

Klavar: From Tablature to Comprehensive Music Notation System

E. Joop van Zoelen

Radboud University Nymegen

Author Note

E. Joop van Zoelen, Radboud University Nymegen.

Correspondence concerning this article should be addressed to E. Joop van Zoelen,
Fangmanweg 43, 6862 EH Oosterbeek, the Netherlands. Email: jovazo@wxs.nl

Abstract

Music students often encounter problems in reading sheet music, because of the complexity of Traditional Music Notation (TMN). Klavar is an alternative music notation system that is simple, intuitive, and easy to learn. Thousands of compositions from many composers are available in Klavar. In its original form, Klavar can be considered as tablature for keyboard instruments. The present paper compares advantages and disadvantages of Klavar and TMN. Subsequently, the author proposes an innovative extension of the Klavar music notation, such that enharmonic notes can be discriminated, and harmonic and melodic lines can be identified. The resulting Klavar20 notation is complete, since it contains all the composer's information and is therefore useful for all instruments. Further, it is comprehensible—since the score is easy to read—and compatible with all music already published in Klavar. Music educators should familiarize themselves with Klavar20 and stimulate teaching of this notation to students who might otherwise stop taking music lessons.

Keywords: Klavarskribo, alternative music notation, enharmonic notes, harmonic lines, melodic lines

Klavar: From Tablature to Comprehensive Music Notation System

Music notation can be defined as systems in which music is written down in the form of symbols. These are important for preserving music over longer periods of time, for facilitating music performance, and for presenting music in a form suitable for study and analysis. So-called Traditional Music Notation (TMN), which documents musical pitches in the form of staves and noteheads, is most commonly used for Western music. Non-Western traditional music often employs notation systems based on numeric, phonetic, and graphic signs and symbols. In addition, tablatures are frequently used; these notate instrument fingering rather than musical pitches. Tablatures are currently popular for such instruments as guitar, accordion, and flute (Bent, 2021; Gaare, 1997).

Thanks to TMN, most Western composers' music can still be played and enjoyed today (Scholes, 1970). From an educational point of view, however, it is well recognized that TMN is very complex and not readily accessible for beginning musicians. As a result, many amateur players drop out of music lessons because problems with mastering music notation tend to limit their progress (Gudmundsdottir, 2010). Over the years, many alternative music notation systems have been developed, including those proposed by composers Schönberg and Busoni (reviewed by Gaare, 1997). Probably the most successful alternative music notation is Klavar (also known as Klavarskribo), which was invented in the 1930s by the Dutch engineer Cornelis Pot. To date, more than 25,000 pieces of sheet music have been published in Klavar, mainly for piano, organ and accordion, including all major compositions of well-known classical composers.

In contrast to TMN, which is based on a horizontal five-line staff, the Klavar staff consists of an alternating pattern of two and three vertical lines, which correspond to the similar pattern of the two and three black keys on the keyboard. The notes between the lines are always white (or open) and represent the white keys on the keyboard. The notes directly

on the lines are always black and represent the black keys (Klavarskribo, 2022). The Klavar notation lacks clefs, sharps, and flats, is easy to learn, and very intuitive, since the written music directly reflects the keys to be played (i.e., “what you see is what you play”). In this respect Klavar can be considered a tablature for keyboard instruments.

Although Klavar is popular among players of keyboard instruments, particularly in The Netherlands and the UK, international recognition has remained limited in spite of positive reviews in music literature (e.g., Gaare, 1997; Scholes, 1970). This may be partly due to professional musicians’ general lack of interest in alternative music notations. In addition, music experts have criticized Klavar notation because important musical information present in TMN is lacking in Klavar. In particular, harmonic and melodic lines—which play a central role in TMN—are not clearly visible in Klavar notation. Moreover, Klavar does not discriminate between enharmonic notes, making it only applicable for keyboard instruments tuned in twelve-tone equal temperament.

The present study compares differences between Klavar notation and TMN in detail. In the first part of this paper, advantages and disadvantages of the two music notation systems are compared. In the second part, two additional symbols are proposed for Klavar notation, allowing direct visualization of harmonic and melodic lines in the score. Moreover, these symbols also allow unequivocal identification of enharmonic notes without affecting the notation’s intuitive character. This improved Klavar—designated Klavar20—contains all information present in TMN, making it a generally useful notation system for music on all instruments. Klavar20 therefore provides an attractive notation system for all musicians who fail to obtain sufficient fluency in reading sheet music in TMN.

