

The Idiophonic Guitar: A Taxonomy and
Performance Guide to Percussive Effects in the
Classical Guitar's Solo Repertoire.
A Portfolio of Recordings and Exegesis

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ABSTRACT

The sound-world of the classical guitar has become increasingly enriched by percussive effects. This is exemplified in the solo classical guitar repertoire that this performance-based study examines. Drawing on Robert Bell's definition of percussion and the Hornbostel-Sachs instrument classification system, a new taxonomy is devised to identify and categorise classical guitar sounds that are more commonly associated with idiophone instruments. An integrated performance guide addresses technical, musical and other associated challenges to assist performers and composers in attaining a clearer understanding of the idiophonic guitar in performance. The outcome of this project contains two 60-minute recitals and an accompanying 7500-word exegesis.

DECLARATION

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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I acknowledge the support I have received for my research through the provision of an Australian Government Research Training Program Scholarship.

Signed _____

Print Emanuel Auciello

Date 3/11/2021

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PART A: AUDIO/VISUAL RECORDINGS

A.1 – DVD 1

Masters Recital I, December 10th 2020 at Elder Hall

Title	Composer/Arranger	Time Stamp
Carillon	Benvenuto Terzi	0:00:25
Invierno Porteño	Astor Piazzolla/Sergio Assad	0:03:25
Verano Porteño	Astor Piazzolla/Sergio Assad	0:06:38
Tango en Skaï	Roland Dyens	0:13:25
The Prince's Toys	Nikita Koshkin	
<i>I. The Mischievous Prince</i>		0:16:52
<i>II. The Mechanical Monkey</i>		0:19:56
<i>III. The Doll with the Blinking Eyes</i>		0:22:37
<i>IV. The Tin Soldiers</i>		0:28:23
<i>V. The Prince's Coach</i>		0:30:55
<i>VI. The Big Toy's Parade</i>		0:32:59
Hot Club Français	Gary Ryan	0:45:05
Benga Beat	Gary Ryan	0:49:16
		Total: 57:10

Table 1 – Recital I Programme

Masters Recital II, August 25th 2021 at Elder Hall

Title	Composer/Arranger	Time Stamp
A Night in Tunisia	Dizzy Gillespie/Roland Dyens	0:36
Out of Africa	Alan Thomas	
<i>I. Call at Sunrise</i>		6:20
<i>II. Morning Dance</i>		10:13
<i>III. Zenith</i>		14:30
<i>IV. Evening Dance</i>		20:50
Electric Suite	Nuccio D'Angelo	
<i>I. Funky</i>		25:29
<i>II. Soft</i>		29:29
<i>III. Raga-Blues</i>		31:34
<i>IV. Song</i>		33:50
Jongo	Paulo Bellinati	38:17
Libra Sonatine	Roland Dyens	
<i>I. India</i>		44:46
<i>II. Largo</i>		50:21
<i>III. Fuoco</i>		54:45
		Total: 58:30

Table 2 – Recital II Programme

The curatorial approach taken for these two recitals is to demonstrate the degree to which percussive effects have permeated the classical guitar repertoire across different styles and genres, including jazz, tango, African, contemporary and South American.

For video recordings of the recitals, please refer to the provided video files

PART B: EXEGESIS

Introduction

The quality of a sound was once an easily distinguishable feature of any instrument. A guitar playing middle C would have a different sound quality to a piano playing the same note, making it easy to differentiate the instruments from one another. The spectrum of sounds used in musical works has expanded with the increasing popularity of extended techniques to include sounds that would not normally be associated with the instrument that produced them. This notion is discussed at length by Pierre Schaeffer in his *Solfège de l'Objet Sonore* (*Solfège of the Sound Object*) published in 1967 (republished with parallel French and English text in 1998). Schaeffer writes that 'The sound object must not be confused with the sounding body by which it is produced.'¹ The sound object refers to the distinctive qualities of the sound produced, which should be thought of as separate, outside the context of the sounding body from whence it came e.g. timbre, attack, shape etc. The classical guitar is renowned for its ability to produce a wide array of colours, but also has the capability to produce percussive sounds through the use of extended techniques. Though these sound objects are produced from a chordophonic instrument, the method to produce them often aligns with the method through which idiophonic instruments produce sound, not to mention the similarities in the sound objects produced. There is no defining feature that distinguishes an extended technique from a standard one, and there is often ambiguity regarding which techniques are considered extended.² It is the performance and the characteristic nature of such percussive effects that is the focus of this project. The Hornbostel-Sachs instrument classification system's idiophone category is used alongside Robert Bell's Percussive Audio Lexicon as the foundation for a newly created taxonomy that can facilitate the classification of percussive sounds produced on the classical guitar. Downwards logical division is employed within the taxonomy to organise the identified effects and communicate information that could otherwise not be conveyed through performance of the effects alone.

¹ Schaeffer, P. *Solfège de l'Objet Sonore*. Second Edition, 1998. INA/GRM, Paris p. 55

² Examples of this are *tambora* on classical guitar or *tapping* on electric guitar, which have both become so common that they may often be referred to as standard techniques.

Literature Review

A key concept for this project is the Hornbostel-Sachs Classification of Musical Instruments. The original article was published in 1914 in German, and was translated into English by Anthony Baines and Klaus P. Wachsmann in 1961. Almost 50 years after its original publication, Baines and Wachsmann felt it necessary to translate the original publication into English as they state in the preface that ‘No other system of classification is more frequently quoted, nor has any later system been able to supplant it.’¹ The H-S system is based on a classification system by Victor-Charles Mahillon, whose system classified instruments using a method of downwards logical division into four main categories governed by the nature of the vibrating, sound-producing body, namely Chordophones, Aerophones, Membranophones and Autophones (later renamed Idiophones).³ By adapting, extending and adding numerical values to Mahillon’s scheme, Hornbostel and Sachs developed an information storage and retrieval system for museum collections of instruments which superficially resembles the library-specific system by the American librarian Melvil Dewey.⁴ Despite the ubiquity of this system, many scholars have criticised Hornbostel and Sachs. A frequent criticism is that the numbering system used can become too complex. One example is Jeremy Montagu and John Burton’s discussion of the highland pipe, which if classified under the H-S system, would contain twenty-one figures and signs: 422.112/422.221.1-621.⁵ The rebuttal to this is, though some specific instruments may have an absurd amount of figures when classified, the universal use and the frequency of updates and revisions of the Hornbostel-Sachs system has ultimately provided a logical means of classification for all instruments, leading it to become the most widely accepted form of musical instrument classification. The version utilised as the basis of this project is that provided by Geneviève Dournon in chapter 10 of *Ethnomusicology: An Introduction*.⁶ Dournon’s updated version allows for a system of classification that still incorporates the Dewey decimal system used in the original, but does not allow the number of digits and signs used for each category to become too complex. In regards to the idiophone category, Dournon divides the instruments across seven sub-categories instead of the original four, leaving the page less cluttered with hierarchies and allowing instruments to be identified either at a glance or with minimal searching.

³ Kartomi, M. 1990. *On Concepts and Classifications of Musical Instruments*. The University of Chicago Press. Chicago. p.163

⁴ Kartomi, M. 1990. *On Concepts and Classifications of Musical Instruments*. The University of Chicago Press. Chicago. p.168

⁵ Burton, J, & Montagu, J, 1971, ‘A Proposed New Classification System for Musical Instruments’, *Journal of Ethnomusicology*, vol.15, no.1, p. 50

⁶ Dournon, G. 1992. ‘Organology’. H Myers (ed), *Ethnomusicology: An Introduction*. The Macmillan Press LTD, Hampshire, pp.245-300.

Although the H-S system is still widely used across the world, scholars continue to create alternative systems for classifying musical instruments. Notably, Andre Schaeffner's 'Projet d'une Classification Nouvelle des Instruments de Musique' (Project for a New Classification of Musical Instruments) classifies instruments into one of only two main headings: Instruments with a solid vibrating body and instruments with vibrating air. The instruments are further differentiated within the main headings based on elements that are immediately recognisable and essentially undisputable, such as the material of the body which is set in vibration or the devices attached to intensify the sound.⁷ Schaeffner wrote of the Hornbostel-Sachs system that 'the idiophone category is not sufficiently differentiated and therefore cannot avoid the faulty classification of instruments.'⁸ While Schaeffner's bipartite classification system is a valid system for musical instruments, it has not been chosen for use in this project as the Hornbostel-Sachs system provides a more diverse separation of instruments, allowing the project to clearly identify the aspects that can allow the guitar to be treated as a percussive instrument.

Robert Allan Lunn's PhD study is written as a reference guide for composers.⁹ The first two chapters divide extended techniques into those involving the left-hand and those involving the right-hand. The other four chapters discuss percussive sounds, with objects, borrowed from other traditions and miscellaneous techniques. The chapter on percussive sounds describes these extended techniques as '[using] the guitar as a percussive instrument by hitting the strings or the body of the guitar.' Lunn's classification of percussive effects as extended techniques justifies the first step of this project's methodology, wherein those that can be considered percussive effects are divided from those that cannot. While the information Lunn provides is well thought out, Lunn includes techniques that can be considered standard for the instrument. For example, the *glissando* technique discussed on page 5, does primarily involve the left hand, as the chapter suggests, but can be seen as a standard technique for the instrument. In regard to notation conventions, Lunn makes the important observation that the notation and explanation of extended techniques is solely left to the discretion of the composer.

⁷ Schaeffner, A. 1931. 'Projet d'une Classification Nouvelle des Instruments de Musique'. *Bulletin du Musée d'Ethnographie du Trocadéro*. 1:21. Translated by Riehl, C & Grupe, G as 'Project for a New Classification of Musical Instruments'. *Translingual Discourse in Ethnomusicology*. vol. 2, p. 20. DOI:10.17440/tde008

⁸ Kartomi, M. 1990. *On Concepts and Classifications of Musical Instruments*. The University of Chicago Press. Chicago. p.175

⁹ Lunn, RA 2010 'Extended techniques for the classical guitar: A guide for composers', PhD thesis, The Ohio State University.

Alexandra Shepherd's recent study describes extended techniques as 'non-standard performance techniques that are defined by either prescriptive notation or by descriptive score annotations that go beyond the traditional scope of expression markings.'¹⁰ Shepherd discusses what she refers to as 'prescriptive notation', which she defines as the way in which the composer informs the performer of the technical aspect of executing a particular technique. Shepherd includes a brief section on the use of percussive effects that covers some of the most commonly utilised effects. Some extended techniques that have been considered to be percussive effects in this project have been included in both Shepherd's and Lunn's studies under different headings. For example, Shepherd discusses the right-hand tap effect under the heading of right-hand focused extended techniques,¹¹ whilst this project discusses it under the heading of a percussive effect. This is one example of the level of ambiguity that surrounds extended techniques as a whole.

'The Contemporary Guitar' by John Schneider outlines many of the modern guitar's available techniques, both standard and extended. Among the vast array of topics discussed is a section on percussive effects, in which Schneider states 'there are two basic kinds of percussion techniques for the guitar: those that strike the strings (tambora), and those that strike the wood (golpe).'¹² While this statement is true, Schneider's labelling of all percussive effects that strike the strings as 'tambora' and all effects that strike the wood as 'golpe' can be seen as too much of a generalisation. Tambora and golpe are certainly two types of percussive effects, but using these established terms to capture all other percussive effects the classical guitar is capable of is problematic. Although these headings do not fully encapsulate the vast array of available percussive sounds that the classical guitar can produce, Schneider presents a thorough explanation of not only the way in which these effects are executed, but how composers have managed to portray their intentions to the performers by using examples from existing repertoire across multiple styles of classical guitar. Similarly, this project intends to provide a more in-depth method of classification that focuses on the way in which the instrument is struck to produce the sound, rather than the part that is struck.

¹⁰ Shepherd, A. 2020. 'The Application and Performance of Extended Techniques on Classical Guitar from 1970 to 2012: A Portfolio of Recorded Performances and Exegesis'. MA exegesis, University of Adelaide, Adelaide, p.20

¹¹ Shepherd, A. 2020. 'The Application and Performance of Extended Techniques on Classical Guitar from 1970 to 2012: A Portfolio of Recorded Performances and Exegesis'. MA exegesis, University of Adelaide, Adelaide, p.22

¹² Schneider, J. 1985, *The Contemporary Guitar*, Rowman and Littlefield Publishers

Aims of the Project

- To distinguish extended techniques that can be considered percussive effects from those that cannot.
- To create a taxonomy of percussive effects that can be utilised as both a theoretical system of classification and an aid to the practical application of percussive effects in performance.
- To provide strategies that can help performers overcome technical difficulties when executing percussive effects in performance.
- To discuss the effectiveness and clarity of the different notational methods composers have applied to notate percussive effects.

