. a 2 Clav.

The musical score is written in G major (one sharp) and 3/4 time. It consists of six systems of two staves each. Red annotations are used throughout to highlight specific musical features:

- System 1:** Red boxes and arrows connect notes between the two staves, showing cross-staff relationships.
- System 2:** Red boxes and arrows continue the cross-staff connections.
- System 3:** Red boxes and arrows highlight specific notes and their connections. A red circle highlights a note in the right hand.
- System 4:** Red circles highlight notes in both hands, with arrows indicating their relationship. A triplet of eighth notes is marked with a '3'.
- System 5:** A red wavy line above a note in the right hand indicates a trill.
- System 6:** A red wavy line above a note in the right hand indicates a trill.

17

20

22

## Variations IX & XXI

### *Canone alla Terza & Canone alla Settima*

Meter: 4/4 & 4/4

Bars: 16 & 16

Temporal correlation:

One quarter note = QT – in both Variations.

Example No. 24.

Variatio 9. Canone alla Terza. a 1 Cl

QT

Variatio 21. Canone alla Settima. a 1 Clav.

Such correlation equalizes the duration of these Variations.

Motivic correlation:

Example No. 25a.

Variatio 9. Canone alla Terza. a 1 Cl

Variatio 21. Canone alla Settima. a 1 Clav.

Example No. 25b.

Variation IX: bar 9.

Variation XXI: bar 9.

## Variations X & XXII

### *Fughettas*

Meter: *alla breve* & *alla breve*

Bars: 32 & 32

Temporal correlation:

One bar = QT – in both Variations.

Example No. 26.

The image displays two musical staves. The top staff is titled "Variatio 10. Fugetta. a 1 Clav." and the bottom staff is titled "Variatio 22. a 1 Clav. alla breve". Both staves are in G major and alla breve time. A red box labeled "QT" is drawn under the first bar of each staff. A vertical dashed red line extends from the top of the "QT" box on the first staff down to the "QT" box on the second staff, indicating that the duration of one bar in both variations is equal to the QT (Quarter Time).

Such a correlation equalizes the duration of these Variations.

Motivic correlation:

Variations X & XXII are unified by such features as the *stile antico* and the feeling of *alla breve*. Jacob refers to these movements' common "charakteristische Wendungen & stilistische Zugehörigkeit" (characteristic turns & stylistic affinity).<sup>91</sup>

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<sup>91</sup> Jacob 1997, 264–265.

Example No. 27.

The image displays three staves of musical notation. The top staff is for 'Variatio 10. Fugetta. a 1 Clav.' and the middle staff is for 'Variatio 22. a 1 Clav. alla breve'. The bottom staff is a continuation of the middle staff. Red boxes highlight specific rhythmic patterns in the bass clef of each variation. A red line connects the boxes, showing that the pattern in Variation 22 is a transformation of the pattern in Variation 10. The patterns consist of groups of sixteenth notes, with the first group in Variation 10 being a triplet and the first group in Variation 22 being a quadruplet.

## Variations XI & XXIII

### *Toccatas*

Meter: 12/16 & 3/4

Bars: 32 & 32

Temporal correlation:

The metric structure of these two Variations is not the same. In order to equalize their duration, it suffices to remember the simple fact that three quarter notes contain twelve sixteenth notes, and although in Variation XI the sixteenth notes are written in triplets, their tempo can equal the tempo of the sixteenth notes of Variation XXIII, written in quadruplets. Thus:

Variation XI:

Eight sixteenth notes = QT<sup>92</sup> (as in all the other *toccata*-type Variations).

Variation XXIII:

Two quarter notes = QT (as in all the other *toccata*-type Variations).

Example No. 28.

### Variatio 11. a 2 Clav.

### Variatio 23. a 2 Clav.

<sup>92</sup> I am aware that at the first sight such a correlation may seem horrendously complex, but in reality it is most simple! In order to implement it we should either use the method explained on p. 52, or just correlate one eighth note of Variation X (the correlation of which to the pulse of the Theme is one bar [*alla breve*] = QT) to one sixteenth note of Variation XI. Note that  $\text{♩} = \text{♩}$  correlation of Variations X and XI is *perceivable*, since it conveys homogeneity of movement to these Variations.

