

**The Guitar Music of Ben Monder:  
A Physicalistic Analysis**

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## ***Abstract***

While analysis from an abstract point of view can provide useful insight into a musical work, much is left unanswered about the nature of the material unless the physical aspects of the work are also considered. Certain elements of a work can only be explained through forms of performative analysis, in which compositional decisions are scrutinised based on the affordances and limitations of the instrument for which the piece was written.

As a jazz guitarist, Ben Monder's (b. 1962) musical background is one of improvisation, yet many of his original works are fully composed. With that contrast in mind, one can posit that his compositions were conceived in some part with a performative approach, suggesting a style of writing that blurs the lines between performance and composition. Through analysis of several works that span over Monder's career, *Oceana* (2005), *Double Sun* (2005), *Orbits* (1996), and *Windowpane* (2000), I will argue the necessity of exploring physical and idiomatic elements to form a detailed understanding of both the nature of a musical work, and a composer's creative process.

## 1.1 Introduction

Musical idiomaticism—that is, composing with the specific biases of the instrument in mind—is not a new concept. Musicological research has long observed the effect that an instrument’s design has on the development of a culture’s musical output, particularly in non-Western scenarios.<sup>1</sup> Also widely researched is the way in which certain composers choose to embrace or reject these instrumental idioms for musical effect.<sup>2</sup> This research will argue for the necessity of considering the physical in musical analysis to achieve a well-rounded understanding of a work. The research will present what I call a physicalistic analysis, focusing more on the performative rather than the abstract, score-based elements, and showing its effectiveness in uncovering instrument-specific aspects of a piece of music.<sup>3</sup>

Physicalistic composition, allowing the unique affordances of an instrument to inform the compositional process, is an approach that I initially attempted to theoretically isolate from the concept of idiomaticism when I began this research. The idea being that idiomatic composition consisted of considering instrumental affordance, whereas physicalistic composition went further by using the instrument as a conceptual source of material. At this point, I do not believe it necessary to argue this distinction between these terms in order to understand the analysis method that I will present. Regardless, in the context of this research, the term ‘physicalistic’ will be favoured over ‘idiomatic’ for the sake of emphasising the focus of my analysis method: that of the instrument leading the compositional approach, as opposed to simply being a consideration.

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<sup>1</sup> See John Baily, “Music and the Body,” *The World of Music* 37, no. 2 (1995); John Blacking, “Eight Flute Tunes from Butembo, East Belgian Congo—An Analysis in Two Parts, Musical and Physical,” *African Music* 1, no. 2 (1955).

<sup>2</sup> See Jeffrey Bowen, “Tristan Murail’s *Tellur*: A Piece of Spectral Music and an Exploration of Compositional Possibilities for the Classical Guitar,” *Nota Bene: Candian Undergraduate Journal of Musicology* 3, no. 1 (2010); Herbert A. Horn, “Idiomatic Writing of the Piano Music of Béla Bartók” (Ph.D. University of Southern Carolina); W. B. Gerlach, “Three Compositions Featuring the Trombone by Kazimierz Serocki: An Analytical Comparison and Discussion of Idiomatic Trombone Technique” (Ph.D. University of Cincinnati).

<sup>3</sup> The term ‘physicalistic’ is borrowed from Elisabeth Le Guin, *Boccherini’s Body: An Essay in Carnal Musicology* (Berkeley: University of California Press, 2005) in reference to a physical association with the instrument. This term seemed fitting as a label for the analysis approach that this research will discuss.



As every instrument or object comes with its own set of affordances and considerations, it is only logical to assume that each offers exclusive avenues to pursue for the generation of musical ideas and concepts. I found this idea to be particularly pertinent when learning the works of American jazz guitarist and composer, Ben Monder (b. 1962). Certain passages in Monder's music, while seemingly complex from a score-based perspective, felt natural and guitaristic when played that I knew there must be a strong performative aspect to his compositional process. Further, I believed that through focusing on these physical traits of the music over a purely score-based approach, I would be able to determine which aspects of the work were conceived performatively, and which were derived abstractly, without the influence of the guitar's affordances.

My analyses of the music of Ben Monder will focus on the unique compositional possibilities of the guitar. They will highlight a compositional approach that generates material around the idea of direct human interface with the object or instrument, prior to considerations of harmony, counterpoint, style, or potentially even sound itself. I will show that this phenomenon has a wide spectrum of implementation, from works that begin with a physicalistic concept before incorporating traditional music ideas, to pieces that focus exclusively on a physicalistic idea. This compositional approach focuses on music foremost as something that we *do* before something that we *hear*. Through these observations, we find music that first develops a physical meaning to a musician or composer, before an aural one where, inevitably, music-literal metaphors take over.<sup>4</sup>

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<sup>4</sup> A term borrowed from Arnie Walter Cox, "The Metaphoric Logic of Musical Motion and Space" (Ph.D., University of Oregon, 1999). 'Music-literal' refers to metaphorical concepts such as pitch-height and time-space which musicians adopt in a literal sense discursively.

## ***1.2 Research Methodology***

The aim of this thesis will be to present an instrument-specific method of performative analysis which will firstly highlight the shortcoming of a purely score-based form of analysis, but also provide a deep insight into the process of the composer by uncovering elements of the compositions that are inexplicable outside of a performative analysis. In chapter one, I will examine the research into musical idiomaticism and performative analysis, discussing the varying approaches and their many pitfalls. I will also highlight several sources that I believe to successfully synthesise performative and score-based analysis. Chapter two will present a series of performative analyses of works by American guitarist and composer, Ben Monder. These analyses will largely concern compositional elements that would otherwise go unnoticed through a formal analysis approach in order to argue Monder's works to be physicalistic in design. I have chosen Monder's music foremost to utilise analyses completed during previous research. My research showed his music to contain various physicalistic aspects and warrants further investigation. As well, Monder's solo guitar works cover a range of styles and harmonic palettes, from simple diatonic harmonies to non-tonal and serialist material, making the music ideal as an example of physicalistic elements presenting in different contexts. Further, I believe a basic consideration of this analysis approach is that the researcher must be well-versed in the idioms and affordances of this instrument in question. As a guitarist myself, I am naturally well equipped to conduct this analysis approach effectively on my own instrument. Finally, the research will stress the necessity to greatly expand these findings to other instrumentation, and therefore works of other composers.

### ***1.3 Literature Review***

This section will first survey research that has been conducted in the area of musical idiomaticism. Primarily, this consists of overviews of the creative output of individual composers, but also provides alternative avenues for instrument-specific analyses. Following this, I will review two key sources that form the foundation of my research into physicalistic composition.

An early example of what could be called idiomatic analysis was published in 1955 with John Blacking's research concerning the idiomatic properties of the music of the *nyamulera*, a traditional bamboo flute from the East Belgian Congo.<sup>5</sup> His findings showed that the physical design of the flute—in regard to its range, pitch organisation, and finger-hole position—determine the shape and tonality of the music more than any extra-musical or theoretical consideration. By mapping out the fingering patterns as opposed to only transcribing the music, Blacking argued that ‘a “physical” analysis of the instrumental music of Africa may often prove more enlightening than a purely musical analysis.’<sup>6</sup> I believe this to be the most crucial consideration to take away from Blacking's research—that it is not enough to conceive of just a disembodied, abstract understanding of the music in question. One must attempt to place oneself in the shoes of the performer in order to understand the physically-influenced elements of the music that cannot be comprehended through listening or score-based analysis. Although this research was small in scope, encompassing only eight pieces all performed by the same individual, the model shows the potential to quantifiably document these physical characteristics. Although they were not from a Western-art music background, Blacking presented notated transcriptions of the eight flute pieces and provided detailed analysis of the rhythmic, melodic, tonal, and structural elements of each. This notated approach can only be described as a necessary evil for Blacking to effectively present his findings to a Western audience. He stresses that:

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<sup>5</sup> Blacking, “Eight Flutes,” 24-52.

<sup>6</sup> Blacking, “Eight Flutes,” 52.

It cannot be emphasized too much that the *tempi* and phrasing which I have marked, the analyses of tonality and form which I have made, are the product of ears and a mind trained in European musical traditions.<sup>7</sup>

While the transcriptions prove valuable to supplement his findings, the more profound conclusions do not concern a score-based approach and instead are uncovered when Blacking focuses on the physical aspects of the pieces.<sup>8</sup>

Blacking continued to explore this field until the end of his career culminating in his 1977 monograph *The Anthropology of the Body*—a collection of papers ‘concerned with the structure of the body as a source of cultural creativity.’<sup>9</sup> John Baily, a contemporary of Blacking, reinforces his hypotheses—particularly in work they conducted together, this time observing the relationship between human movement and the Afghani *dutār*.<sup>10</sup> Blacking and Baily’s findings document a compositional approach that works within a close consideration of the instrument’s design, regardless of whether or not this approach was intentional by the musician. In doing so, they provided evidence that it is possible for a specific culture’s musical output to be shaped by the object, as opposed to just the reverse.

Although no specific examples are presented in his research of the *nyamulera*, Blacking argues that similar observations can be made in Western classical music where ‘the musical form is much influenced by the properties of the instruments for which it was written.’<sup>11</sup> Herbert A. Horn’s 1963 dissertation on the piano works of Béla Bartók presents us with one such example.<sup>12</sup> Although Bartók’s music had been extensively researched by this point, Horn observed that ‘none focuses its interest upon the inner essence of the piano music itself—the definitive elements of Bartók’s piano idiom and style.’<sup>13</sup> In formal and performative analyses, Horn noted a focus on the use of motion and kinaesthetic concepts as compositional prompts over theoretical ideas, not dissimilar to those that Blacking found in traditional African flute music. Horn produced a

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<sup>7</sup> Blacking, “Eight Flutes,” 27.

<sup>8</sup> Blacking, “Eight Flutes,” 51.

<sup>9</sup> John Blacking, *The Anthropology of the Body* (London; New York: Academic Press, 1977), vi.

<sup>10</sup> Baily, “Music and the Body,” 11-30

<sup>11</sup> Blacking, “Eight Flutes,” 52

<sup>12</sup> Horn, “Music of Béla Bartók.”

