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Typesetting Finger-Style Guitar

An Exploration and
Attempt at Codification of
Typesetting Techniques
For Finger-Style Guitar

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Contents

List of Tables

For John Stropes, Joshua Lane, and

Meghan Carlson, without whom I wouldn't.

Introduction

This document owes much to the work of John Stropes and Joshua Lane at the University of Wisconsin-Milwaukee. Depending on one's view, this document could be considered lovingly stolen from the stylesheet used by John Stropes at Stropes Editions, Ltd. This work was inspired by the class transcription and typesetting for finger-style guitar at the University of Wisconsin-Milwaukee in the Spring of 2017.

The purpose of this document is to generate consistency in the production of finger-style guitar scores. I offer it freely to all who are interested. If you feel motivated to contribute in any way, please feel free to email me your questions, comments, and concerns. This offering is done solely based upon my desire to see the transcription and typesetting of finger-style guitar music rise above the mundane and become a thing of beauty, clarity, and conviction. I believe that this can be achieved through special attention to detail. For instance, a quarter of a point can make the difference between the annotation of a 'p' clarifying or obfuscating the will of the typesetter.

Part I

Typesetting Finger-Style Guitar

Chapter 1

New and Old Conventions

The typesetting of finger-style guitar can recall to mind the scores of lutes, baroque guitars, and vihuelas. There are numerous reasons why this recollection occurs. There is a distinct similarity the reasons why tablature was extensively used in the sheet music of fretted early instruments.

Justification

There are numerous reasons why one would decide to focus one's time on ensuring that his or her tablature contains the most amount of detail possible: the plethora of alternate tunings; right-hand string damping[1] ; extended techniques; percussion.

Tunings The structure of the steel-string acoustic guitar allows for a multitude of tunings. The standard notation that one learned on the guitar goes right out the window when the tuning of more than two strings are altered. It is more pragmatic to tell the reader where to place his or her fingers than to say what the pitches are.

Right-Hand String Damping While Michael Hedges may not have been a pioneer when it comes to string damping on the guitar, it is indisputable that he was an innovator. It could be argued that his use of right-hand string damping

[1] In the sheet music published by Stropes Editions, Ltd. this technique is called right-hand string-stopping. I believe that the term 'string stopping' is potentially confusing as it can be confused with the act of stopping a string with the left hand. For instance, in bowed instruments there is a technique called 'double stops' in which two notes are played at the same time.

Part II

Finale

Chapter 2

Starting a New Finale Document

Before beginning a new Finale document one must ensure that all elements of the composition are known. These elements include but are not limited to its form, key signature, time signatures, desired staff for standard notation, etc. Knowing these elements will ensure that the preparation of the new document will keep bugs away later on. Changing these elements after having started the document can introduce bugs which will either greatly hinder the development of the document or make it impossible to continue.

2.1 Initial Steps

The first several steps for creating a new document can seem tedious. At this point it seems that there is a possibility to create a template for each desired document layout. After creating a new document from a template one would then load a Finale Library in order to ensure consistency across multiple documents.

Begin by starting a *New Document*. This *New Document* will be a *Default Document* as opposed to a document created through the *Setup Wizard*. This new document will be have around 32 measures of a treble clef with a time signature of 4/4 and a key signature of C major. In the Windows 10 version of Finale these will need to be deleted in order for the page margins to properly update.

Next, change the margins. Changing the margins of the document at this early stage will help to ensure that the number of measures per system will be appropriate. Changing the number of measures per system after annotations such as left-hand duration have been started can result in hours of more work to correct such a small oversight.

In Finale for MacOS select the *Page Layout Tool*. From the menu bar, open the *Page Layout Tool*, go to *Page Margins* and *Edit Page Margins*. For the top and bottom of the page, we will use 36pt. For the left and right of the

page, we will use 54pt. Ensure that All Pages is selected within the Change parameter. Select Apply to Parts/Score and select Score and Parts.

In Windows 10 there is a bug which seems to make it impossible to change the page margins in the same manner explained above.[1] The workaround is to go to *Document* in the menu. Within this menu go to *Page Format* then *score*. Under the Page Margins section select 36pt for Top and Bottom and 54pt for Left and Right. Perhaps a related bug requires several more steps in order to update the page layout. Go to Page Layout. Click on the *Update Page Layout Tool*. Then delete the existing default measures. This should update the page layout.

2.2 Score Manager

The next steps for the creation of a new Finale Document is to set up the elements that are accessible through the *Score Manager*. Access the score manager by going to the *Window* menu in the menu bar and select *Score Manager*.