Motivic correlation:

Example No. 29.

Variatio 11. a 2 Clav.

The image displays a musical score for 'Variatio 11. a 2 Clav.' in 12/8 time, featuring two systems of music. The first system (measures 1-4) is annotated with red brackets and labels 'A' and 'B' to indicate motivic correlation. Bracket 'A' spans the first three measures of both staves, while bracket 'B' spans the first three measures of the bass staff. The second system (measures 5-16) continues the piece, with bracket 'A' marking measures 5, 7, and 9 in the bass staff. The third system (measures 9-12) and fourth system (measures 13-16) show further development of the motifs. The fifth system (measures 17-20) features red boxes highlighting specific motifs in both staves, which correspond to the motifs marked 'A' and 'B' in the first system, demonstrating their recurrence and transformation throughout the piece.

Variatio 23. a 2 Clav.

The image displays a musical score for a two-clavier variation. The score is divided into five systems, each consisting of a grand staff (treble and bass clefs). The first system is annotated with red brackets and arrows labeled 'A' and 'B', indicating specific musical phrases. The second system also features these annotations. The third system begins with a measure number '7' above the treble clef. The fourth system begins with a measure number '10' above the treble clef. The fifth system begins with a measure number '13' above the treble clef. The music is written in a key signature of one sharp (F#) and a 3/4 time signature. The notation includes various rhythmic values, accidentals, and articulation marks such as slurs and accents.



## Variations XII & XXIV

### *Canone alla Quarta & Canone all' Ottava*

Meter: 3/4 & 9/8

Bars: 32 & 32

Temporal correlation:

In order to equalize the duration of these *Canons*, we should think of the 9/8 of the *Canone all' Ottava* as if it were 3/4.

Variation XII:

Two quarter notes = QT

Variation XXIV:

Six eighth notes = QT

Example No. 30.

Variatio 12. Canone alla Quarta. *a 1 Clav.*

Variatio 24. Canone all' Ottava. *a 1 Clav.*

Motivic correlation:

Example No. 31.

Variatio 12. Canone alla Quarta. *a 1 Clav.*

Variatio 24. Canone all' Ottava. *a 1 Clav.*

**Variations XIII & XXV**

*Arias*

Meter: 3/4 & 3/4

Bars: 32 & 32

Temporal correlation:

Thus far we have attained equality of duration of the Variations within all the *pairs*. Now we are entering into the symmetrically correlated *groups of three*, which contain more “problematic” *pairs*. For the *pair XIII & XXV I* propose the following temporal correlation:

Variation XIII:

One quarter note = QT

Variation XXV:

One eighth note = QT

Example No. 32.

The image shows two musical staves. The top staff is titled "Variatio 13. a 2 Clav." and is in 3/4 time. The bottom staff is titled "Variatio 25. a 2 Clav." and is in 3/8 time, with the tempo marking "adagio" above it. Red boxes and lines are drawn on the staves to indicate temporal correlations. In Variation 13, a quarter note in the bass line is boxed and labeled "QT". In Variation 25, an eighth note in the bass line is boxed and labeled "QT". A vertical dashed line connects the two "QT" labels, indicating that the duration of the quarter note in Variation 13 is equal to the duration of the eighth note in Variation 25.

Theoretically, parity of duration can be achieved by equaling one quarter note of each of these two Variations to the QT, but in this case such a solution does not seem persuasive! Bach’s indication *Adagio*, exceptionally rich content<sup>93</sup> and intense development in Variation XXV – the dramatic peak of the entire opus – require a slower tempo: one eighth note = QT,<sup>94</sup>

<sup>93</sup> In conversation with Tim Page, Glenn Gould remarks on Variation XXV: “I don’t think there’s been a richer lode of enharmonic relationships anyplace between Gesualdo and Wagner.” (Page & Gould 2001, 24.)

<sup>94</sup> Schenkman (1975, 10) suggests the same correlation; however, as I have mentioned, Schenkman’s pulse-rate of the Theme (QT = 60 M.M.) is considerably faster than mine (QT = 40–44 M.M.).

which leads to a divergence of duration of the Variations within this *pair*. The solution for this inconsistency will be explained, when we face the same type of problem in the *pair* XV & XXVII.

Motivic correlation:

Example No. 33.