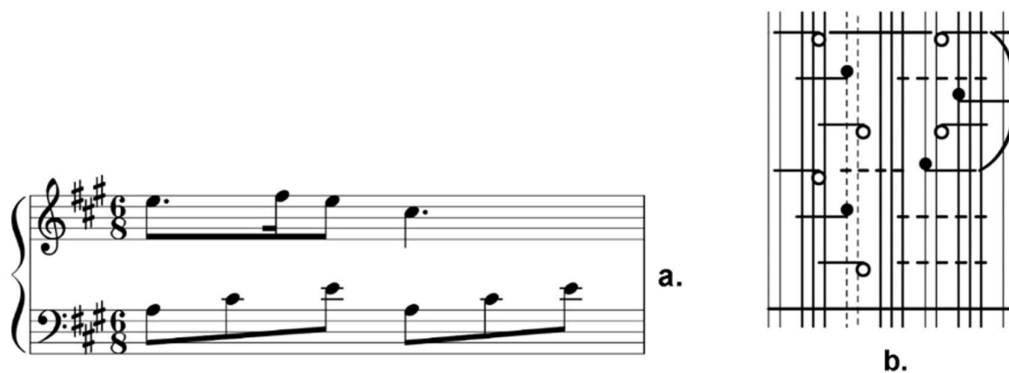
Klavar vs. TMN

Figure 1(a) shows the first measure of “Silent Night, Holy Night” in TMN. Playing this simple tune requires knowledge of treble and bass clef, of sharps in the key signature, and

of four different symbols for note values. Figure 1(b) shows the same measure in Klavar. The two dashed vertical lines represent black keys next to middle C. Black notes are printed above the stem, while white notes are printed below the stem—again reflecting their relative position on the keyboard. Notes to be played on the keyboard with the right hand have their stem pointed to the right, while those played with the left hand have their stem pointed to the left. In the present example, the measure is subdivided in six beats (corresponding to a 6/8 signature in TMN), indicated by horizontal counting lines. The horizontal location of the stem determines the note's position in the measure and the distance between the stems determines the duration of a note (for both left and right hand).

Figure 1

First Measure of “Silent Night, Holy Night” in TMN (a) and Klavar (b)



In the present example, notes in the left hand (i.e., A, C-sharp, E) all have a length of one beat, while in the right hand the first E has a length of 1.5 beats, the F-sharp of half a beat, the second E of one beat and the C-sharp of three beats. So in contrast to TMN, playing “Silent Night, Holy Night” from sheet music is a simple exercise—even for beginning Klavar players.

In summary, while TMN is played horizontally, Klavar is played vertically. In TMN each note has an absolute length, while in Klavar each note has a relative length (i.e., proportional spacing; “distance is time”).

Pros and Cons

Traditional Music Notation (TMN) suffers from a number of conceptual and technical problems, which will be discussed here and compared with Klavar notation (see also Gaare, 1997). On the other hand, Klavar is limited to keyboard instruments tuned in twelve-tone equal temperament and lacks relevant composer's information in the score. The following survey of pros and cons is subsequently summarized in Table 1.

On the horizontal five-line TMN staff, the seven natural notes (i.e., white keys) are positioned at equal distance from each other, while in fact five of these intervals correspond to a whole tone and two to a semitone. The five chromatic notes (i.e., black keys) have no line or space of their own, but have to be indicated by sharps and flats. In contrast, the vertical staff of Klavar offers space to 12 notes per octave, corresponding to the seven white and five black keys on the keyboard, all separated from each other by a semitone.

In TMN the positions of notes on the staff are not unique and depend on the clef used. Moreover, a note which is on the line in one octave will be on a space in the next octave (i.e., there is no octave symmetry). Klavar does not use clefs and each note has its unique position between the set of two and three vertical lines, which is similar for all octaves.

In TMN notes and rests have a unique length, independent of others in the score. This results in at least 12 different symbols for note values, as well as 12 for rest values. Although exact in its notation, it tends to make the score complex and interpreting it may require “mental math” from the player (Gaare, 1997). Klavar relies on proportional note spacing, using only two note symbols (i.e., black and white). Each note is sustained until the next one follows (“distance is time”). When a note has to end before the following one must be played, a halt sign (v) is used. Moreover, a duration dot (.) is used when a note is to be sustained while the same hand plays a new note. Although exact, even rhythms in the Klavar notation

may appear irregular and note symbols in fast passages may partly overlap, as will be discussed in the subsequent paragraph.

In TMN note values depend on the presence or absence of a stem and a flag, which successively differ from each other by a factor of two. A dot can be added to augment a note value by a half. However, TMN is not well suited for notation of irregular rhythms such as triplets and quintuplets. If a triplet has to be played on a quarter note, three eighth notes are listed with a number “3” in its bracket, reducing the eighth notes to $\frac{2}{3}$ of their intrinsic length. The problem of notating irregular rhythms in TMN is also illustrated by the fact that in Baroque music a dotted eighth note followed by a sixteenth note is used to indicate the first and third note of a triplet (Pyron, 2009). In Klavar distance is time, and available space can be divided by any integral number. Similar to TMN, these notes may be listed with the tuplet number in the bracket, but in Klavar this is not essential.

