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# *THE LOGIC NOTATION GUIDE*

by Johannes Prischl

## FREE TRIAL CHAPTERS

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### Preface

This document contains excerpts of the *Logic Notation Guide*, a book written by Johannes Prischl that deals with all aspects of musical notation with Emagic's program Logic Audio. Both the Windows and the Mac versions are covered in the book.

- ➔ The archive which contained this document also contained one of the Logic song files which are on the Logic Notation Guide's supplementary disc. Open it in Logic and follow the instructions below to adjust the midi settings to your own setup. The Screensets in these files are designed for a screen resolution of 1016x768. If your screen is set to a smaller resolution, I recommend to change it since otherwise the windows will overlap in these files and you will not see everything as described in the text.

### Where to Get the Book

The Logic Notation Guide can only be bought by mail order directly from Johannes Prischl. You can find a lot of information (including prices, order forms, adress etc.) at the following website:

<http://members.aon.at/prischl/LNG>

### Adjusting the MIDI Settings

Adjusting the MIDI settings works exactly the same way as in the "official" Logic notation tutorial (which is available at Emagic's website, [www.emagic.de](http://www.emagic.de), in the „Tutorials“ section), so if you remember how that worked, you don't need to read the part about the MIDI settings.

Since the MIDI setup is different for the Mac and Windows versions, there are separate descriptions:

#### Adjusting the MIDI Settings in Logic Audio for Macintosh

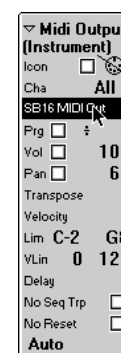
- If you own a General MIDI compatible instrument:

If a GM compatible instrument is connected either to the modem or printer port of your Mac (directly with a serial cable or through a midi interface) you don't need to change anything in these songs. Just switch on your instrument and MIDI interface before you load the tutorial song. If you don't hear the right sounds during the playback, hit the Enter-key twice in quick succession, which sends the necessary program change commands to the MIDI output again.

- If you use a synthesizer which is not compatible to General MIDI:  
Directly after loading the song change to Screenset 9. There among other things you see an orange square with the words **GENERAL MIDI SYNTH** written on it. Click on it with the mouse. The text changes to **OTHER SYNTHESIZERS** (This is a switch which filters all program changes). Now on your instrument/sound module adjust the sound programs for the different midi channels as listed in the text. MIDI channels which are not mentioned in the text are not used at all, so you don't need to worry about them. Afterwards return to Screenset 1 and save the song file.

## Adjusting the MIDI Settings in Logic Audio for Windows

After loading the song, change to Screenset 9. There you see a Logic environment window. In the upper right corner you see this object, a virtual MIDI output port:



Click on that port object to select it. Now you see its parameters in a box at the left side of the window. The line below the channel setting (the one which is displayed inverted in the illustration on the right) still does not show anything. Click on that line and keep the mouse button pressed: A flip menu appears which contains all midi drivers/devices that currently are available in your computer system. From that list choose the instrument, module or soundcard which you want to use to play back the midi sequences in that song (if possible, choose a General MIDI compatible instrument or soundcard).

Now there are two possibilities:

- If you have a General MIDI compatible instrument:  
If you chose a GM compatible device you don't need to change anything else in these songs. In this case just switch on your midi instrument and interface, then switch back to screenset 1 and in the Arrange Window choose menu **Options > Send to MIDI > Used Instruments MIDI Settings** to trigger the required midi program change commands. Finally you should save the file, so that you don't have to repeat this procedure when you load that file again later.
- If you use an instrument which is not compatible to GM:  
On Screenset 9 among other things you see an orange square with the words **GENERAL MIDI SYNTH** written on it. Click on it with the mouse. The text changes to **OTHER SYNTHESIZERS** (This is a switch which filters all program changes). Now on your instrument/sound module adjust the sound programs for the different midi channels as listed in the text. MIDI channels which are not mentioned in the text are not used at all, so you don't need to worry about them. Afterwards return to Screenset 1 and save the song file.

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## CHAPTER „TIME SIGNATURE AND BEAMING“ (EXCERPT)

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Load the song file *TimeSigs&Beaming* that came with this document. There is hardly any real musical content in the examples in that song file, but if you nevertheless want to hear what you see, adjust the midi settings as described above. The used sounds are: Oboe on midi channel 1, piano on channel 3, GM drums (as metronome only) on channel 10.



