

# Lilychant Instructions v1.29

## ***What Lilychant does***

Lilychant, in conjunction with Lilypond, allows the creation of musical scores – together with associated MIDI files by combining a melodic template with a set of “pointed” lyrics.

It is specifically designed to allow different words to be combined with the standard Octoechos tones (Troparion, Sticheron, Canon etc). It can also be used to create one off combinations of music and lyrics, although this is not particularly efficient – it may be better to use Lilypond directly – or a graphical front end such as Denemo or Rosegarden.

Lilychant output indicates pitch and timing in standard musical notation. Like many settings of liturgical chant it does not use time signatures (although lilypond may put one in by default) and there is no requirement for a fixed number of beats in a bar. Bar lines are used instead as a kind of punctuation to indicate the general phrasing of the music. Because lilypond uses bar lines to control the layout, extra bar lines sometimes need to be inserted to avoid cramped notation or overrunning the line end. Lilychant does this automatically but a manual override is available to force the extra bars to happen at a suitable point. It is also possible to use this facility to insert “proper” bar lines if you wish.

## ***What you will need to use Lilychant***

A computer capable of running “Lilypond”

The Lilypond Software

A text editor (I really mean a text editor NOT a word processor - Notepad is quite adequate – or you can use Lilypond's own editor “Lilypad”). For Greek or Cyrillic texts you will need a more flexible editor such as Babelpad.

A pdf reading/printing program.

A midi player (not essential)

Either

Microsoft Windows OS

OR

A C++ compiler for your OS allowing you to compile Lilychant from the Source.

## ***Setting Up***

If you have not already done so install the Lilypond Software and a pdf reader/midi player.

If necessary compile Lilychant from the source.

Copy Lilychant.exe (or whatever the executable is called on your system) to a suitable folder (directory). (e.g. [C:\Program Files\lilychant](#))

If your system has file associations you can make Lilychant easier to use by associating the file type “.lyc” with Lilychant.exe and making an “editing” association between “.lyc” and your chosen text editor. You can also associate the file extension “.lys” with your text editor.

## Running Lilychant

If you have associated lilychant with the .lyc file extension you should be able to run lilychant by double clicking on your .lyc file. Otherwise you can simply run lilychant.exe from the command line with the filename of your .lyc file as the first (and only) parameter.

Lilychant produces two output files – in the same directory as the input file. There is a .log file that contains information about any errors in your input file. There is also a lilypond file (.ly). Assuming all went well you can double click on the .ly file to produce pdf (and midi) output.

## File Types

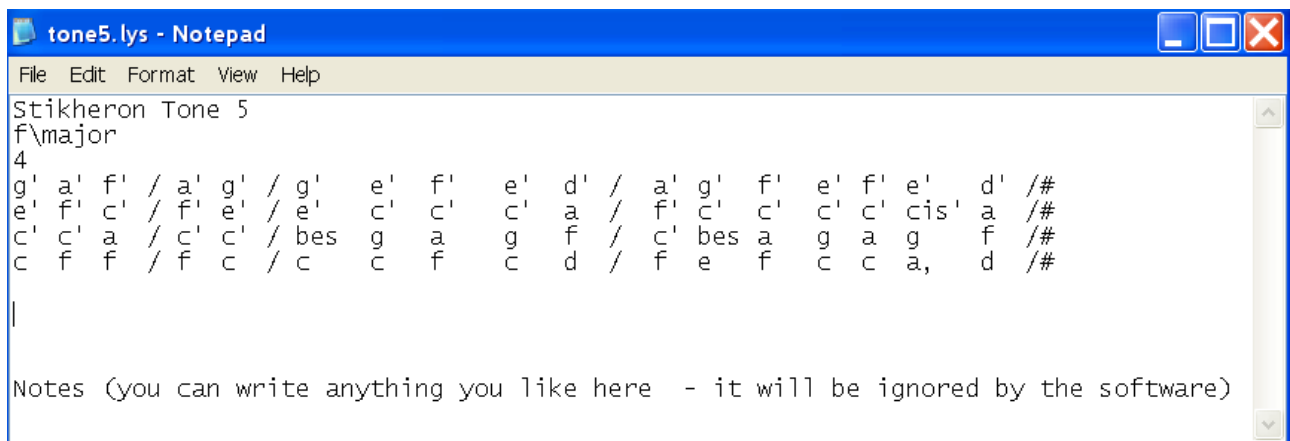
Lilychant combines music with lyrics so each run requires two files – a lyric file (.lyc) and a melody file (.lys). The name of the melody file is specified within the lyric file. At present lilychant assumes that they are in the same folder. The melody file contains the pitches of all the notes – but no durations – these are specified within the lyric file. The output files combine the two filenames and so will be called <lyric>\_<melody>.log and <lyric>\_<melody>.ly.