Research Questions

- What are percussive effects and how do they relate to extended techniques?
- Can a system of classification be created that satisfies the demands of both inclusiveness and logic to categorise percussive effects?
- What strategies can be effectively utilised to overcome technical challenges in performance of percussive effects?
- Where no universally accepted form of notation exists, how have composers notated percussive effects on the score and have these notation methods clearly outlined the intentions of the composer to the performer?

Conceptual Framework

This exegesis is underpinned by a practice-led methodology outlined by Candy and Edmunds in their article ‘Practice-Based Research in the Creative Arts: Foundations and Futures from the Front Line’, alongside Tara Brabazon’s ‘vlog 121 – The creative led PhD.’¹³ Candy and Edmunds make a clear distinction between practice-led and practice-based research. They state:

A practice-based PhD is distinguishable from other kinds of PhD because the creative works arising from the research process are included in the submission. A full understanding of the significance and the context of the research can only be obtained by experience of the works created as distinguished from using them as illustrations.¹⁴

The creative works that arose from the research in the present submission are the recorded recitals. The exegesis supports the creative work and is submitted alongside the creative works, which also aligns with Tara Brabazon’s description of the artifact and exegesis methodology. It therefore follows that this submission is in two parts, the artifact (2 DVDs) as the practical application of the theories discussed in the supporting exegesis. This project will follow a four-step methodology:

Step 1: Identification

The first step is to identify which extended techniques within the chosen repertoire can be classified as percussive effects. Distinction between percussive effects and non-percussive extended techniques will serve as the top level of downwards logical division within the taxonomy.

¹³ Brabazon, T. 2018, *Vlog 121 – The Creative Led PhD*, YouTube, 24 June, <https://www.youtube.com/watch?v=Hn4Cktzd5hg>

¹⁴ Candy, L and Edmonds, E 2018, ‘Practice-Based Research in the Creative Arts: Foundations and Futures from the Front Line’, *Leonardo*, vol. 51, no. 1, p. 65

Step 2: Categorisation

The second step sees the identified percussive effects categorised into one of three percussive effect sub-categories, which align with the way in which they make the instrument vibrate, similar to the H-S system's idiophone sub-categories.

Step 3: Assimilation

A key outcome for this study is the guidance that can be provided for performance of percussive effects, including details of execution, associated challenges and risks as well as other relevant information relating to the percussive effect in question.

Step 4: Application

A demonstration of the percussive effects examined in this project will be provided through recorded performances of the repertoire (see Part A: Audio/Visual Recordings).

1. Downwards Logical Division of Percussive Effects and Their Variations

Logical division is the process of dividing a class into subclasses, then some of those subclasses into some of their subclasses, and so on.¹⁵ As per step 1 of this study's methodology, percussive effects must be divided from extended techniques. Extended techniques require the performer to use an instrument in a manner outside of traditionally established norms,¹⁶ and this includes the production of percussive sounds on the instrument. 'Percussion is the act of one object striking or colliding against another [and] percussive sounds then are the audible product of two or more solid objects engaged in some form of collision.'¹⁷ This definition from Robert Bell's PAL: The Percussive Audio Lexicon is used to distinguish the percussive effects from extended techniques. From the selection of pieces chosen (See Part A: Audio/Visual Recordings) 12 extended techniques that cause a collision with the guitar have been identified as percussive effects. Five of these effects have one or more variations that can be applied to alter the resulting sound (e.g. muting the strings, changing the position of the hands etc.). A list of the identified percussive effects and any variations is shown in Table 3.

¹⁵ Fricke, M 2016, *Logical Division*, Internatoinal Society for Knowledge Organisation, https://www.isko.org/cyclo/logical_division

¹⁶ Burtner, M 2005, *Making Noise: Extended Techniques After Experimentalism*, New Music Box, <https://nmbx.newmusicusa.org/making-noise-extended-techniques-after-experimentalism/>

¹⁷ Bell, R. 2015, 'PAL: The Percussive Audio Lexicon. An Approach to Describing the Features of Percussion Instruments and the Sounds they Produce', PhD Thesis, Swinburne University of Technology, Melbourne

List of Identified Percussive Effects	Variations on the Effect (if any)
Hits	Golpe Rapid Nail Taps Roll Gallop
Tambora	Muted Resonance Changing
String Tap	
Slap	
RH Tap	
LH Hammer	LH Hammer Behind RH Tap
String Slide	
String Scrape	
Bridge Scrape	
Bartók Pizzicato	Muted
String Cross	Muted Bartók
Neck Buzz	

Table 3 - List of Identified Percussive Effects

1.1 Utilisation of the Hornbostel-Sachs Idiophone Category to Categorise Percussive Effects

This study makes adaptations to the Hornbostel-Sachs instrument classification system (H-S system hereafter), to create a new taxonomy that can facilitate the classification of percussive effects. Margaret Kartomi's description of the H-S system as 'A Flexible Nucleus for Taxonomical Expansion'¹⁸ perfectly describes how this project utilises the system. At the top level of division in the H-S system, instruments are divided across five categories based on the part of the instrument that is made to vibrate.¹⁹

Hornbostel-Sachs Top Two Levels of Division				
Highest Level (Main Categories)				
Idiophones Instruments in which a resonant, solid material vibrates to produce sound.	Membranophones Instruments in which a stretched skin covering the sound box vibrates to produce sound.	Chordophones Instruments in which a stretched vibrating string produces sound.	Aerophones Instruments in which air is the primary vibrating agent that produces sound.	Electrophones Instruments in which an electronic means produces sound.
Second Level (Sub-Categories)				
Subdivided at the second level by the means through which the instrument is made to vibrate	Subdivided at the second level by the means through which the instrument is made to vibrate	Subdivided at the second level by the relationship between the string and the resonator	Subdivided at the second level by whether or not the air is confined by the instrument	Subdivided at the second level by the means through which the sound is electronically created (actuators, amplifiers or oscillators)

Table 4 - Hornbostel-Sachs Top Two Levels of Division

This project treats the classical guitar as a percussive instrument, which is spread across two main categories within the H-S system. Although a case can be made that some percussive effects enable the guitar to act as a membranophone, the majority of effects more appropriately allow the guitar to meet the requirements of the idiophone category. At the second level, H-S divides idiophonic instruments into one of seven sub-categories based on the way on which the instrument is made to vibrate.²⁰

¹⁸ Kartomi, M. 2001. 'The Classification of Musical Instruments: Changing Trends in Research from the Late Nineteenth Century, with Special Reference to the 1900s'. *The Society for Ethnomusicology*. vol. 45. No. 2. p.291

¹⁹ Dourmon, G 1992. 'Organology', H Myers (ed), *Ethnomusicology: An Introduction*, The Macmillan Press LTD, Hampshire, pp. 245-300.

²⁰ Dourmon, G. 1992. 'Organology'. H Myers (ed), *Ethnomusicology: An Introduction*. The Macmillan Press LTD, Hampshire, pp.245-300

Hornbostel-Sachs Idiophone Sub-Categories	
1: Concussion	Between 2 (or more) similar elements, independent or linked.
2: Striking	The vibrating component is struck by a beater.
3: Stamping	The vibrating component taps or stamps another element.
4: Shaking	An object filled with particles that is shaken.
5: Scraping	A notched element scraped with a stick
6: Friction	Of a smooth surface or edge
7: Plucking	A flexible tongue or lamella

Table 5 - Hornbostel-Sachs Idiophone Sub-Categories

Adapting this to the classical guitar, the three primary ways in which the idiophonic guitar can be made to vibrate are through striking, scraping and plucking.

Percussive Effect Sub-Categories (Second level of Division Within the Taxonomy)	
1: Striking Effects	Any percussive effect in which the hand strikes either the strings or body of the guitar.
2: Scraping Effects	Any percussive effect in which the fingers are scraped across the strings.
3: Plucking Effects	Any percussive effect in which the strings are plucked, setting them in motion to collide with the neck or fret wires.

Table 6 - Percussive Effect Sub-Categories (Second Level of Division Within the Taxonomy)

Consequently, this study categorises percussive effects as either a striking, scraping or plucking effect based on how the effect makes the guitar vibrate. Figure 1 shows an overview of the taxonomy.

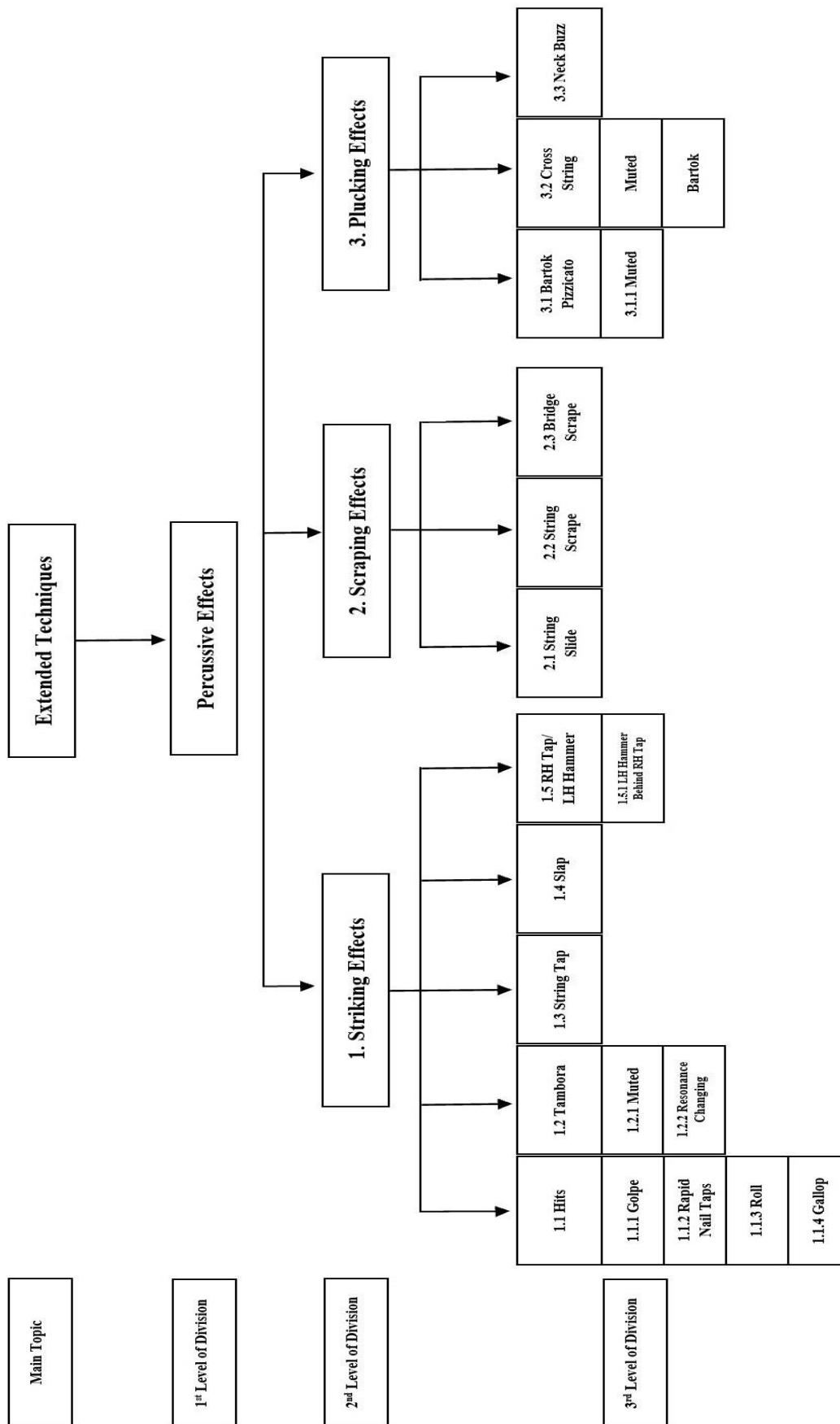


Figure 1 - Taxonomy Overview

2. Percussive Effect Notation Methods

As no universally accepted method of notation exists for percussive effects, composers have come up with ‘prescriptive’ solutions to describe how to produce the intended sounds. Composers need to solve three problems: what effect is to be used, when is it meant to appear with what rhythm and how is the effect to be executed? Composers all solve the first problem by providing written instructions in addition to the conventional score. However, each composer has come up with their own way of solving the problems of what and when. Through score analysis, it has become apparent that six methods are commonly employed to overcome these problems.