"TimeSigs&Beaming"

As in some of the other example files each of the following examples is a separate folder which are all displayed on different Screensets. Don't change Screensets with the usual method: In the upper right corner of each screenset there is a small Environment Window with buttons which are labeled "Ex.1", "Ex.2" etc. To see a particular example, don't change Screensets, but just click on the corresponding button. This will cause a Screenset change and also set the locators exactly to the beginning and end of that example. Since *Cycle Play* is activated when you load the song, you just have to press **Play** now and will always hear the example you currently see on the screen (played in a cycle until you press **Stop**). (Don't switch off *Cycle Play*!)

Examples 1 to 7 were erased in this free trial file, so let's start with example 8:

### Converting Time Signatures

Sometimes it happens that you record or write a melody or even a few tracks with different instruments and suddenly you realize that you would actually prefer to notate that piece in another meter than the one you used.

#### Converting 4/4 to Half Time or Double Time

Let's begin with a simple example: Switch to example 8 in the *TimeSigs & Beaming* song by clicking on the *Ex.8* button and listen to that melody. If you don't see the following melody in the Score Window, click on the sequence named *Ex.8 original sequence* in the Arrange Window. This Score Window is content linked, so it will display whatever is selected in the Arrange Window:

Example 8



For musicians who have to perform this it might be easier to read if it were written in cut time (2/2) and all notes would have twice the value they currently have in the score as it's shown in the next picture. This also would musically fit better to the latin character of that melody:

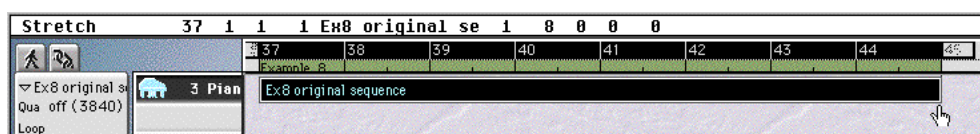


Converting the first sequence into the second is quite easy:

In the Arrange Window, change the length of the sequence by grabbing its lower right corner with the mouse and pulling it to the right. While you do this, hold down the **[alt]**-key (Win: **[ctrl]**) on your computer keyboard. Stretch the sequence to twice its original length, which is exactly eight bars in this example. Watch the Infoline to control the length:

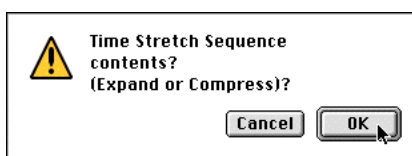
Mac: **[alt]** +

Win: **[ctrl]** +



Note: In the Windows version, the cursor has a different shape during this procedure. The important thing however is that the word *Stretch* is displayed in the Infoline.

After you release the mouse button, the following dialog window will appear, which you have to confirm (OK):



Now the sequence is “stretched” and looks like in the example above. Insert the “Cut Time” symbol (the C with the vertical line through it) by dragging it on top of the 4/4 time signature. (Note: This does not change the playback).

And finally, if the midi output should sound the same as before, you have to double the tempo. Since in this song file there are different tempos in different sections, you have to open the **Tempo List** to do this (Arrange Window, menu **Options > Tempo and Synchronization > Tempo List Editor**): Change the tempo which begins at position 36.1.1.1 from to 96 bpm to 192 bpm. If you listen to the sequence again now, you will hear no difference to the original version.

The metronome track, which is not in the folder of this example, will play the double tempo.

## Converting 4/4 to 12/8 (or 6/8)

Another typical situation would be that you want to convert a 4/4 melody or piece to 6/8 or 12/8 time after you realize that it does not contain any binary note values like eighth or sixteenth notes, but only triplet values. Switch to example 9 (click on the *Ex.9* button) and listen that example.