The image displays two musical excerpts from a piece, likely a toccata, illustrating motivic correlation. The first excerpt, titled "Variatio 13. a 2 Clav.", is in 3/4 time and features a complex, rhythmic melody in the right hand with many sixteenth notes, while the left hand provides a simpler accompaniment. The second excerpt, titled "Variatio 25. a 2 Clav. adagio", is in 3/4 time and features a more melodic and slower-moving right hand with fewer notes, and a more active left hand. Red arrows are drawn across both excerpts, highlighting specific rhythmic and melodic motifs that appear in both variations, demonstrating their correlation despite the differences in tempo and texture.

## Variations XIV & XXVI

### *Toccatas*

Meter 3/4 & 18/16 – 3/4

Bars: 32 & 32

Temporal correlation:

Two quarter notes = QT – in both Variations (as in all the other *toccatas*-type Variations).

Example No. 34.

Variatio 14. a 2 Clav.

Variatio 26. a 2 Clav.

Motivic correlation:

Though I do not see any *direct* motivic ties between these movements, I agree with Jacob, who notes these Variations’ “charakteristische Wendungen & stilistische Zugehörigkeit” (characteristic turns & stylistic affinity).<sup>95</sup>

## Variations XV & XXVII

### *Canone alla Quinta & Canone alla Nona*

Meter 2/4 & 6/8

Bars: 32 & 32

Temporal correlation:

When studying the temporal proportions of this *pair*, we face a similar sort of challenge, as in the *pair* XIII & XXV. *Canone alla Quinta* (the first of the three G minor Variations) bears great importance in the syntagmatic architecture of the *Goldberg Variations*. Its grave, somber mood and slow

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<sup>95</sup> Jacob 1997, 265.

pace (Bach indicates *Andante*<sup>96</sup>) represent an immense contrast to the light, airy velocity of the *Canone alla Nona*, which sounds more transparent than all the other *Canons*, due to the absence of the accompanying bass. For this reason, I propose the following temporal correlation of Variation XV: one eighth note = QT.<sup>97</sup>

Example No. 35a.

Variatio 15. Canone alla Quinta. a 1 Clav.  
andante

I believe that in this tempo a performer can better reveal the enormous inner tension within this Variation, which concludes the first half of the *Goldberg Variations*.

On the contrary, I propose tempo *vivace* for the *Canone alla Nona*: one bar = QT.

Example No. 35b.

Variatio 27. Canone alla Nona. a 2 Clav.

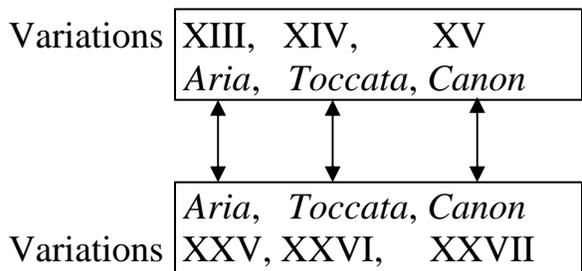
When analyzing the context in which *Canone alla Nona* appears, we notice that starting with the previous *toccat*a-type Variation XXVI Bach builds up a remarkable dramatic line, which reaches its peak in the *Quodlibet* (this

<sup>96</sup> Franklin points out that the notation of Variation XV is “exceptional, including demisemiquaver (rather than semiquaver) motion and an *andante* marking that denote a crochet beat slower than the one usually associated with the signature.” (Franklin 2004, 111.)

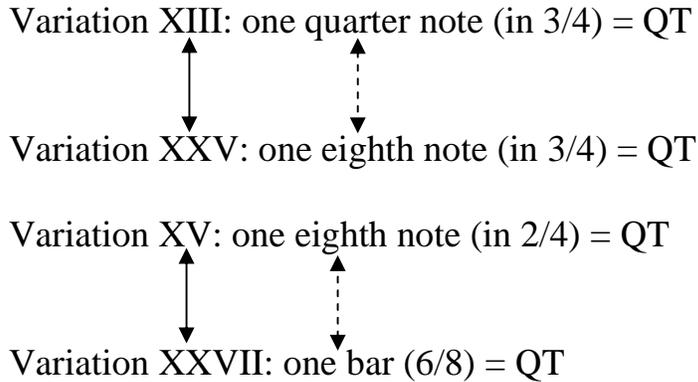
<sup>97</sup> Schenkman (1975, 9) proposes this correlation as well, but, as discussed previously, his pulse-rate of the Theme (QT = 60 M.M.) is much faster than mine (QT = 40–44 M.M.).