2.1 Representative

The representative notation method assigns each effect used to a note on the staff. When that note appears on the staff, it represents the use of an effect, allowing the rhythm to be clearly marked on the score.

*barre 2, 3, and 4 fingers - only to mute
(do not depress or fret the strings)*
CIX-----

left hand

right hand

Slap left palm against the guitar's side (wood sound).

Slap the strings against the fingerboard with left hand fingers 2, 3, & 4 (keep the barre).

Slap the right hand against the guitar's top (wood sound).

Slap the strings against the fingerboard with left hand fingers (keep the barre).

Slap the right hand against the strings near the bridge (bass sound) (keep the barre).

Figure 2 - Example of the Representative Notation Method Found in Paulo Bellinati's *Jongo*

2.2 Alteration

The alteration notation method involves using standard notation with altered note heads or crosses through the stems to indicate the use of an effect. This is the most commonly used method throughout the chosen repertoire as this method allows composers to notate percussive effects alongside regular notes, keeping the score uncluttered.

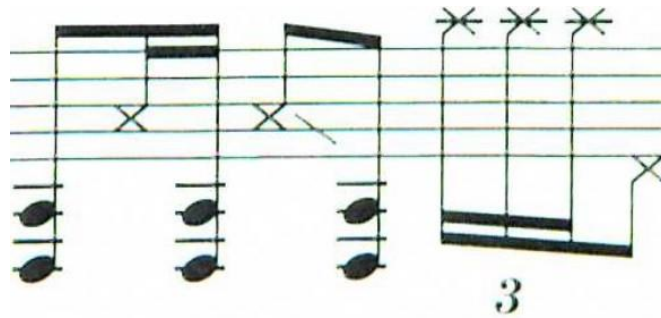


Figure 3 - Example of the Alteration Notation Method from Gary Ryan's *Benga Beat*

2.3 Numeric

Numeric notation assigns numbers to percussive effects and prints those numbers above altered notes on the score to indicate further instructions for the use of the effect. While this method clearly marks what effect is being used, it can cause confusion as numbers are also used to indicate triplets and fingerings.

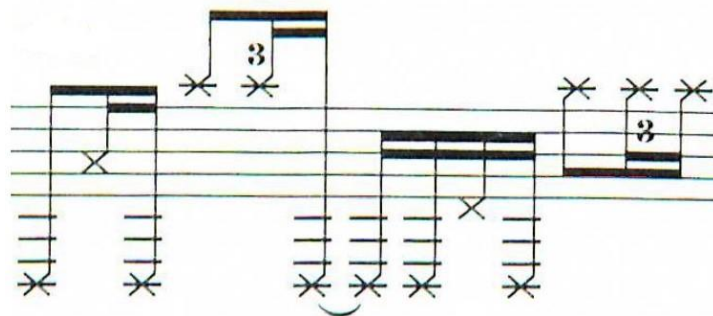


Figure 4 - Example of the Numeric Notation Method from Gary Ryan's *Benga Beat*

2.4 Lexical

Lexical notation assigns a letter to an effect that is explained elsewhere in the score. This method is clear and allows composers to notate the use of multiple effects with a clearly defined rhythm, but clutters the score in the process.

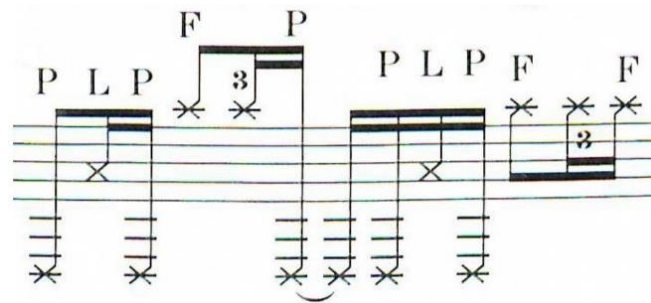


Figure 5 - Example of the Lexical Notation from Gary Ryan's *Benga Beat*

2.5 Symbolic

Symbolic notation displays a diagram in the score to indicate the use of an effect. While this notation method clearly identifies the effect, it often clutters the score and does not allow the rhythm to be displayed.

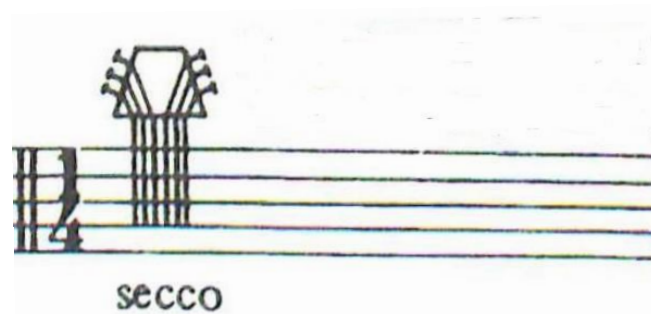


Figure 6 - Example of Symbolic Notation from Roland Dyens' *Fuoco*

2.6 Multiple Staves

Providing a second musical staff underneath the first allows for the clearest representation of rhythm, however it does not specify the desired effect. As a result, this method is often combined with other methods.

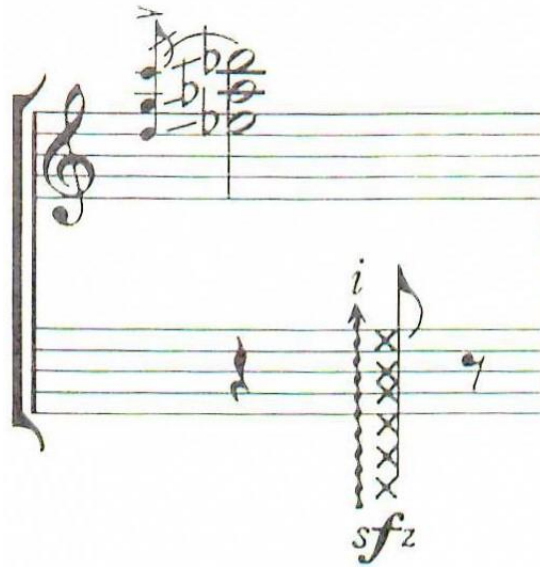


Figure 7 - Example of the Multiple Staves Notation Method from Nikita Koshkin's The Prince's Toys

3. Taxonomy and Performance Guide of Percussive Effects

This taxonomy acts as a conceptual tool, with a view to aid the practical application of percussive effects. The recommendations following the introduction of each percussive effect discussed and the resulting sound object heard (see recordings) are derived from musical performance as the embodiment of artistic research—a process of artistic experimentation that is therefore subject to personal choices that might not appeal to all. As is the very nature of musical interpretation, there are multiple ways of achieving desired outcomes, and readers are therefore encouraged to use this guide to serve their own artistic decisions. Technical choices have been made with the best musical outcome in mind and the specific process is discussed where relevant to specific techniques. Technical choices made have been done so with the best musical outcome in mind and the specific process is discussed where relevant to specific techniques. Each effect will be referred to by one name throughout the taxonomy even if it appears under a different name within the chosen repertoire. This is to allow for consistency and a reduction of the ambiguity so often found in the nomenclature surrounding percussive effects.²¹ It should be noted that the performance of percussive effects can cause damage to the guitar or even injury to the performer. For further clarification of the following discussion, the body of the guitar will be referred to in distinct sections which are each identified by acronyms made up of three letters. The first letter will represent the vertical position: U for upper half of the guitar or L for lower half of the guitar.



Figure 8 - Vertical Sections of the Guitar

²¹ For example: the hit effect is often referred to as a tap or strike and the cross-string effect is commonly called the snare drum effect

The second letter will indicate the horizontal position of the guitar: L for left side, R for right side or C for centre.²²

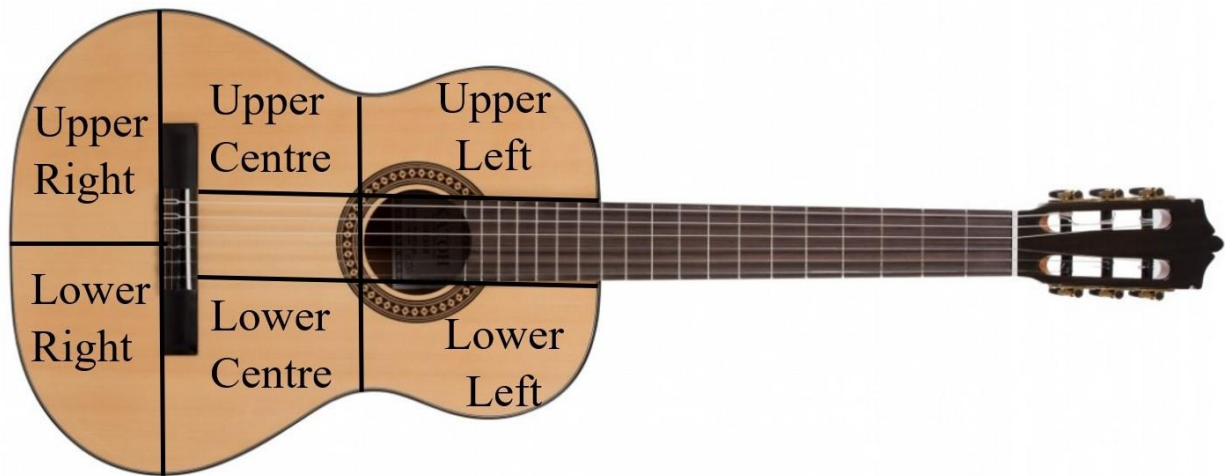


Figure 9 - Horizontal Sections of the Guitar

The final letter will indicate the part of the guitar: F for face, S for side, B for back, T for top (where the arch is) or U for under (where the guitar rests on the leg).²³

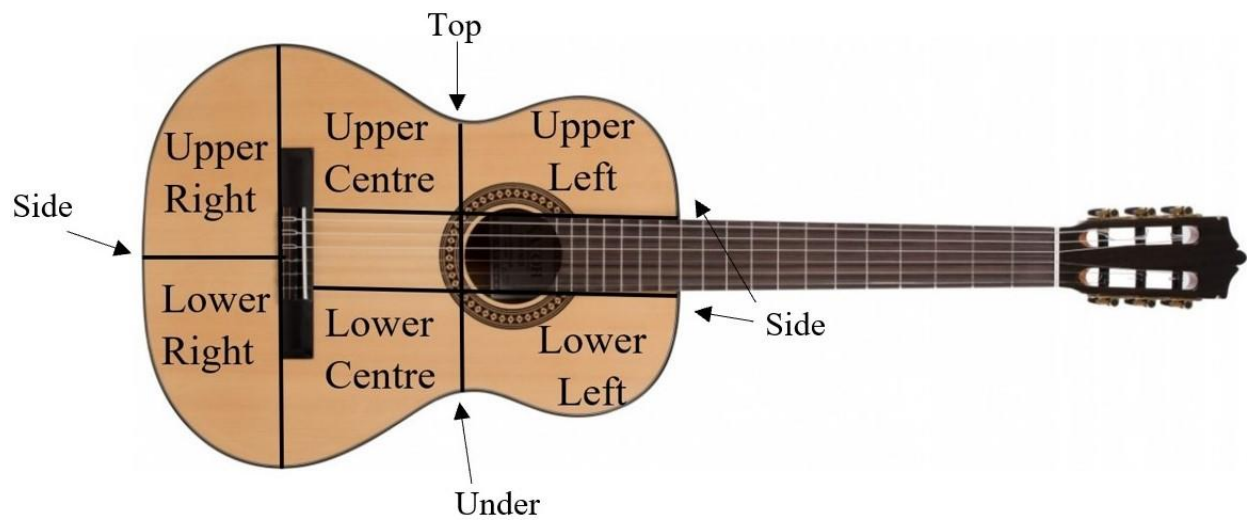


Figure 10 - Sections of the Guitar

²² The horizontal position is shown from the performers point of view.

²³ For example, if the performer is to strike the upper right-hand section on the side of the guitar, it will be called section URS.

1 Striking Effects

Striking idiophones are traditionally sounded by a vibrating component being struck with a beater. Percussive effects executed by the hand striking the guitar (either on the wood or the strings) will therefore be labelled striking effects.