Example 9

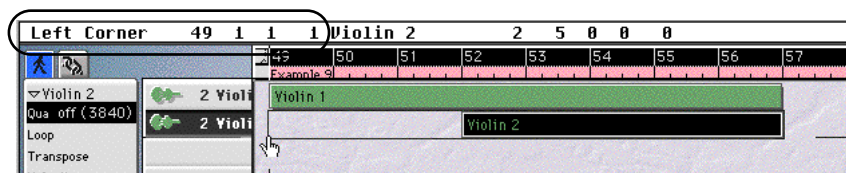
This violin duet was recorded in realtime to a 4/4 click. As you hear, it is full of triplet figures. In the current version there you would have to do a lot of editing to get a proper display, all the dotted eighth and sixteenth note combinations would have to be defined to create a display that would look like this (The beginning of the second violin sequence has been extended here to get two staves displayed throughout):



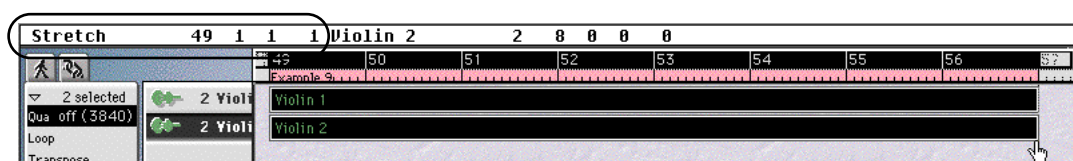
Apart from the fact that his result would require a lot of manual triplet editing (inserting tuplet symbols) since those triplets with a rest in the middle are not displayed automatically, it makes obvious that there are no regular (binary) eighth or sixteenth notes at all in these sequences, so this music should better be written in 12/8 time.

Simply changing the time signature won't be enough, since for Logic an eighth note always stays an eighth note, regardless if the time signature is 4/4 (8 eighth notes per bar) or 12/8 (12 eighth notes per bar, grouped 3+3+3+3). So the time stretching method has to be applied again. Try it yourself:

- As a first step you have to make sure that all sequences begin and end at the same positions. If they don't, the result will be a mess... So you have to extend their beginning and end points accordingly. In other examples this could even be necessary for more sequences, here there are only two: Extend the beginning of the second violin sequence to the same position as the sequence above it. To do this, grab the lower left corner of the sequence with the mouse (without pressing any additional keys) and pull it to the left until the Infoline displays "Left Corner 49.1.1.1 ". Make sure you don't move the sequence as a whole, but only its left corner (watch the Infoline):



- Now both sequences have the same length. Before you go on, change the time signature to 12/8. You can do that either in the time signature dialog window which opens when you double-click on the time signature or you can change it directly in the Transport Window. In this case however it is essential that the current song position (the SPL) is at the beginning of those sequences, which is position 49.1.1.1, because the time signature change will be inserted at the position of the SPL.
- Select both sequences and drag their right end with the mouse while you press the **[alt]**-key (Win: **[ctrl]**) on your computer keyboard. Since you already changed the time signature, you can simply stretch the sequences to the desired number of bars, which is eight. In other words: The sequences become one and a half times as long as before, but since you already changed the time signature, the resulting length has to be the same number of bars in the new meter (12/8) than it was in the old meter (4/4), which makes things easy:



Mac: **[alt]** +

Win: **[ctrl]** +

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Watch the Infoline to control the length while you drag the right end of the sequences. When it displays 8,0,0,0, release the mouse button first, then the **[alt]**-key (Win: **[ctrl]**)

- If you look at the Score Window now, you already see the correct display notated in 12/8:



You still might want to insert some eighth user rests now to make sure the music is properly interpreted by live musicians, but otherwise the only thing left to do is to adjust the playback tempo in the tempo list (the tempo entry at position 49.1.1.1): It has to be one and a half times as fast as the old tempo, which is 186 bpm per quarter note.

- The tempo indicated in the Transport Window and in the Tempo List always refers to quarter notes, even if the time signature is 12/8, 3/2 or even 7/8). But if you e.g. insert a tempo symbol from the Partbox which is appropriate for this meter - the one with the dotted quarter note - it will display the correct tempo, 124)

Instead of 12/8 you could of course also set the time signature to 6/8. The only difference would be the resulting total number of bars, which would be twice as much as in the original.

### Converting 3/4 to 3/8 or to 3/2

Converting 3/4 to 3/2 is easy again, it works the same way as 4/4 to cut time which is described above. 3/4 to 3/8 works exactly the other way round: Instead of stretching the sequences you “compress” them to half their original length, also the tempo in this case has to be divided by two.

### Converting 3/4 to 9/8

This conversion is very similar to the 4/4 to 12/8 conversion described above: The sequences have to become one and a half times as long, the tempo one and a half times as fast.