Lilypond will overwrite the .log file with its own and produce three further files (all with the same basic name) a .ps file a .pdf file and a .mid file.

(Note that if a previous version of one of these files is open lilypond will fail.)

## The Melody file .lys

The file looks like this



```
Stikheron Tone 5
f\major
4
g' a' f' / a' g' / g' e' f' e' d' / a' g' f' e' f' e' d' /#
e' f' c' / f' e' / e' c' c' c' a' / f' c' c' c' c' cis' a' /#
c' c' a' / c' c' / bes g a g f / c' bes a g a g f /#
c f f / f c / c c f c d / f e f c c a, d /#

Notes (you can write anything you like here - it will be ignored by the software)
```

The first line will be printed as a subheading in the final output. The second line is the key signature in which the file will be printed (NB does NOT affect the meanings of the notes below in any way. ) The key signature is in Lilypond format and you may wish to look at the documentation there for more information. The general format is <note>\minor or <note>\major. For example g\major , bes\minor (b flat minor) etc.

The third line contains the number of “voices”. There can be up to six - however I have not done much testing with 5 or 6 so you are on your own.

By default the first two voices will be printed in the treble clef and all the rest in the bass. This is usually acceptable but it can be changed if required.

The rest of the file contains the melody – as a succession of notes. The voices are written in order each separated from the previous one by a # character.

The notes are written in Lilypond absolute format but with no duration – see Lilypond documentation for full details.

Notes are defined by their letter names c d e etc. Higher octaves are specified with apostrophes ' lower octaves with commas ,. Middle c is written as c'. The b immediately below it is just b. The d above it is d'. The c above middle c is c" and so on. The c below middle c is c. the b below that is b, . An octave below that is b,, and so on. Sharps are indicated by adding "is" flats by adding "es", E.g. cis is c sharp bes is b flat etc. The system *will* distinguish between different names for the same note. C sharp, cis is not the same as d flat des. The key signature affects the way the final output will look but does not affect the meaning of notes. For example declaring the key to be g\major will not turn an f into an f sharp but it will cause an f sharp to be written without an accidental in the output (pdf) file.

## Sequencing

The notes are written out in minimal form. There is no concept of rhythm or duration here and we only write a new note when the pitch changes. However it only needs the pitch to change in one voice for all the voices to have a new note. This means that if the soprano line is quite complicated and the tenor is on one note then the tenor will contain as many copies of that note as are required to match the soprano. Conversely on those occasions when the "tune" is in the base or tenor the soprano may have repeated notes. (For example Troparion Tone 4.)

## Phrases

Within each voice the melody is divided into phrases separated by the / character. The phrases must be exactly the same length for each voice. It is helpful if the phrases are written out equally spaced (in a fixed width font – don't use a word processor) and the voices are vertically aligned as in the example above. This is useful for the process of writing the file out but is NOT required by the software. The software does require at least one space after each note however. Newlines and other formatting characters are ignored or treated as spaces

The phrases should normally correspond to the standard phrases of the tone. In the final output file each phrase will end with a bar line. For convenience the phrases should be written in the usual order in which they are sung. This order can be overridden from the lyric file, allowing different phrase sequences to be generated from the same melody file.