Instrument List

Under the heading of **Instrument List**, we will be modifying the staffs that will be used for standard notation and for the tablature. For the standard notation change the clef for the default blank staff to the desired clef. Most likely we will be using the treble clef with the '8' below it. This indicates that the notes on the staff sound an octave lower than written. This is also the clef that is used for most guitar music when written in standard notation. For some guitar tunings which have pitches lower than C , it may be necessary to create another staff in the standard notation for a bass clef with an 8 below it. This helps avoid a dizzying amount of ledger lines.

For the tablature, go to `Add Instrument` → `Tablature` → `Guitar [TAB with Stems]`. Change the clef to the serif 'TAB.' Go to `Notation Style` → `Tablature` → `Settings` to change the options related to the tuning and other visual components. To change the tuning of the guitar go to `Edit Instruments`. From here you can change the pitches of each open string. The numbers used here are the pitches as they are represented in their corresponding midi numbers, ie. C = 60. Ensure that the `Default Lowest Fret` and the `Capo Position` is 0. Under the `Options` section make sure that `Show Tuplets` is checked and `Show Clef Only On First Measure` is unchecked. In the `Fret Numbers` section, the default `Vertical Offset` of –4 appears to be acceptable. I prefer the cleanliness of having `Break Tablature Lines at Numbers` checked. Stropes Editions, Ltd. has this setting unchecked.[2]

[1] Bug noted as of April, 2018.

[2] There are benefits to both approaches to tablature number lines. Breaking the lines seems to increase the legibility of the numbers. In particular, `0` and `3` are more legible than when the lines go through them. On the other hand, breaking the lines can make it easier

File Info

In this section of *Score Manager* you can edit all of the metadata for the document that is being produced. In the long run, this doesn't do much to streamline the process of creating a new document in Finale.

2.3 Measures

The next step is to add the total number of measures for the document. This can be done by going to *Edit* → *Add Measures*. If the document has multiple movements, add the total number of measures for all movements.

After creating all of the necessary measures, you can change the properties of the measures that need to be changed.

2.4 Time and Key Signatures

Select the *Time Signature* tool and change each measure where ever there is a time signature change. Do likewise with the *Key signature* tool. If document has multiple changes in time and/or key signature, make all of those changes in the appropriate places. Doing so will ensure that when it is necessary to make those changes there will not be any additional changes to content made.

to have right-hand string-stopping lines go through the numbers, ie. "Aerial Boundaries" by Michael Hedges.

Chapter 3

Document Options

Next, we are going to examine the components of this new document which will help prepare this document to become a beautiful, detail-oriented transcription of finger-style guitar. Consider this next chapter and the following chapters in this part to be a sort of stylesheet for finger-style guitar. These are the settings which are configurable through the Document Options dialog accessible by going to `Document` → `Document Options`.

3.1 T A B Clef

Edit default TAB clef in Clef Designer (nudge 'A' and 'B' down)
Font: TeXGyreSchola, Bold, 10pt

3.2 Line Weights

3.3 Ties

Placement: Over/Inner	Horizontal:	Start: −1pt	End: 1
	Vertical:	Start: 3	End: 3

Line	Weight
Barlines	5 EVPU
Ledger Lines	4.6 EVPU
Left Half Ledger Line Length	7 EVPU
Right Half Ledger Line Length	7 EVPU
Stems	2.2 EVPU
Crescendos	4.2 EVPU

Table 3.1: Line Weights in EVPU

Placement: Under/Inner	Horizontal:	Start: 9.5	End: −9.5
	Vertical:	Start −3	End: −3

3.4 Tablature Slides

Smart Shape Tool

Smart Shape Placement
Tab Slide
Same V, Lines, Pitch Increasing

Start Point:	H: 1.5pt	End Point:	H: −1.5
	V: 4		V: −5.5

3.5 Page Layout

Margins

Left, Right: 54pt
Top, Bottom: 36pt

3.6 MTF-Haydn

I use the Haydn music font from Music Type Foundry. Here are the recommended document options for MTF-Haydn:

Element	Unit
Barlines - Thin Line Thickness	0.19
Barlines - Space Between Double Barlines	0.30
Barlines - Heavy Line Thickness	0.60
Beams - Beam Thickness	0.70
Beams - Secondary Beam Separation	0.91
Lines and Curves - Shape Designer Slur - Tip Width	0.08
Slur Mid-thickness	0.28
Lines and Curves - Ledger Lines - Thickness	0.20
Lines and Curves - Line Thickness - Staff Lines	0.10
Stems - Stem Line Thickness	0.13
Ties - Tie Thickness - Tip Width	0.08
Ties - Tie Thickness - Left/Right	0.28
Tuplets - Bracket Thickness	0.16
Grace Note Slash Thickness	0.13021
Flags - Flag Positioning (All) (Horizontal & Vertical)	0.0
Flags - Flag Spacing	0.83333
Flags - Secondary Group Adjust	0.0

Table 3.2: MTF-Haydn Stylehsheet in Staff Space Units

Element	Horiz.	Vertic.
Outer Tip	-0.88	1.0
Inner Tip	0.65	0.42
Outer Body	0.05	0.8
Inner Body	0.58	0.9
Width of Brace	1.125	
Center Thickness	0.2	
Tip Thickness	0.2	

Table 3.3: Piano Brace Control Points in Staff Space Units

Chapter 4

Text

4.1 Title

Font: Avenir Next Heavy, 28pt[1]

Frame Attributes Inserted preset text box (editable through score manager), page 1 only
Horizontal: Center, 0pt
Vertical: Top (Header), 0
Position From: Page Margin
Position from Edge of Frame: **checked**

4.2 Subtitle

Font: Avenir Next, Regular, 8pt

Frame Attributes Inserted preset text box (editable through Score Manager), page 1 only
Centered, Top, Page Margin; H: 0, V: −32pt
Position from edge of frame: **checked**

4.3 Tuning

Font: Pitches, TeXGyreSchola, Regular, 10pt
    Octave designations: TeXGyreSchola, Regular, 6pt
    Baseline shift: -1
Accidentals: TeXGyreSchola, Regular, 8pt
    Superscript: 2

[1]A bug in Finale 25 on Windows 10 makes it so that you have to type in the name of the font exactly in order for the font to appear on screen. To embed the font for print you have to Print to PDF. To do so, in the print dialog, choose the Microsoft Print to PDF printer.

Frame Attributes Text box, page 1 only
Horizontal: Left, 1
Vertical: Top (Header), -36
Position from edge of frame: **checked**

4.4 Composer

Font: TeXGyreSchola, Regular, 10pt

Frame Attributes Inserted preset text box (editable through Score Manager), page 1 only
Horizontal: Right; -1pt
Vertical: Top (Header), -36 (align with tuning); Arranger -49
Position from: Page Margin
Position from edge of frame: **checked**

4.5 Copyright

Font: TGS, Regular, 8pt (This is a modified version of TeXGyreSchola with Old Style numerals)

Frame Attributes Inserted preset text box (editable through Score Manager), page 1 only
Horizontal: Centered, 0
Vertical: Bottom (Footer), -2.25
Position from: Page Margin
Position from edge of frame: **checked**
Justification: Center

4.6 Page Number

Font: TGS, Regular, 8pt

Frame Attributes Inserted preset text boxes: [Title] [File Date] [Page Number]/[Total Pages]
Attach to: All Pages
Horizontal: Right, 0
Vertical: Bottom (Footer), -2.25
Position From: Page Margin
Position from edge of frame: **checked**

4.7 Timecodes

Font: Avenir Next, Regular, 8pt

Frame Attributes Text box, Measure attached (standard notation)
H: 0
V: 48
Position from edge of frame: **checked**

Chapter 5

Text Expressions

5.1 Tempo

Justification: Left
Horizontal Alignment: Start of Time Signature, 0
Vertical Alignment: Staff Reference Line, 36

5.2 Time Signatures

Font: Maestro, bold, 44pt
Justification: Left
Horizontal Alignment: Start of Time Signature, 0
Vertical Alignment: Staff Reference Line, -22.75

5.3 Movements

Font: TeXGyreSchola, Italic, 9pt
Edit Measure Number Regions
One Standard notation staff: Left, Left; H: 1.5, V: -66
Grand staff: V: -142
Show on: Top Staff, **checked**; Exclude Other Staves, **checked**; Bottom Staff, **unchecked**

Chapter 6

Special Tools

6.1 Beam Angle

Eighth note stems: -12
Sixteenth note stems: -12
Beamed eight notes: -8

6.2 Stem Length

Quarter note stems: -12pt

Chapter 7

Resize Tool

7.1 Resize System

Standard Notation: 85%[1]

Tablature: 90%

[1]Click on staff to ensure that you are adjusting the whole staff and not a note.