1.1 Hits

Hits are perhaps the simplest percussive effects in terms of execution but the most varied in their sonic result. They are defined here as any tap on the wood of the guitar using any finger/combination of fingers or section of the hand (palm/knuckle etc.). Hits will produce a different sound depending on a myriad of factors, including how the guitar was built, where the guitar is struck, whether the body was struck with flesh or nails, and how fast the fingers bounce back off the body after being struck (if at all). Generally, striking the wood on the sides of the guitar will create a higher pitched percussive sound, whereas a hit on the face or back of the guitar will be lower pitched.²⁴ The effect is found in many pieces throughout both recorded recitals, but predominately in the percussion section from Paulo Bellinati's *Jongo* recorded in Recital II (41:37 to 42:57).

²⁴ The results are instrument-specific and may vary on other guitars. Performers are encouraged to experiment and discover the sounds that can be created on their own instrument.

PERCUSSION SECTION

barre 2, 3, and 4 fingers - only to mute
(do not depress or fret the strings)

CIX - - - - -

left hand

right hand

Slap left palm against the guitar's side (wood sound).

Slap the strings against the fingerboard with left hand fingers 2, 3, & 4 (keep the barre).

Slap the right hand against the guitar's top (wood sound).

Slap the strings against the fingerboard with left hand fingers (keep the barre).

Slap the right hand against the strings near the bridge (bass sound) (keep the barre).

A (CIX) 4X B (CIX) 4X

C (CIX) 4X D (CIX) 4X

E (CIX) 3X

(CIX) - - - - -

- 1) Patterns A, B, C, D, & E can be played in different orders or combinations.
- 2) The number of repeats for each pattern can be also improvised.
- 3) The player can also improvise new patterns keeping the "Jongo" style.

Figure 11 - Separate Sheet Music for the Percussion Section in Paulo Bellinati's Jongo

As Bellinati instructs at the bottom of the score, the percussion section has been improvised and extended to include both new patterns and new sections on which the hit effect is executed. This has been done to showcase the vast array of percussive sounds that can be performed through the use of this effect, from the soft pitter patter of hits with individual fingers through to the thick bass resonance of hits with the palm. The provided patterns outlined by Bellinati are followed in correct order from Patterns A through D, at which point pattern E is used as the segway into the improvisatory percussive patterns that make up the rest of the percussion section. It is also common practice to perform hits by striking the guitar with individual fingers of either hand. While hits can be performed faster when using individual fingers, they will produce a much softer dynamic than using all the fingers at once. Additionally, the hit location and the number of fingers used will also affect volume and pitch. The most prominent use of this can be seen in Roland Dyens' arrangement of *A Night in Tunisia* by Dizzy Gillespie recorded in *Recital II* (0:35 to 1:00).

A Night in Tunisia

arr. Roland Dyens

John "Dizzy" Gillespie

Tempo moderato $\text{♩} = 69$

⑥ = Ré / D
cf. lexique 1

pp *lontano* *poco*

a *poco* *p*

sim. *poco* *a* *poco* *mp*

sfz *sim.*

Figure 12 - Introduction to Roland Dyens' Arrangement of a Night in Tunisia by Dizzy Gillespie bb.1 - 11

Dyens makes use of the alteration notation method and provides a separate sheet of instructions to describe the intended percussive effects. He designates the low D with a cross head to be a low percussive tap with the right-hand thumb, the B (or C) to be a light percussive tap with the ring finger of the right-hand and the E (or F) to be a light percussive tap with the middle or index finger of the left-hand.²⁵

²⁵ Dyens, R 2005, *Night & Day*, Guitar Solo Publications, California, p. 10

In Alan Thomas' *Zenith*, individual finger hits are performed in rapid succession to create a quick flurry of percussive hits.

Andante intenso, molto ritmico ♩ = 84

* RH *p*
LH *pp* (x notehheads = tambora)

morendo *sfz* *cresc. poco a poco*

* RH plays "percussion" on the lower bout to bottom right of bridge.
LH plays on the upper bout below the neck.

Figure 13 - Introduction to *Zenith* from Alan Thomas' *Out of Africa* bb.54 - 56

Thomas indicates this use of hits on an additional one-lined staff. The right-hand strikes section LRF with the flesh of all fingers while the left-hand fingers 1, 2 and 3 strike section LLS one after another in rapid succession with flesh, see Recital II (18:02 to 18:11). Another option is to perform this flurry in section LCF so there is less movement of the right-hand wrist. This technically easier option was not used in the recordings as the higher register sound that is available via section LRF was preferred for the intended musical effect.

1.1.1 Golpe

Adopted from the flamenco style of guitar, the golpe has become a commonly used effect in the classical guitar canon. To execute this effect, a single finger of the right-hand taps the face of the guitar just under the high E string, most commonly in section LCF.



Figure 14 - Optimal Area on the Guitar to Execute a Golpe

Any finger can be used to achieve this effect, but traditionally the nail of the 'a' finger is used as it is naturally closest to the section that needs to be hit and provides a sharp sound that projects well. This effect should only be performed on a guitar that is equipped with a golpeador as the nail can easily damage the top of the guitar. According to Dennis Koster, the golpe effect is utilised by flamenco guitarists for different outcomes, such as marking time during silences and accentuating chords by adding extra emphasis to the notes.²⁶ In Roland Dyens' arrangement of *A Night in Tunisia*, the golpe effect is used in conjunction with the thumb to both strum a chord and produce a percussive effect at the same time.

²⁶ Koster, D. (n.d.). *World Atlas Series: Flamenco*. Van Nuys, CA: Alfred Music Publishing, p.12.



Figure 15 - Example of Golpe and a Strummed Chord played at the same time from Roland Dyens' Arrangement of a Night in Tunisia by Dizzy Gillespie bb. 118 - 121

Throughout bars 118 to 121, Dyens indicates that the chords should be strummed with the flesh of the thumb while at the same time lightly striking section LCF with the ring finger.²⁷ Performers are encouraged to play this section with right-hand alone to establish the fluency and pressure levels needed.

²⁷ Dyens, R 2005, *Night & Day*, Guitar Solo Publications, California, p12

1.1.2 Rapid Nail Taps

This effect is executed by a continuous tapping of the right-hand nails against section URS with the 'p' and 'a' fingers, see Figure 16 and Gary Ryan's *Benga Beat* in Recital I (53:57 to 53:58).



Figure 16 - Optimal Area to Execute the Rapid Nail taps Effect

The performer should keep the fingers curved inwards whilst using the wrist to allow the fingernails to alternately tap the guitar. The effect should be practiced with metronome to ensure evenness, in the wrist rotation to avoid strain.

1.1.3 Roll

Similar to the rapid nail taps effect, the roll effect is executed by a continuous tapping of the right-hand flesh on any section of the guitar and with any combination of fingers, most commonly 'p' and 'a'. Fingers need to be kept straight to ensure no nail touches the wood, avoiding damage to the guitar. Alan Thomas makes use of the roll effect to provide a percussive ambience in the introduction to *Zenith*, see Figure 17 and Recital II (14:34 to 14:39).

Lento spazioso, con rubato ♩ = 58

⑥ = D *mp* *sempre l.v.* * percussive tremolo between *i* and *m/a* (below soundhole)

Figure 17 - Notation of the Roll Effect from *Zenith* by Alan Thomas bb.1 - 2

Again, Thomas notates the use of the roll effect on a separate single-lined staff and provides written instruction below the original staff. He indicates that the roll (percussive tremolo) should be executed with fingers 'i' and 'm'/'a' below the sound hole. In preparations for the recital, it was found that the use of 'p' and 'a' allowed for a wider dynamic range and better control of crescendo and decrescendo.

1.1.4 Gallop

The gallop effect utilises the nails of the right-hand in a similar fashion to the rapid nail taps discussed above. By tapping the nails of 'i', 'm' and 'a' across sections ULT to URT in a two-semiquaver plus a quaver rhythm, the resulting sound is comparable to the sound of a horse galloping.

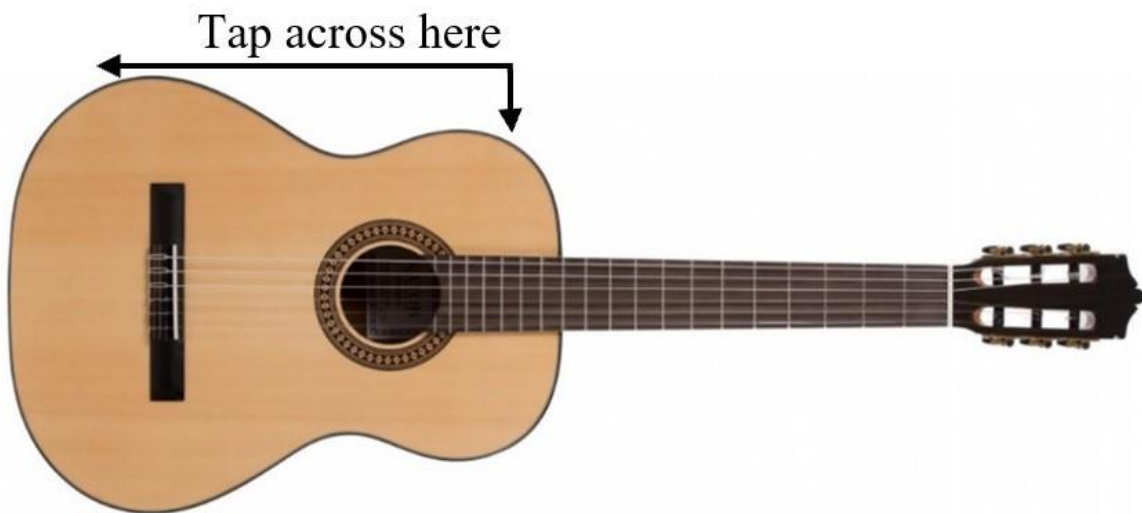


Figure 18 - Optimal Position to Execute the Gallop Effect

While not a commonly used effect, a gallop is heard at the end of Nikita Koshkin's *The Prince's Coach* to imitate a horse galloping away.

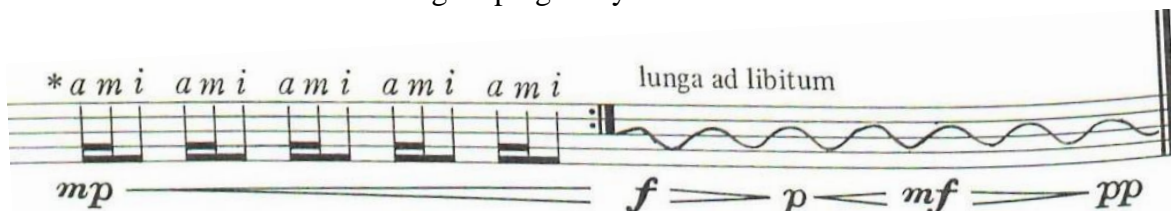


Figure 19 - Notation of the Gallop Effect in *The Prince's Coach* from Nikita Koshkin's *The Prince's Toy's* b.69

Koshkin notates the gallop effect by using the alteration notation method and providing the right-hand fingering above. He also encourages the performer to improvise the duration of the effect at the end of the piece, see recital I (32:49 to 32:57).

1.2 Tambora

The tambora effect is executed by lightly tapping the strings as close to the bridge of the guitar as possible with either the left side of the right-hand thumb or the flesh of the right-hand fingers. If the strings are hit too hard, they may touch the frets and cause a buzz, turning the effect into a string tap (discussed on pg. 36).



Figure 20 - Optimal Position to Execute a Tambora

An example of the tambora effect can be seen in Nikita Koshkin's *The Big Toy's Parade*, recorded in Recital I (41:11 to 41:21).




Figure 21 - Notation of the Tambora Effect in *The Big Toy's Parade* from Nikita Koshkin's *The Princes Toys* bb. 264–266

As shown in Figure 21, the tambora effect is used alongside a single hit with each effect notated on a separate full staff. A key challenge is to restrict the tambora to just the three bass strings to capitalise on the sympathetic resonances from the three treble strings.

1.2.1 Muted Tambora

This variation on the tambora effect requires the left-hand to mute the strings. The timbre can be altered by moving the left-hand across the neck, with the most resonant result usually occurring with the left-hand directly over the sound-hole.