- ➔ Please note: If you apply any of these methods to an arrangement where tracks contain more than one sequence after each other, you have to merge these sequences per track to get only one sequence per track. If you don’t do that, the result will not be correct, since the starting point of sequences beginning later than the first one will not be moved when you stretch or compress the sequences.
- ➔ An additional hint: If you apply this method to a piece with a lot of sequences which don’t start and end at the same time, you’ll be faster if you use the function **Functions > Modify Object Borders > Tie Sequences Within Locators** in the Arrange Window for adjusting the beginning and end points of the sequences. This function is described in the Logic tutorial. You’ll find it in chapter 5 there, under the header **Creating Continuous Staves**.

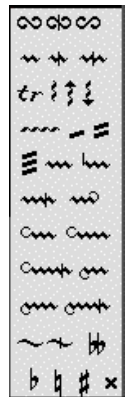
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## CHAPTER „TRILLS, TREMOLI, ARPEGGI ETC.“ (EXCERPT)

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The trill symbols and all other symbols in the same Partbox group are *graphical* symbols only. They can be positioned anywhere in the score and always belong to a sequence (but not to a note like e.g. accent or staccato symbols). As part of that sequence they are saved as *Meta Events*, which is how you can see them displayed in the Event List.

The **accidental** symbols in this Partbox group should *not* be used as accidentals for notes, since they don't have any effect on midi playback. They are intended as graphical supplements for trill and other ornament symbols (see below).



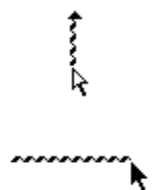
### Size

Each of the symbols in this Partbox group (except the arpeggio lines and the trill line) can be made larger or smaller with the **sizing tool**. To have better control over the exact size during that process it's good to work in a high zoom level.



To *reset* such a size change to the original size simply double-click on the symbol with the sizing tool and confirm the following warning dialog. The default size of these symbols always depends on the size of the staff they belong to.

The height of the three **arpeggio** lines can be expanded or reduced by dragging their end points with the mouse.



The length of the **trill line** can be changed by dragging its end with the mouse, or also by editing the numerical length value in the Event List or Event Float (see also example below). In page view it is also possible to drag the end of the trill line to any point in one of the lower staves which stretches it across several staves.

### Position

For a basic description of the position parameters for symbols and how to avoid common problems concerning symbol positions please read chapter **Symbols**, which begins on page 111 of the Logic Notation Guide.

The most important thing to keep in mind: Since all symbols included in this partbox group usually belong directly to particular note or chord, they should always be inserted *at the same bar position* as the notes they belong to. Therefore it is essential to always watch the *Info Line* during the input process. This also applies when several objects are put above and below the same note or chord: First they all should be inserted at the bar position of the note (in case of an unquantized sequence recorded in real time at the *displayed* bar position). Afterwards overlaps are corrected and the detailed layout is done by adjusting the **hor.pos** parameter for each symbol. These can be changed directly in the Event Parameter Box. The faster method

however, is to drag the symbols with the mouse while holding the **[ctrl]**-key [Win: **[alt]**], which is the shortcut for the **layout tool**:

Let's look at an example where three symbols are combined: A trill symbol (*tr*), a graphical accidental in brackets and a trill line:

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
1 1 1 1	Meta	1	65	0	3 1 0 0
1 1 1 1	Meta	1	66	4	Trill
1 1 1 1	Meta	1	78	9	Accidental
1 1 1 1	Note	1	04	109	3 2 2 33

As you can see in the Event List, all three of these symbols are on bar position *1.1.1.1*. However, they don't overlap each other since they have different **hor.pos** parameters. Because of their identical bar position the distance between those three symbols will remain constant. It only changes if the *staff size* is changed, but in that case not only staff and notes, but also all symbols will become smaller or larger. Since *everything* will be scaled (also the unit of measure for *hor.pos* and *vert.pos*), the distance proportions will fit again.

The access to the bracketed accidental used in this example will be explained later in this chapter.