<sup>13</sup> Horn, ii.

comprehensive documentation of Bartók's pianistic influences, techniques, styles, and idioms, with the research serving to prove that 'no composer for the piano of our time better deserves to be ranked with the great keyboard composers of the past than Béla Bartók.'<sup>14</sup> Yet Horn neglected to note the possibility that this 'physiological' approach was not exclusive to Bartók. Understandably, such an investigation was not in the scope of the research, however this marks a trend of researchers uncovering physicalistic elements and presenting them as nothing more than a justification of their subject's compositional prowess, rather than an effective example of a widely-used compositional approach.

The same model of analysis can be observed in later literature: W. B. Gerlach provides a detailed analysis of idiomatic trombone techniques exploited by Kazimierz Serocki (1922-1981). In addition, Gerlach identifies both the successful and unsuccessful attempts at idiomatic composition and concludes that even unsuccessful attempts inform the music in interesting ways. Yet, like Horn, he does not consider the possibility that Serocki is not the only one to have incorporated these ideas into trombone composition. Frederick Lozier drew similar conclusions in an analysis of the idiomatic elements of the piano works of David Del Tredici, noting the prevalence of uniquely-pianistic traits in scale patterns and arpeggios.<sup>15</sup> I argue that the approaches used in these analyses are ones that can be translated to any composer or instrument. As Gerlach shows us, even noting the lack of effective idiomatic elements in a work can provide insight into a compositional process.

In 2009 David Huron and Jonathon Berc presented a computational model for analysing idiomaticism using several works for B-flat trumpet as their case study. This model further developed the idea of idiomatic composition through its conceptual distinction between *difficulty* and *idiomaticism*, yet maintains that 'performance difficulty is a pre-requisite for measuring

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<sup>14</sup> Horn, 171.

<sup>15</sup> Frederick Lozier, "Idiomatic, Notational, and Stylistic Elements in the Piano Works of David Del Tredici" (Ph.D. University of Iowa, 1993).

instrumental idiomaticism.<sup>16</sup> This distinction is posited in earlier writings by Rebecca Fiebrink and Cynthia Horton.<sup>17</sup> After collecting data on difficulty levels of various technical elements on the trumpet such as dynamics, pitch, fingerings, and embouchure endurance, Huron and Berec devised a model to estimate overall difficulty of a work. This perceived difficulty was then weighed against the work's idiomaticism with the authors stressing:

It is tempting to assume that an "idiomatic" work is a work that is easy to perform. However a work that is easily performed on a given instrument is also likely to be easy to perform on other instruments as well. An important distinction can be made between the performance difficulty of a work and its degree of idiomaticism.<sup>18</sup>

Huron and Berec's model focuses on a work's perceived idiomaticism when considering all 'other possible performance circumstances.'<sup>19</sup> That a composer, when writing for a specific instrument, would consider its limitations is a given, thus unlike previous research, the authors go beyond simply justifying a composer's capacity to do so. This research suggests that to consider elements of a work to be idiomatic to that instrument, there must exist a dialogue between the instrument and composer. The model also convincingly argues that idiomaticism can manifest as specific elements such as transpositional idiomaticism (where the key selected is the most compatible for that instrument), and tempo idiomaticism (in which a work functions best at a certain tempo when considering factors such as breathing and bowing limitations). Due to the small scope of their research, Huron and Berec suggested a future application for their model involving not just assessing the idiomaticism of a work, but seeking insight into a composer's approach:

Our approach may lead to insights pertaining to compositional processes [...] idiomatic clues can lend weight to hypotheses that a given work was initially conceived for alternative resources, or that the composer used a particular instrument during

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<sup>16</sup> David Huron and Jonathon Berec, "Characterizing Idiomatic Organization in Music: A Theory and Case Study of Musical Affordances," *Empirical Musicology Review* 4, no. 3 (2009): 105.

<sup>17</sup> Rebecca Fiebrink, "Modelling Flute Fingering Difficulty" (Senior Distinction Project, Ohio State University); Cynthia Horton, "The Identification of Idiomatic Writing for the Horn" (Ph.D. University of Wisconsin).

<sup>18</sup> Huron and Berec, 115: The authors are positing that difficulty is not an effective measurement of idiomaticism, due to the likelihood of more instruments being able to perform the work as the difficulty decreases. Huron and Berec are suggesting an element of instrumental exclusivity as a factor in idiomaticism.

<sup>19</sup> Huron and Berec, 119: An example of this may be a melody having optimal playability in one key compared to all other possible transpositions.

composition. Conversely, the total absence of idiomatic features may be cited as evidence supporting a more formal or abstract musical origin.<sup>20</sup>

This approach is central to my research: that a performative analysis can not only qualify the appropriateness of a work for a particular instrument, but also present insight into the creative process of the composer, highlighting situations in which they were clearly informed by physical biases of the instrument.

The absence of substantial guitar-specific literature on idiomaticism further signifies the necessity of my project. Furthermore, what has been published focuses exclusively on classical-style guitar, with no attention to electric guitar or any non-Western styles. In 2000, Stephen Snook highlighted the kinaesthetic considerations of composers such as Brian Ferneyhough (b. 1943) and Luciano Berio (1925-2003) when writing for the guitar in order to influence the generative process.<sup>21</sup> A tablature-based graphing method was applied to five guitar pieces by composers of post-tonal music to identify moments in which ‘sound combinations are co-conceived both as sonic objects and as physical gestures requiring specific patterns of preconceived movement in performance.’<sup>22</sup> The method focused exclusively on left-hand considerations and, in particular, harmonic material derived from open and fretted string combinations where ‘clearly identifiable elements of each work’s pitch structure can be directly related to some repetitive [left hand] movement.’<sup>23</sup> A consideration lacking in the research is that of right hand or rhythmic elements. I believe an added focus on these characteristics of guitar performance would produce an even more complete picture of the performative aspects of a composition. Nonetheless, this model marks the first guitar-based analysis of idiomatic composition—as well as highlighting the effectiveness of guitar tablature to reveal idiomatic aspects of guitar harmony. Snook’s emphasis in this research is that a synthesis of score-based and performative analysis is essential, as both produce different but not conflicting conclusions about the nature of a work. As Monder’s works

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<sup>20</sup> Huron and Berec, 119.

<sup>21</sup> Stephen Snook, “Kinesthetic Analysis and Performance Practice in Post-tonal Composition for Guitar,” *Context* 18, no. 2 (2000): 37-53.

<sup>22</sup> Snook, 39.

<sup>23</sup> Snook, 44.

are all presented in notation alone, Snook's approach of presenting all examples with accompanying tablature is one that I have borrowed. This assists not only with the analysis process but is also an effective means of presenting the particularly physical-based examples to the reader.

Marlon Titre's dissertation builds upon previous research by Chris Kachian, Robert Lunn, Jeffrey Bowen, Christopher Sainsbury, and Erik Stenstadvold to develop extensive guidelines and techniques for scoring classical-guitar music.<sup>24</sup> Aimed at non-guitarist composers, the research identifies twelve unique elements of guitar playing that the author considers underdeveloped in terms of scoring methods, such as strumming and percussive techniques. Through extensive score examples, Titre highlights how these elements lacked a standardised scoring method, at the same time mapping the dynamic and rhythmic capabilities of each element. Titre then presents original études that exemplify effective and unambiguous scoring methods for each of the elements previously discussed. While the focus of his research was not specifically on idiomatic elements of guitar composition, Titre provides a compelling model that exhibits the replication of specific compositional techniques through the use of études. His work also highlights the shortcomings of traditional Western notation for scoring all of the guitar's potential textural capabilities. Through this model, it would be simple to argue against a universal scoring system in general, highlighting all the instrument-specific considerations that cannot be fully reflected through Western notation. I would argue that even the scoring solutions that Titre proposes do not fully explain what is expected of the performer and instead contribute to a more convoluted score due to the additional extra-musical notation. Titre's work was later extended by Seth F. Josel

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<sup>24</sup> Marlon Titre, "Thinking Through the Guitar: The Sound-Cell-Texture Chain" (Ph.D. University of Leiden, 2013); Chris Kachian, *Composer's Desk Reference for the Classical Guitar* (Pacific: Mel Bay Publications, 2006); Robert Allan Lunn, "Extended Techniques for the Classical Guitar: A Guide for Composers" (Ph.D. Ohio State University, 2010); Jeffrey Bowen, "Tristan Murail's *Tellur*;" Christopher Sainsbury, "Bi-tone Techniques and Notation in Contemporary Guitar Music Composition" (Master's Dissertation, Sydney Conservatorium of Music, 2002); Erik Stenstadvold, "The Evolution of Guitar Notation, 1750-1830," *GFA Soundboard* 31, no. 2 (2006).



and Ming Tsao to form a comprehensive guitar scoring companion, *The Techniques of Guitar Playing*.<sup>25</sup>

This connected body of research alludes to a central theme: that the physical interface with the instrument is a crucial consideration when analysing the source of conception of the musical material, and therefore the compositional idioms of the composer. The two sources that I will discuss next—Elisabeth Le Guin’s *Boccherini’s Body* and De Souza’s ‘Musical Instruments, Bodies, and Cognition’—both reference this phenomenon specifically, but take divergent trains of thought to reach their conclusions.<sup>26</sup>

Elisabeth Le Guin’s research into the cello compositions of Luigi Boccherini highlights the importance of acknowledging the physicality that is inherent in music making and analysis.<sup>27</sup> Because of this, her work indirectly functions as a critique of a purely disembodied score-based approach. Rather than attempting to develop an argument that simply celebrates Boccherini’s idiomatic compositional abilities, Le Guin scrutinises the *nature* of his compositional decisions: Why did certain passages in the pieces exist when they did not hold any functional necessity? In what she terms a “carnal musicology,” Le Guin suggests that ‘certain qualities in Boccherini’s music were best explained, or even solely explicable, through the invisible embodied experiences of playing it.’<sup>28</sup> In a method that is arguably more applicable to a performer or composer than other recent research, Le Guin posits the existence of a sympathetic dialogue between the theoretical and what she termed the “physicalistic” aspects of a piece. Boccherini’s music rests on a spectrum, finding a balance between conformity to the stylistic, cultural and functional trends of the time and a surrender to the ‘kinesthetic inventio,’ the ‘physicalistic essence’ that an instrument invites.<sup>29</sup> She qualifies her approach as somewhat anecdotal and subjective, stating

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<sup>25</sup> Seth F. Josel and Ming Tsao, *The Techniques of Guitar Playing* (Kassel: Bärenreiter, 2014).

