

The G-clef piano/harpsichord, harp, viola, cello, double bass etc, all based on a unitary G-clef grand staff (GCGS)

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1. Abstract

This paper proposes multiple G-clef instruments (GCI) (based on all types of G-clefs) like GC-piano (GCP), GC-harp (GCH), GC-violin (GCV), GC-cello (GCC) and GC-double bass (GCDB), all based on a simple G-clef grand staff (GCGS) with two main subtypes (GCGS1 and GCGS2: GCGS significantly simplifies the standard grand staff and creates a unitary clef-“language” for all orchestral instruments, thus for the whole Western full-size orchestra (aka symphony orchestra or philharmonic orchestra).

We have also dedicated an online database containing links to all scores transcribed by the author for various GCIs until present: www.gci.dragoii.com

2. Introduction

This paper proposes multiple G-clef instruments (GCI) (based on all types of G-clefs [GCs]) like GC-piano (GCP), GC-violin (GCV), GC-cello (GCC) and GC-double bass (GCDB), all based on a simple G-clef grand staff (GCGS) with two main subtypes (GCGS1 and GCGS2: GCGS significantly simplifies the standard grand staff and creates a unitary clef-“language” for all orchestral instruments, thus for the Western full-size orchestra (aka symphony orchestra or philharmonic orchestra).

This paper actually continues another two (older) papers of the same author [1,2] in which a “smooth” transition from the standard Western 5-lines musical staff (MS) to a universal/unified periodic musical staff (PMS) was proposed to be progressively accomplished, by using the (one octave below) G-clef-8vb (GC8vb) ^[URL2] (instead of the alto clef aka “C-clef”, e.g. used for viola) and the (two octaves below) G-clef-15mb (GC15mb) ^[URL2] (instead of the bass clef aka “F-clef” e.g. used for piano left hand, cello, double bass etc.).

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8va (or 8^{va}) (from the Italian “ottava” [8a or 8va] which means “octave”) means that a note marked with this (8va) sign should be played one octave higher than written (or “to be played all ottava”). 8vb (or 8^{vb}) (from the Italian “ottava bassa”) means that a note marked with this (8vb) sign should be played one octave lower than written. Furthermore, 15ma (or 15^{ma}) (from the Italian “quindicesima” which means fifteenth and is a music interval equivalent of two superposed octaves interval) means that a note marked with this (15ma) sign should be played two octaves higher than written. Analogously, Furthermore, 15mb (or 15^{mb}) (from the Italian “quindicesima bassa”) means that a note marked with this (15mb) sign should be played two octaves lower than written.

3. The main motivations and arguments for G-clef instruments (GCI), including G-clef piano (GCP)

MuseScore version 3.0 (MS3) (which is an open source free software) has implemented both GC8vb and GC15mb (besides GC8va and GC15ma) so that ANY FREE SCORE* offered by MuseScore site can be easily converted to universal/unified GC scores (*and this is a major advantage!), which GC scores are much easier to teach and read for any instrument: the main motivation for this universal GC proposal is that learning process of each new clef (additionally to the “basic” GC) is very time consuming, especially when applied in instrumental music which often implies high speeds of interpretation (with each new clef being almost like learning a new musical notation language, mainly meaning rapid/real-time brain recognition of visual patterns of the notes positions in the musical staff).

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Sibelius 7 (S7) (which is a professional notation software with capabilities much more complex than MuseScore’s) has only implemented GC8vb, GC8va and GC15ma (aka double octave/fifteenth [ascending] clef) but offers the tools to modify an existing (rarely used) clef thus to also obtain the GC15mb and to create new (transposing) instruments that use all possible GCs (which are all implementable in the same score, as shown next in this paper). In my opinion, S7 incorrectly treats the transposition property as a property of the instrument only and NOT a property of the clef and that is why applying a clef change in S7 from GC or F-clef (FC) (or any other musical clef) to GC8va/15ma or to GC8vb/15mb DOESN’T alter the intonation of notes by S7 player, although it should alter it one/two octaves higher or lower. My main argument against this wrong approach of GC8va/15ma/8vb/15mb in S7 is that the “transposing instrument” notion/concept is a relative concept by definition: even it Wikipedia, it is clearly stated that “Rather than a property of the instrument, the transposition is a convention of musical notation.” (and that really is the naked truth concerning this “relativistic” notion): for example, guitar is considered a “transposing instrument” ONLY because GC was chosen (by arbitrary historical convention!) for noting guitar music: if GC8vb would have been chosen from the (historical) start to note any classical guitar sheet music, then guitar wouldn’t have been considered a “transposing instrument” any more but an instruments that “really plays what it reads”. I have solved that S7 “bug” by editing new virtual transposing instruments in S7 derived from the

piano/viola/cello/double bass (as S7 partially “saves itself” from this bug by allowing the user to create new virtual instruments which borrow the [timbre](#) of any standard instrument but alters at choice the standard clef-based notation of that instrument): this is a very useful workout in S7 that I have discovered and used in my published sheet music written for GCI.

