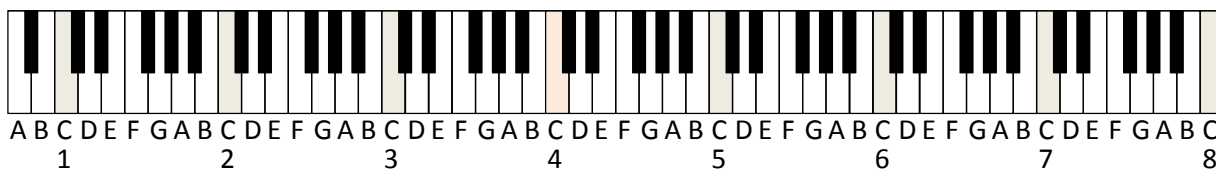


# THE EASIEST MUSIC NOTATION EVER

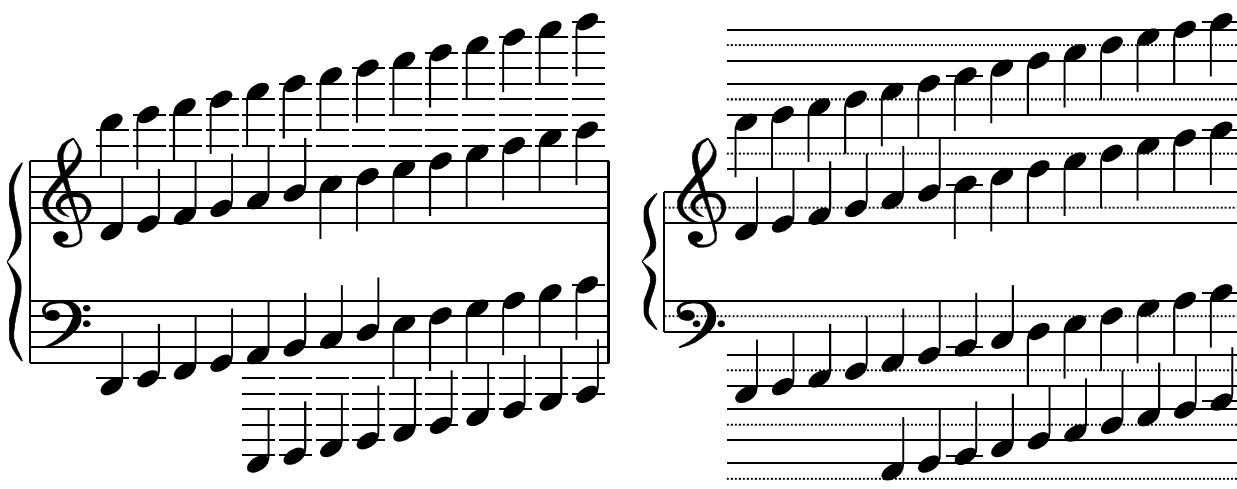
Ion Mittler

Finding the middle C is the first thing that a beginner learns with the piano. And when he has done that, he can immediately find the C also in any other octave. This is easy, even for a small child, because every octave looks similar on the piano keyboard.



In sheet music it is much more difficult to find the C in all these 8 octaves, because **every octave looks different**. And not only for the C note, but for every other note too. Finding the same note in different octaves is easy on the piano keyboard, **and it could be equally easy in sheet music**, if all octaves looked similar in sheet music. But they don't look similar in the traditional 5-line stave system.

The two grand staves below show the same 52 notes – every white key of the grand piano. The grand staff on the left is the traditional one, where each of these 52 note positions looks totally different. Learning to fluently read all these notes will be a long journey. **An endless journey, for most people**. Majority of people will never become fluent readers of notes which are outside of the primary octave in the upper and lower stave.



The grand staff on the right uses **octaval stave lines**, where **each octave looks similar**, and is identical to the three lowest stave lines of the traditional upper stave – which is the primary octave that **the general public is able to read most fluently** in sheet music. As an additional helpful detail, the G line is different from the E and B lines. Both dots of the F clef are between stave lines, in the gap where note F is now.