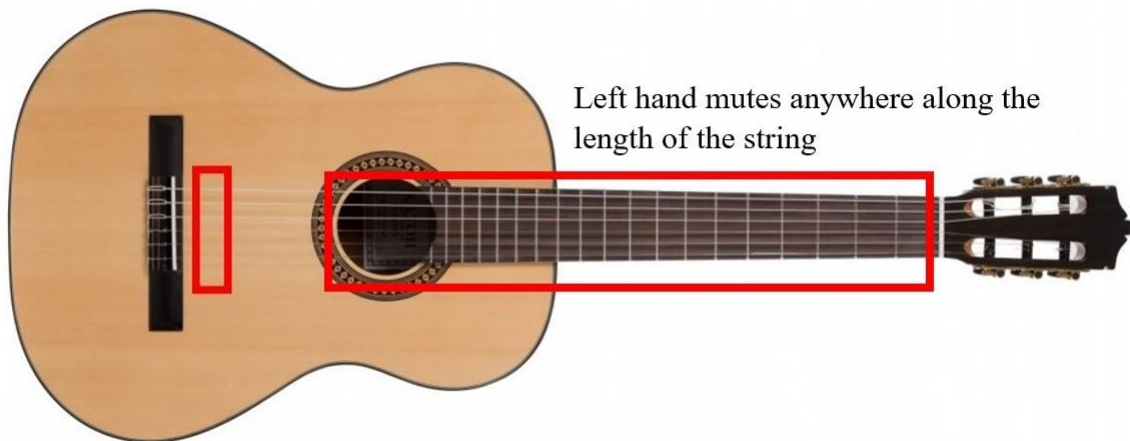


Figure 22 - Optimal Position for Executing a Muted Tambora

Releasing the left hand just after the muted tambora will extend the sustain. Gary Ryan uses the muted tambora effect throughout the extended percussion section in his piece *Benga Beat*, see Figure 23 and Recital I (53:38 to 53:43).

Instructions for the left-hand ← rest the l.h. wrist on the fretboard above 12th fret to damp the strings

P = Forceful tambora with r.h. thumb over bass strings.
 L = The l.h. fingers tap strings over the soundhole.
 F = The r.h. fingers tap the table near the bridge above ①.
 3 = Notes identified with this number played as a l.h. tap on the table above the 1st string.
 S = l.h. tap on side of the guitar.
 T = Tambora with r.h. palm while l.h. gradually tilts up, therefore changing the resonance and pitch of the sound.

Alphabetic/Numeric Representation of each percussive effect used in this section

Figure 23 - Notation of the Muted Tambora Effect from the Extended Percussion Solo in Gary Ryan's *Benga Beat* bb.156 - 162

Ryan uses a combination of the lexical, numeric and alteration notation methods to represent the various percussive effects used throughout this section. Above the first bar, Ryan indicates that the left-hand wrist should rest on the fretboard above the 12th fret to block any resonance from the strings. The written instruction at the bottom of the page explains that the letter 'P' indicates a forceful tambora with the right-hand thumb, resulting in a muted tambora effect.

1.3 String Tap

The string tap effect is similar in execution to the tambora effect discussed above, however, with the difference that the strings are meant to strike the fret wires to produce the effect's distinctly sharp percussive sound. Throughout the chosen repertoire, this effect is executed with either the left or the right hand and across various points along the strings, most commonly in the area between the middle of the sound hole and position XII.



Figure 26 - Most Common Area to Execute a String Tap

In contrast to the bouncing off for the tambora effect the string tap requires the hand to remain in place to stop the strings from ringing and to allow the percussive sound to ring through. Nuccio D'Angelo makes prominent use of the string tap effect in *Funky* (Recital II 25:30 to 25:35).



Figure 27 - Sheet Music for the Introduction of Funky by Nuccio D'Angelo b.1

This use of the string tap effect creates a unique percussive introduction in which one percussive effect is used to create three sounds by executing the effect in three different positions. D'Angelo uses the alteration notation method to indicate which one of the positions the string tap is to be executed in at which time. In the accompanying instructions, the percussive effects used throughout the piece are split across two sections, one for the left-hand and one the right. Under the left-hand section, the high G indicates a string tap on the neck of the guitar around position VII. Under the right-hand section, the high D indicates a string tap on the neck in the region between position XII – XIX, and the middle E indicates a string tap over the soundhole so that the strings hit the frets in position XIX (Figure 28).²⁸

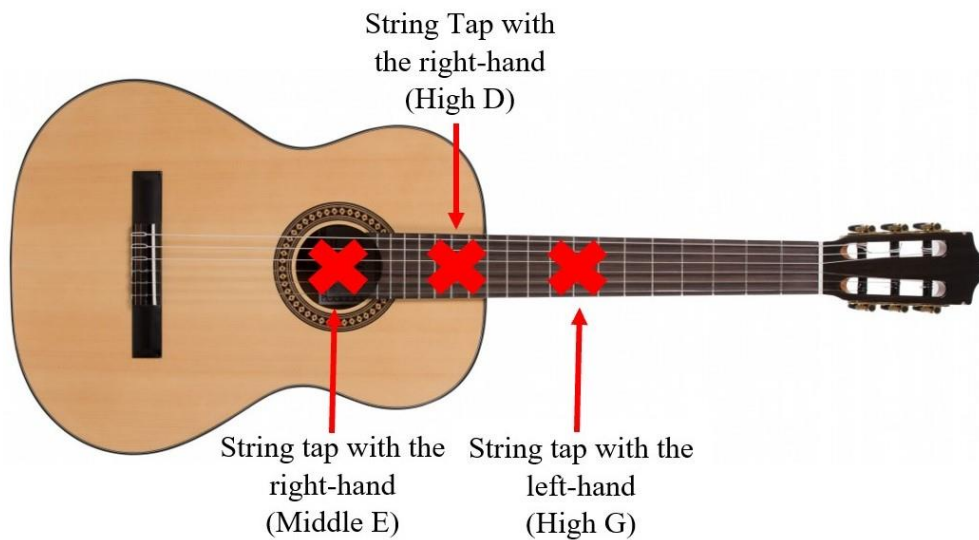


Figure 28 - Positions to Execute the String Tap Effect Throughout the Introduction to Funky by Nuccio D'Angelo

²⁸ D'Angelo, N 1995, Electric Suite, Milano: Ricordi, p iii

1.4 Slap

The slap effect is a popular percussive effect among bass guitarists and involves striking a string quickly with the right-hand thumb. The string is not plucked, but instead hit (slapped) causing the string to strike the frets and fingerboard.²⁹ Done correctly, this produces a strong percussive sound that accompanies the pitch of the note. On guitar, a greater degree of accuracy is required as the distance between the strings is significantly smaller than on a bass and the effect is generally only performed on the bass strings. The ending of *Fuoco* by Roland Dyens makes prominent use of the slap effect, see Recital II (57:47 to 57:54).

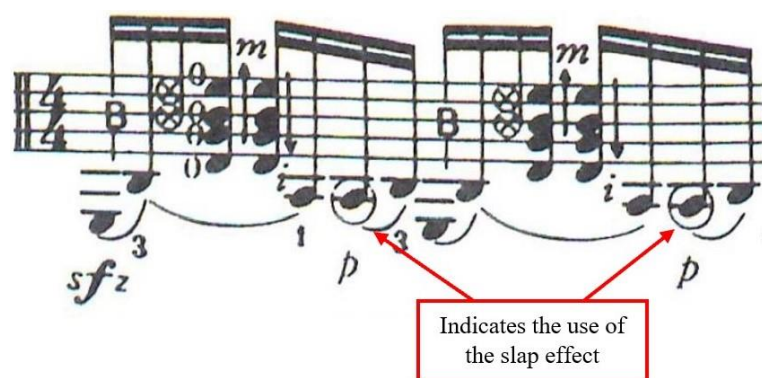


Figure 29 - Notation Indicating the Use of the Slap Effect in Roland Dyens' *Fuoco* b.116

Dyens uses the alteration notation method, circling the required notes. In the written instructions, Dyens instructs the performer to '[use the] slap technique used by bassists of funky music which consists of hitting the string with the thumb.'³⁰ Classical guitarists must be aware of the risk of breaking the thumb nail due to the force required to execute the effect properly. Therefore, careful attention to the thumb angle is recommended to ensure the flesh hits the string and the nail does not.

²⁹ Hirschelman, E. (2011). *Acoustic Artistry: Tapping, Slapping and Percussion Techniques for Classical and Fingerstyle Guitar*. Cheltenham, Victoria: Hal Leonard Corporation.

³⁰ Dyens, R 1986, *Libra Sonatine*, Paris: Henry Lemoine, p.12 (Translated from the original French)

1.5 RH Tap/LH Hammer

The right-hand tap and left-hand hammer effects are presented together as they are executed in the same way. Any finger of the desired hand strikes the specified fret to produce pitch and percussion without the note needing to be plucked. These two effects can be performed at the same time to give the performer the freedom to play in two positions at once, allowing coverage of a wide range of the guitar's tessitura. The LH hammer and RH tap effects are used together in Nikita Koshkin's *The Mechanical Monkey*, see Recital I (22:11 to 22:26).

Figure 30 - LH Hammer and RH Tap Effects Notated in Nikita Koshkin's *The Mechanical Monkey* from *The Prince's Toys* b.92

Koshkin indicates the use of the LH hammer and RH tap effects with two fingers of each hand. He marks the use of the LH hammer by using traditional left-hand fingering, indicating the 1st and 2nd fingers to hammer the 4th and 6th (D and low E) strings in 9th position. He marks the use of the RH tap by using traditional right-hand fingering, indicating that the index and middle fingers are used to tap the 4th and 6th strings in 11th position. In the written instructions, Koshkin writes that the 'right and left hands alternately tap the fingerboard.' When executing the LH hammer effect, the fingers need to remain curved to ensure the point of contact is the fingertip. When executing the RH tap effect however, it is the flesh of the finger that needs to tap the string parallel to the fretboard to prevent the fingernails from making contact, thereby ensuring clarity of sound and intact finger nails.

Another more sophisticated example can be found in the opening section of Roland Dyens' arrangement of *A Night in Tunisia*.



Figure 31 - LH Hammer Effect Combined with Hits from Roland Dyens' Arrangement of *A Night in Tunisia* by Dizzy Gillespie bb.32 - 33

Here the left hand plays the melody through the LH hammer effect whilst the right-hand executes single hits. Dyens notates the use of these effects on two separate staves using the alteration method to indicate the use of the LH hammer (Recital II, 1:29 to 1:37)

1.5.1 LH Hammer Behind RH Tap

This variation combines the use of the LH hammer with the RH tap to create a unique percussive sound. After a RH tap has been executed, this note is held whilst a LH hammer is performed on a fret behind the held right-hand note. The resulting sound is similar to that of a muted string tap, as the right-hand (although sounding an audible pitch) acts as a muting mechanism for the section of the string where the left-hand hammers. This is generally followed by the right-hand pulling off to the note behind, allowing the fundamental pitch of the left-hand note to ring through as though it had been slurred normally. Gary Ryan makes notable use of this variation in his piece *Hot Club Français*.

2 Scraping Effects

Scraping idiophones are sounded by a vibrating object being scraped with a non-vibrating object. In this context, effects sounded by scraping across the strings are labelled scraping effects. These effects can be both pitched and un-pitched, and can make use of either the nail or the flesh of the hand to produce sound.

2.1 String Slide

The string slide effect is executed by sliding the flesh (without any nail) of either the left or right-hand fingers horizontally across the bass strings to produce a squeaking sound similar to that of a washboard. When preparing to execute a string slide, the performer must ensure they do not place the hand on the strings too hard, as this would cause the strings to hit the frets and produce a string tap effect. However, Gary Ryan makes use of both of these effects together in *Benga Beat*, recorded in Recital I (50:07 to 50:08)

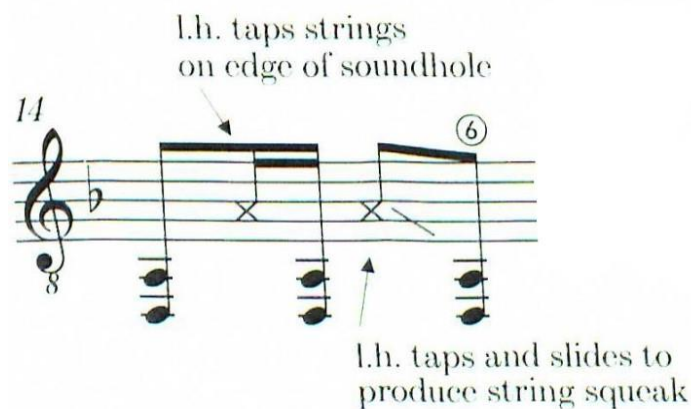


Figure 33 - String Tap into a String Slide from Gary Ryan's *Benga Beat* b.14

As seen in Figure 33, Ryan indicates the use of a string slide after a string tap with the left-hand by replacing the note head of the middle A with a cross, followed by a glissando line just after. These effects work well one after another, as the left-hand is already in place to perform a string slide once the string tap has been executed.