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Important note. Theoretically, one may write/read the entire left hand staff of a piano sheet by using a simple GC: the alterations of notes in various octaves/registers may then be marked using [octava \(aka “ottava”\) lines \(OLs\)](#). The excessive usage of these OLs may however tire the eyes and the attention of the music reader and that is why we propose that all these GCs(8va/15ma/8vb/15mb) should be reintroduced in a future modern unified (Western) notation of all instruments, which all may become G-clef instruments (GCI). Another technical motivation is that S7 doesn’t play the altered height of a note (when that note is part of a group of notes marked with any OL) WHEN one selects a specific non-1st note of that group and asks S7 play along from that specific (altered) note: that is a bug of S7 (which holds no matter if in “Live Playback” mode or not!), as S7 only plays the corrected altered-height notes ONLY when the S7 users choses a play-along position anterior to that OL-marked group or exactly the 1st (altered) note of that group. However, my newly S7-edited GCs(8va/15ma/8vb/15mb)-piano easily eliminates this “play along” (from a specific note/position) bug of S7. MS3 doesn’t have this bug, BUT MS3 is yet far from being a professional music sheet editor, as MS3 has a lot of other bugs (which I’ve already reported to the MS3 programmers on a [specific discussion thread](#) from MS3 forum: <https://musescore.org/en/node/281142>)

4. The G-clef grand staff 1 and 2 subtypes (GCGS1 and GCGS2)

Our proposed G-clef grand staff (GCGS) has two main subtypes: **GCGS1** (which uses an inferior staff in GC8vb instead of an F-clef) and **GCGS2** (which uses an inferior staff in GC15mb instead of an F-clef) (see the next figures)

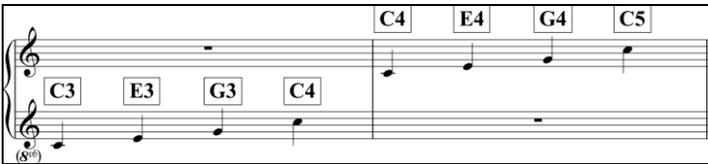


Figure 1a. GCGS1 with an inferior staff using GC8vb instead of an F-clef (C4 is [middle C](#)): see [audio sample](#).

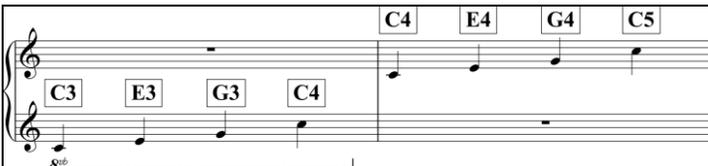


Figure 1b. The more complicated way to write the same musical notes (as in the previous Figure 1a) using an 8vb line applied on an inferior staff in G-clef. (C4 is [middle C](#)): see [audio sample](#).

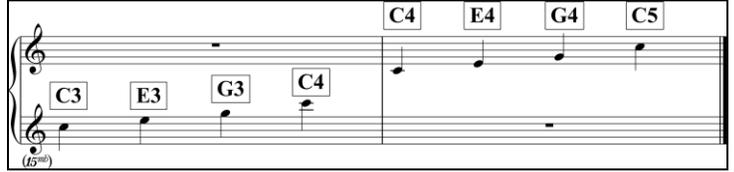


Figure 2a. GCGS2 with an inferior staff using GC15mb instead of an F-clef (C4 is [middle C](#)) and showing the same musical notes as in the previous two figures: see [audio sample](#).

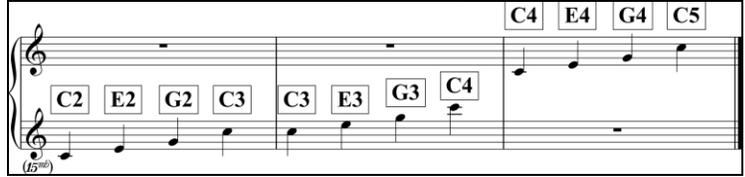


Figure 2b. GCGS2 with an inferior staff using GC15mb instead of an F-clef (C4 is [middle C](#)) showing the C major chord on 3 octaves: see [audio sample\(2\)](#).