issue has already been mentioned with regard to the syntagmatic dimension of the *Goldberg Variations*, see p. 29). In order not to lose the energy accumulated in Variation XXVI, I suggest the aforementioned *vivace* for the following *Canone alla Nona*, which means that the velocity of the sixteenth notes of Variation XXVI (in 18/16) and the sixteenth notes of Variation XXVII becomes identical. This homogeneity of movement seems important to me, because when passing to the next Variation (XXVIII) with its thirty-second notes, there is the effect of a gradual acceleration of velocity, which renders more coherent the progress towards the culmination in the *Quodlibet*.

Consequently, there is a temporal disparity between Variations XV and XXVII. When explaining the system of temporal correlations proposed in this study, I have pointed out that whereas the temporal parity within several *pairs* appears problematic, such parity of all the symmetrically correlated *groups of three* is attainable. My point is to equilibrate the temporal disparities of the “problematic” *pairs within* the symmetrically correlated *groups of three* to which such *pairs* belong. Let me clarify this method of *temporal equilibration* by equalizing the duration of the following two symmetrically correlated *groups of three*:



As we have already studied, the duration of the Variations within the *pair* XIV & XXVI is equal, but in the *pairs* XIII & XXV and XV & XXVII there is a temporal disparity:



The duration of Variation XIII is twice as short as the duration of Variation XXV, whereas the duration of Variation XV is four times longer than the duration of Variation XXVII! Nevertheless, if we consider these Variations within the frame of their *groups of three*, and adhere to the abovementioned temporal correlations, the temporal proportions of the *groups of three* XIII, XIV, XV & XXV, XXVI, XXVII will be equal, since we have equilibrated the disparities:

Example No. 36.

Variation XIII

32 (bars) x 3 (quarter notes, since the meter of Variation XIII is 3/4) = 96 (quantity of quarter notes in this Variation). Since the temporal correlation of Variation XIII with the pulse of the Theme is one quarter note = QT, this Variation contains **96 QT**.

Variation XIV

32 (bars) x 3 (quarter notes, since the meter of Variation XIV is 3/4) = 96 (quantity of the quarter notes in this Variation).



96 (quarter notes) : 2 (quarter notes, since the temporal correlation with the pulse of the Theme is two quarter notes = QT) = **48 QT** in Variation XIV.

Variation XV

32 (bars) x 4 (eighth notes, since the meter of Variation XV is 2/4 [= 4/8] and the temporal correlation with the pulse of the Theme is one eighth note = QT) = **128 QT** in Variation XV.

**96 + 48 + 128 = 272 QT** in the present *group of three*.



Variation XXV

32 (bars) x 6 (eighth notes, since the meter of Variation XXV is 3/4 [= six eighth notes] and the temporal correlation with the pulse of the Theme is one eighth note = QT) = **192 QT** in Variation XXV.

Variation XXVI

**48 QT** (see the calculation regarding Variation XIV).

Variation XXVII

Since the bar quantity of Variation XXVII is 32 and its temporal correlation with the pulse of the Theme is one bar = QT, Variation XXVII contains **32 QT**.

**192 + 48 + 32 = 272 QT** in the present *group of three*.

Thus, the duration of these two symmetrically correlated *groups of three* is equal.

I should add that I do not believe that in the above cases of the *pairs* XIII & XXV and XV & XXVII my personal esthetic preferences, with regard to the choice of tempi for the Variations, overrule the general principle of equality of duration of the Variations within the *pairs*. As I have pointed out, *theoretically* the temporal correlations of Variations XIII & XXV to the QT can be identical (one quarter note = QT), which leads to the equality of their duration. However, why does Bach indicate *Adagio* for Variation XXV only, and not for Variation XIII? Does it not suggest that Variation XXV, so to speak, “weighs” more than Variation XIII?

As concerns the *pair* XV & XXVII the situation is even clearer than in the previous case. Without mentioning Bach’s *Andante* indication for Variation XV and the absence of a tempo marking for Variation XXVII, it suffices to survey these two Variations with the naked eye in order to understand their temporal disparity.