TMN uses similar symbols for the phrase mark (slur) and tie-mark, which can lead to confusion, particularly in polyphonic music. In fact, when converting TMN sheet music into digital formats, most errors occur from an incorrect interpretation of tie-marks (i.e., data not shown). To avoid such confusion, Notus music notation prints tied notes and tie-marks in grey, rather than black (Clauws, 2017). Klavar has no need for tied notes and uses only phrase marks.

Playing music in TMN requires constant memorization of the clef used, the key signature, and the duration of sustained notes (Gaare, 1997). In Klavar it is clear at each position in the score which notes have to be played and which have to be sustained.

TMN is a universal notation system which has been used by many composers and is appropriate for playing on all instruments. Klavar can be considered as a tablature for playing music on keyboard instruments.

TMN discriminates between enharmonic notes by using sharps, flats and naturals. Klavar does not discriminate between enharmonic notes and is therefore only useful for keyboard instruments tuned in twelve-tone equal temperament.

TMN distinguishes scale notes, determined by the key signature, from non-scale notes, given by sharp, flat and natural accidentals. Klavar does not discriminate between scale and non-scale notes. Therefore, temporary deviations from the harmonic line are not visible in the score.

TMN has multiple ways to indicate melodic lines in polyphonic music (e.g., by varying the direction of the stem in each clef). Klavar has only limited possibilities to indicate melodic lines: using larger symbols for a specific voice, or drawing connecting lines between notes of the same voice.

Table 1

Summary of the Differences Between TMN and Klavar; Advantages Appear in Lighter Highlighting with Disadvantages in Darker Highlighting

TMN	Klavar
Complex relation between the score and the notes to be played	Simple relation between the score and the notes to be played
Large number of symbols	Limited number of symbols
Notation is not octave symmetrical	Notation is octave symmetrical
Multiple clefs	No clefs
Player constantly has to memorize key signature and sustained notes	At every position in the score it is unambiguous which notes have to be played and sustained
Complete (contains all composer's information)	Not complete (some of the composer's information is not retained)
Harmonic lines are clearly indicated (accidental sharps and flats)	Harmonic lines are not indicated
Melodic lines are clearly indicated (different stem directions)	Limited possibilities for marking melodic lines
Clear distinction between enharmonic notes	No distinction between enharmonic notes
Uniform for all instruments	Mainly useful for keyboard instruments
Not well-suited for irregular rhythms	Notes can be spaced proportionally for any rhythm
Exact notation of every note and rest value	Apparent irregularities in note length, particularly when alternating white and black notes are to be played
Confusing similarity between phrase mark and tie-mark	Only phrase marks are used

The subjective perspective

An interesting example, which has been used by both supporters and opponents of Klavar notation, appears in Figure 2. It shows a comparison between F major and F-sharp major scales, first in TMN and subsequently in Klavar. In TMN, F major is indicated by a single flat (Figure 2a), while F-sharp major is characterized by six sharps (Figure 2b). In Klavar, key signature is indicated by the F symbol (Figure 2c) or F-sharp symbol (Figure 2d) in a circle (for major scales) at the start of the first measure.

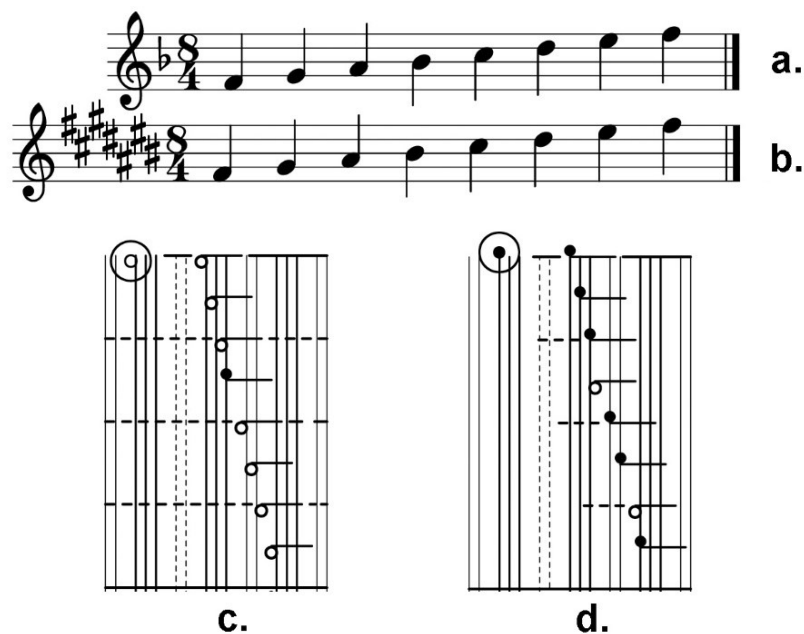
In TMN, the eight notes on the staff are the same for both scales, but for all these notes the pitches to be played differ from each other, as is clearly shown in Klavar notation. So, when playing music in F-sharp major in TMN, one constantly has to remember that each note on the staff has to be increased by a semitone due to the key signature. Because of its notation, F-sharp major is considered to be a “difficult” key, which may be one of the reasons why this key is not frequently used in music literature in spite of its “brilliant and exceedingly clear character” (Buja, 2016). In contrast, Klavar does not pose any specific difficulty for playing music in a particular key.