2.2 String Scrape

The string scrape effect is executed by scraping the right-hand thumb nail horizontally across the length of the string, producing a disturbing scratching sound like fingers on a chalkboard. As this can wear down the nail significantly, using the right side of the thumb nail helps ensure that the damage is kept to a section of the nail that does not get used. Best results require the nail to be at approximately 90° to the string as shown in Figure 34.

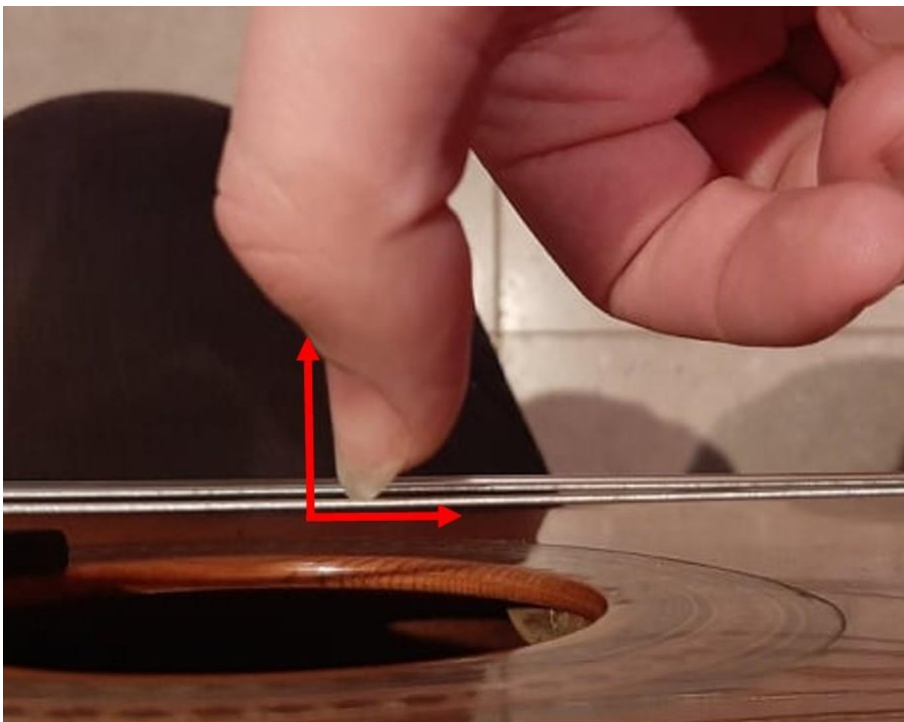


Figure 34 - Example of the Optimal Angle at Which to Execute the String Scrape Effect

The string scrape effect can be seen in Nikita Koshkin's *The Doll with the Blinking Eyes*, see Recital I (23:39 to 23:48).

2.3 Bridge Scrape

The bridge scrape effect sees a finger of the right-hand scrapes along the backside of the bridge where the strings are tied.



Figure 35 - Optimal Area to Execute a Bridge Scrape

This effect can be seen in Nikita Koshkin's *The Mischievous Prince*, see Recital I (19:17 to 19:31). Figure 36 shows Koshkin's use of the alteration notation method on a separate staff to notate the effect. Although Koshkin asks for the 'i' finger to be used, using the RH pinkie finger is recommended to protect finger nails.

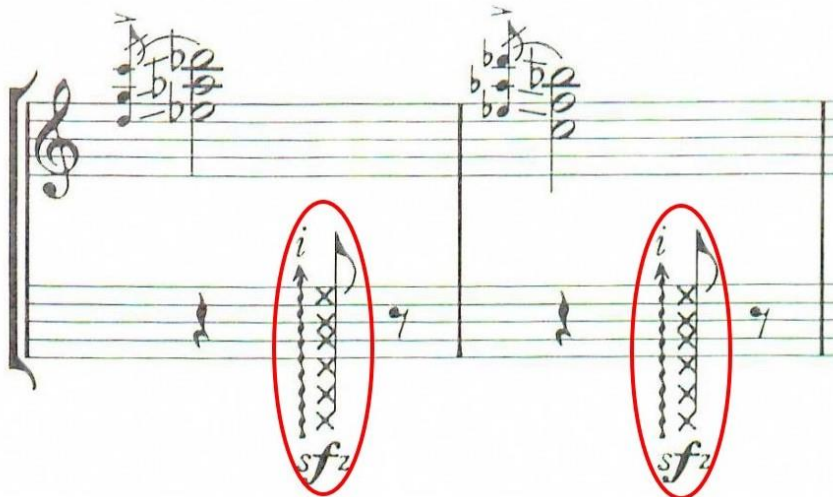


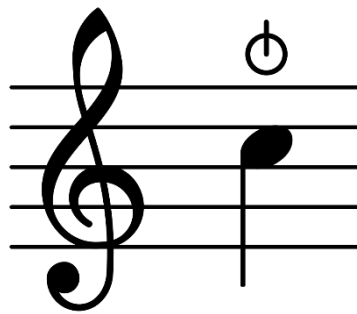
Figure 36 - Notation of the Bridge Scrape Effect in *The Mischievous Prince* from Nikita Koshkin's *The Prince's Toys* b.30

3 Plucking Effects

Plucking idiophones are sounded by plucking a flexible tongue that vibrates to produce sound. This definition in the H-S system has been adapted for use in the context of percussive effects on the classical guitar, namely to the effects in which the plucked strings collide against the neck or fret wires to produce an audible percussive sound.

3.1 Bartók Pizzicato

The Bartók pizzicato is a common technique found in violin family literature and is named after the Hungarian composer Béla Bartók. Here the performer pulls the string away from the fingerboard and releases it so that the string snaps against the fingerboard. This is one of the few percussive effects that does have a universally accepted notational symbol (Figure 37).



*Figure 37 - Universally Accepted Notation
Symbol for a Bartók Pizzicato*

The effect is most often performed on the bass strings with the right-hand thumb being used to pull the string away from the neck, see the ending of *Fuoco* where Roland Dyens makes use of the Bartók pizzicato alongside a variety of other percussive effects (Recital II, 57:47 to 57:54)

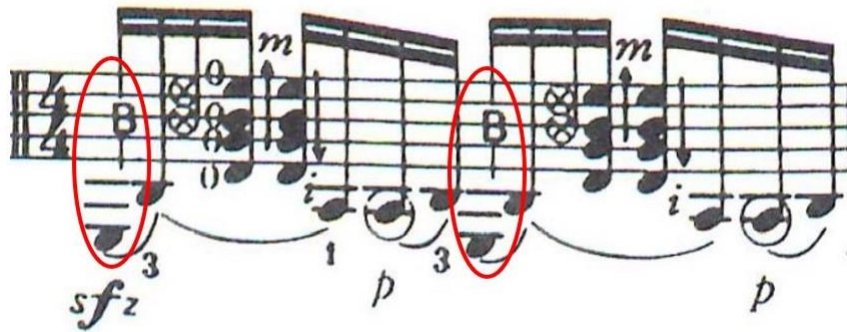


Figure 38 - Notation of a Bartók Pizzicato from Roland Dyens' *Fuoco* b.116

Surprisingly, Dyens uses the lexical notation method and not the universally established symbol here. Although the Bartók pizzicato is often played forte, a lower dynamic is possible by reducing how far out the string is pulled. There is a risk of pulling the string out too far, causing it to break or slip off position. The string should therefore only be pulled about 2-3 cm away from its original position, as this will provide the optimal sound without risking damage.

3.1.1 Muted Bartók Pizzicato

The muted variation of a Bartók pizzicato sees the effect executed in the same way, but with the right-hand palm placed on the string. This dampens the resulting pitch significantly and allows the percussive sound to ring through, see Nikita Koshkin's *The Mechanical Monkey*, Recital I (19:53 to 20:08).

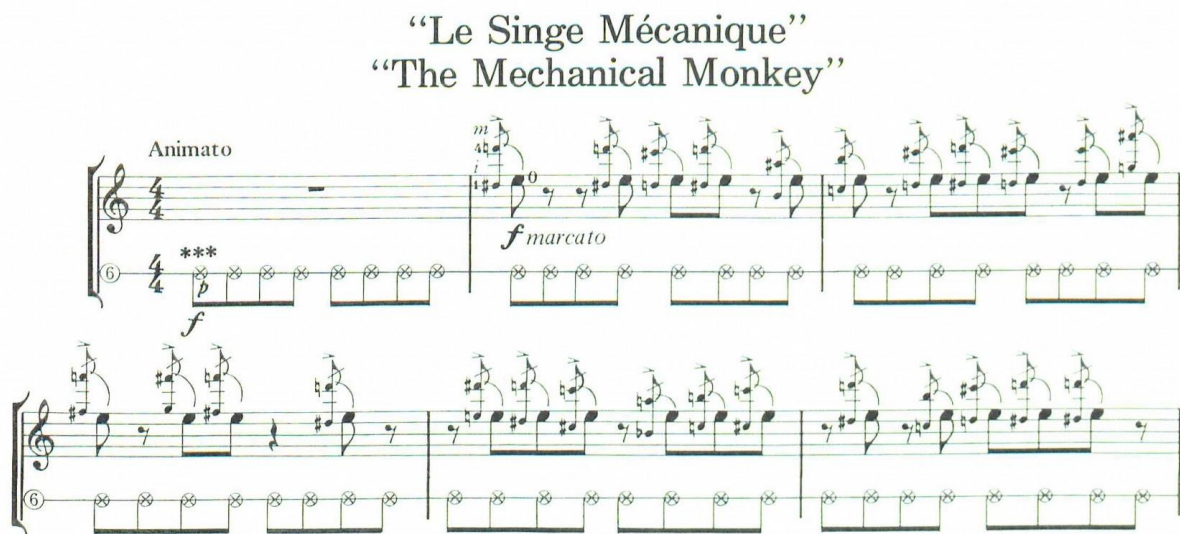


Figure 39 - Notation of the Muted Bartók Pizzicato Variation in Nikita Koshkin's *The Mechanical Monkey* from *The Prince's Toys Suite* bb.1 - 6

As seen in Figure 39, Koshkin uses the alteration notation method to indicate the use of a muted Bartók pizzicato. It is important to mute the low E string only, as the melody is played unmuted on the upper strings.

3.2 String Cross

The string cross effect sees two strings crossed over one another with the left-hand and being plucked with the right. The resulting sound object should be reminiscent of that made by a rolling snare drum in a military band. Before executing the effect, the performer must be aware of which strings are being crossed and at what position they are to be held down. By using the first finger of the left hand to grab the upper string and pull it over the string underneath, the strings can be quickly and smoothly pulled into place when starting the effect and the first finger can act as an anchor that holds the strings down.