<sup>26</sup> Le Guin, *Boccherini’s Body*; Jonathan De Souza, “Musical Instruments, Bodies, and Cognition” (Ph.D. University of Chicago, 2013).

<sup>27</sup> However, her findings were received not without criticisms of its subjectivity: See Suzanne Cusick. “Review of Elisabeth Le Guin. 2006. *Boccherini’s Body: An Essay in Carnal Musicology*” *Current Musicology* 84, Fall (2007).

<sup>28</sup> Le Guin, *Boccherini’s Body*, 5

<sup>29</sup> Le Guin, *Boccherini’s Body*, 34.

that: 'It may appear that I have chosen only fingerings and bowings that reinforce my interpretive points [...] and that what appears above is not musicology, not history, but an exercise in narcissistic free association by a particularly verbose performer.'<sup>30</sup> However, she resolves that her process is fundamental to the epistemology of performative—or carnal—musicology: 'I propose performance and analysis as two faces of interpretation, an act which is both art and science.'<sup>31</sup> In other words, Le Guin argues that in order to develop a complete understanding about the nature of a work, one cannot separate that work from the act of performing it; as music is foremost something that we *do* before a dialogue may occur around it.

Following on from Le Guin's theories, and echoing Huron and Berc's distinction between idiomaticism and difficulty, Jonathan De Souza presented a compelling analysis of several of J.S. Bach's solo violin works.<sup>32</sup> Initially correlating passages in Bach's Sonata No. 2 in A minor BWV 1003 with Huron and Berc's theory of transpositional idiomaticism, he proceeds to highlight physicalistic aspects of the work starkly similar to the capacity in which Le Guin does for Boccherini's Cello Sonata: 'here, I argue, the instrument functions as a creative tool for compositional research. It does not just express pre-existing ideas but also reveals new ones.'<sup>33</sup> A more detailed analysis of Partita No. 3 BWV 1006 reinforces these findings of Bach's compositional process. De Souza notes the inherent physical logic of the melodic development, noting on the work: 'As abstract sequences of notes, these passages seem to have little in common; however, when I play them on the violin they feel wonderfully connected.'<sup>34</sup> This is where I argue the fundamental value of a physicalistic analysis lies: not only considering the playability of the work, whether that be through a subjective performative analysis, or quantifiably measuring its idiomaticism, but also delving deeper into the phenomenological aspects of a work. Through this,

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<sup>30</sup> Le Guin, 25.

<sup>31</sup> Le Guin, 26.

<sup>32</sup> De Souza, "Musical Instruments, Bodies, and Cognition"

<sup>33</sup> De Souza, 132.

<sup>34</sup> De Souza, 138.

one can reveal the composer's process in constructing music that is not only functionally idiomatic, but is foremost concerned with the performer's tactile interface with the instrument.

Only through methodologies such as these can De Souza claim that, to Bach, 'the violin functions as a conceptual tool and a fount of material.'<sup>35</sup> Or in Le Guin's case, argue so convincingly that Boccherini's compositional style is quintessentially 'cellistic,' or be able to surgically separate which passages were 'conceived through a process of physicalistic association' from those that were made to conform to current harmony and style.<sup>36</sup> Although Le Guin and De Souza drew similar conclusions regarding the compositional process of their respective subjects, the terminology and approach used to reach these conclusions were noticeably different. While Le Guin followed a philosophical approach to her writing, De Souza's findings were more grounded in cognitive theory. The fact that their conclusions could end up so similar suggests that a synthesis of their approaches is possible and warrants exploration. With this in mind, a need for refined terminology around the concept of physicalistic composition is clearly required to properly synthesise previous research on the topic, and to simplify the process of further research occurring in this area. My intention with the analyses of Monder's music is that I will be present a concise approach to focusing on the physicalistic elements of a guitar composition in reference to the score-based material. I believe that that findings one can gather on the nature of a work and that of the composer's creative process are worth the risk of subjectivity that can accompany a performative analysis.

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<sup>35</sup> De Souza, 139.

<sup>36</sup> Le Guin, *Boccherini's Body*, 34.

## 2.1 Ben Monder

The aim of these analyses will not be to define Ben Monder's work as either physicalistic or not. Rather it is more relevant to consider physicality as an intrinsic consideration in any analysis. Physicality could be presented as the primary focus of the work and explicitly referenced in the score, such as in the *musique concrète instrumentale* works of Helmut Lachenmann: *Pression* (1969) and *Guero* (1969). A core aspect of these works is the way in which they subvert the traditional expectations of performance, requiring the musician to deprioritize the harmonic and melodic elements of the work to instead cultivate a relationship between their instrument that is grounded foremost in the physical before the analytical. In works such as these, Jennie Gottschalk argues that 'for a performer to transcend these [physical] demands would be to miss the point. The drive and substance of the work lies at the point of physical encounter.'<sup>37</sup> Alternatively, physicality can manifest simply as a feature of the work, not necessarily as an intentional element from the composer but as one that is perhaps derived from a performative compositional approach—influenced by extra-musical sources such as the composer's musical upbringing and tastes and personal physical limitations which would predispose them toward certain physical patterns or ideas. In this situation, although the physicality of the work is retrospectively apparent, the sonic output would remain as the key focus of the piece. Perhaps the best-known example in the guitar world is the compositional and performative style of Django Reinhardt who, after a severe burn injury, lost the use of the third and fourth fingers in his left hand. In response to this crippling limitation, Reinhardt cultivated a unique musical style that was influenced not only by his Romani heritage but also by adopting chord voicings and arpeggio shapes suited to the two finger style he was forced to use in his left hand. Documentation also shows that Reinhardt's remaining two fingers were abnormally dextrous and long, further encouraging the use of certain unique chord positions.<sup>38</sup> I argue that we can consider the music of a composer such

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<sup>37</sup> Jennie Gottschalk, *Experimental Music Since 1970* (London; New York: Bloomsbury Academic, 2016), 77.

<sup>38</sup> David J. Williams and Tom S. Potokar. "Django's Hand." *BMJ* (2009), 339.

as Ben Monder with the same lens. Although his works are traditionally notated, by using guitar specific analysis methods we can find physical considerations that are crucial to developing a well-rounded understanding of the music. Monder's works reward a listening experience where one can appreciate their approachable and familiar harmonic elements, but also encourage (and certainly reward) a physicalistic interpretation. By no means is this research arguing that Monder's music represents the archetypal physicalistic guitar music—rather, this research was prompted by the many realisations I was having about the physical nature of these pieces while learning them, making them ideal case studies to explore the possibilities of a performative analysis. If anything, Monder's works represent an effective 'middle-ground' between physicalistic and abstract composition.

The intention of these analyses is to highlight the physicalistic elements of Monder's compositions that would otherwise be inexplicable through an abstract non-performance-based analytical approach. They will show moments in which physicalistic pitch relationships dictate the direction of the work, as well as moments where a physicalistically-based decision is then developed through more abstract compositional methods. Put simply, I will show that Monder's compositions are led by a negotiation between his abstract musical ideas and the affordances that the guitar presents to a performer or composer. The pieces selected for analysis survey Monder's compositional output over nearly a decade. Aside from *Oceana* (2005), they are all solo guitar works which, as well as logistically proving easier to performatively analyse, each function as studies of unique guitaristic traits. The expansiveness of *Oceana's* guitar part warrants individual analysis as it highlights many of the affordances that the solo works specifically address. I will separate the analyses of Monder's works into three categories. Firstly *Oceana* will be analysed as a standalone, large-scale work. Secondly, *Double Sun* (2005) and *Orbits* (1996) will be analysed with a focus on polyrhythms, isorhythms, and multiple voice writing for the guitar. Lastly, I will discuss the way in which *Windowpane* (2000) functions as a study of right-hand guitar patterns as a source of material development. I believe the pieces in question provide not only a well-

rounded overview of Monder's compositional style, but also enough material to convincingly highlight the value of a physicalistic analysis of guitar music.

## 2.2 Oceana

Ben Monder's *Oceana* (2005) is a large-scale work for electric guitar, electric bass, drum kit, and voice. It is a piece that showcases not only Monder's virtuosity as a guitarist, but also his highly-developed knowledge of modern jazz harmony combined with serialist influences and a focus on thematic development. Rather than producing a complete overview of the work, I will be selecting passages and elements that exemplify a physicalistic composition style, showing evidence of a performative approach to material development in which the affordances of the instrument influence the harmonic and rhythmic components of the work.

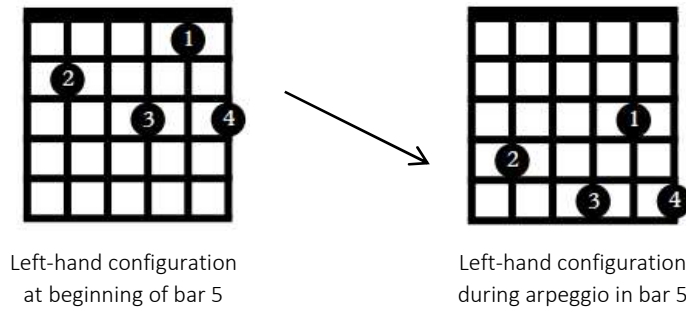
Beginning with the opening passage, and first theme of the piece, there are already discernible physicalistic elements at play which influences us to observe Monder's self-described 'non-tonal' phrases from a different angle.<sup>39</sup>

**Figure 1:** Opening passage of *Oceana*, bars 2-7.

Upon examination of the arpeggio in bar five, we can clearly see how it is the result of a physical association with the material preceding it, as the notes of the arpeggio are derived from the left-hand configuration in place at the beginning of the bar. The difference is that the left hand has shifted up two frets—or a whole tone—for the arpeggio in bar five.