However, opponents of Klavar (Willemze, 1964) have used the same example to emphasize that in TMN notes of both scales are equally divided over the staff. This does not appear to be the case in Klavar. (As a reminder, an equal distance between the stems in TMN is no indication that these notes have the same duration.) In Klavar, a stem’s horizontal location determines the note’s position in the measure, while distance between the stems determines a note’s duration, which is clearly similar for all notes in both scales shown. However, since in Klavar black notes are printed above and white notes below the stem, it may appear at first sight that the distance between a black and a subsequent white note is larger than that between a white note and a subsequent black note. This apparent irregularity

in note length becomes even more prominent when subsequent notes with very short values are printed. Here, a white note symbol and a subsequent black note symbol may overlap.

Figure 2

F Major (a) and F-sharp Major (b) Scales in TMN; F Major (c) and F-sharp Major (d) Scales in Klavar.



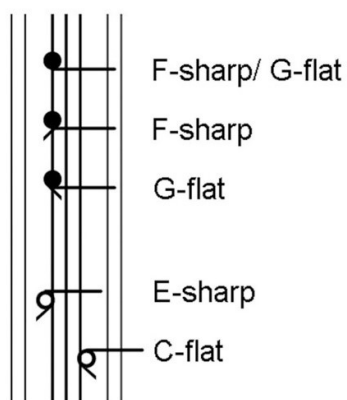
Proposed Solutions

Following the above comparison between Klavar and TMN, solutions will now be proposed for each of the disadvantages of Klavar mentioned here, namely: (a) discrimination between enharmonic notes, (b) identification of harmonic lines, (c) an apparent irregularity in note length, and (d) identification of musical lines. This will require introducing two new symbols in Klavar, resulting in an extension of the Klavar notation, hereafter designated Klavar20. Importantly, Klavar20 is still intuitive and very easy to learn; in addition, it contains all the composer’s information and is therefore useful for playing music on all instruments.

Enharmonic notes

In TMN, the staff is built on a scale consisting of seven natural notes per octave, corresponding to white keys on the keyboard. For intermediate pitches, sharp and flat signs are used—in the key signature or as accidentals—giving rise to at least 17 different note symbols. The staff of Klavar offers space to 12 notes per octave, corresponding to seven white and five black keys on the keyboard. As an example, TMN uses different symbols for F-sharp (F♯) and G-flat (G♭), while in Klavar the same symbol is used for both F-sharp and G-flat (see Figure 3). For modern keyboard instruments tuned in twelve-tone equal temperament, F-sharp and G-flat indeed correspond to the same pitch. But, for instruments using pure intonation, they may differ. Since Klavar is mainly used for modern keyboard instruments, it has been argued that different notations for enharmonic notes are redundant. As will be shown in the next paragraph, however, distinguishing enharmonic notes may contribute to understanding harmonic lines in music, also for keyboard instruments.

Klavar20 proposes to use the F-sharp/G-flat symbol on top of a short rising diagonal line (for “raised”) exclusively for F-sharp, and the F-sharp/G-flat symbol on top of a short falling diagonal line (for “lowered”) exclusively for G-flat (see Figure 3). The original F-sharp/G-flat symbol is maintained if there is no need for further specification. A scale with six sharps contains an E-sharp, which in Klavar20 will be indicated as an F on top of a rising line, while the C-flat in the scale with six flats will be indicated as a B on top of a falling line (see Figure 3).

**Figure 3**

Proposed Notation of Enharmonic Notes in Klavar20.

Note: double sharps and flats can be indicated using the proposed symbols on top of two parallel lines.

It is important to emphasize at this point that the proposed notation of enharmonic notes in Klavar20 is fundamentally different from the one used in TMN. In TMN the sharp and flat signs indicate where a note is “going to,” whereas in Klavar 20 the rising and falling lines indicate where a note is “coming from.” As an example, in TMN an F in the score preceded by a sharp sign--either in the key signature or as accidental--has to be played as an F-sharp. In Klavar the same note will already be indicated by the F-sharp/G-flat symbol, whereby a rising line specifies that the note originated from an F raised by a semitone. So in Klavar20 one never has to play another key than listed in the score. Finally, it should be stated that Klavar symbols on top of a rising or falling line have been proposed earlier by Kaasjager (1955), as part of a Klavar notation, to indicate individual keys for instruments with a 31-tone equal temperament (diesis) scale.