## Pitch Modifications

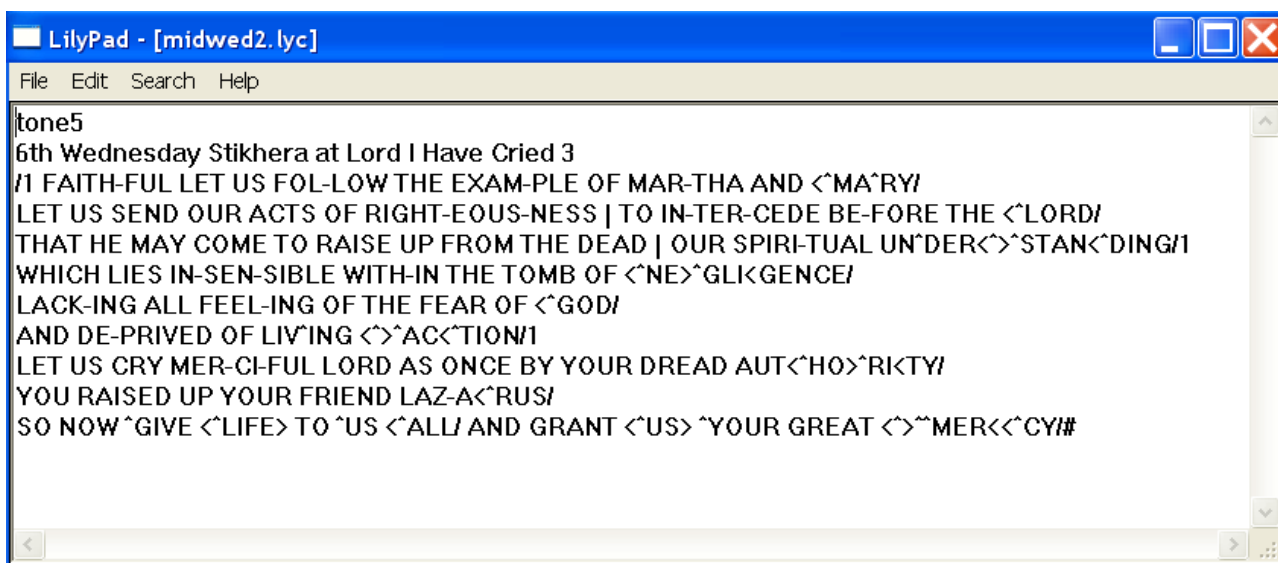
Adding a + or - at the beginning of a voice in the .lys file will transpose that voice up or down an octave. (Useful for switching between melody in alto and melody in soprano.)

### Octave Doubling

Adding an underscore at the beginning or end of a note will convert the note into a chord by adding the note one octave below.

## The Lyric File

The lyric file looks like this:



The first line is the filename for the associated melody file. The extension should not be added. Lilychant will add it for you. The file used in this case will be tone5.lys.

This line may be followed by one or more of the following options:

`\tempo n`

Changes the default tempo for a crotchet to n (from 120).

e.g.

`\tempo 80`

This will affect the speed of the midi output and the tempo marking on the score.

`\transpose key`

Changes the key from that provided in the melody file. Also transposes the music.

The octave used can be controlled by using the “' “ and “,” symbols.

Eg

`\transpose g`

`\transpose bes`

`\transpose bes,`

The following commands pass more or less straight through to Lilypond. See Lilypond documentation for further information.

`\space n`

Changes the default spacing in the score. The default value is 12. Smaller numbers will result in a more compressed output. Larger numbers will stretch it instead.

Eg

`\space 16`

`\stavesize n`

Controls the overall stave size in Lilypond. The corresponding Lilypond command is “set-global-staff-size”.

The following control vertical layout via the corresponding Lilypond commands

`\verticalpad n`

Controls “between-system-padding” in Lilypond.

`\verticalspace n`

Controls “between-system-space” in Lilypond.