### **Introductory and Concluding *groups of three***

#### **I, II, III      &    XXVIII, XXIX, XXX**

Although, in terms of the sequence of Variations’ types, these two *groups of three* do not follow the symmetrical patterns of the *groups of three* in Sub-cycles 1 & 2 (see Example No. 2), let us bear in mind 1) the symmetrical location of the Introductory & Concluding groups at the “dawn” and at the “dusk” of the cycle, and 2) the symmetrical quantity of bars of the Variations in these *groups of three* (see Example No. 3). Consequently, we can see that the Introductory & Concluding groups *are* symmetrically

correlated, but not as powerfully as the symmetrically correlated *groups of three* in Sub-cycles 1 & 2.

When analyzing the structure of the Introductory *group of three*, with a certain degree of generalization I would classify Variation I as a *toccata*-type movement, and Variation II as a “*quasi-canon*”. Hence, the Introductory group has the following design:

Variation I – *Toccata*

Variation II – “*Quasi-canon*”

Variation III – *Canone all’ Unisono*

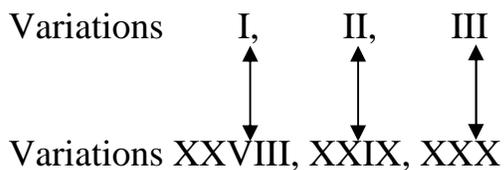
As concerns the Concluding *group of three*, I agree with Katz’s classification of Variations XXVIII and XXIX as *Toccatas*:<sup>98</sup>

Variation XXVIII – *Toccata*

Variation XXIX – *Toccata*

Variation XXX – *Quodlibet* (instead of an anticipated *Canon*)

In order to facilitate the attainment of equality of duration of the Introductory & Concluding *groups of three*, I propose to correlate these groups according to the *pair* principle used previously:



### **Variations I & XXVIII**

*Toccatas*

Meter: 3/4 & 3/4

Bars: 32 & 32

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<sup>98</sup> Katz 1985, 61.

Temporal correlation:

Two quarter notes = QT – in both Variations (as in all the other *toccata*-type Variations). (48 QT in each Variation.)

Example No. 37.

The image shows two musical staves. The top staff is titled "Variatio 1. a 1 Clav." and the bottom staff is titled "Variatio 28. a 2 Clav.". Both are in 3/4 time. Red brackets in both staves indicate a "QT" (two quarter notes) interval. A vertical dashed red line connects the two staves, showing that the QT interval in Variation 28 is aligned with the QT interval in Variation 1.

As we can see, this *pair* does not pose any problems in terms of temporal correlation. The following two *pairs* (Variations II & XXIX and III & XXX) are not that straightforward in this respect.

## Variations II & XXIX

### *“Quasi-canon” & Toccata*

Meter: 2/4 & 3/4

Bars: 32 & 32

Temporal correlation:

It seems to me that the best temporal correlation of both Variations with the pulse of the Theme – at the rate of 40–44 M.M. – is identical with the previous *pair* (Variations I & XXVIII): two quarter notes (in the case of Variation II – one bar) = QT.

Example No. 38.

The image shows two musical staves. The top staff is titled "Variatio 2. a 1 Clav." and is in 2/4 time. It features a treble clef and a key signature of one sharp (F#). A red box labeled "QT" spans the first two measures. The bottom staff is titled "Variatio 29. a 1 ô vero 2 Clav." and is in 2/4 time. It features a bass clef and a key signature of one sharp (F#). A red box labeled "QT" spans the first two measures. A vertical dashed red line is drawn between the two staves, indicating a temporal disparity between the two variations.