Harmonic Lines

The harmonic structure of music is determined by the key signature and by non-scale notes resulting from accidental sharps, flats, and naturals. Notes belonging to the scale are often considered as static and pleasant, while temporary non-scale notes spice the music with color and dynamics. It is therefore important that those generally dissonant notes are directly

visible in the score. It is proposed here that in Klavar20 these non-scale notes are indicated by their enharmonic specific symbols.

Figure 4 shows the first nine measures of a piano version of Bach's Air in TMN. Besides the two sharps (C-sharp and F-sharp) in the key signature, notes deviating from the D major scale occur in several measures, as indicated by accidentals (i.e., sharps, flats, naturals).

Figure 5 shows shows the same piece of music in Klavar20. The symbol in the circle at the start of the first measure shows the key signature (D major), while the symbols in the rectangle to the left show that this implies that in this piece all C-sharp/D-flat symbols are C-sharp, and all F-sharp/G-flat symbols are F-sharp. Non-scale notes in the various measures are indicated by their enharmonic-specific symbols, including a D-sharp and a G-sharp. The C-sharp preceded by a natural is listed as a C on top of a falling line, indicating that it originated by a semitone lowering of a scale note. In this way, Klavar20 allows a direct visual identification of the notes which belong to the key signature and those which result from non-scale notes, without having to play another note than indicated in the score. The example presented here also illustrates the use of the halt sign (v), which is indicated in Klavar when a note is to end before the following one must be played, as happens throughout this piece in the left hand. Moreover, the duration dot (.) is used when a note is to be sustained while the same hand plays a new note, as shown for example in the right hand of the second measure.

Apparent irregularity in note length

In measure six of the above Klavar version of Air (Figure 5), the exact length of the notes in the second half of the first beat may appear ambiguous at first sight. The stems show a 32nd-note length (in TMN terminology) for the B and C-sharp in the right hand, followed 16th-note length for the subsequent D. However, when looking at the note symbols, this may not be immediately obvious. In order to prevent confusion, the same notes in measure seven are printed as proposed in Klavar20. Here these notes are linked by a bracket with the number

“4,” indicating that this part of the measure is subdivided into four equal subparts. Moreover, the C-sharp has been positioned in the extension and not on top of the stem, to avoid it from partly overlapping with the previous B.

Figure 4

Air by J.S. Bach For Piano in TMN

The image displays three systems of musical notation for the 'Air' by J.S. Bach, For Piano in TMN. The first system is marked 'Lento' and 'pp' (pianissimo). It features a treble clef staff with a whole note chord and a bass clef staff with a rhythmic pattern of eighth notes. A 'continue' instruction is present in the bass staff. The second system continues the piece with similar rhythmic patterns in both staves. The third system includes first and second endings, marked '1.' and '2.', with a repeat sign. The notation includes various musical symbols such as stems, beams, and accidentals.

Figure 5

Air by J.S. Bach For Piano in Klavar20. Note: dynamics and articulation marks in Klavar are similar to those in TMN.

The image displays a musical score for the piece 'Air by J.S. Bach For Piano in Klavar20'. The score is presented in Klavar notation, which uses a vertical staff system with seven staves, numbered 1 through 7 from top to bottom. The notation consists of vertical lines representing notes and stems, with various articulation and dynamic markings. The first staff (1) begins with a circled '1' and a 'pp' (pianissimo) dynamic marking. The notation includes vertical stems with dots, some with flags, and various symbols such as 'v' and 'o' indicating articulation and dynamics. The score is divided into measures by vertical dashed lines. The right side of the score (staves 5, 6, and 7) features a more complex arrangement of notes and stems, with a large bracketed section on staff 6 and staff 7. The overall layout is clean and organized, typical of a formal musical score.

Melodic Lines

In TMN, stem direction can be used to indicate melodic lines in polyphonic music. In a four-part fugue, the stem usually points down for the bass voice and up for tenor voice in the bass clef. In the treble clef, the stem points down for the alto voice and up for the soprano voice. However, when playing with two hands on a keyboard instrument, problems may arise when the tenor voice is higher or the alto voice lower than the middle C, since this requires ledger lines between both staves. Moreover, when the tenor and alto voices cross, it may not be directly clear which hand should be used to play either of these two voices. Figure 6 shows measures 9-11 from Fugue 17 (A-flat major) of Bach's *Well-Tempered Clavier* in TMN. The four voices are clearly marked by stem directions in both clefs. However, playing this music from the score is complicated by the fact that in measure 10 the soprano, alto, and tenor voices cross.