None of these options is actually shown in the example file.

The second line in the file shown is the title – which will be printed at the top of the pdf output.

The text to be set follows immediately afterwards. Various punctuations are embedded within the text to control the way in which it is matched to the music and the lengths of notes etc.

These control characters are as follows:

# (Hash) Terminates the text. May be followed by any free comment that you wish to add for comment etc.

/ (Slash) end of phrase. The system will move on to the next phrase

/n (Slash followed immediately by a one or two digit number) end phrase and go to the start of the n'th phrase.

^ (Hat) Advance to the next note

~(Tilda) Advance to the next note – but coalesce together unchanged notes.

\_(Underscore) At the beginning of a syllable this will start a new note sequence from the current note. In the middle of a melisma this will insert a separate note without changing the pitch.

| (vertical bar) insert bar line.

;(semicolon) insert short pause into the midi output (adds a small amount of space into the score)  
The semicolon is not printed.

< and > (less than and greater than) reduce speed by 2 (switch from crotchet to minim) and increase by 2 (switch from crotchet to quaver).

[] (square brackets) enclosed syllables are associated with dotted notes of the current duration.

{ } (Braces) enclosed notes are associated with triplets.

(n) (Brackets) Insert a repeat, Here n represents a single digit number. The system will insert a musical repeat symbol with the text “Repeat n x” at the start. Note that the midi file does not repeat at present for some reason.

. (full stop) and , (comma) At present these are printed in the lyrics and generate a pause in the midi file. The full stop generates a longer pause than the comma. They must be attached to the end of a word without a space.

\$ (dollar) Skip one note in the melody

\ (backslash) The next character will be passed through to the lyrics. If you must put punctuation in the lyrics this is the safe way to do it as many punctuation marks have an effect in Lilychant. – NB this is dangerous as many characters are interpreted specially by Lilypond. It is reasonably safe to use within or at the end of a syllable. For example

O' Faithful

NOT

O \Faithful

` (the opening single quote single usually found at the top left corner of your keyboard). This generates a very short pause in the midi file and a very small space in the score. As a side effect it also affects Lilypond's auto-beaming algorithm. This provides a neat way to break beams that might otherwise extend too far..

## How to Create the Lyric file

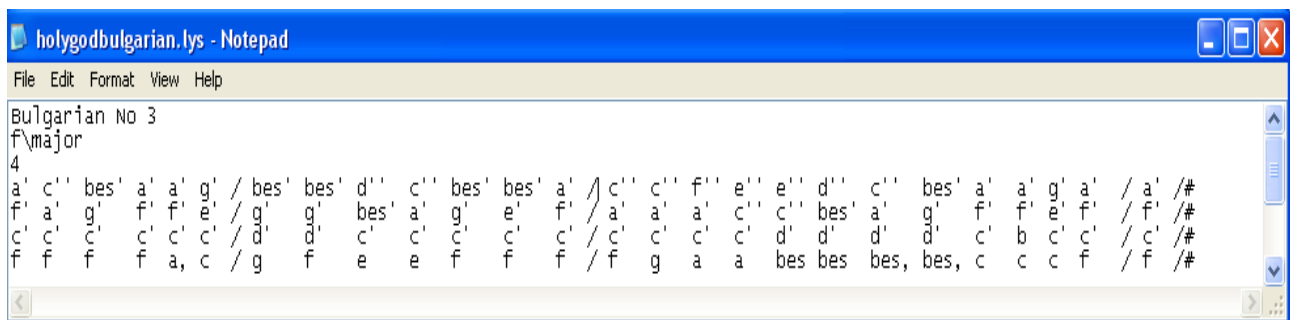
Type or copy in your text and then add the header lines, as specified above, to define the title and associated melody file.

## Phrases

Next divide up the words into phrases using the / character. If you need to use the phrases out of sequence then you will need to add numbers wherever a phrase does not follow directly in the sequence specified in the music file. The sequence of phrases will automatically “wrap around” to the beginning if you go past the end.