The problem arises from the fact that the time signatures of Variations II & XXIX differ. Adhering to the formula – two quarter notes = QT – results in the temporal disparity: Variation II contains **32 QT** and Variation XXIX **48 QT**.<sup>99</sup> In order to solve the temporal dilemma we must analyze the last *pair*:

### Variations III & XXX

#### *Canone all' Unisono & Quodlibet*

Meter: 12/8 & 4/4

Bars: 16 & 16

Temporal correlation:

Sharing an identical quantity of bars, *Canone all'Unisono* and the *Quodlibet* differ in their time signatures and, more importantly, in their structures: the texture of the *Canone all'Unisono* is more intensive and dense than the texture of the *Quodlibet* (even though it has four parts). I believe that the appropriate correlation between the *Quodlibet* and the pulse of the Theme at the rate of 40–44 M.M. is one half note = QT. In order to attain equality of

<sup>99</sup> The calculations are made according to the same pattern as that for the *groups of three* XIII, XIV, XV & XXV, XXVI, XXVII – see Example No. 36.

duration of these two Variations, one half note = QT in the *Quodlibet* implies six eighth notes = QT in the *Canone all'Unisono*, which, to my mind, is much too fast for the most complex of all the *Canons* in the *Goldberg Variations*. I must remind the reader that these correlations are entirely dependent on the tempo of the Theme. For instance, if the QT was 60 M.M., the attainment of equality of duration of Variations III & XXX would not pose a problem and could be achieved by the following correlations:

Variation III:

Three eighth notes = QT

Variation XXX:

One quarter note = QT

Let me recall, however, that since the intensity of the ties between the Introductory & Concluding *groups of three* is weaker than in the symmetrically correlated *groups of three* in Sub-cycles 1 & 2, I have proposed to correlate the Introductory & Concluding groups in accordance with the *pair principle for convenience*, in order to render easier the attainment of equality of duration of these *groups of three*. Consequently, in the case of Variations II & XXIX and III & XXX we should not “fear” deviating from the principle of equality of duration of the Variations within the *pairs* (even though such equality within the *pairs* II & XXIX and III & XXX is not impossible), because the interconnections of these Variations are much less obvious than that of, *ad exemplum*, the Variations within the *pairs* VII & XIX or XI & XXIII. Hence, I believe it is logically justified to use once again the method of temporal equilibration, and balance the temporal disparities of the *pairs* II & XXIX and III & XXX, considering them as parts

of their *groups of three* (as we did in the *groups of three* XIII, XIV, XV & XXV, XXVI, XXVII).

For the *pair* III & XXX I suggest the following temporal correlation:

Variation III:

Four eighth notes = QT

Variation XXX:

One half note = QT

Example No. 39.

Variatio 3. Canone all' Unisuono. a 1 Clav.

Variatio 30. Quodlibet. a 1 Clav.

Variation III contains **48 QT** and Variation XXX **32 QT**.

Thus, the correlation of all the Variations of the Introductory & Concluding *groups of three* to the pulse of the Theme is one half note (two quarter notes, four eighth notes) = QT,<sup>100</sup> which equilibrates the temporal

<sup>100</sup> At the earlier stages of this study I proposed the idea of a dramatic line of Variations I–II–III–IV–V. Wishing to achieve homogeneity of movement within these Variations, I suggested rendering the velocity of the eighth/sixteenth notes equal in all five Variations (see Example No. 14). As these five Variations share the same correlation to the QT (four eighth notes = QT), a different correlation for Variation II and III would destroy the gradual development of the above specified dramatic line. Naturally, I am well aware of the subjectivity of this issue.

disparities of the *pairs* II & XXIX and III & XXX and equalizes the duration of both *groups of three*:

Variations I, II, III

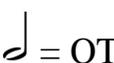
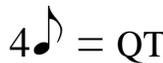
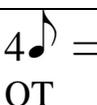
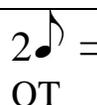
$$48 + 32 + 48 = \mathbf{128 QT}$$

Variations XXVIII, XXIX, XXX

$$48 + 48 + 32 = \mathbf{128 QT}$$

Now I will display the above suggested temporal correlations in the ensuing diagram:

## 2. Diagram of the temporal correlations

Movement	Bars (the repeats are not counted)	Meter	Temporal correlations	Meter	Bars (the repeats are not counted)	Movement
<b>Theme one QT = 40– 44 M.M.</b>	32	3/4				
<b>Introductory group of three I</b>	32	3/4	See below			
II	32	2/4	See below			
III	16	12/8	See below			
				<i>alla breve</i>	16	XVI 1 <sup>st</sup> section
<b>First Sub-cycle IV</b>	32	3/8		3/8	32	<b>Second Sub-cycle XVI 2<sup>nd</sup> section</b>
V	32	3/4		3/4	32	XVII
VI	32	3/8	1 bar = QT	<i>alla breve</i>	32	XVIII
VII	32	6/8	   	3/8	32	XIX
VIII	32	3/4		3/4	32	XX
IX	16	4/4		4/4	16	XXI
X	32	<i>alla breve</i>	1 bar = QT	<i>alla breve</i>	32	XXII
XI	32	12/16	   	3/4	32	XXIII