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<sup>39</sup> Paul Olson, "Ben Monder: Surprise From Cohesion," *All About Jazz*, February 6, 2006, accessed February 3, 2018, <https://www.allaboutjazz.com/ben-monder-surprise-from-cohesion-ben-monder-by-paul-olson.php>



**Figure 2:** Left-hand movement on fretboard during bar 5 (see fig. 1) of *Oceana*.

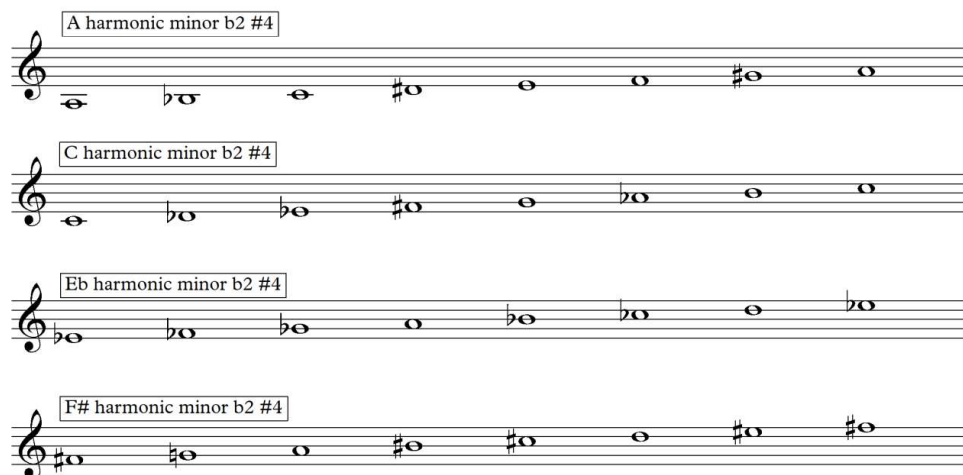
This shifting or planing of a static left-hand configuration is ubiquitous in all of Monder’s pieces discussed in this thesis and could be best described as a physicalistic theme. These physical relationships show clearly that Monder has taken an idiomatic guitar technique—that of chord planing with a static left-hand shape—and utilised it as a constant source of harmonic material generation and development. This, in turn, implies a performative, and therefore physicalistic, compositional approach to *Oceana*.

In the third section of *Oceana*, starting from bar 183, Monder exploits to its limits the possibilities of planing with static left-hand shapes. In order to transpose a phrase or chord through planing, nothing more is required than to shift the starting fret position of the phrase (excluding those that utilise open strings). For example, if I were to play a scale beginning on the fifth fret, I could transpose the scale a step higher by performing the exact same scale except beginning on the seventh fret—two semi-tones higher. No knowledge of the notes contained in the new key are required as the exact same shape is executed on the frets by the left hand, only beginning on a different fret. This guitar-specific approach to pitch is the basis for material generation in this section of *Oceana*.

**Figure 3:** Second theme of *Oceana*, with accompanying chord diagrams, bars 183-188.



Figure 3 exhibits the second theme of *Oceana*—which is derived from a static left-hand configuration—transposed through minor thirds (three frets). Without the knowledge of the consistent left-hand shape the constantly shifting melodic line appears chaotic, but when analysed through a physicalistic lens it is clear that the entire passage is constructed with minimal material. Monder’s personal description of this section highlights even further its conceptual simplicity: ‘I’m taking a particular scale and moving that in minor thirds and putting that sort of angular shape through that.’<sup>40</sup> The ‘particular scale’ that Monder refers to is the harmonic-minor b2 #4 scale, which presents unique considerations when utilised on the guitar. When observed in its linear form, this synthetic scale has the feature of two three-note chromatic groupings (figure 4). These chromatic clusters present obstacles when attempting to construct harmony out of a traditional triad-based system as many of the voicings in a closed-voiced position prove inconvenient to execute on the guitar. This restriction of the scale can then act as an explanation for Monder’s use of wide-voiced, non-triadic chords for the second theme as the left-hand configurations for these voicings are far more forgiving for the guitarist. Monder has also mentioned his propensity for using minor 9<sup>th</sup> intervals in chords, further justifying his use of the scale as shown in figure 3.<sup>41</sup>



**Figure 4:** Transpositions of the harmonic minor b2 #4 scale used in *Oceana*.

<sup>40</sup> Paul Olson, “Ben Monder: Surprise From Cohesion”

<sup>41</sup> Ben Monder, “Jazz Guitar Lesson (1),” *My Music Masterclass*, accessed July 26, 2015, <https://www.mymusicmasterclass.com/premiumvideos/ben-monder-jazz-guitar-lesson-1/>.

The entirety of the third section is derived from four unique phrases (figures 5, 6, 7) that are each transposed through the different keys shown in figure 4. In this way, a key change occurs every bar in section three, yet the *physical* material always deriving from a selection of four unique phrases. A distinction of the physical material from the harmonic material in this case is crucial as the action in both the left and right hands of the guitarist are identical regardless of the transposition in which the material occurs. The remaining three transposed phrases are shown below (figures 5-7), with the first phrase of course being the opening passage of the section (figure 3).

The image displays three musical phrases from the third section of the piece 'Oceana'. Each phrase is presented with a treble clef staff and a guitar tablature staff. The first phrase, labeled 198 and 199, is in 8/8 time and features a melodic line with a dotted quarter note followed by an eighth note, and a final eighth note. The second phrase, labeled 221 and 222, is in 4/4 time and consists of a quarter note followed by an eighth note, and a final quarter note. The third phrase, labeled 303 and 304, is also in 4/4 time and follows a similar rhythmic pattern. The tablature for each phrase shows the fret numbers for the left hand and the string numbers for the right hand.

**Figure 5:** Second transposed phrase in third section of *Oceana*.



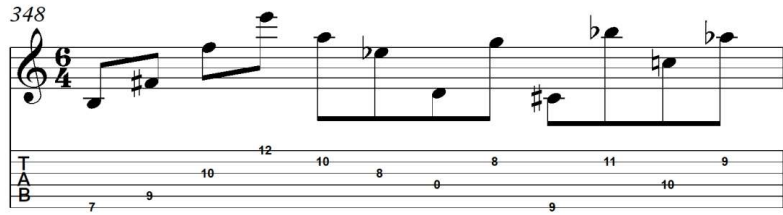
kinetic self-confirmation’—a term that Le Guin uses in reference to Boccherini’s tendency to recycle musical ideas that present idiomatic traits.<sup>42</sup> This suggests a physicalistic influence of the form of section three. Figures 5-7 highlight that Monder has selected three transpositions in which to perform each phrase, with the first phrase (figure 3) using all four transpositions. It is no coincidence then that the section ends once all the transpositions have been cycled through and no new material can be presented without Monder introducing additional physical material.

A comparison can be drawn between Monder’s use of this synthetic scale and his approach to twelve-tone rows in the fourth section of *Oceana*. The use of tone rows on the guitar presents new physicalistic considerations for a composer. By analysing the rows Monder has constructed, we can observe the way in which the guitar’s layout influences pitch choice. This section (starting from bar 346) comprises almost exclusively of twelve-tone rows, so much so that I speculate that twelve-tone harmony was a compositional restriction Monder had placed on himself prior to writing the section, rather than a feature that arose coincidentally out of a performative compositional approach. Furthermore, quotations of both the first and second theme serve to reinforce an abstracted, rather than performative, compositional origin of the tone rows. The argument here, however, is that by exploring this compositional restriction through the guitar, the material that was generated displayed uniquely guitaristic features that are observable only through a performative analysis. John Baily suggests that: ‘The morphology of an instrument imposes certain constraints on the way the instrument is played, favouring certain movement patterns that are, for ergonomic reasons, easily organised on the instrument’s spatial layout.’<sup>43</sup> Following this, a case can be made that, after the decision to implement a tone row, guitaristic logic oversees the choice of note order and register. The primary tone row of section four is shown below.

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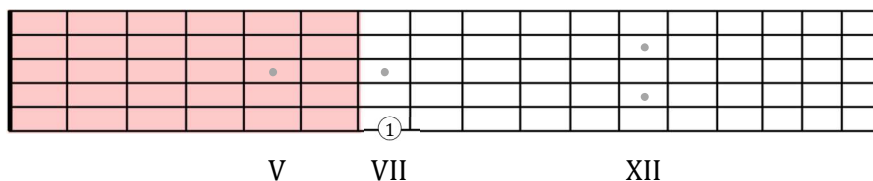
<sup>42</sup> Le Guin, *Boccherini’s Body*, 211.

<sup>43</sup> John Baily, “Movement Patterns in Playing the Herati *Dutār*,” in *The Anthropology of the Body*, ed. John Blacking (New York: Academic Press, 1977), 275. It should be clarified that Baily makes this statement in reference to the *dutar*’s development alongside the musical style that it inhabits. I argue that Baily’s claims are just as valid when concerning an instrument adapting to a musical style that developed tangentially to it—as is the case with the electric guitar and the twelve-tone system.



**Figure 8:** Primary tone row in section four of *Oceana*, bar 348.

Two important features are immediately evident in this row. Firstly, no minor-2<sup>nd</sup> intervals are included, and secondly, no two consecutive notes are played on the same string. The tiered-array of the guitar’s strings mean that, depending on the position of the first finger in the left hand, affordances are granted to certain intervals over others. In other words, the placement of the first finger immediately dictates the remaining notes that are available for that left-hand configuration. With only the rarest of exceptions, the first finger will decide the lowest fret to be used for that configuration (fig 9). If the first finger is placed on the first string, then remaining fingers are forced to fall on lower strings, therefore making all proceeding notes lower in pitch. Conversely, if it is placed on the sixth string, all other fingers will only have higher-pitched notes available. The latter is the case for the tone row exhibited above, in which the first four notes make up the initial left-hand configuration. As the first finger has been placed on the seventh fret of the sixth string, the lowest note possible to be used next in the configuration would be the seventh fret of the fifth string (a perfect fourth above). Although a basic observation out of context, this fact is crucial in understanding the melodic progression of the tone-row from a physicalistic point of view.