With this stave system, our enthusiastic beginner pianist can immediately find the C note in all 8 octaves, with nearly equal ease as he can find them on the piano keyboard. C notes are the ones with a short additional dash over them. G notes are the ones on a dotted G line. F notes are the ones in a gap under a G line. B notes are the ones on the line which is over the G line. And so on. **Easy and fun – as music should be!**

## ルートヴィヒ・ヴァン・ベートーベン

The text above says “Ludwig van Beethoven” in Japanese. The Japanese katakana script is syllabic, where each letter represents a syllable, such as KA, KE or KO. 46 letters are needed in this script, to cover every possible syllable that exists in Japanese grammar.

In western world the evolution and optimization of writing systems has led us to adopt an alphabetic writing system, where each character represents a sound, such as K, P, T, etc. (Though some western languages, including English, have historically deviated from a strict relationship between written letters and pronounced sounds.)

Traditional music notation has something in common with the Japanese katakana script: More complex and difficult to learn than would be necessary for the purpose, but nevertheless used and loved by millions of people. Japanese and Chinese people are fully aware that their languages can be written with the much simpler Latin alphabet. But they have not adopted the Latin alphabet. When people need to choose between ancient historical traditions and modern technological progress, it is not always the technological progress that wins the vote.

Music notation can be developed to be much easier to read than the traditional system is. But if we do so, we might be in the same situation as the Chinese and Japanese people are with their historical writing systems: People might maintain a preference for the traditional system, despite its known complexity and difficulty of use.

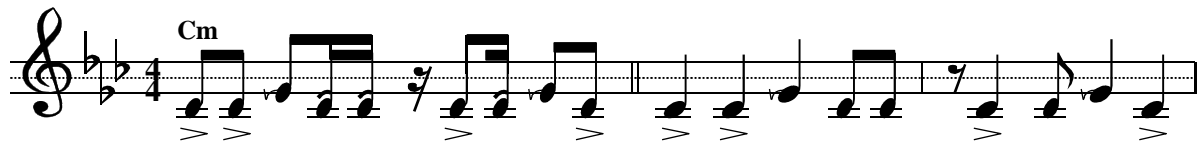
Being aware of the allure of long historical tradition, and of people’s love for the aesthetic style of traditional music notation, I tread cautiously in my attempts to reduce unnecessary complexity and difficulty from traditional sheet music. I try to maintain a continuity in the general aesthetic style of notation, so that every new feature would feel as comfortable and “familiar” as the old traditional features.

### **Scusa, non capisco questa lingua**

The text above is Italian language, and says: “Sorry, I don't understand this language.” Verbal instructions in sheet music are traditionally written in Italian language, which is mastered by only 1.5% of humans. The basics of English language are mastered by at least 35% of humans, so using English in the verbal instructions in sheet music makes sense to 20 times more people than using the traditional Italian phrases. Credimi, questa è la fredda verità.

### **Consider writing longer notes, in slower tempo**

The full note, half note, fourth note and eighth note are easy to recognize, in a split second with a quick glance. Notes faster than this are more difficult to process visually and rhythmically – and counter-intuitively the note symbols become the larger in size, the faster they are. If your sheet music contains many notes faster than an eighth note, try what happens if you write the sheet music with twice longer notes, with a twice faster tempo marking – so the actual played tempo remains the same. In some cases this trick can make a huge difference in the ease of reading the notes and following the rhythm.



Here the first measure contains a short melody section, written with typical note lengths. The two latter measures contain the same melody, written with twice longer notes, in hope that the notation would be easier to follow rhythmically. (If I use this trick in music whose tempo would be e.g. 120, I write the tempo as  $2 * 120$ , to give a hint that notes have been written as twice longer than would be customary.)

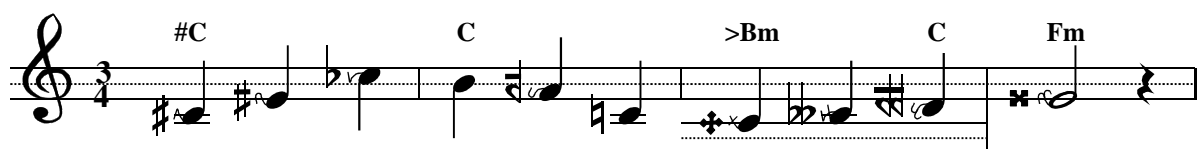
### Easily recognizable sharp and flat notes

You probably noticed something odd in the sheet music above. All E notes have a strange hook at the front edge of notehead. These symbols help an absent-minded pianist to remember when a note is sharp or flat. Below is a full list of such symbols (of which only two are necessary in majority of all sheet music in the world, so never mind if mastering all of these feels challenging).

sharp onto a black key	sharp onto a white key	flat onto a black key	flat onto a white key	cancel double sharp into a single sharp	
double sharp onto a white key	double sharp onto a black key	double flat onto a white key	double flat onto a black key	cancel double flat into a single flat	

The sheet music below demonstrates the use of these symbols. (The unnecessary and bizarre use of accidentals makes the melody extremely difficult to read. Key signature >BEAD and some common sense would make all these accidentals disappear.)