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Important note. GC8va and GC15ma may also be used to extend the ambitus of the superior/upper staff of GCGS1/2 which is traditionally/conventionally used to indicate what the right hand should play in a piano/harpsichord/harp (etc) piece/sheet. See the next figure

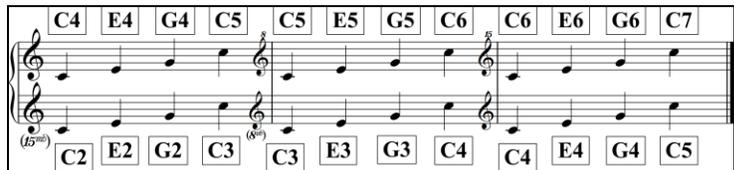


Figure 3. GCGS2 with an inferior staff using GC15mb, GC8vb and GC alternatively (instead of an F-clef, with C4 being the [middle C](#)), in parallel with a superior staff using GC, GC8va and GC15ma alternatively (instead of a simple GC): see [audio sample\(3\)](#).

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Important observation. One may easily observe that the inferior staff of GCGS2 (which uses a GC15mb) is separated by the its superior staff (which uses a GC) by two [ledger lines \(LLs\)](#), not just one (the LL of the middle C), like in the case of the [standard grand staff \(SGS\)](#): for example, a G3 note from the superior staff of GCGS2 corresponds to a written “G5” note from the inferior staff of the same GCGS2. It is historically understandable why so many additional clefs (other than GCs) were invented just to keep all notes of a piece on the same 5-lines staff/staves (in the case of SGS) and avoiding LLs: printers had an aversion to LLs in the past, because LLs caused difficulties in setting type, wasting space on the page etc [see [URL](#)]. However, it is NOT the case anymore, because the printing process is now controlled by computers and computers may easily write and print music by using GCGS1/2 (which, despite having two LLs that “depart” their inferior and superior staves, are more comfortable to human mind/memory and brain than SGS is) WITHOUT any concerns that printers may have had in the past. By proposing GCGS1/2 this paper actually advises all music teachers and students to NOT live in the past anymore!

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The advantages of using GCGS1. GCGS1 has some obvious advantages over SGS when writing piano pieces with limited ambitus (2-3 octaves): a left hand written on a GC8vb-staff is much easier to read given the same visual note-recognition patterns (while keeping in mind that it should be played an octave lower than written, as indicated by that GC8vb).

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The advantages of using GCGS2. GCGS2 may be a little harder (for the reader) when used by composers and arrangers to write limited ambitus (2-3 octaves) piano pieces: that is because notes written in the central octave have distinct visual-recognition patterns (various specific positions on a staff space/line) when compared to the notes from the upper octave. **The 1st advantage (the main one).** However, although GCGS2 is harder to assimilate than GCGS1, GCGS2 remains much easier to learn than SGS and offers the great advantage that any piano/harpsichord/harp (etc) beginner for example may simultaneously learn note-recognition patterns in both central octave and upper octave. **The 2nd advantage.** When transcribing for GCP or GC-harp (GCH) piano/harp pieces with a large ambitus (4-5 octaves), GCGS2 is obviously more convenient, also because the larger-than-octave musical intervals are frequently used in such pieces. Another advantage. **The 3rd advantage.** Compared to the F-clef sub-staff of SGS, the GC15mb sub-staff of GCGS2 has the advantage to represent notes C2 and notes below C2 by using fewer LLs (one LL less than SGS): the notes for piano left hand above C4 can be easily and naturally written using a simple GC (so that to always keep notes inside the staves as much as possible and to avoid unnecessary ledger lines).

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Motivations of mainly using GCGS2. The (previously mentioned) main advantage of GCGS2 (in speeding up the note-recognition learning in both the central and upper octaves simultaneously) is ALSO my main motivation for choosing GCGS2 to transcribe (for GCP/GCH) a large spectrum of pedagogical compositions, including all my published piano original compositions and arrangements of other composers' works. Another important advantage (and reason!) of using GCGS2 in my GCP transcriptions IS THAT notes played by the left hand generally appear visually closer to the notes written for the right hand (on the superior/upper sub-staff of GCGS2): this makes it easier for children, students and generally for beginners to encompass all the notes from GCGS2 in their less trained visual field. I've also brought the two subcomponent staves of GCGS2 very [spatially] close to one another, for optimal visual focusing on more notes of both hands simultaneously: this is in contrast with the majority SGS-based piano scores which use a quite large blanc space between the inferior and superior sub-staffs of SGS, which is not physiological for the beginners and which unfavorably "deforms" the visual closeness that should exist between middle C position and the other notes of the inferior sub-staff of SGS (containing notes to be played by the left hand).