## Notes, words and syllables

If your melody file had only one note in the current phrase – for example the last phrase in this file:



```
holygodbulgarian.lys - Notepad
File Edit Format View Help
Bulgarian No 3
f\major
4
a' c'' bes' a' a' g' / bes' bes' d'' c'' bes' bes' a' / c'' c'' f'' e'' e'' d'' c'' bes' a' a' g' a' / a' /#
f' a' g' f' f' e' / g' g' bes' a' g' e' f' / a' a' a' c'' c'' bes' a' g' f' f' e' f' / f' /#
c' c' c' c' c' c' / d' d' c' c' c' c' c' / c' c' c' c' d' d' d' d' c' b c' c' / c' /#
f f f f a, c / g f e e f f / f g a a bes bes bes, bes, c c c f / f /#
```

Then you would not need to do anything more and the result would be a succession on crotchets under each word like this:

Note that multi-syllable words must be broken with hyphens to generate multiple notes. These kind of phrases are usually abbreviated in handwritten music – however it is helpful to put them in explicitly in Lilychant because it costs little to do and makes the midi file sound right. (You can make Lilypond output the abbreviated version into the score – but then the midi file will contain an awkward gap.)

## Character Sets

From version 1.23 Lilychant can now support non-roman character sets such as Cyrillic. To take advantage of this the program must be compiled with the multi-byte character set.

You will also need a suitable keyboard and text editor. For Cyrillic I have found a suitable keyboard here: [http://winrus.com/screen\\_e.htm](http://winrus.com/screen_e.htm). I have found the text editor Babelpad to be usable for editing. <http://www.babelstone.co.uk/Software/BabelPad.html>.

## Putting in the Melody

Now you need to put in the melody by “pointing” the phrases. Unlike handwritten pointing we can't add marks above the text so the marks have to go “inline”. Provided you only wish to put one note on each syllable this can be done using the ^ (hat) character. To make a syllable use the next note in the sequence put a ^ immediately before it. Each ^ advances the melody by one note. A phrase containing n notes must therefore contain exactly n-1 ^ characters. If this is not the case the log file will contain a warning.

In many cases you will want to put multiple notes on a single syllable. This can be done by simply putting two or more ^ characters *before* the syllable.

Sometimes you will want the first note on a syllable to be the same as the last of the previous syllable and only the later note(s) on the syllable to be different. To achieve this effect you use the underscore \_ character followed by one or more ^ characters. Note that \_ should always be followed by at least one ^ otherwise the effect will be unpredictable.

## Changing Note Durations

At any time there is a “standard note length”. It starts by default as a crotchet. It can be changed

using the greater than and less than symbols. If you insert a < character the standard length doubles and so a crotchet will change to a minim A further < will turn it into a semibreve.

Conversely the > character halves the standard duration so the crotchet will switch to a quaver and the minim to a crotchet etc.

These characters must be placed in the correct sequence with the ^ and \_ characters to create the effect you want. This means that you need to write <^word rather than ^<word. This is especially important on a multi-note syllable.

Dotted notes can be created by enclosing the associated syllable (and/ or the ^ or \_ symbol) in square brackets. This will scale the current note length by 3/2.

Double dots are not supported at present.

Triplets can be created by enclosing the associated syllables in curly brackets {}. This will scale all notes within the curly brackets by 2/3 in the midi file and put the appropriate “3” symbols into the score.

## Different Note Durations for Different Voices

Using the ^ symbol to advance the melody will always generate a separate note in each voice – even if the pitch has not changed. To overcome this limitation there is an alternative way of advancing the melody using the symbol “~”. If you use the ~ symbol then, for voices where the pitch has not changed, the notes will “accumulate” into a single long note. Durations that cannot be resolved into a simple note or dotted note, or which are longer than a dotted semibreve, will be shown as two or more notes joined by ties.