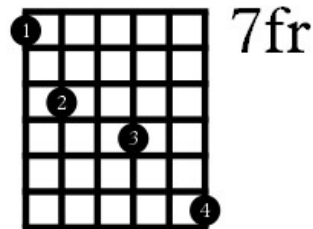


**Figure 9:** Guitar neck highlighting unavailable pitches due to indicated first-finger placement.

While the first finger restriction just described is inherent to the guitar, the avoidance of string repetition is not. Rather, by self-imposing the avoidance of repeated strings, Monder is ensuring that minimal left-hand movement is required, even if this reduces his note choices such as close

intervals like minor 2<sup>nds</sup> and any notes that fall behind the first finger. Through this, he is creating a tone row that follows a guitaristic logic.

With this in mind, it is only logical that Monder opts for an angular configuration of notes that contours naturally to the shape of the fingers on the left hand (figure 10).



**Figure 10:** Left-hand configuration of first four notes of the tone row, bar 348.

Notably, there is still an attempt to maintain a tonally ambiguous atmosphere through the use of consecutive major sevenths between the second and fourth quaver of the tone row. This is not to say that a step-wise configuration of notes is not inherently physicalistic on the guitar (analyses of some of Monder's other works will highlight that, in certain compositional circumstances, step-wise motion may also maintain a physicalistic logic). Nevertheless, it is arguable that in this situation, the pitch restrictions that the first finger places on the tone row, as well as a propensity to maintain a static left-hand configuration, leads to an angular approach to the order of the pitches, rather than a linear one. Further, this shows that with the use of a serialist device, the composer must contend not just with the maintaining the rules set by the use of a tone-row; but also with the physicalistic affordances of the guitar. As well, there is an awareness that as the tone-row progresses, and fewer note choices remain, Monder is required to shift his attention to faithfully realising the row, rather than making note choices that are most physically logical for the guitar. This can serve to explain why, after the initial four-note configuration, the following configurations consist of fewer notes, due to the reduced amount of pitches to choose from.



This 'kinaesthetic invention' is evident in the way that Monder uses open strings in passages throughout *Oceana*. An example of this occurs in bar 409 and 440 which both comprise of the same phrase, with the latter transposed a major third higher (figure 12).

**Figure 12:** Repeated open string affordance in *Oceana*.

As the tablature highlights, the minor-second interval in both instances is produced using an available open string. The use of an open string in this phrase is indispensable for two reasons. Firstly, this makes a chromatic passage possible without necessitating that one string is attacked twice in a row—making the passage idiomatically comfortable for the right hand to perform. Secondly, a position shift is needed in the left hand on the note immediately following the open string (the F in bar 409; the A in bar 441) which can be executed easily when the open string allows the left hand to reposition without any interruption to the flow of the passage. This example conforms to David Huron and Jonathan Berc's research into instrumental idiomatism:

Whether a passage is easy or difficult to perform has no direct bearing on whether the passage is idiomatic. The key comparison is the degree of difficulty compared with other possible performance conditions.<sup>46</sup>

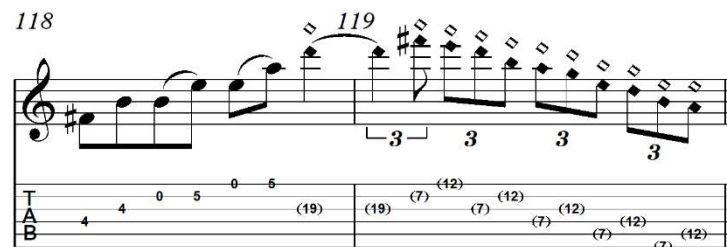
'Performance conditions' can refer to what Huron and Berc termed 'transposition idiomatism' in which the affordances of the instrument allow for musical passages to function more effectively

<sup>46</sup> David Huron & Jonathon Berc, "Characterizing Idiomatic Organization in Music: A Theory and Case Study of Musical Affordances," *Empirical Musicology Review* 4, no.3 (2009): 104.



in specific keys than others.<sup>47</sup> In the situation described above, the phrases presented are two of four possible levels of transposition in which this open string affordance could have occurred. The other two possibilities, with the open first E string and open D string are not used by *Monder* in the piece. Upon attempting the two unused transpositions, I would argue that the transposition using the first string is inconvenient to execute, requiring the left hand to perform a cluster of notes at the twenty-first fret. Further, it is impossible to transpose the material immediately following the open string affordance as it would exceed the range of the guitar at that point. The use of the open D string however, is transposable and playable—although the left-hand stretch required is substantial. I could only speculate that it was not necessary in the greater context of the composition to utilise this other open string affordance. Regardless, this example suggests that the level of transposition *Monder* used for the material in bar 440 was chosen in specific consideration for reusing the open-string affordance utilised in bar 409.

This ‘transposition idiomaticism’ is also seen in bar 119 (figure 13) although unlike figure 12, there is only one possible key in which the passage can occur.



**Figure 13:** Natural harmonic pattern, bars 118-119.

The succession of natural harmonics, as the tablature shows, is played by alternating between the seventh and twelfth frets—the two most responsive harmonic nodes on the guitar.<sup>48</sup> This pattern, when played on a standard-tuned guitar, produces an E-minor pentatonic scale. This is the only situation for the standard-tuned guitar in which a physically repetitive configuration of harmonics is able to produce a recognisable linear scale, therefore defining it as transpositionally idiomatic. The only outlier is the F# at the beginning of bar 119 which is undeniably a product of

<sup>47</sup> Huron and Berec, 115.

<sup>48</sup> The seventh and twelfth harmonic nodes produce intervals of a perfect 12<sup>th</sup> and a perfect octave respectively of the string they are played on.

maintaining the physical pattern of the seventh and twelfth-fret harmonic nodes. In an interview, Monder remarked: 'It's funny I can get away with that, because it's just a guitar trick, but I managed to fit it in.'<sup>49</sup> This comment suggests that Monder's foremost consideration in using this passage was incorporating a physically enjoyable 'guitar trick' as opposed to it being compositionally logical material to include at that point in the work. As a listener, hearing this passage for the first time and recognising its physical origin, I was surprised by Monder's ability to include such simple harmonic material in comparison to the rest of the piece. As a performer, this thematically inexplicable passage is something to look forward to as a moment in which a fleeting, but quintessentially guitaristic event occurs. Le Guin describes the experience best in the context of Boccherini's work: 'The little repetitions, the lightly descending scales, sound and feel like those grateful turns of the hand that instrumentalists typically do unthinkingly as part of warming up: habits, little gestural ingrainsments.'<sup>50</sup>

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<sup>49</sup> Paul Olson, "Ben Monder: Surprise From Cohesion," *All About Jazz*, February 6, 2006, accessed on 26 April, 2016, <http://www.allaboutjazz.com/ben-monder-surprise-from-cohesion-ben-monder-by-paul-olson.php>.

<sup>50</sup> Le Guin, *Boccherini's Body*, 34.



Due to its polyrhythmic composition, the internalised experience of performing *Double Sun* is significantly different to its listening experience. Monder masks the five-against-three polyrhythm in which the work primarily functions by phrasing both voices in groups of four crotchets (figure 14). Not only does this serve to emphasise the independence of the voices, but it also means that the voices only harmonically realign every eight bars, even though they rhythmically realign every bar. Therefore, while the guitarist is focusing on maintaining a consistent one-bar polyrhythm, they must also be aware of the phrase length of both voices, as well as the eight bar macro-phrase that the voices are connected by. To make matters more difficult, Monder periodically drops out the top or bottom voice at different times—a difficult task if one is relying on that voice as a rhythmic reference to maintain the polyrhythm. For example, shortly after the material in figure 14, the top voice ends, leaving the four-note bass line alone. When this occurs, the performer still need to feel the pulse of the removed voice to ensure that the tempo relationship between the voices is maintained when it returns. The result of all these elements is a piece that tackles all the practical facets of performing polyrhythm on the guitar. Monder's solo works, it would seem, tend to function as expanded technical studies. This is alluded to in interview when asked how he practises the specific technical challenges in his pieces:

There are no exercises besides the piece, no, but I certainly practice the piece. Then the piece becomes its own exercise. People sometimes ask me what kind of exercises I do to develop my right hand to be able to play these pieces. But the pieces themselves are very specific problems. So the only way to prepare for them is just to do them.<sup>52</sup>

The dialogue between the two voices develops incrementally in *Double Sun*. As figure 14 highlights, Monder first opts to explore the upper string set, while the aforementioned 'simmering' occurs in the lower set. In the upper set, Monder uses what he calls 'intervallic structures' to develop harmonic and melodic ideas where, rather than building chords traditionally from thirds or fourths for example, any collection of intervals can be used to build

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<sup>52</sup>Phil Di Pietro, "Ben Monder Interview," *Abstract Logix*, 2007, accessed April 26, 2016, <http://www.abstractlogix.com/ben-monder-interview/>

the structure.<sup>53</sup> In this case the structure is built from a second and a sixth (B—C#—A), with the top voice of the structure moving in a step-wise pattern to produce the melodic theme of the piece, as shown by the chord diagrams in figure 15. The structure is then shifted diatonically up the neck—an approach that Monder has credited to *Chord Chemistry* (1971) by the late guitarist and educator, Ted Greene (1946-2005).<sup>54</sup> But it is not the specific intervals of the structure that are noteworthy for this analysis, rather it is the way that these structures conform to the physical logic of the left hand.

**Figure 15:** Intervallic structure in opening passage of *Double Sun*, bars 5-8.

The chord diagram above highlights the way in which the top-string melody of A—G#—F#—G# is realised with only a small shift, and a release of the fourth finger. The other fingers of the left-hand can remain static for the duration of the structure. When this structure is diatonically shifted up a step in the key of A major, we encounter a small incompatibility for the left-hand. The chord diagram in figure 16 shows the structure after it has shifted:

<sup>53</sup> Ben Monder, “Jazz Guitar Lesson (1),” *My Music Masterclass*, accessed July 26, 2015, <https://www.mymusicmasterclass.com/premiumvideos/ben-monder-jazz-guitar-lesson-1/>.