Note that we add a full set of three stave lines under the primary octave in the third measure, filling the full length of the measure, to ensure easy recognition of the lower octave note ##B. In traditional notation we would use short dashes only, and none of them beneath the center line of notehead.



## Textual notation

You probably noticed something unusual in the chord symbols of the example above. The standard way of writing these chords is C#, C, B ♭ m and Fm. I believe that it is worth explaining, where these untypical chord symbols originate from.

I use the symbol > instead of ♭ to indicate a flat note. I have two personal reasons for this: The symbol > is easier to produce with a computer keyboard, and in handwritten notation the symbol ♭ can easily be confused with b, which stands for the note B5 in my handwritten textual notation. (I tell more about this further below.) Besides, the symbol ♭ is poorly supported by generic text fonts and text processors, such as the one with which this document was written. I was unable to write the chord symbol B ♭ m tightly together in this document, because all Microsoft Windows fonts that I bothered to try, contain obligatory spacing around this symbol.

Another untypical thing in the chord symbols that you saw above is that I write the flat or sharp symbol **before the chord base note** (e.g. #C), rather than after it (e.g. C#), which would be the customary way of writing chord symbols. Also this personal preference arises from my active use of textual notation. In melody notation of any kind – be it traditional graphic sheet music, or some textual notation system – the flat and sharp symbols must obviously be written before a note, rather than after the note. With that context in mind, it becomes logically undesirable to write a flat or sharp symbol **after the note or chord that it should affect**.

What comes to handwritten notation, I never write graphic notes by hand. If I need to note down a melodic idea, when I have no computer at hand, I always use textual notation. Graphic notation is slower to write, and it takes more space on the tiny piece of paper that I urgently find from the nearest trashbin. Also the pitch of quickly handwritten graphic notes tends to become ambiguous here and there, so that it is later difficult to be sure if a carelessly written note was meant to be on a stave line or between the lines.

My preferred textual notation is a synthesis of the historical letter notation and numbered notation. These traditional systems have symbols for one octave only: C D E F G A B in the letter notation, and 1 2 3 4 5 6 7 in the numbered notation. If the melody goes to an upper or lower octave, additional symbols are necessary for indicating the octave.

I can handle three octaves without additional symbols for indicating the octave, by using numbered notation 1 2 3 4 5 6 7 for the primary melody octave (where 1 means C4), and uppercase letter notation C D E F G A B for the octave below this (where C means C3), and lowercase letter notation c d e f g a b for the octave above these (where c means C5).

I have also my own preferred way of indicating note lengths, which differs from the traditional systems. Below (on the next page) is a photo of my handwritten manuscript from year 1999, quickly scribbled on a piece of paper when I had no computer at hand, and a later reconstruction with computer Notepad (transposed 5 semitones higher), and the final sheet music version.

Handwritten musical notation on a grid background. At the top left, there is a circled '1c' and a circled 'P.1'. To the right, it says '4/4 x=58\*2'. Further right, there is a box containing 'lo: F' and 'hi: d' with a circled '99' to its right. The main notation consists of three staves. The top staff has notes with stems and flags, and some notes are circled. The middle staff has circled 'A' and 'F' notes. The bottom staff has circled 'F' notes. To the right of the staves, there is handwritten text: 'Dif-fi-cult to ex-pla-in this, // but for your sake I will try...'. There are also some scribbles and a circled '99' at the top right.

lo:>B hi:g I) Dm A  
 x = 100 ( 2 3 4 3 5 4 3 4 ) - ' 4 6 4 ) 4 3 2 3 -- )  
 >B 4/4 : ( : ( : ( :  
 IVccBV : Dif-fi-cult to ex-pla-in this, but for your sake I will try... :

Musical notation for the phrase "Dif-fi-cult to ex-pla-in this, but for your sake I will try...". The notation is on a single staff with a treble clef and a 4/4 time signature. The key signature has one flat (B-flat). The notes are: D4 (quarter), F4 (quarter), A4 (quarter), B4 (quarter), G4 (quarter), F4 (quarter), E4 (quarter), D4 (quarter), C4 (half), B3 (quarter), A3 (quarter), G3 (quarter), F3 (quarter), E3 (quarter), D3 (half). Above the staff, there are chord markings: "Dm" above the first four notes and "A" above the last four notes. The lyrics are written below the staff.