## Rests, Pauses, Skipped Notes and Punctuation.

Rests can be inserted into the melody file by using the letter “r” as if it were a pitch. (Obviously it cannot be sharpened, flattened or put into a different octave.) It would not be a good idea to make ALL the voices have a rest at the same point in the melody as then there would be a lyric associated with the rest. If you want a rest in all voices simultaneously then you should insert a rest into the lyric file instead. This can be done using the “=” symbol. The “=” symbol will insert a rest into all voices along with a matching blank space in the lyrics. The rest will inherit the current note duration and can be lengthened or shortened using the symbols <>[ and] in the usual way.

A short pause can also be inserted into the midi file using a “;” (semicolon). This will not be printed as a rest in the score but will create a small space.

Sometimes there are notes in a phrase that may be omitted (usually at the start). Notes from the melody file can be skipped using the “\$” symbol. NB the “^” symbol will also result in a note being omitted if it is at the start of a phrase – however this will only skip one note – whereas the “\$” symbol can be used to skip any number of notes.

In general punctuation marks have a habit of meaning something in Lilychant. At present the comma and full stop have no interpretation and can be inserted directly into the lyrics. Other punctuation (and in fact any character) can be inserted by preceding it with a backslash “\” symbol. For future compatibility it is recommended that all punctuation within the lyrics is inserted this way.

However all non-alphabetic characters must be put at the end of the word with no intervening space – otherwise Lilypond will generate an error. .

Hyphens can be used to split words. If you insert a hyphen then the Lilypond hyphenation mechanism will be invoked and centred hyphen(s) will be inserted between the words in question.

If you just want a single hyphen at the end of a word then you can use the sequence \-.

## Beaming

Lilypond has an auto-beaming algorithm that usually works well enough and so Lilychant does not incorporate any explicit mechanism to control beams. However occasionally Lilypond produces an over-long beam. In that case you can force it to break by inserting the ` character (usually top left on your keyboard). This introduces a small pause/space which breaks the beam.

## Forcing Line Breaks

Force an end of line at end of phrase with a double slash (//)

Force an end of line at an explicit barline with a double bar (||).

## Labelling Phrases

You can add a label at the beginning of each phrase of the melody by inserting commands in the melody file after the main music.

Each such command should be on a new line in the following format:

@ <phrase number> <Label string>

for example one might insert

@ 1 1

@ 2 2

@ 3 3

@ 4 Conclusion

Phrases 1 - 3 would then be tagged with their numbers and phrase 4 as “Conclusion”.

## Reducing Repeated Notes

You can avoid long strings of crotchets on a repeated note (as in the example above) by putting the text into double quotes. This will also suppress any hyphenation that may have been put into that text.

This mechanism can be suppressed by the command \noskip. This allows a midi file to be created with all the notes included without having to re-edit the main text.

## Staves and Clefs

By default Lilychant puts the first two voices into a single staff with a treble clef and any further voices into a second staff with a bass clef.. This is generally suitable for standard arrangements in

up to four voices. However you may wish to create other configurations. E.g. two voices on two separate treble clef staves or two voices on one treble and one bass, three on one treble staff, four on four separate staves etc etc.

You can achieve this as follows:

Use the command `\voice` with parameters as follows:

`\voice <n> stave <staveoption>`

and/or

`\voice <n> <stemoption> <sluroption>`

n = number of voice (1|2|3|4|5|6)

Staveoption = (same|newtreble|newbass)

Stay on same stave as previous voice or start new stave with treble or bass clef.

stemoption= (stem\_up|stem\_down)

Controls the direction of stems

Default in voice order is up down up down.

sluroption= (slur\_up|slur\_down)

Controls whether slurs and ties are inserted above or below the voice in question. Change this if you have problems with collision of objects.

## Issues Fixed in Version 1.29

### Accidentals

Lilychant now manages accidentals itself so these are usually handled according to standard musical convention.

### Breaking Notes within a Syllable

The underscore symbol can now be used in the middle of a melisma.

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Richard Cant

14<sup>th</sup> /1<sup>st</sup> November 2009

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