<sup>54</sup> “Jazz Guitar Interviews: Ben Monder,” *Play Jazz Guitar*, accessed February 16, 2018, <http://www.playjazzguitar.com/jazz-guitar-interviews-ben-monder.html>

The figure shows a musical score for guitar with three measures: 13, 14, and 15. The treble staff contains the melody, and the bass staff contains fingerings for the T, A, and B strings. Red brackets above the staff indicate a 'Shifted structure' from bar 13 to 14, and a 'Return to first structure' from bar 14 to 15. Below the staff are two fretboard diagrams labeled '3fr', showing the fingerings for the first and second structures.

**Figure 16:** Shifting of intervallic structure, bars 13-15.

While its basic shape is comfortable enough for the guitarist—uses the same finger-string combinations as the previous structure—ideally this structure would last for four beats, just as before but now shifted a step up. Instead what we find is that Monder returns pre-emptively to the first structure after only two beats (figure 16). After attempting to perform the B—A—G#—A melody while remaining on the second structure, I note that stretching the second finger back to the G# proves noticeably uncomfortable to achieve in that position, providing a physically-grounded reasoning for why Monder would choose to return to the previous structure early (where the G# is comfortably within reach again). This leads me to posit that there were physical restrictions in play that influenced how faithfully Monder could use the static left-hand structures in *Double Sun*. It is reasonable to suggest that Monder did not necessarily make this compromise consciously, but simply allowed the left hand to influence the movement of the harmony based on comfort. Further still, although there is a theoretical grounding to the construction of this section, these findings argue that *Double Sun* was conceived performatively, through a hands-on approach. It is likely that much of the work would have materialised differently, were Monder to approach it without consideration of how comfortably it could be played—an observation that Le Guin similarly had with Boccherini:

Did Boccherini just imagine playing, a kind of cellistic subvocalization informing his decision [...] Or did he improvise, experiment, fool around on his cello while seated next to a writing desk, and when something fine came to his fingers, quickly grasp a pen and write

it down? Each approach would be likely to produce different results, especially in the way one theme or gesture moves into another.<sup>55</sup>

Once the left hand begins to interact with the lower string set, the range of the upper set greatly reduces. Now that the dialogue between the voices is open, the left hand is restricted in how far it can take each voice away from a central position of comfort. The title of the work takes on a physical meaning to the performer, in which the two *Suns* (or voices) are constantly battling with the gravity of the left hand. It is not until one of the voices is released from this gravitational pull that the other is free to explore its harmonic possibilities—such as it was at the beginning of the work.

The image shows a musical score for guitar, specifically for the piece 'Double Sun' by Boccherini. It covers bars 73 to 86. The score is written for two voices, labeled 'A' and 'B'. Voice 'A' is on a treble clef staff, and voice 'B' is on a bass clef staff. The fret positions are indicated by numbers 0-7 below the staff lines. The passage shows simultaneous movement of both voices within a four-fret space for most of the duration.

**Figure 17:** Simultaneous movement of voices in *Double Sun*, bars 73-86.

The passage between bars 73 and 86 is one of only two sections in which both voices are moving and highlights the restriction of pitch range. As the left hand is controlling both voices, one cannot stray too far from any fret position without forcing the other voice to move with it. In the case of figure 17, both voices remain within the same four fret space for the entirety of the passage, excluding the final two bars where the lower voice shifts as far as the seventh fret—a stretch that, while possible, was one that I was glad to see occur only once in the piece.

Compared to the previous sections in which the lower voice remains static, the fret range (and therefore pitch range) of the upper voice has been restricted to the same area of the fret-board that the lower voice occupies. Because of this, it can be argued that the material of one voice is

<sup>55</sup> Le Guin, *Boccherini's Body*, 34.

subservient to the other, not just from a perspective of the composer wanting the two phrases to harmonically complement one another, but from a physicalistic point of view. Notably, the moments in *Double Sun* in which both voices are moving simultaneously are also the only times in which the voices occupy the same tonal centre (with the exception of the ending of the work which serves the purpose of creating a sense of resolution). My interpretation of this is that Monder is harmonically acknowledging the fact that the two moving voices impose physical influences on one another. Accepting that, it must then be concluded that this physical limitation has influenced the harmonic structure of the piece.

It is worth noting an out-of-character moment for Monder's otherwise unwaveringly guitaristic writing. From bar 106 to 110 the performer is faced with a section that is compositionally logical on paper, but impossible to execute exactly on the guitar, and as such the performer is forced to make an almost unnoticeable change—one that Monder himself does in his own recording of *Double Sun*.



Figure 18: Unplayable section of *Double Sun*, bars 106-110.

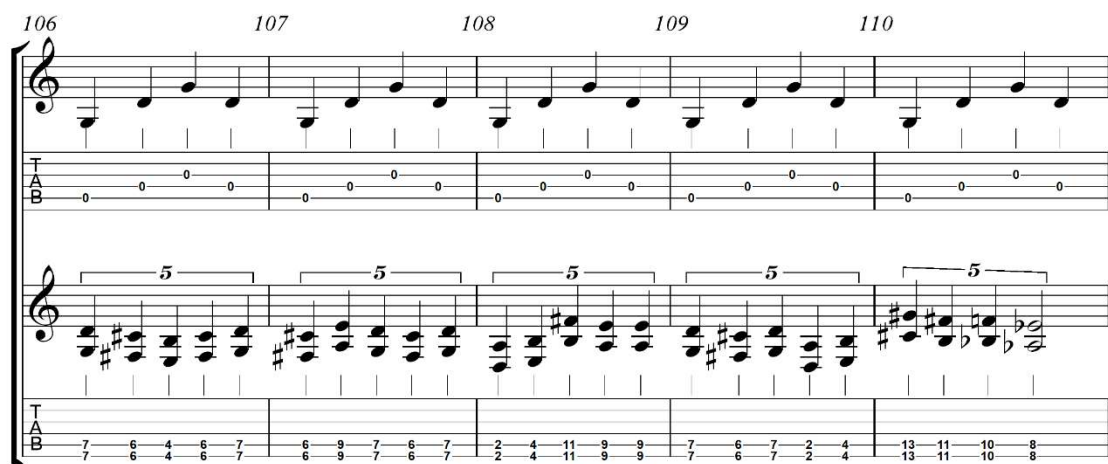
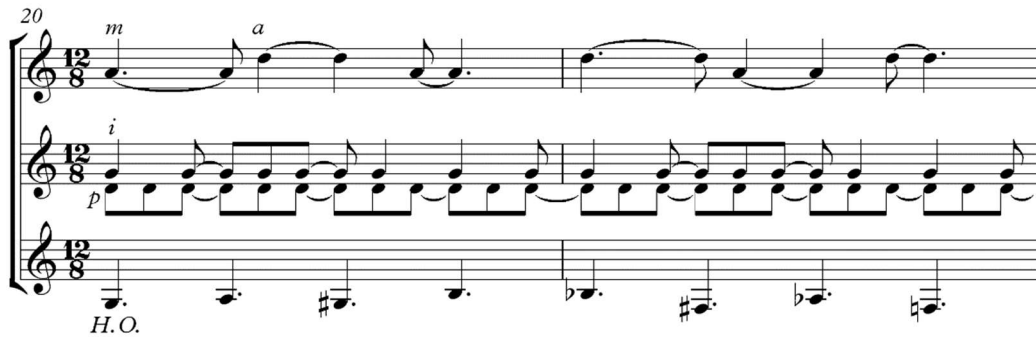


Figure 19: Unplayable section of *Double Sun*, voices separated, bars 106-110.



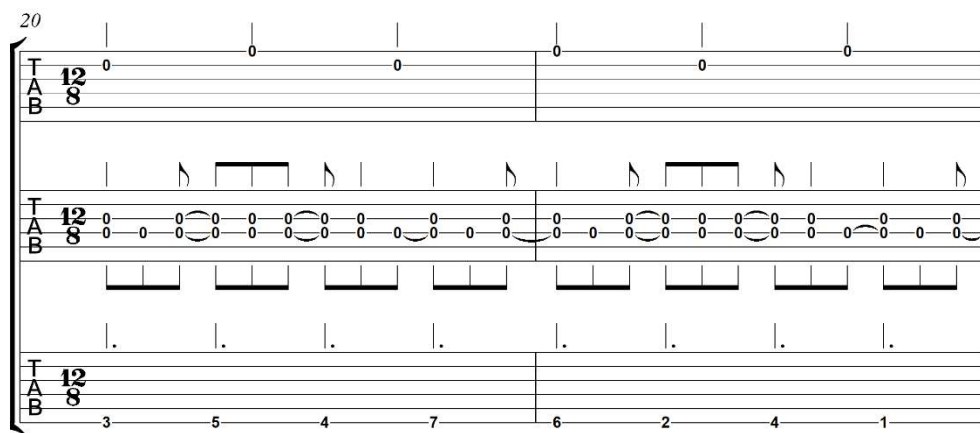
Figure 18 presents the excerpt as it is written in the score, while figure 19 shows the same excerpt again but with the voices separated into two staves for the sake of easier reading. Note that on the first beat of each bar, the two voices supposedly play different notes, both on the fifth string—an action that is obviously not executable on the guitar. Instead, when performing this section, the guitarist is forced to remove the open G of the top voice from the start of each bar in order to perform the double-stopped lower voice. The best explanation for this ‘impossible’ section—which Monder would have undoubtedly been aware of—is that Monder intends to maintain the sense of two independent voices, even if they cannot always be completely realised in a performance. I personally was not aware of this irregularity until playing the section myself—a testament to Monder’s ability to mask the missing note in his own performance. We can take away two observations from this example: Firstly, as it would not be its focus nor purpose, a purely score-based analysis would not uncover the unplayability of this section—further highlighting the unique value a physicalistic analysis has. Secondly, the existence of this passage at all suggests a non-performative approach from Monder when writing this section. Monder appears to be exploring a harmonic idea that is abstracted from the guitar at this point and followed the idea to its conclusion regardless of its playability. Again, through analysing the passage from a performative approach allows us to draw conclusions about the composer’s process.