Chapter 8

Fingerings

8.1 Left-Hand Fingers (Above Staff)

Font: TeXGyreSchola, 8pt, *courtesy: 7pt*
Enclosure Shape: Circle
Line Thickness: 0.44922
Height: 10; *courtesy: 9.75*
Width: 10; *courtesy: 9.75*
Center H: 0
V: -0.25
Match Height and Width
Fixed enclosure size: **checked**
Justification: Center
Horizontal: Stem, 2.75; *courtesy: After Clef/Key/Time/Repeat (2.75)*
Vertical: Staff Reference Line;
First: 12.75pt; Second: 23.75pt; Third: 34.75; Fourth: 45.75

8.2 Left-Hand Duration Lines

When terminated in the same system as its inception, use the *Bracket Tool*. When terminated in a different system than its inception, use the *Line Tool* and make it horizontal.

Elevated Duration Line Line Style: Solid; Horizontal, true
Thickness: 0.46094
End Point Style for elevating duration line one level:

Start:	End:
Hook, -6.5pt	Hook, -3pt

End Point Style for elevating duration line two levels:

Start:	End:
Hook, -17pt	Hook, -3pt

Courtesy Parenthesis Font: TeXGyreSchola, Regular, 10pt
( ): Three spaces in between each parenthesis
Justification: Center
Horizontal Alignment Point: After Clef/Key/Time/Repeat: 2.75pt
Vertical Alignment Point: Staff Reference Line:
First, 12pt; Second, 23pt; Third, 34pt; Fourth, 45pt

8.3 Left-Hand Fingerings (Below Staff)

Fourth String Justification: Center
Horizontal Alignment: Stem, 2.75pt
Vertical Alignment: Staff Reference Line, -17.5pt (quarter), -16.5pt (eighth)

Fifth String Justification: Center
Horizontal Alignment: Stem, 2.75pt
Vertical Alignment: Staff Reference Line, -26.5pt (quarter), -25.5pt (eighth)

Sixth String Justification: Center
Horizontal Alignment: 2.75pt
Vertical Alignment: Below Staff Baseline or Entry, -35 (quarter), -34 (eighth)

Additional Offsets Additional Entry Offset:
First, -13.75pt; Second, -24.75pt; Third, -35.75pt; Fourth, -46.75pt

8.4 Parentheses

Note: this is for surrounding a tablature notehead with a parenthesis. This is used when a finger of the left hand is placed on a fret but the right hand does not play the string.

Font: Avenir Next, Regular, 10pt
( )-three spaces between for single-digit tablature, four spaces for double-digit tablature
Justification: Center
Horizontal: Stem, 3pt
Vertical: Staff Reference Line
First, -2.5pt; Second, -11.5pt; Third, -20.5pt; Fourth, -29.5pt; Fifth, -38.5pt; Sixth, -47.5pt

8.5 Right-Hand Fingerings

Font: TeXGyreSchola, Regular, 8pt

Positioning: I, M, A Justification: Center
Horizontal Alignment: Stem, -5; two-digit numbers -7

String	Reference	Alignment
First	Staff Reference Line	2.25
Second	Staff Reference Line	-7.25
Third	Staff Reference Line	-16.5
Fourth	Staff Reference Line	-25.25

Table 8.1: Vertical Alignment of i, m, a

Positioning: P Justification: Center
Horizontal Alignment: Stem, -3.75pt

String	Alignment
First	Staff Reference Line, -6.5
Second	Staff Reference Line, -16.5
Third	Staff Reference Line, -24.25; strum, -33
Fourth	Staff Reference Line, -32.75; strum, -41.75
Fifth	Staff Reference Line, -41.75; strum, -50.75
Sixth	Staff Reference Line, -50.5; strum, -55.75

Table 8.2: Vertical Alignment of p

8.6 Muted Notes

Enclosure Shape: Circle
Line Thickness: 0.08984
Height: 8.5
Width: 8.5
Center H: 0
V: 0.25
Match Height and Width
Fixed enclosure size: **checked**

Chapter 9

Staff Attributes

Notehead font: Avenir Next Medium, 12pt

9.1 Stems

Always down
Horizontal Stem Offsets: 0, 0
Use vertical offset for notehead end of stems: **checked**
Offset from noteheads: Up, 6.25pt, Down, -6.25pt
Use Vertical offset for beam end of stems (offset from staff) **unchecked**