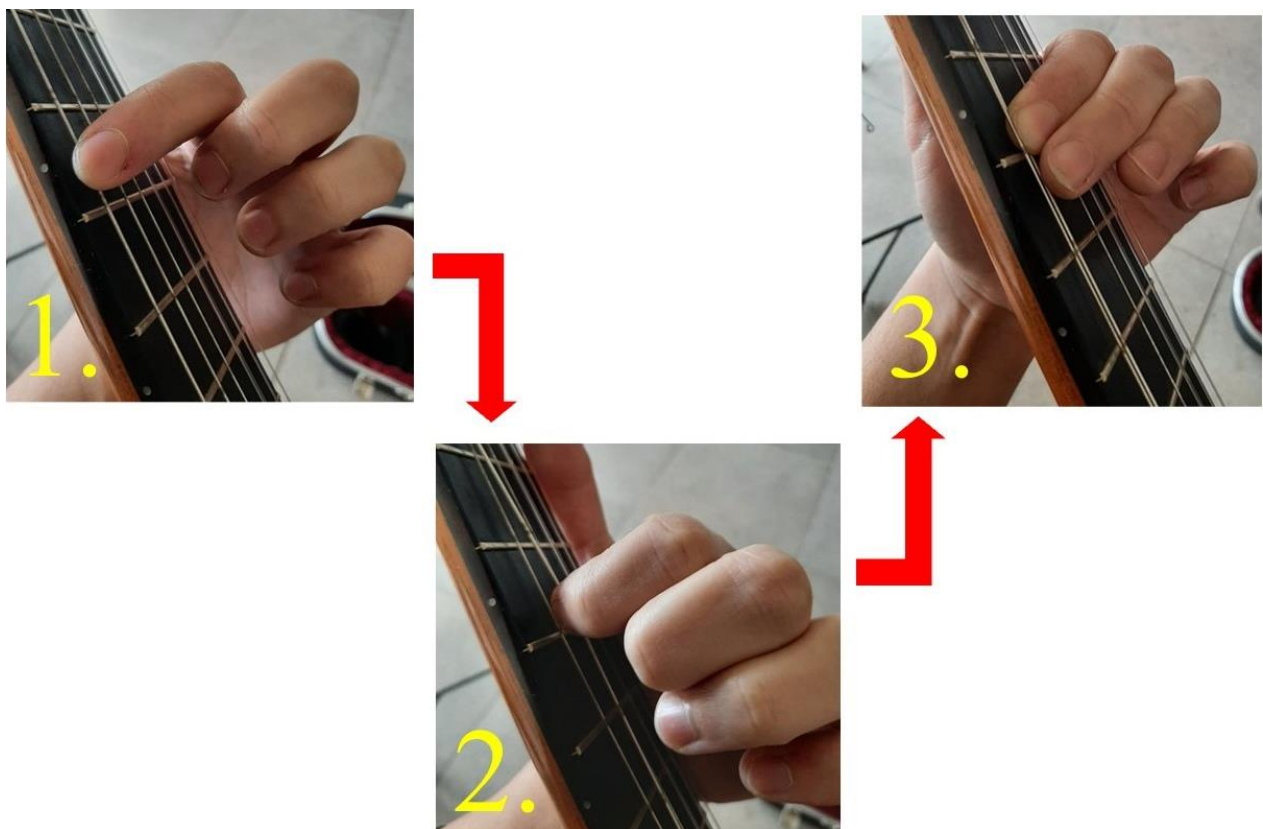


Figure 40 - Steps to Successfully Execute a String Cross

Once the effect is complete, the strings should be released carefully to avoid a ‘pop’ sound. This technique requires careful practice, particularly in terms of timing the crossing and unlocking of the strings. For an example of this effect see Nikita Koshkin’s *The Tin Soldiers*, in Recital I (28:24 to 28:38).

Circled numbers indicating strings to be crossed

End of dotted line indicating the strings should be uncrossed here

Figure 41 - Notation of the String Cross Effect in Nikita Koshkin's *The Tin Soldiers* from *The Prince's Toys Suite* bb.1 - 8

As seen in Figure 41, Koshkin indicates that the 1st and 2nd strings are to be crossed in seventh position. In bar 2, the 1st finger functions as an anchor that keeps the strings crossed over one another while the 2nd and 3rd fingers change the pitch. In bar 5, the anchor finger must shift into ninth position which allows the musical material presented in bar 1 to be repeated one tone higher. The technical challenge is to ensure a smooth LH shift while maintaining sufficient pressure to keep the strings crossed while moving the anchor finger.

3.2.1 Muted String Cross

This variation sees the effect executed in the same way as the standard version, but with the right-hand palm resting on the strings as they are plucked. Like all previous muted variations, this reduces the strings resonance and amplifies the percussive characteristic, see Nikita Koshkin's *the Tin Soldiers* in Recital I (30:47 to 30:52).

3.2.2 Bartók String Cross

Here the string-cross effect is combined with the Bartók pizzicato to produce a strong accent by executing a Bartók pizzicato (see pg. 45) on the two crossed strings, see Nikita Koshkin's *The Big Toy's Parade*, in Recital I (43:19 to 43:20).

3.3 Neck Buzz

The neck buzz effect is executed by pushing the 6th string off the edge of the neck with a finger of the left-hand. The string is held in that position as the right-hand plucks, causing it to vibrate against the edge of the neck and produce a noisy sitar-like sound.



Figure 42 - Steps to Successfully Execute a Neck Buzz

Nikita Koshkin makes prominent use of this effect in *The Doll with the Blinking Eyes*, where the effect is utilised in conjunction with a drone A to create an eerie sound that continues below a discordant melody.

Indicates the use of the neck buzz effect

The image displays a musical score for a piece by Nikita Koshkin. It consists of four systems of music, each with a treble clef staff and a bass staff. The top staff of each system contains a melody with various notes, rests, and ornaments. The bottom staff of each system contains a series of downward-pointing triangles, representing a drone or a specific effect. In the first system, a red circle highlights a triangle on the first staff, with an arrow pointing to it from the text above. The score includes various musical notations such as triplets, slurs, and dynamic markings like 'p' and 'pp'. The overall style is contemporary and experimental.

Figure 43 - Notation of a Neck Buzz Effect in Nikita Koshkin's *Doll with the Blinking Eyes* from *The Prince's Toys Suite* bb.56 -67

Koshkin instructs the performer to ‘pull and hold the 6th sting off the side of the fingerboard.’ Finding the correct spot for the optimal sound can be challenging and careful practice and finetuning prior to a performance is therefore recommended. This includes practice of getting the string into the correct position as well as putting the string back into its original position without noise and interruption. See Recital I (26:11 to 26:46).

Conclusion

Through practice-led research this project has examined percussive effects on the classical guitar, culminating in two one-hour recitals. With the H-S system as a point of departure a system has been devised to classify percussive sounds produced on the classical guitar. The two recital programmes that were curated as the key artifact illustrate the prominent and diverse use of percussive effects in today's classical guitar repertoire. The accompanying taxonomy and performance guide supports the artifact by providing a logical system of classification and guide towards masterful execution of these effects. Together, the artifact supported by exegesis act as a contribution to knowledge by creating a classification system for percussive effects and a new outlook on the practice and eventual performance of pieces that employ these effects. As this project drew its data from only a selection of classical guitar pieces that utilise percussive effects, there is a strong possibility that some effects have not been included. However, as a majority of popular percussive effects were discussed here, composers who wish to write new works for the classical guitar may find this guide a useful database for effects, their execution and their notation. As with any classification system, this taxonomy is not without its flaws and some scholars may disagree with the classification of some extended techniques included here as percussive effects. As Margaret Kartomi states, there is a clearer realisation now that no single scheme can ever be devised that is suitable for all purposes and satisfies the demands of both inclusiveness and logic.³¹

³¹ Kartomi, M 2001, 'The Classification of Musical Instruments: Changing Trends in Research from the Late Nineteenth Century, with Special Reference to the 1900s', *The Society for Ethnomusicology*, vol. 45, No. 2.

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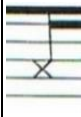

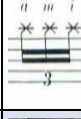



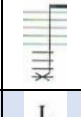

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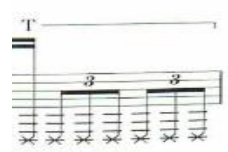
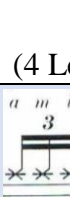



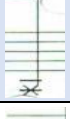


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APPENDIX 1 – IDENTIFICATION OF PERCUSSIVE EFFECTS





All effects are presented in order of when they appear in the piece. In the case where no Notation Method is provided, it is assumed that the effect is popular enough for people to understand what effect the composer wants without further explanation. All effects are named by the term they are referred to in this project, which may differ from the score.

Benga Beat – Identification of Percussive Effects


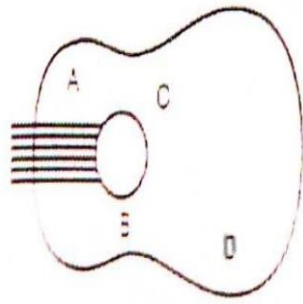



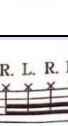
Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
Hit	Single Hit	Alteration	 Low D	l.h. strikes side of guitar
String Tap		Alteration	 Middle A	l.h. taps and slides on edge of soundhole
String Slide		Alteration	 Middle A	l.h. taps and slides to produce a squeak
Hit	Golpe	Alteration	 High A	r.h. taps on soundboard
Slap		Written Only	 Below Pitch Specified	thumb slap
RH Tap		Alteration Alphabetic	 Above Pitch Specified	right hand tap
LH Hammer	Behind Held Note	Alteration	 On Specified Pitch	left hand hammers behind right hand note
Tambora	Muted	Alteration Alphabetic	 Low D (4 ledger lines)	forceful tambora with r.h. thumb over bass stings
String Tap	Muted	Alteration Alphabetic	 Middle A	the l.h. fingers tap strings over soundhole

Hit	Single Hit	Alteration Alphabetic	 High A	the r.h. fingers tap the table near the bridge above the 1 st string
Hit	Single Hit	Alteration Numeric	 High A	notes identified with this number played as a l.h. tap on the table above the first string
Tambora	Resonance Changing	Alphabetic Alteration	 Low D (4 Ledger Lines)	tambora with the r.h. palm while l.h. gradually tilts up, therefore changing the resonance and pitch of the sound
Hit	Golpe	Alteration	 High A	perc. using r.h. nails
String Tap		Alteration Alphabetic	 Low D	l.h. damps the strings by holding the neck of the guitar
Hit	Rapid Nail Taps	Alteration	 High A	r.h. nails on side of guitar
Bartok Pizzicato		Symbolic	 Above Specified Pitch	N/A
Hit	Single Hit	Alteration	 Low A	r.h. tap on side of guitar
Forced Buzz		Alteration	 Low E	the l.h. thumb taps so that the 6 th string is forced against the fingerboard and produces a "sitar" sound
Hit	Single Hit	Alteration	 High D	flick the topside of the guitar in the "arch" using the index finger nail of the r.h.


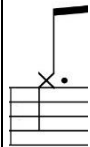









Hot Club Français – Identification of Percussive Effects

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
RH Tap		Alteration Alphabetic	 On Specified Pitch	Right hand tap. Hold note and pull off when indicated
LH Hammer	Behind Held Note	Alteration	 On Specified Pitch	Left hand hammers behind the right-hand note
Hit	Golpe	Alteration	 High G	Golpe
String Tap		Alteration	 On Specified Pitch	r.h. damp open hand

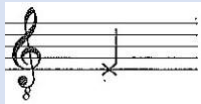






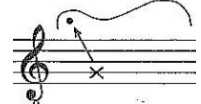
Verano Porteño – Identification of Percussive Effects

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
Hit	Single Hit	Representative Alteration Alphabetic	 High E	
Hit	Single Hit	Representative Alteration Alphabetic	 Low D	
Hit	Single Hit	Representative Alteration Alphabetic	 Middle C	
Hit	Single Hit	Representative Alteration Alphabetic	 Low D	
String Tap		Alteration	 High G	




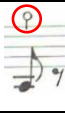
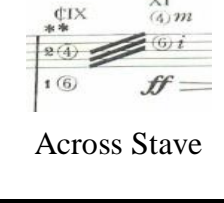






Out of Africa – Identification of Percussive Effects







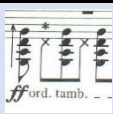
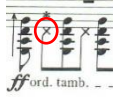





Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
<i>Movement 1: Call at Sunrise</i>				
LH Hammer		Alteration	 On Specified Pitch	square noteheads = “hammered on” notes
<i>Movement 2: Morning Dance</i>				
Hit	Single Hit	Alteration	 High G	In this percussion part, “bass drum” (downward stems layer) is simulated by striking the lower bout with the fleshy heel of the palm.
Hit	Single Hit	Alteration	 High D	The “Snare Drum” (upward stems) is played by the fingers striking the guitars lower side.
LH Hammer		Symbolic	 On Specified Pitch	<i>m.s.</i> (Mano Sola)
<i>Movement 3: Zenith</i>				
Hit	Roll	Multiple Staves	 Separate Single-line Stave	Percussive tremolo between i and m/a
Hit	Single Hit	Multiple Staves	 Separate Single-line Stave	“Percussion”
Tambora		Alteration	 On Specified Pitch	(x noteheads = tambora)
Hit	Single Hit	Multiple Staves	 Separate Single-line Stave	RH plays “percussion” on the lower bout to the bottom right of bridge
Hit	Single Hit	Multiple Staves	 Separate Single-line Stave	LH plays on the upper bout below the neck
LH Hammer		Symbolic	 On Specified Pitch	<i>m.s.</i> (played entirely by left hand)
Hit	Single Hit	Multiple Staves	 Separate Single-line Stave	(like bass drum/snare drum) fingers

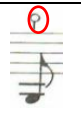


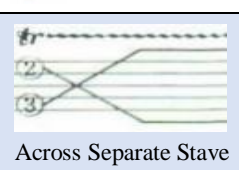
Electric Suite – Identification of Percussive Effects