As mentioned earlier, *Orbits* is conceptually linked with *Double Sun* due to the separation of strings into voices as a compositional element. Because of this, many of the restrictions found in *Double Sun* can similarly be found in *Orbits*. Monder makes the voicing even clearer in *Orbits* by separating each into individual systems (figure 20).



**Figure 20:** Separation of voices in *Orbits*, bars 20-21.

Here is the same excerpt in tablature to further highlight the string separation:



**Figure 21:** Tablature representing separation of voices by string sets, bars 20-21.

Most notable from the tablature is the exclusive use of open strings in the upper two voices (note that the first and second strings have each been tuned down a tone to produce a D and A respectively). Since the left hand is preoccupied with the constant shifting required to perform the bass melody, it is logical to leave the other voices alone for the sake of comfort. Therefore, while it is easy enough to suggest that *Monder* is simply providing a harmonic drone for melody to rest upon, a physicalistic analysis argues that the shifting nature of the melody necessitated that the left hand not interact with the upper two voices.

Like *Double Sun*, when the left hand begins to alter additional voices in *Orbits*, the range of both voices are affected by what the other is doing. Between bars 35 to 51 the two outer voices shift step-wise up the guitar neck at an equal pace maintaining the same left-hand positioning along the way (figure 22). Similarly, from bars 53 to 65, the voices *descend* step-wise in unison, with this pivot used by *Monder* as an opportunity the change the left-hand configuration.

Figure 22 shows musical notation for two bars, 35 and 51. Each bar is represented by a system of three staves: a top staff for guitar tablature (TAB) with fret numbers, a middle staff for musical notation with notes and stems, and a bottom staff for guitar tablature with fret numbers. Below each system is a fretboard diagram. For bar 35, the fretboard diagram is labeled '4fr' and shows a 4-fret position with circles on the 1st and 4th frets. For bar 51, the fretboard diagram is labeled '12fr' and shows a 12-fret position with circles on the 1st and 12th frets.

**Figure 22:** Unison ascending voices, bars 35 and 51.

Figure 23 shows musical notation for two bars, 53 and 65. Each bar is represented by a system of three staves: a top staff for guitar tablature (TAB) with fret numbers, a middle staff for musical notation with notes and stems, and a bottom staff for guitar tablature with fret numbers. Below each system is a fretboard diagram. For bar 53, the fretboard diagram is labeled '13fr' and shows a 13-fret position with circles on the 1st, 3rd, and 13th frets. For bar 65, the fretboard diagram is labeled '3fr' and shows a 3-fret position with circles on the 1st, 3rd, and 4th frets.

**Figure 23:** Unison descending voices, bars 53 and 65.

It is logical that Monder is encouraged to develop material with the outer voices in a step-wise motion as the middle voice is preoccupied by maintaining the open-string drone. Therefore, any significant change in the pitch of the outer voices must occur up and down the neck, as opposed to playing across multiple strings. By restricting the voices to two strings each, the amount of pitch material that can be generated by each voice in a single position is drastically reduced, encouraging the composer to incorporate along-the-string movement in the left hand. As well,

the material in one voice affects the material that is available in the others. For example, the left-hand configuration shown in bar 35 (figure 22) arguably represents the furthest difference in pitch between the lower and upper voice for that fret position (without the use of open strings) due to the typical hand-span of a guitarist. Further, the extensive stretch between the first and fourth fingers greatly diminishes the dexterity of the second and third fingers—perhaps offering additional insight into why the middle voice is untouched by the left hand.

One important point regarding the lowest voice that has not yet been mentioned is that Monder almost entirely omits the fifth string from the work when the voices are split. This obviously places a restriction on the pitch range of the low voice, but a logical reason can be found in the fact that this voice is exclusively performed using hammer-ons with the left hand—due to other two voices requiring the use of all right-hand fingers (the little finger excluded as it is not traditionally used in the right hand). Because of its size, the projection and timbre of a hammer-on on the fifth string is significantly less compared to hammer-ons on the sixth string. Monder would have been encouraged to focus on the sixth string to get the most resonant sound out of the lower voice. I believe this to be another example of the guitar's construction influencing pitch selection, and therefore compositional choices of the work of the work.

Although not related to the voicing separation that has been the focus of this analysis so far, the closing passage of *Orbits*, a rapid triplet run, provides another insight into Monder's physically influenced approach to material generation. As the highlighting in figure 24 shows, this triplet passage is divided into two transpositions of the same ten-note passage (excluding the four-note whole-tone run that ends the figure). Like the example discussed in *Oceana* (figure 12) Monder has utilised the same open-string for both iterations of the passage, allowing a level of linear

chromaticism that would be impossible to execute without constant string repetition at levels of transposition.

**Figure 24:** Closing passage of *Orbits*, bars 238-240.

As such, this can be considered another example of Huron and Bercé's transpositional idiomatism that has been mentioned in the previous analyses. Additionally, not only are both phrases identical in pitch-relationships, but identical left and right-hand patterns are used to execute them, further emphasizing the physically-grounded conception of the phrases. As the phrase begins again in the middle of a triplet figure, there is a difficulty for the guitarist to outline a triplet feel in the passage, but at the sheer tempo that Monder states for the piece (minim = 94) it is difficult for a listener to register that there are two identical phrases, let alone that the triplet feel is not being perfectly executed.

The examples given provide strong evidence that much of the material in *Orbits* was influenced by the physical biases of the guitar. Much like *Double Sun*, this piece is a negotiation between which voice's material is developed, and which remains static due to physical limitations set by the instrument. An initial decision to separate voices into pairs of strings drastically narrows the pool of material that Monder can draw from. Abundant use of open strings is necessitated by the fact that Monder is only able to develop voices when the hands of the guitarist aren't preoccupied by the other voices. As well, material is developed with far more step-wise motion than normally seen in guitar music due to the inability for individual voices to move across the guitar neck to different strings, meaning that a linear approach to melodies is adopted for the majority of the work. While large melodic leaps are possible along a single string, the degree of

difficulty with which to perform angular melodies is far greater. We also find additional examples of Monder's compositional trope of reusing physical material, as well as the transpositional idiomatism of open string affordances.

## 2.4 Windowpane

Given that well over half of its material is comprised of a single finger-picking pattern, the right-hand focus of *Windowpane* cannot be denied. As a classical guitarist, it was difficult not to draw comparisons to Hector Villa-Lobos' (1887-1959) *Etude no. 1*—a work that is a rite of passage in the classical guitar canon for right-hand speed and technique.



Figure 25: Opening passage of *Etude No. 1* by Villa-Lobos.

It is easy to consider Monder's work in the same way, as a virtuosic right-hand study in which the composer is also exploring the harmonic limits of a picking pattern. Much like the static-left-hand planing observed in *Oceana*, there are many logical connections between material generation and a conscious adherence to repeatable physical shapes. A trope of Monder's compositional style is the emphasis on generating maximum *harmonic* material, from a minimum of *physical* material. To begin to illustrate this, I will start with the aforementioned finger-picking pattern that is used for the majority of the piece:

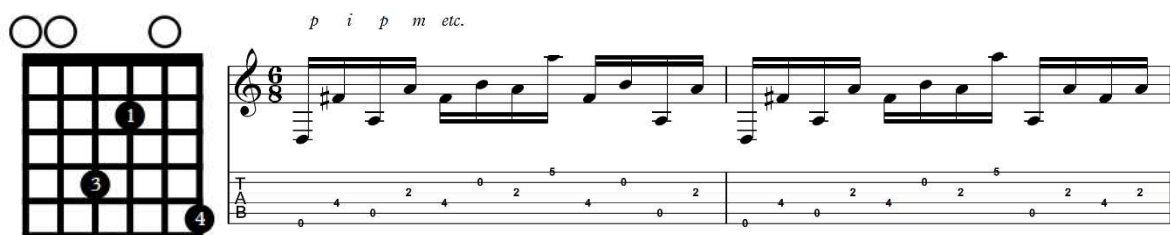
The image shows the opening passage of Monder's Windowpane. On the left is a guitar fretboard diagram for the first two bars. The fretboard is a 6x6 grid. Above the grid are three circles representing the strings: the top two are open circles, and the bottom one is a solid circle. The fretboard has four frets marked with numbers 1, 3, and 4. The first bar has a solid circle at fret 1 on the second string and a solid circle at fret 3 on the third string. The second bar has a solid circle at fret 4 on the second string and a solid circle at fret 4 on the third string. To the right of the fretboard is the musical score. It is written in treble clef with a key signature of one sharp (F#) and a 6/8 time signature. The tempo is marked 'p i p m etc.'. The music consists of a series of eighth-note patterns. The first measure is marked with a piano 'p' dynamic. The second measure is marked with a piano 'p' dynamic. The piece ends with a double bar line. Below the musical score is a tablature for the first two bars. The top line is the treble clef staff, and the bottom line is the bass clef staff. The tablature shows the fret numbers for each string in each measure. The first measure has fret numbers 4, 0, 2, 4, 2, 4, 0, 2. The second measure has fret numbers 0, 4, 0, 2, 4, 2, 0, 2.

Figure 26: Opening passage of *Windowpane* with left-hand configuration, bars 1-2.

Notably, the pitch contour in this excerpt correlates with the contour shown by the corresponding tablature and as such, there is an audibly faithful representation of the picking pattern when listening to the opening passage. However, it does not take long for this connection to disappear, as Monder begins to explore the possibilities of other left-hand configurations with the pattern.

**Figure 27:** Alternate pitch contour with picking pattern, bars 25-26.

**Figure 27 continued:** bars 45-46.

The above examples highlight some of the situations in which Monder creates pitch contours that are different from the opening passage, but maintain the same physical pattern in the right hand. Further, in the case of bars 45-56 even the left-hand configuration remains consistent.

Figure 28 highlights Monder’s explorative, guitaristic approach for the generation of material. The accompanying chord diagrams highlight that all the material in the figure is comprised from the same static left-hand configuration, with the consistent use of the same open strings allowing varying levels of dissonance depending on the chosen fret position.