Chapter 10

Harmonics

Enter the number for the harmonic node
Special Tools > Note Shape Tool

10.1 Notehead Settings

Positioning Horizontal: 0
Vertical: 1
Allow vertical positioning: **checked**

Font Use default notehead font **unchecked**
Zeal 9 plain

Surrounding '<' and '>' are separate expressions
Font: Zeal 9 plain

<:
Justification: Center
Horizontal Alignment Point: Stem
Additional Horizontal Offset: -2.75

>:
Justification: Center
Horizontal Alignment Point: Stem
Additional Horizontal Offset: 9

String	Alignment
First	-3pt
Second	-12
Third	-21
Fourth	-30
Fifth	-39
Sixth	-48

Table 10.1: Vertical Alignment of < and >

Part III

LilyPond

Chapter 11

Brief Introduction to LilyPond

LilyPond[1] is a free and open-source music typesetting program. As it pertains to the typesetting of finger-style guitar, LilyPond offers a great deal to those with patience. I personally found my way to LilyPond after a thorough search of the free and low-cost music typesetting programs. Soon after my preliminary experiments with LilyPond it became apparent to me that this program could reproduce, with a great deal of accuracy, the transcriptions produced by Stropes Editions, Ltd.[2] LilyPond describes itself as a

> music engraving program, devoted to producing the highest-quality sheet music possible. It brings the aesthetics of traditionally engraved music to computer printouts. LilyPond is free software and part of the GNU Project.[3]

I find several components of this compelling. First, and truly most important, is that the program and those dedicated few who contribute to its development are interested in producing the best quality engravings. Once one dives deep into this program it is easy to perceive this devotion. Secondly is that the program is free and cross-platform. On a more personal level, I enjoy that I am able to use my favorite text editor, Emacs, to create sheet music.

LilyPond can be a daunting program when first encountered due to its steep learning curve. I would highly encourage anyone interested to read LilyPond's introduction with special attention to the section on Text input. This is perhaps the most radical component of this software. The engraver produces a simple text document then runs the LilyPond program on that file. Depending on what is contained within the file, LilyPond can produce a variety of document types, such as eps, png, and pdf.

[1] `lilypond.org`

[2] `stropes.com`

[3] LilyPond... Music Notation for Everyone. `http://lilypond.org/` Accessed May 25, 2018.

This part of the book will not attempt to introduce the reader to how to produce scores with LilyPond. Rather, this document will serve as a guidepost for creating accurate finger-style guitar scores with LilyPond.

A couple of notes: first, the defaults for guitar tablature in LilyPond seem to loosely follow the conventions employed by Hal Leonard. If those conventions are considered good enough for you, I would recommend diving right in to using LilyPond as a music engraving tool. Second, LilyPond is attempting to recreate, in digital format, the sheet music produced by Barenreiter Verlag in the beginning of the 20th century. Due to this LilyPond can seem a bit heavier handed than a digital engraving program like Finale or Sibelius. It is possible to use SMuFL fonts to change this heaviness. This book will not be going into the use of these fonts.

My hope is that by producing this component of this book I will be able to encourage more individuals to use LilyPond to create their finger-style guitar scores. While LilyPond may not have some of the features of Finale or Sibelius at the moment, its price tag of free and this introduction into using it for finger-style guitar may keep users away from cheap alternative music engraving software that are woefully lacking in the necessary features to create an accurate, detailed, and beautiful finger-style guitar score.

This section of the book will contain examples of LilyPond code. As mentioned above, the expectation is the reader will have availed his or herself of the Introduction to LilyPond. A good editor to start with for editing LilyPond code would be Frescobaldi.[4]

[4] `http://frescobaldi.org/uguide.html`

Chapter 12

Starting a New LilyPond Document

12.1 The Paper Environment

Within the paper environment there are a number of variables which need to be noted as the default variables are not going to work for finger-style guitar. Namely, the paper size, margins, fonts, and systems-per-page.

```
\paper {
  #(set-paper-size "letter" 'portrait) % 'landscape is also an option
  left-margin = 54\pt
  right-margin = 54\pt
  top-margin = 36\pt
  bottom-margin = 36\pt
  max-systems-per-page = 3 % Any number you want
  min-systems-per-page = 3 % Sometimes LilyPond doesn't put enough
                           % systems on a page
  myStaffSize = #20 % This is a little smaller than default
  #(define fonts
    (set-global-fonts
      #:music "mtf-haydn"
      #:roman "Old Standard"
      #:sans "TeX Gyre Heros"
    )
  )
}
```