Unlike TMN, Klavar uses a continuous staff. Therefore only two voices can be discriminated: one with the stem pointing to the right and the other with the stem pointing to the left. Moreover, on keyboard instruments, Klavar uses the convention that notes with the stem to the right are played by the right hand, and with the stem to the left by the left hand, which does not necessarily correspond to distinct voices. Conventional Klavar has two ways to indicate melodic lines. One is use of larger symbols for a specific voice; the other is use of connecting lines drawn between notes of the same voice. Figure 7 (left) shows the same three measures as above in conventional Klavar. At each position in the score, it is immediately clear which notes have to be played and by which hand--but in spite of the connecting lines it is not obvious to which musical line each of the notes belong.

Figure 6

Measures 9-11 from Fugue 17 from Bach's Well-Tempered Clavier (A-flat Major) in TMN.



There are different possibilities to improve the visibility of melodic lines in Klavar, including use of notes with a separate color for each voice, or positioning notes (both black and white) above the stem for one voice and below the stem for another. Omitting the two vertical dashed lines next to the central C can also be considered, resulting in a split staff very similar to TMN. However, all these options would lead to notation that is no longer compatible with music printed in conventional Klavar. The use of larger symbols (e.g., for soprano and tenor voice) would wrongly suggest that these voices are more important than the other two.

In Klavar20 it is proposed to use square symbols in addition to round symbols to indicate melodic lines. Square symbols have been used frequently in medieval music and Gregorian chants (“Neume,” 2022). Figure 7 (right image) shows the same three measures in Klavar20, in which soprano and tenor voices are depicted in round symbols and alto and bass voices in square symbols. As always in Klavar, notes with the stem pointing to the right are played by the right hand and those with the stem to the left by the left hand. When two notes of different voices coincide (as is the case for the soprano and alto voices in the first beat of measure 10) one is placed above and the other below the stem. Connecting lines are only required when either bass and alto lines (i.e., square symbols) or tenor and soprano lines (i.e., round symbols) cross. Moreover, halt signs and duration dots have been added for each of the

melodic lines. As a result, each of the four melodic lines can now readily be distinguished in the resulting Klavar20 score.

Figure 7

Measures 9-11 from Fugue 17 of the Bach's Well-Tempered Clavier in A-flat major in Conventional Klavar Notation (left) and in Klavar20 (right). Note: these three measures do not contain accidentals.

The figure displays two side-by-side musical scores for measures 9, 10, and 11 of Fugue 17. The left score is in 'Conventional Klavar Notation', featuring four staves with complex notation including beams, slurs, and fingerings. The right score is in 'Klavar20' notation, using a simplified system of squares and circles on a grid. Both scores include measure numbers 9, 10, and 11, and dynamic markings like 'p' and 'cresc.'.