### Easily recognizable length of notes

The graphic note symbols seen above, and everywhere in this document, have been modified from the traditional ones also by exaggerating some features which indicate the length of the note. This will become more apparent if we compare side by side the traditional note symbols with the ones used in this document:

A musical staff showing a comparison between traditional and modified note symbols. The upper row shows traditional symbols: a quarter note, a half note, and a full note. The lower row shows modified symbols: a quarter note, a half note, and a full note. The modified symbols are wider and have curved lines near the notehead to indicate length.

The notes on the upper row (which would be A notes) are traditional note symbols, and the ones on the lower row (F notes) are modified versions, which are used in this document. Quarter note and half rest are identical in both versions. All other of these notes or rests have been exaggerated in my modified version, to emphasize the length of the note.

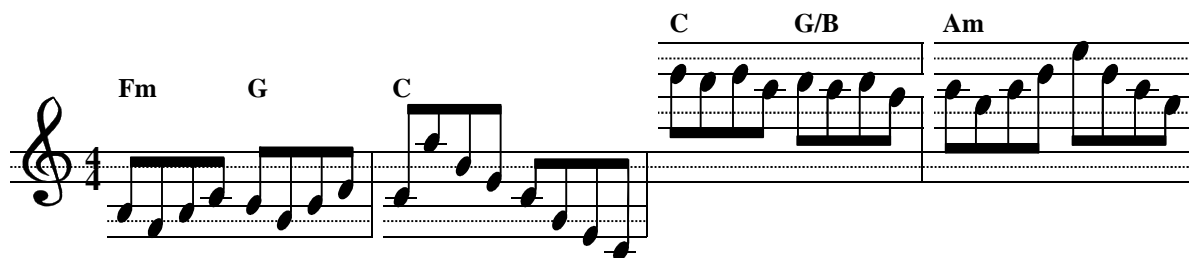
The full rest, full note and half note are 30% wider than traditional symbol. All notes shorter than 1/4 note are 30% narrower than traditional symbol, with a slightly elongated notehead.

Notes shorter than 1/8 note have one or more additional curved lines near the notehead, on the same side of stem where the notehead is. A bit counter-intuitively, the number of these lines is one less than the number of flags in the stem. The purpose of these lines is to bring complete information about note length closer to the notehead, so that staring at the notehead with a narrow attention span is enough to tell the length of the note, without a need to look at the upper end of the stem, where the flags are.

### Avoid octave signs and clef changes

Octave sign changes and clef changes in the middle of a melody are on top of my Don't Do This list. They tend to confuse people more than they help. In the octaval stave system all octaves are equally easy to read, so there is no need to protect the pianist from notes far below or far above the primary stave lines.

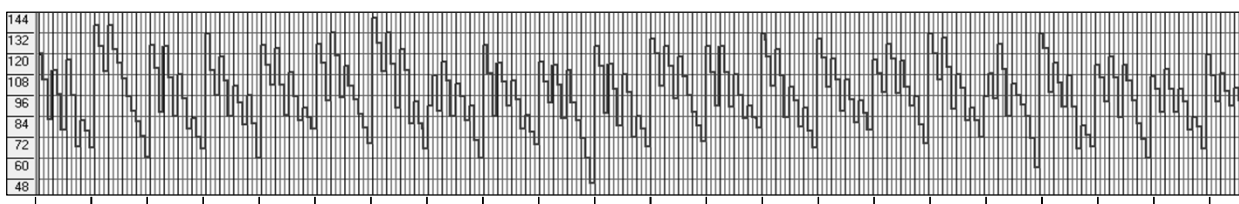
The melody example below covers nearly four octaves. The clearest way to notate it is writing all notes at their actual pitch, without octave signs or clef changes.



### Graphic symbols for tempo changes

Tempo changes are usually indicated verbally in sheet music (e.g. “accelerate” or “slow down”), while nearly everything else is indicated with graphic symbols. This is practical enough in most cases, as tempo changes are usually quite rare, or in any case easily predictable in nature.