The image displays a musical score for guitar, divided into four systems. Each system consists of a treble clef staff with a melodic line, a bass clef staff with a bass line, and a fretboard diagram. The fretboard diagrams are labeled with their respective fret positions: 5fr, 8fr, 5fr, 7fr, 8fr, 10fr, and 11fr. The score includes measure numbers 306, 307, 314, 315, 320, 321, 322, and 323. The bass line features various fret numbers (0, 5, 7, 8, 10, 11, 12, 13, 14) and includes a triplet of eighth notes in measure 315. The fretboard diagrams show a consistent left-hand configuration of fingers (index, middle, ring, pinky) across different frets, illustrating how the same configuration can produce different dissonances as the fret position changes.

**Figure 28:** Varying dissonance with identical left-hand configuration.

Most notable in this example is the passage highlighted in bars 320 and 321, in which the fret position is shifted before the right-hand pattern has completed. Although the configuration isn't fully realised before shifting, the guitarist is encouraged to hold the full shape regardless, so that when the shift does occur, all the fingers of the left hand are already in place to finish off playing

the configuration. Unlike the examples discussed in *Double Sun*, in this situation *Monder* does not shift positions diatonically but rather maintains an identical left-hand configuration, further emphasising the physically- grounded development of the harmonic material. This is closely related to the material discussed in *Oceana*, in which *Monder* focuses on recycling the same left-hand patterns and structures in as many situations as possible. The shifts are in intervals of minor-thirds, or three frets, a pattern that *Monder* would later use liberally in *Oceana* (figure 3). The effect of this is that while the fretted notes are maintaining a consistent harmonic relationship, various dissonances appear in combination with the unchanging open strings as the shifts occur. Through the use of static left-hand planing and consistent use of open strings, *Monder* creates a guitaristic harmonic progression in this passage.

**Figure 29:** Sympathetic intervallic structures used in *Windowpane*.

In other sections of *Windowpane*, we again find allusions to Ted Greene’s intervallic structure concept. Throughout the work, Monder employs two structures that complement each other as they shift up the fretboard, switching back and forth between them to avoid the passage sounding overly clinical and scalic. Monder names the technique ‘sympathetic structures.’<sup>56</sup> Figure 29 above shows the structures in their entirety alongside each other—both shifting diatonically, in D major, up the fretboard. However, Monder realises both structures sporadically over the course of *Windowpane* (figure 30). In this way, the structures are linked through this physical compositional technique, even though the material is presented intermittently throughout the work.

Figure 30 shows a musical score for guitar, consisting of two systems of notation. The first system covers bars 163, 164, and 165. The second system covers bars 166, 167, and 168. Each bar is labeled with a structure name: 1b, 2b, 1d, 2b, 1b, 2b in the first system; and 2c, 1e, 1b, 2b, 1d, 2d in the second system. The notation includes a treble clef, a key signature of one sharp (F#), and various rhythmic values. Below the staff is a three-line tablature with strings labeled T, A, and B, showing fret numbers for each note.

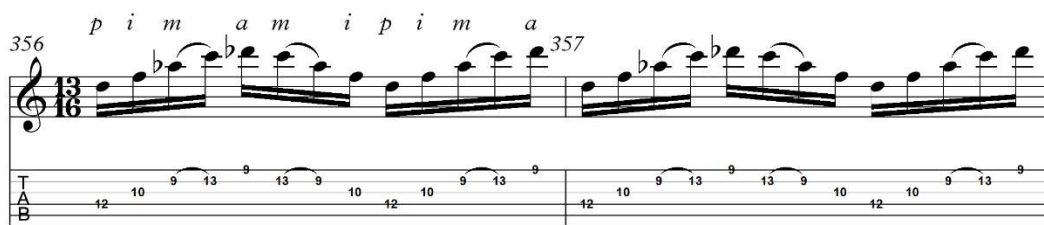
**Figure 30:** Scattered presentation of sympathetic structures, bars 163-168.

Figure 30 presents an example of the scattering of Monder’s sympathetic structures, along with the corresponding labelling from figure 29. For the most part, there appears to be little physical logic in the order that the structures are presented in. Large leaps occur shifting up and down the neck, and there is only one instance in which two of the same structure are played successively (2b to 2c in bars 165-166). There is a strong argument for the case that Monder consciously scattered the order of the structures to explore the various relationships that can occur, rather

<sup>56</sup> Ben Monder, “Jazz Guitar Lesson (2),” *My Music Masterclass*, accessed July 26, 2015, <https://www.mymusicmasterclass.com/premiumvideos/ben-monder-jazz-guitar-lesson-2/>.

than simply present the structures in their step-wise order, which may have seemed too clinical to a listener. The piece has a feeling of exploration for the performer, in which Monder has clearly derived his material from straight-forward, physically-influenced concepts, before then masking the material's origins with compositional decisions that aren't guitaristic in nature (such as the constant shifting seen in figure 30).

Although not occurring until halfway through the work, a notable element of *Windowpane* is the abundance of unconventional time signatures. Uncovering the physicalistic grounding of these time signatures proves them to be just as logical, and in some cases more, than simple meters.



**Figure 31:** Physicalistic time signature in *Windowpane*, bars 356-357.

The combination of an appropriate left-hand configuration and right-hand picking pattern allows the meter in figure 31 to take on a physical logic. As the right-hand fingerings show, the guitarist performs a cycling arpeggio from the thumb to the 'a' finger, back down, and finally back up again. With the addition of the hammer-on and pull-off on the second string, the time signature maintains a perfectly natural flow for the guitarist's hands. What is important to stress is that the physicalistic nature of the time signature is dependent on the material. This meter is in no way inherent to the guitar by design, but to the arpeggio pattern. As well, we can interpret the beam groupings as note necessarily conforming to the melodic contour, but to the right-hand pattern. If we refer back to the opening passage of *Windowpane* in figure 26, we can also note that, although the passage is in 6/8, the beam groupings correspond not to the meter but to the right-hand (*p-i-p-m*). The meter in figure 31's situation is arguably nothing more than the result of realising a physicalistic guitar arpeggio.

**Figure 32:** Unintuitive left-hand shift, bars 397-398.

Figure 32 presents a rare moment in Monder's compositional style in which a physicalistically-conceived idea must be compromised for the sake of a more abstract development of the material. At this point, Monder has explored the 13/16 arpeggiated figure extensively, and the left hand has been maintaining a relatively consistent shape: barring with the first finger, the third finger on the 5<sup>th</sup> string, and the fourth finger on the 2<sup>nd</sup> or 3<sup>rd</sup> string (see first chord diagram in figure 31). However, when bar 398 is reached, the fourth finger must transition over to the 5<sup>th</sup> string (second chord diagram in figure 32). This is due to the hammer-on notes in bar 398 occurring on a fret lower than the 5<sup>th</sup> string, necessitating the fourth finger to transition to the 5<sup>th</sup> string, allowing the third finger to be free to perform the hammer-ons on the sixteenth fret. One might argue that the second finger being free would remove the need for this transition. But due to the barre, the second finger simply does not typically have the dexterity to stretch three frets higher than the first. Although the pitch on the 5<sup>th</sup> string remains the same, the fourth finger has very little time to move from the 2<sup>nd</sup> string in the previous bar to replace the third finger, making it very difficult for the performer to maintain the flow of the section. Although a small event, comparatively this is a clumsy moment for the left hand within a work that otherwise develops in a physically logical way. As many of the examples in these works present situations in which abstractly conceived material is transformed via physicalistic means, it seems important to highlight where the opposite has occurred: A physicalistic musical figure that cannot be maintained due to a relatively simple pitch shift.

It is clear through a physical analysis of the material that there are pitch relationships in *Windowpane* that exist exclusively through a guitaristic lens. The examples given highlight the connection between right-hand picking patterns and pitch contour, the physical relationship of different material through left-hand configurations, affordances given to the meter of the work due to physical idioms of the guitar, and situations in which even small pitch changes can be far more physically demanding for the guitarist than the notation would suggest. Looking at the notation alone, it would be easy to acknowledge the playability of the material on an instrument such as a piano, however, any insights into the performative, explorative compositional approach that Monder has clearly adopted would be inexplicable if not analysed from the perspective of a guitarist.

### **3. Conclusion**

The examination of the guitar works of Ben Monder on a performative level effectively showcase the value of a physicalistic analysis. Monder pieces were chosen due to their synthesis of abstract and physicalistic compositional elements. These analyses present an understanding of the work that could not be achieved through a solely score-based approach, uncovering moments where Monder not only effectively uses the affordances of the guitar but also allows those affordances to dictate the compositional process. In other words, this method of analysis allows us to determine the difference between physically-based ideas developed through abstract compositional ideas, and vice versa. Further, the research posits that as the guitar displays a unique set of affordances to consider, the analysis itself must use guitar-specific methods to examine these aspects.

In *Oceana*, Monder consistently utilises the open-string affordances of the guitar, allowing transpositional idiomaticism to influence the composition, as well as showing a focus on left-hand planing. Additionally, the work highlights how even abstracted techniques such as tone rows can be subject to the physical considerations of the instrument. *Double Sun* and *Orbits* highlight the effectiveness of using a physically-based concept for a piece. Both works separate the voices into sets of strings and analysis reveals how this self-imposed restriction can influence the piece's development. Finally, *Windowpane*, while also functioning as a right-hand study, shows how a piece can be built out of a single picking pattern; as well as focusing on left-hand chord planing to generate as much harmonic material from as little physical material as possible. Analysis of *Windowpane* also presents us with examples of the affordances of the instrument informing the meter of the work.

There is clearly much to be gained from instrument-specific methods of analysis. As far back at the 1950s, musicologists have presented research that the value of focusing on the physical attributes of a composition ahead of abstract musical ideas—yet there is still a noticeable lack of this approach in recent musicological literature. Physicality must be an essential consideration in

any analysis as deeper insight is gained regardless of its prevalence in the work. We can understand more about how a piece is derived, and the composer's intentions and process based on the presence, or the absence, of physicalistic characteristics. Naturally, the approach taken in this research is guitar-specific and requires additional research into other guitar composers of varying styles and approaches. Further, as a guitarist, I am unable to comment on the effectiveness of a physicalistic analysis approach for other instruments, although a survey of previous research shows that this is an area ripe for exploration.



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