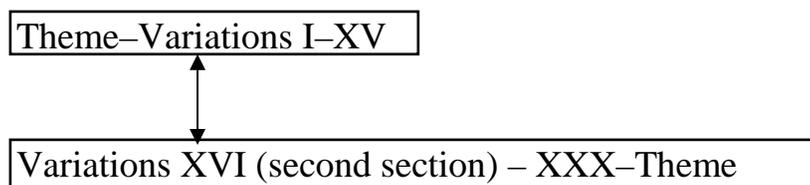
XII	32	3/4	$\text{♩} = \text{QT}$	$\text{♩} = \text{QT}$	9/8	32	XXIV
XIII*	32	3/4	$\text{♩} = \text{QT}$	$\text{♩} = \text{QT}$	3/4	32	XXV*
XIV	32	3/4	$\text{♩} = \text{QT}$		18/16 – 3/4	32	XXVI
XV*	32	2/4	$\text{♩} = \text{QT}$	1 bar = QT	6/8	32	XXVII*
<b>Introductory group of three</b>							<b>Concluding group of three</b>
I	32	3/4	$\text{♩} = \text{QT}$		3/4	32	XXVIII
II*	32	2/4	1 bar = QT	$\text{♩} = \text{QT}$	3/4	32	XXIX*
III*	16	12/8	$\text{♩} = \text{QT}$	$\text{♩} = \text{QT}$	4/4	16	XXX*
					3/4	32	<b>Theme</b>

The above diagram displays the following correlations:

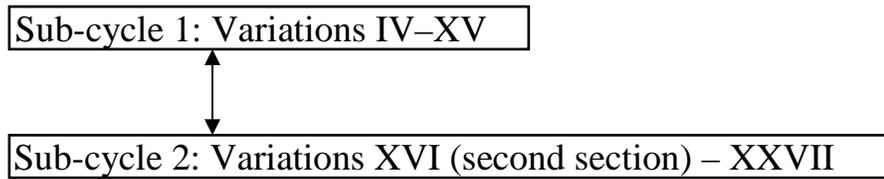
- a) The temporal correlations of the Variations to the pulse of the Theme:  
QT (quarter note of the Theme).
- b) The temporal correlation between the Variations within each *pair*: IV & XVI (second section), V & XVII, VI & XVIII etc.

The temporal correlations shown in the diagram result in the ensuing temporal relationships of the *Goldberg Variations*' segments:

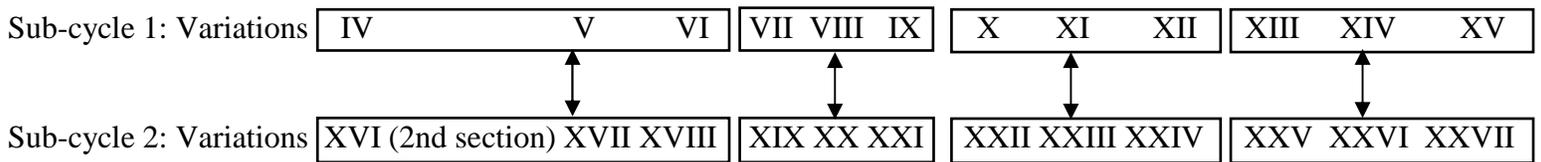
- a) The temporal parity of the two halves of the *Goldberg Variations*:



b) The temporal parity of the two Sub-cycles:



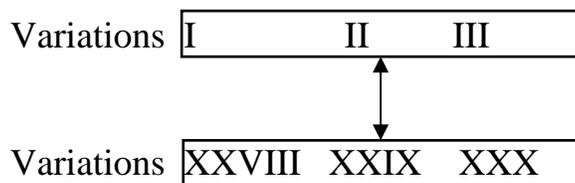
c) The temporal parity of the symmetrically correlated *groups of three* in Sub-cycles 1 & 2:



d) The temporal parity within the majority of the *pairs* in the *groups of three*: IV & XVI (second section), V & XVII, VI & XVIII etc.