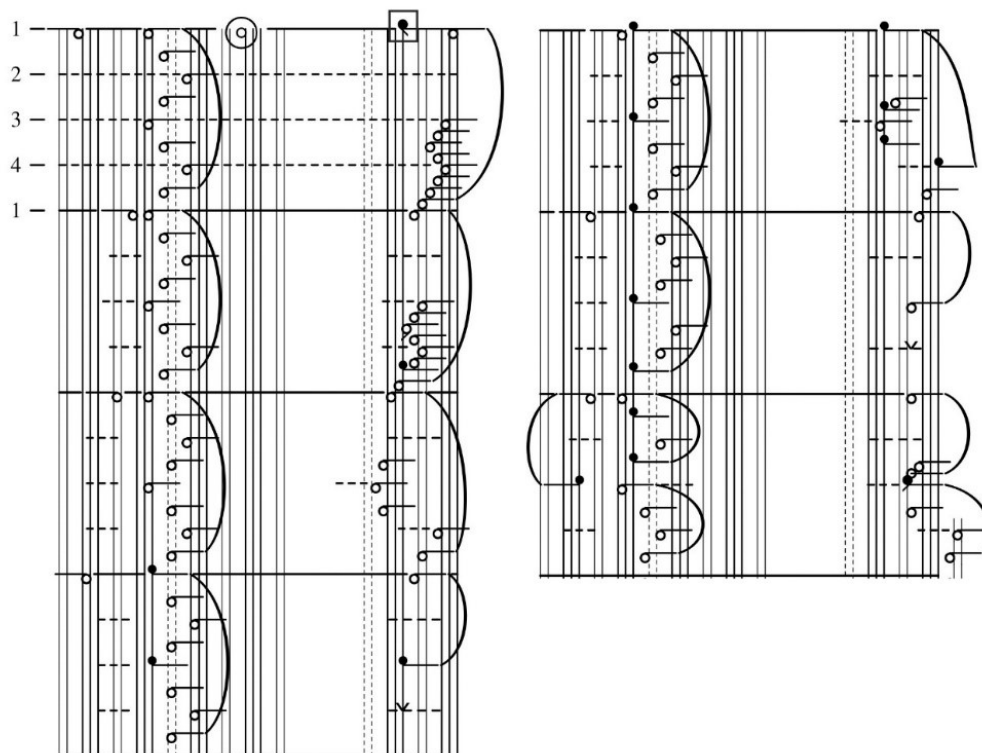
Klavar20 for non-keyboard instruments

The complexity of reading sheet music in TMN increases when multiple notes have to be played simultaneously, which is often the case for keyboard instruments. Perceived need for alternative music notation systems is therefore much less for string instruments and flute, or for vocal music. Generally, on these instruments, only a single note has to be played at a time. When playing in music ensembles, it is not uncommon for a pianist to use Klavar notation, while other instrumentalists use TMN. However, in Klavar20 this is no longer essential, since this notation can also be used for instruments which are not tuned in twelve-tone equal temperament. An example is given in Figure 8, which shows the first seven measures of Beethoven's Violin Sonata No. 5. The left-hand side of each measure shows the piano part and the right-hand side the violin part of this composition.

The key signature of this violin sonata is indicated by the symbol in the circle at the start of the first measure (F major), while the symbol in the rectangle shows that this implies that all A-sharp/B-flat symbols in this piece correspond to the scale note B-flat. Accidental non-scale notes in the violin part, as occur in measures two and seven, are indicated by their enharmonic specific symbols. It can therefore be concluded that in Klavar20 there is no longer a need for separate scores for keyboard instruments and instruments that use pure intonation.

Figure 8

Beethoven's Sonata for Violin and Piano No.5 (measures 1-7) in Klavar20. Note: in each measure the piano part is printed on the left and the violin part on the right.



Discussion

In the present paper, advantages and disadvantages of the Klavar notation and TMN have been compared extensively. In order to overcome Klavar's disadvantages, while maintaining its many advantages, additional symbols have been proposed. This allows discrimination among enharmonic pitches in Klavar, while harmonic and melodic lines can be followed in the score. The resulting Klavar20 can therefore be considered a comprehensive music notation system, appropriate for playing on all instruments. The proposed extensions make Klavar20: (a) complete, since it contains all the composer's information and can be played on any instrument; (b) comprehensible, since the written music is simple to read, easy

to understand and intuitive (i.e., “what you see, is what you play”); and (c) compatible, since all music published in conventional Klavar notation can still be played in Klavar20.

Many alternative music notations have been proposed, all with the aim of making music reading less complex (Music Notation Project, 2021). The three most acclaimed proposals will now be discussed briefly and compared with Klavar20. In the Tinline notation, proposed by Thomas Reed, two pairs of horizontal lines are used as a staff, in combination with a series of alternating oval and triangular symbols (reviewed in Bertschi, 2015). The notation is octave symmetric and shows equal distancing between semitones, but does not discriminate between enharmonic notes. The same characteristics hold for the award-winning Proportional Chromatic notation, proposed by Henri Carcelle, which uses oval symbols in a staff consisting of nine symmetrical solid, dashed, and dotted lines (reviewed in Gaare, 1997). The staff can be read both in horizontal and vertical directions. Finally, Notus music notation (Clauws, 2017) uses a modification of TMN with an additional ledger line to make the notation octave symmetrical. The notation discriminates between enharmonic notes, but shows no equal distancing between semitones. In all three notations the duration of notes and rests is indicated in a similar manner as in TMN. It is important to note that none of these music notations discriminate between scale and non-scale notes, so harmonic lines cannot be followed directly.

Karkoschka (1972), an authority in the field of modern music notation, has stated that in music notations “the visual event must be apparent as the direct translation of the auditory event, requiring as few additional thought processes as possible.” In its original form, Klavar is octave symmetrical and shows equal distancing between semitones. In addition, as a tablature for keyboard instruments, it has a staff which visually represents the keyboard, whereby each note has a unique position on the staff. It is the only notation discussed in this paper that uses proportional note spacing, which is considered by Gaare (1997) to be “a

superior method of notating the time function.” Moreover, with its current extensions, Klavar20 is able to distinguish enharmonic notes and to discriminate between scale and non-scale notes. Klavar20 therefore conforms best with Karkoschka’s statement and can be considered as a generally applicable music notation system, useful for all instruments.

Almost all people in our Western world will be able to read the words “Silent Night, Holy Night,” and many of them will be able to sing the song. But only few people will recognize this song from the sheet music shown in Figure 1(a). Why is reading music notation so much more difficult than reading written words? It has been argued that the complex and non-intuitive nature of TMN contributes to this broad lack of musical literacy (Henschen, 2018). An additional reason may be that TMN differs so much from the notation children use spontaneously when listening to music (Upitis, 1990). In fact, of those young people who start learning music, relatively few manage to read notes at a satisfactory level and those numbers are even decreasing (Mills & McPherson, 2006). It has been suggested that problems in music reading skill hold back countless students and may be a major cause for them to drop out of music lessons. Consequently, many music teachers tend to abandon music reading instructions in the initial phase of their program or at least try to minimize the emphasis on music literacy (Mills & McPherson, 2006).