In rare cases a musical composition can use a fluctuating tempo that is clearly defined by the composer, but not easy to describe verbally, with satisfactory accuracy. The diagram below indicates the tempo of the first 87 measures in our next melody example. The tempo undergoes some changes after every 1/4 hit, so that two consecutive 1/4 notes are never played with the same tempo.



The 21 white blocks under this tempo diagram indicate sets of 4 measures. The composition uses phrased fluctuating tempo, where each set of 4 measures starts with exaggerated acceleration, and then gradually slows down towards the end of phrase. (Though the melodic phrases are 8 measures long, so each melodic phrase contains two cycles of phrased fluctuating tempo.)

In addition to this major trend in the tempo, each measure (which contains three 1/4 notes) undergoes similar phrased tempo fluctuation in miniature size: the first (baseline) note has fastest tempo, and the second note has a slower tempo, and the third note in measure has the slowest tempo.

When the tempo fluctuation is as complex as this, a graphic presentation of the tempo might be useful in sheet music. The standardized notation symbols don't include graphic symbols for tempo changes, so I designed my own symbols:

..... 	 .....
accelerate	slow down

Now we test these symbols in the sheet music of the melody example with a complex tempo fluctuation. (Actually we use the “slow down” version only, because acceleration is always rapid in this tempo fluctuation, and slowing down is gradual.)

from “Calm After Storm”

Jon Mittler

Part 1: Meadow in sunshine and soft wind. With caution and hesitation, as if swaying in the wind.

The image shows a musical score for a piano piece. Below the score are two tempo fluctuation indicators. The first is a sawtooth line graph where the vertical axis represents tempo, with markers at 60 and 120. The line starts at 120, drops to 66 at measure 66, rises to 136 at measure 136, and then gradually descends back to 60. The second indicator is a vertical line graph where the height of the lines represents tempo. It shows a dense cluster of tall lines at measure 136, indicating a high tempo, and shorter lines elsewhere, indicating a lower tempo.

To test different tempo symbol designs, we have two tempo indicators above, which give the same information, so only one of these would be needed in sheet music. The saw-edged version shows a precise tempo recommendation for every 1/4 note. The version with vertical lines is a bit more vague to read, but perhaps more compatible with the aesthetic traditions of sheet music.

### Reduction of unnecessary duplicate information

Last but not least, my toolbox for making music notation as easy as possible to read includes the reduction of unnecessary duplicate information. I used this quite extreme method as the last straw of hope, when I tried to learn to play the adagio sostenuto part of Moonlight Sonata by Beethoven, and the task seemed too difficult for my very limited piano skills.

I stared at the seemingly endless array of noteheads, which look nearly the same, and I had great difficulties following in real playing tempo, when the exactly similar note sequences change into something nearly similar, but not exactly similar. You get the point: an overflow of unnecessary duplicate information.

As I found myself unable to read the sheet music in real playing tempo, I wrote my own version of it, where I removed all duplicate information which seemed unnecessary

in my opinion. This allowed me to rest my mind and think about nothing at all, when no changes were coming to the repeating note sequence. And to calmly focus my thoughts on the one changing note only, when one of the three notes changed in the repeating sequence, but the other two notes remained the same.

This simplified version of the sheet music helped me to overcome the challenge of learning to play this fascinating piano melody. Eventually I played it at the wedding of my brother – from memory, without the secretly modified sheet music that had helped me to achieve the impossible.

The trick that I tried first was changing the colour of repeated similar notes into 50% grey, while the changing notes remained black. (As in the Calm After Storm sheet music above.) This helped a bit, but still I found myself staring at too many unnecessary noteheads, and thinking about too many unnecessary things. So I removed the unchanging repeated noteheads altogether, when the whole set of notes is repeated without any changes in any note. This radical modification makes the sheet music look rather strange and incomprehensible. But it is this blessed emptiness, total absence of noteheads, which helped me to think about nothing when there is no need to think about anything, and to focus on the essential only, when something essential happens in the melody.

from **Moonlight Sonata, adagio sostenuto** Ludwig van Beethoven



### Row change markings

This sheet music reveals yet one helpful trick that I have up my sleeve: the row change markings. A melody is easy to follow in notation, when a note follows another note, and you can see how much up or down the next note will be, compared to the previous one. But at the end of row we lose that visual connection between the currently played note and the next one. Unless we draw an additional copy of the first note of next row at the end of the previous row.