When the duration of the Variations within a *pair* is unequal, both Variations of such a *pair* are marked with an asterisk.

e) Temporal parity of the Introductory and Concluding *groups of three*:



Bach indicates repeats for both halves of the Theme and for both halves of all the 30 Variations. Should a performer decide not to respect all the repeats and choose to observe only some (as Gould, Landowska and many others – including the author of this study – do), in order to preserve the temporal symmetry it is obligatory to follow the *pair* principle: *ad exemplum*, if both

halves of Variation V are repeated, consequently, both halves of Variation XVII must also be repeated.

## CONCLUSION

In conclusion, I would like to stress the following issues:

1. Let me draw the attention of my colleagues – performing artists – to the fact that Glenn Gould spoke of an “*almost* arithmetical correspondence between the theme and the subsequent variations”.<sup>101</sup> As we remember, the maestro also claimed that he would “*never* argue in favour of the inflexible musical pulse”, which “just destroys any music”.<sup>102</sup> Wise words indeed! In such an *alive* and dynamic universe as the *Goldberg Variations* there is no room for scholastic pedantry, and in a concert performance, due to the interchange of “gravitational forces” in the work’s drama, the rate of the QT pulse may shift slightly forward or backward (viz. accelerate or slow down). This is quite normal, because the *Goldberg Variations* above all is a creation of a human soul, with all the richness of its rationality and irrationality, and only secondly a compositional *chef-d’oeuvre* consisting of the Sub-cycles, *groups of three, pairs* etc. Do not consider the above said as a contradiction to the main content of this paper! The aim of my study is to propose a system, which can become a solid conceptual foundation for building the edifice of the *Goldberg Variations*. At the same time I humbly admit the superiority of the *Goldberg Variations’* phenomenon, in all its inexorable versatility, over any system, scheme, diagram etc. Nevertheless, it would be

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<sup>101</sup> Glenn Gould in conversation with Bruno Monsaingeon (see the Reference list: *The Goldberg Variations*. From Glenn Gould plays Bach. A film by Bruno Monsaingeon). Transcription & emphasis mine.

<sup>102</sup> Page & Gould 2001, 21. Emphasis in the original.

- deplorable and, I firmly believe, *impermissible* for a performer to tackle such a colossus without an articulate conception.
2. One important detail: let us not forget the rests between the *Goldberg Variations*' movements. I believe they have considerable significance in the architecture of the work. Furthermore, I think that the QT pulse continues to "live" and move forward in these rests. Consequently, I suggest thinking carefully about the quantity of the QT in all the intervals between the movements of the work.
  3. I am aware that certain aspects of my system of temporal correlations may appear rather abstract: *exempli gratia*, the temporal equilibration of the *groups of three*, situated at a considerable distance from each other. Naturally, such temporal interconnections cannot be perceived by a listener, for whom the correlations between the adjacent movements are of primary importance, even if he/she in most cases merely *feels* the unity of the work's movements, created by such correlations, but cannot explain its source. However, I am persuaded that for a performer the abovementioned seemingly "abstract" correlations of the *Goldberg Variations*' segments mean a considerable amount, for they contribute greatly to the coherence and *completeness* of the conception. One cannot negate that the performer's clear vision of the work he/she interprets augments his/her power of persuasion immensely, and such a power inevitably affects the listener!
  4. It seems to me that a key advantage of the system proposed in this paper is the relationship between a strict scheme and the performer's subjective decisions. *Id est*, within the formula of the temporal correlations a performer can select the tempi for the *Goldberg*

*Variations'* movements in accordance with his/her esthetic preferences (for instance, one may feel that the tempo might become too slow, or too fast, if a certain correlation is chosen, or one may wish to create dramatic unity among several successive Variations). In other words, as Professor Lauri Suurpää has eloquently formulated it in a conversation: there is a dialog between theoretical rigidity and artistic liberality, and these two are not mutually exclusive.

*Ultimus at non minime*, I should confess that I have always admired not only the strength of a conception, but also its esthetics. Dear colleagues, let us not disregard a conceptual beauty!

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