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
<i>Movement 1: Funky</i>				
String Tap (Over Soundhole)		Alteration		Strike the strings with the base of the palm of the hand (close to wrist) so that they hit fret XIX
String Tap (On Fingerboard)		Alteration		Strike on the fingerboard with straight fingers
Hit	Single Hit	Alteration Symbolic		Strike the soundboard with straight fingers
Hit	Single Hit	Alteration Symbolic		Strike the soundboard with straight fingers
LH Hammer		Alteration		Chord or note to be played with finger pressure only
<i>Movement 4: Song</i>				
String Tap (Over Soundhole)		Alteration		Strike the strings with the base of the palm of the hand (close to wrist) so that they hit fret XIX
String Tap (On Fingerboard)		Alteration		Strike on the fingerboard with straight fingers
Hit	Single Hit	Alteration Symbolic		Strike the soundboard with straight fingers

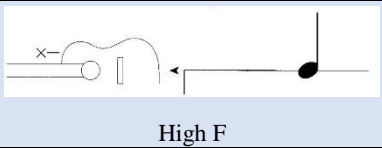
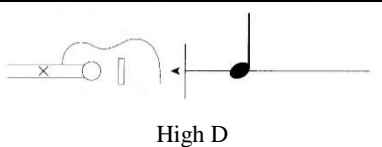
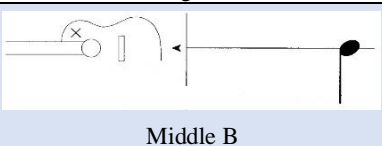
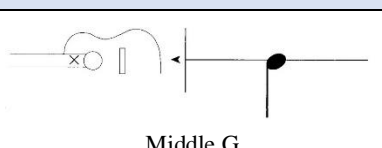
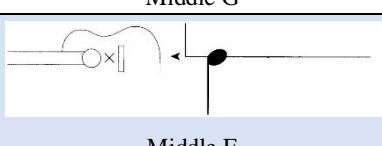
The Princes Toys – Identification of Percussive Effects

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
<i>Movement 1: The Mischievous Prince</i>				
Bridge Scrape		Alteration Multiple Staves	 Separate Stave	Quick arpeggios between the bottom of the bridge and the saddle with the index finger
Hit	Single Hit	Alteration Multiple Staves	 Middle D	Tap the upper part of the sound board with the thumb
<i>Movement 2: The Mechanical Monkey</i>				
Bartok Pizzicato	Muted	Alteration Multiple Staves	 Separate Single-line Stave	Put the right palm on the 6 th string and play the bass notes by pulling the string off with the thumb so that it strikes hard against the fingerboard.
Bartok Pizzicato		Symbolic	 Above Specified Pitch	Pull the string off so that it strikes hard on fingerboard
LH Hammer		Symbolic		Right and left hand alternately tapping the fingerboard – the right-hand the 6 th and 4 th string with i and m at the 11 th position and the left-hand 2 nd and 3 rd finger same strings at the 9 th position
RH Tap		Symbolic		
<i>Movement 3: The Doll with the Blinking Eyes</i>				
String Scrape		Alteration Multiple Staves	 Across Separate Stave	Slide the right-hand thumb nail on the 6 th string toward the bridge to produce a squeak
Hit	Single Hit	Alteration Multiple Staves	 Middle F on Separate Stave	Strike the bridge (upper part) with the thumb
Hit	Single Hit	Alteration Multiple Staves	 Middle F on Separate Stave	Strike the bridge (bottom part) with the nail on the index finger
Neck Buzz		Alteration	 Under Stave	Pull and hold the 6 th string off the side of the fingerboard.
Tambora		Written Only	 Above Stave	Tambora with the thumb alternately on the strings and the nut
Hit	Single Hit	Alteration	 Low D	
<i>Movement 4: The Tin Soldiers</i>				



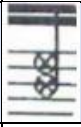

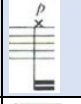

String Cross		Symbolic	 On Specified Pitch	With the help of the right-hand, pull the 2 nd string over the 1 st
String Cross	Muted	Symbolic	 On Specific Pitch	pizz. (Pizzicato)
Hit	Single Hit	Alteration	 Separate Single-line Stave	Strike the bridge with the thumb (upper part)
LH Hammer		Written Only	 Above Specified Pitch	Left Hand Solo
Hit	LCF	Alteration Multiple Staves	 High F on Separate Stave	Strike the bridge (bottom part) with the nail of the index finger
Bartok Pizzicato		Symbolic	 Above Specified Pitch	Bartok-Pizzicato
Movement 5: The Prince's Coach				
Tambora		Written Only	 Under Specified Pitch	Ord. Tamb. (Ordinary Tambora)
Hit	Single Hit	Alteration	 Low D	With the thumb, alternatively hit the nut and the strings
Hit	Gallop	Alteration Multiple Staves	 Across Separate Stave	An imitation of a horse gallop. Use the nails of the right-hand – a m i a m i – on side of the guitar
Movement 6: The Big Toy's Parade				
Bartok Pizzicato	Muted	Alteration Multiple Staves	 Separate Single-line Stave	Put the right palm on the 6 th string and play the bass notes by pulling off the thumb so that it strikes hard on the fingerboard
LH Hammer		Symbolic	 Above Specified Pitch	Strike the 1 st and the 6 th strings down the fingerboard with the 2 nd and 3 rd finger. Left-hand solo
String Scrape		Symbolic	 Below Specified Pitch	Slide the right-hand thumb nail on the 6 th string toward the bridge to produce a squeak
Hit	Single Hit	Alteration Multiple Staves	 High F on Separate Stave	Tap lightly on the soundboard with the flesh of i and m

Bartok Pizzicato		Symbolic	 Above Specified Pitch	Pull of the string so that it strikes hard on fingerboard
String Cross		Symbolic Multiple Staves Numeric	 Under Specified Pitch on Separate Stave	Pull the 6 th string over the 5 th and play the indicated figures
Hit	Single Hit	Alteration	 Low D	Hit the nut with the thumb
String Cross	Bartok	Alteration Multiple Staves Symbolic	 Across Separate Stave	Pull the 3rd string over the 2 nd and strike the notes in a Bartok pizzicato manner. Relax slowly the pressure of the crossed strings


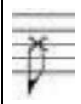
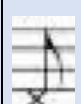

Jongo – Identification of Percussive Effects



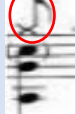

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
Hit	Single Hit	Representative	 High F	Slap left palm against the guitar's side (wood sound)
String Tap		Representative	 High D	Slap the strings against the fingerboard with the left hand fingers 2.3 & 4 (keep the barre)
Hit	Single Hit	Representative	 Middle B	Slap the right hand against the guitar's top (wood sound)
String Tap		Representative	 Middle G	Slap the strings against the fingerboard with the left hand fingers (keep the barre)
String Tap		Representative	 Middle E	Slap the right hand against the strings near the bridge (bass sound) (keep the barre)

Libra Sonatine – Identification of Percussive Effects

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
<i>Movement 1: India</i>				
Hit	Single Hit	Alteration	 Middle B	Percussion legere (light percussion)
<i>Movement 3: Fuoco</i>				
Bartok Pizzicato		Alphabetic Alteration	 On Specified Pitch	Lift the string between the thumb and index finger and snap it (Translated from French)
String Tap		Symbolic	 High E and Middle B	Percussion obtained by dropping the closed fist on the 6 strings (Translated from French)
Slap		Symbolic	 On Specified Pitch	Slap technique used by bassists of funky music to lift the string with the thumb (Translated from French)
Hit	Single Hit	Alteration	 High G	Main Droite (RH alone)
Hit	Single Hit	Alteration	 Low D	Main Gauche (LH alone)

Night in Tunisia - Identification of Percussive Effects

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
Hit	Single Hit	Alteration	 Low D	Low percussion effect obtained by placing the underside of the wrist on the upper bout of the soundboard
Hit	Single Hit	Alteration	 Middle B	Light percussion effect made with the ring finger on the lower bout of the fingerboard
Hit	Single Hit	Alteration	 Middle F	Light percussion effect made with the middle or index finger of the left hand on the lower bout of the fingerboard
Hit	Roll	Symbolic	 Across Bottom of Stave	Regular light roll made with the thumb and the middle or index finger of the left hand on the lower bout of the fingerboard

Hit	Single Hit	Alteration	 High G	Imitation of claves (small wooden sticks struck against each other) made by striking the lower side of the guitar with the left hand thumb nail
LH Hammer		Alteration	 On Specified Pitch	Play notes marked with a cross with the left hand alone
Hit	Golpe	Alteration	 High G	Strum the chord with the flesh of the thumb while at the same time lightly striking the lower bout of the soundboard with the ring finger
Slap		Symbolic	 Below Specified Pitch	Slap

Carillon – Identification of Percussive Effects

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
LH Hammer		N/A	N/A	No printed instruction as the piece cannot possibly be performed unless the LH Hammer effect is used. It is assumed that the composer didn't feel the need to clarify this further

Invierno Porteño – Identification of Percussive Effects

Name of Effect	Technical Variation	Notation Method	Notation on Score	Printed Instruction
Tambora		N/A	N/A	Effect was added in to imitate the sound of the percussion section of the original piece

APPENDIX 2 – PROGRAMME NOTES FROM THE RECORDED RECITALS

Masters Recital 1

Emanuel Auciello



10/12/2020

Programme

- Carrillon – Benvenuto Terzi (1892 – 1980)
- Verano Porteño – Astor Piazzolla (1921 – 1992) Arr. Sergio Assad
- Invierno Porteño – Astor Piazzolla (1921 – 1992) Arr. Sergio Assad
- Tango En Skai – Roland Dyens (1955 – 2016)
- The Princes Toys – Nikita Koshkin (1956*)
- Hot Club Français – Gary Ryan (1969*)
- Benga Beat – Gary Ryan (1969*)

Biography

Emanuel Auciello commenced his classical guitar studies in 2013 at the University of Adelaide under the tuition of Oliver Furtach – Najni after 7 years of electric guitar. He draws his influences from a variety of genres including jazz, rock, metal and blues with a preference for fast and technically challenging pieces. He has performed both nationally at the Sydney Classical Guitar Summer School and internationally in New Zealand, South Korea and London. Emanuel has had masterclasses with some of the best classical guitarists from around the world including Raffaele Agostino (Australia), Lee Song Ou (South Korea) Francisco Bernier (Spain) Phillip Houghton (Australia) Jose Maria Gallardo Del Rey (Spain) and John Couch (New Zealand). He has placed 1st in the Adelaide Eisteddfod Society's classical guitar competition in 2016 and was the recipient of the John Perry Memorial Fund grant and the Michael Robert Poag Scholarship in 2017. Emanuel is currently endorsed by Domenic Roscicoli Guitars and plays a Roscicoli 2017 spruce Fleta model guitar. He is currently undertaking his master's degree at the University of Adelaide and holds an Australian government research training stipend scholarship.

Emanuel Auciello

Masters Recital 2

In partial fulfilment of the requirements for the degree of Master of Philosophy



25th August 2021, 7 p.m., Elder Hall

University of Adelaide

Programme

A Night in Tunisia (Arr. Roland Dyens)	Dizzy Gillespie
Out of Africa I Call at Sunrise II Morning Dance III Zenith IV Evening Dance	Alan Thomas
Electric Suite I Funky II Soft III Raga-Blues IV Song	Nuccio D'Angelo
Jongo	Paulo Bellinati
Libra Sonatine I India II Largo III Fuoco	Roland Dyens

Following seven years of electric guitar playing, Emanuel Auciello commenced classical guitar studies with Dr Oliver Fartach-Naini at the University of Adelaide's Elder Conservatorium of Music in 2013. Emanuel holds an Australian Government Research Training Stipend for his current masters studies and has performed both nationally and internationally, including performances in Australia, New Zealand, South Korea and England. He has had the opportunity to have masterclasses with leading classical guitarists from around the world including Tim Kain (Australia), Lee Song-Qu (South Korea), Francisco Bernier (Spain), Phillip Houghton (Australia), José Maria Gallardo Del Rey (Spain) and John Couch (New Zealand). He placed 1st in the Adelaide Eisteddfod Society's Classical Guitar Competition in 2016 and was the recipient of the John Perry Memorial Fund grant as well as the Michael Robert Poag Scholarship in 2017. Emanuel is endorsed by Domenic Roscioli Guitars and performs on a 2017 Roscioli spruce Fleta model guitar.