5. A collection of compositions, arrangements and transcriptions for GCP/GCH

Some works of major composers were transcribed by the author for the G-clef piano/harp (GCP/GCH) and are tabled next:

<p>Table 1. Arrangements for GCP/GCH of some major composers' works.</p>
<p>*J. S. Bach - Prelude I in C (BWV 846) (from the "Well Tempered Clavier" (BWV 846-893), Book One) - arr. for G-clef piano/harp (GCP/GCH) URL1a (ScoreExchange main source), URL1b (SMP secondary source). *Public domain. (edited in Sibelius 7)</p>
<p>Christian Petzold (wrongly attributed to Johann Sebastian Bach in the past) – Minuet in G major (from the Notebooks for Anna Magdalena Bach) BWV Anhang 114: GCP/GCH variant (edited in MuseScore 3)</p>
<p>Christian Petzold (wrongly attributed to Johann Sebastian Bach in the past) – Minuet in G minor (from the Notebooks for Anna Magdalena Bach) BWV Anhang 115: GCP/GCH variant (edited in MuseScore 3)</p>
<p>Christian Petzold (wrongly attributed to Johann Sebastian Bach in the past) – Minuet in G major (from the Notebooks for Anna Magdalena Bach) BWV Anhang 116: GCP/GCH variant (edited in MuseScore 3)</p>
<p style="text-align: center;">*</p> <p>The author has also published some original compositions arranged for GCP/GCH (available for purchase on SMP and ScoreExchange platforms), as tabled next:</p>
<p>Table 2. My own compositions arranged for GCP/GCH</p>
<p>Andrei-Lucian Drăgoi (transcribed and published as booklet on July 3rd 2019). Minunata harpă (Beautiful Harp) (musical miniature), variant for G-clef harp/piano (GCH/GCP) solo in A minor (August 2019). URL1a (ScoreExchange main source), URL1b (SMP secondary source). (edited in Sibelius 7)</p>
<p>Andrei-Lucian Drăgoi (composed in March 2010, published as booklet in 2015). Medieval Rainbow (Curcubeu medieval) (arrangement for piano solo no. 1 for beginner level), a musical miniature for piano solo (extracted from Piano Album – volume 1), variant for G-clef piano/harp (GCH/GCP) solo in C major (August 2019). URL1a (ScoreExchange main source), URL1b (SMP secondary source). (edited in Sibelius 7)</p>
<p style="text-align: center;">*</p> <p>The author has also published some transcriptions arranged for GC-violin (GCV) (available for purchase on SMP and ScoreExchange platforms), as tabled next:</p>
<p>Table 3. Arrangements for GC-violin (GCV) of some major composers' works.</p>
<p>*Johannes Brahms - Hungarian Dance No. 5 (Parlow orchestral variant) - C-clef violin (CCV) and arrangement for G-clef violin (GCV) by Andrei-Lucian Drăgoi. URL1a (ScoreExchange main source); URL1b (SMP secondary source). *Public domain. (edited in Sibelius 7)</p>
<p>*Johannes Brahms - Hungarian Dance No. 6 (Parlow orchestral variant) - C-clef violin (CCV) and arrangement for G-clef violin</p>

(GCV) by **Andrei-Lucian Drăgoi**. [URL1a](#) (ScoreExchange main source); [URL1b](#) (SMP secondary source). *Public domain. **(edited in Sibelius 7)**

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Important note. For the standard variants of all (previously) tabled works and for other related pieces, see [Dr. Drăgoi's music catalog \[URL2, URL3-latest version\]](#).

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Final conclusion. GCP/GCH/GCV/GCC/GCDB scores can be easily read (and even played in real time [loco](#) ^[URL2] or transposed in other octaves) by any other instrumentist/musician who may not be familiar with [F-clef](#) and [C-clef](#) (alto clef) (thus cannot normally play such scores in real time): writing the scores of all possible instruments in various GCs significantly helps in reaching **a unified music language for reading and writing** for any instrument, in any style and from any tradition and/or historical period.

We have also dedicated an online database containing links to all scores transcribed by the author for various GCIs until present: www.gci.dragoii.com

References

[1] [Andrei-Lucian Drăgoi \(June 2018\)](#). (LM - version 1.2 - 1.01.2019 - 14 pages) **LeadMuse - a new experimental music notation software (under construction) based on a new simple and practical numerical musical notation system (NMNS) and a modular periodic bilinear (musical) staff (MPBS), also proposing a universal G-clef unified notation for all orchestral instruments.** Research Gate preprint. DOI: 10.13140/RG.2.2.32399.28325. [URL](#) (Research Gate source).

[2] [Andrei-Lucian Drăgoi \(January 2019\)](#). (PMS music scores collection – version 1.0 – 30.01.2019 – 14 pages). **A collection of musical scores for any solo musical instrument (piano, flute, clarinet, oboe, violin, viola, cello, guitar etc) based on a periodic musical staff (PMS).** Research Gate preprint. DOI: [10.13140/RG.2.2.27445.32487](https://doi.org/10.13140/RG.2.2.27445.32487). [URL1a](#) (Research Gate source), [URL1b](#) (Academia source).