Contrary to TMN, Klavar is so easy to learn that reading notation is never a limiting factor for students in developing their musical skills. This makes Klavar20 an attractive notation system for many music players who fail to reach fluency in TMN reading or do not desire to do so. This also includes many amateurs who want to start playing music later in life, as well as musicians and composers of popular modern music. It has been argued that it is important for K-12 children to learn to compose and improvise music (Hickey, 2012). As soon as they can play a few keys on the piano, they will also be able to write these notes down using Klavar as a tablature. It is well-realized that for years to come TMN will remain the

standard music notation for classical Western music by professional musicians. However, for an even larger group of musicians Klavar20 appears an excellent alternative. Music educators should therefore familiarize themselves with Klavar20 and stimulate teaching of this notation to students who would otherwise stop taking music lessons. Eventually it is hoped that as many people as possible will be able to play music by choosing music notation that best fits their ability and ambition.

In TMN, early lessons are often exclusively in C major or A minor, demonstrating that this notation is dictating and limiting music playing. In contrast, the first lesson in Klavar starts with the Big Ben tune, which is fully played on the black keys. The first 78 lessons in Klavar are freely available in English from the internet (Klavarskribo Free Lessons, 2021). “Silent Night, Holy Night” is taken from Lesson 6, a level which is easily reached within weeks. After the initial lessons sheet music of all major composers is available (Klavarskribo Publications, 2021), while more and more music can be downloaded from the KlavarScore website (KlavarScore, 2021). The free computer program KlavarScript (KlavarScript, 2021) is currently used to write sheet music in conventional Klavar. MIDI files, which are abundantly present on the internet but can also be obtained from a musician’s own composition played on a digital keyboard, can be converted directly into Klavar sheet music using this program. Digital or scanned TMN sheet music can be converted from PDF into Klavar through a MusicXML intermediary (e.g., Capella scan or SharpEye software). An update of this KlavarScript program will also be needed to allow conversion of MIDI and XML files into Klavar20.

References

- Bent, I.D. (2021). Musical Notation, *Britannica*. <https://www.britannica.com/art/musical-notation>
- Bertschi, C.F. (2015). *Re-thinking the staff: Kirksville, Missouri's Thomas S. Reed and his quest for an alternative music notation system* [Master's thesis, Truman State University, Kirksville, MO].
- Buja, M. (2016). *How you should feel in the key of F Sharp Major/ G Flat Major*. Interlude. <https://interlude.hk/feel-key-f-sharp-major-g-flat-major>
- Clauws, E. (2017). NOTUS Music Notation Handbook (J.W. Beaton, Trans., 1st ed.) *Notus Books & Sheets*.
- Gaare, M. (1997). Alternatives to traditional notation. *Music Educators Journal*, 83(5) 17-23.
- Gudmundsdottir, H.G. (2010). Advances in music-reading research. *Music Education Research*, 12(4) 331-38.
- Henschen, J. (2018). *The tragic decline of music literacy (and quality)*. Intellectual Takeout. <https://www.intellectuالتakeout.org/article/tragic-decline-music-literacy-and-quality>
- Hickey, M. (2012). *Music outside the lines: Ideas for composing in K-12 music classrooms*. Oxford University Press.
- Kaasjager, W.J. (1955). *Algemene muziekleer*. Klavarskribo.
- Karkoschka, E. (1972). *Notation in new music*. Praeger Publishers.
- Klavarskribo (2022). *Free lessons*. <https://www.klavarskribo.eu/en/free-lessons>
- Klavarskribo (2022). *Publications*. <https://www.klavarskribo.eu/en/publications>
- KlavarScore (2021). *Sheet music*. <https://www.klavarscore.org/en/sheet-music>
- KlavarScript (2021). *Downloads*. <https://www.klavar.com/nl/downloads>

- Mills, J. & McPherson, G.E. (2006). *The child as musician: A handbook of musical development*. Oxford University Press.
- Music Notation Project (2021). *Improving upon traditional music notation*.
<http://musicnotation.org>
- Pyron, N. (2009). *Aspects of 17th and 18th century performance practices: The question of "good taste" and implied rhythms*. Grancino Editions.
- Scholes, P.A. (1970). *The Oxford Companion to Music* (10th ed.). Oxford University Press.
- Upitis, R. (1990). Children's invented notations of familiar and unfamiliar melodies. *Psychomusicology*, 9(1) 89-106.
- Klavarskribo (2022, July 14). In *Wikipedia*. <https://en.wikipedia.org/wiki/Klavarskribo>
- Neume (2022, July 14). In *Wikipedia*. <https://en.wikipedia.org/wiki/Neume>
- Willemze, T. (1964). *Algemene muziekleer*. Het Spectrum.

Acknowledgments

The author is indebted to Mary Short (UK) and Floris Schuiling (NL) for a critical reading of the manuscript and linguistic advice.