## Details

### Arpeggio Input

If you want to insert an arpeggio line in front of a chord on the first beat of a bar, it will be necessary to move the whole chord to create some space between the barline and the notes:

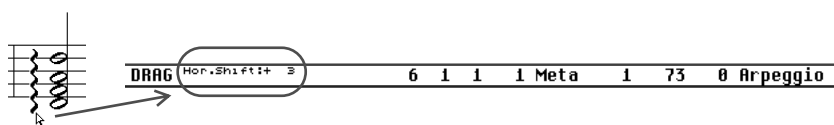
- Select the whole chord (rubberband selection).
- Hold the **[ctrl]**-key (Win: **[alt]**), grab one of the selected notes with the mouse and drag it as far to the right as desired.:

DRAG Hor.Shift+ B2 6 1 1 1 Note 1 03 1 - 1 3 232

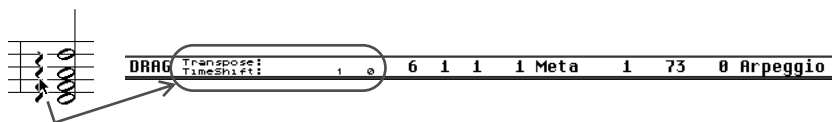
Release the mouse button before you release the **[ctrl]**-key (Win: **[alt]**)!

- If you are not satisfied with the resulting distance, repeat the procedure.
- Now insert the arpeggio line. Make sure its bar position is exactly the first beat of that bar (Info Line). If it is not, you have to move it.

Please note: If you grab an arpeggio line at either of its ends, you cannot change the bar positions (the cursor automatically becomes the layout tool, which allows only length change and graphical shifts. But that again can cause a corrupted display as soon as the score view mode or the spacing is changed):



To actually *move* the time (bar) position of an arpeggio line, you have to grab it in the middle (note the different cursor):



- The result should look like in the following picture:



To sum it up: First the chord on 1 has been graphically shifted using the layout tool/modifier key shortcut, then the arpeggio has been inserted on 1, then its shape has been modified by dragging the ends of the arpeggio line.

## Tremolo Input

A Tremolo symbol “attached” to a stem (crossing it) is no problem if the stem goes down, but when the stem goes up (or also with whole notes) it’s a bit trickier... The tremolo in a first step has to be inserted at the same bar position as the note and then in a separate step be moved graphically. This should preferably be done in a high zoom level (for zooming shortcut see page 12 of the Logic Notation Guide). Let’s say you already inserted some notes and want to attach tremoli to all of them. The result should look like this:



The first two symbols are easy to do: You simply put them at the desired position, they automatically get the same bar position as the notes. If you work very exact, the *hor.pos* value of these two symbols will be *zero*, since their center (which is the graphical reference point for their position) is exactly at the same horizontal position as the left side of the note heads (which are the reference for the bar position).

The trouble starts when you insert the tremolo on three: Here the stem goes *up*, so it’s attached to the *right* side of the note head. The beats in the bar however graphically correspond to the *left* side of the note heads as indicated by the thin grey vertical lines in the following picture. If you place the symbol on the stem where it actually belongs, it will get inserted at bar position *1.3.2.1*, which is of no use and will only cause trouble later on. So there is no way around it, you have to insert the tremolo on *1.3.1.1*, which results in the following display:

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
1 1 1	1 Meta	1	66	6 Trill	
1 1 1	1 Note	1	F4	1	3 232
1 2 1	1 Meta	1	66	6 Trill	
1 2 1	1 Note	1	C4	1	3 232
1 3 1	1 Meta	1	66	6 Trill	
1 3 1	1 Note	1	A3	1	3 232
1 4 1	1 Note	1	F3	1	3 232

Now as a second step press and hold the **[ctrl]**-key (Win: **[alt]**), grab the tremolo with the mouse and pull it onto the stem (= layout tool shortcut). The bar position will stay the same, but the *hor.pos* value will change:

POSITION	STATUS	CHA	NUM	VAL	LENGTH/INFO
1 3 1	1 Meta	1	66	6 Trill	
1 3 1	1 Note	1	A3	1	3 232
1 4 1	1 Note	1	F3	1	3 232

A useful hint: You don't need to repeat this whole procedure (well, two steps...) for the remaining two notes now. Instead, you can simply *copy* the tremolo symbols with the mouse (drag while holding the **[alt]**-key [Win: **[ctrl]**]): Since the tremolo on the third beat already has a graphical offset (*hor.pos* +20), the symbol is copied "together" with the graphical offset. To be on the safe side, you should still watch the Info Line while you do this.

## Other Topics in this Chapter

In the Logic Notation Guide you will also find the following topics as part of this chapter:

### Tremolo between two Notes (Tremolando)

### Graphical Accidentals In Brackets

### Trills, Ornaments, Tremolo - Midi Playback versus Score Display

### The "Trill Machine"

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