Workshop: How to Compose Byzantine Music Using the Lists of Formulae

The following pages comprise a little "workshop" that demonstrates how to use the lists of Byzantine music formulae[*] to compose the melody for a sticheraric hymn in first mode.

We will take a hymn from the *Festal Menaion* in first mode. On page 137 in the Lity of the Universal Exaltation of the Cross (Sept. 14) is the following hymn (which was not translated into English using any particular meter):

> "Prefiguring Thy Cross, O Christ, Jacob the Patriarch, when he gave the
> blessing to his descendants, laid his hands crosswise upon their heads.
> And today as we exalt Thy Cross, O Saviour, we cry: Give victory to
> Thine Orthodox people[,] as Thou once gavest it to Constantine."

The first step is to break done the hymn into binary code, where "1" is an accented syllable and "0" is an unaccented syllable, while preserving the punctuation:

010001, 01, 100100, 00101000010, 101100101. 001000101, 010, 01: 01000010010, 0001000100.

Notice that after the word "people" a comma was added even though the original text did not have a comma there. This was done in order to separate that long sentence ("Give victory to Thine Orthodox people as Thou once gavest it to Constantine") into two smaller pieces. The comma was added in a place in the sentence where one would naturally pause when reading it out loud.

The next step is to break the hymn into smaller phrases:

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[*] These lists are available online at: http://www.stanthonysmonastery.org/music/Formula.html

010001, 01,
100100,
00101000010,
101100101.
001000101,
010, 01:
01000010010,
0001000100.

Notice that wherever there was a punctuation mark in the original text, a line break has been inserted, so that the composition can be tackled piece-by-piece. The two brief phrases "O Christ" and "we cry" were not put on separate lines, since they are too brief. Instead, they were attached to the previous phrases, because this is how the words would be grouped if one were to read them out loud.

For easier reference, I will number each of the phrases in this hymn as follows:

1)   010001, 01,
2)   100100,
3)   00101000010,
4)   101100101.
5)   001000101,
6)   010, 01:
7)   01000010010,
8)   0001000100.

Phrase #1 begins with a four-syllable word "prefiguring" which has the pattern: 0100. Since most sticheraric troparia in first mode start with a musical phrase that has a cadence on PA, we should look for a match to this pattern in section C (on p. 36). There are seven matches to this pattern: six for 0100 and two for 010X. There are also five formulas with the pattern 100, which can also be used by simply inserting a filler note before them. Any of these will do fine, but since the melody found in the first instance of 100 is a common way to begin a troparion, let's select that one and and insert an ison before it as a filler note.

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IMPORTANT COMMENT #1:
The primary attribute of a phrase that determines its melody is the pattern of accents found in its last syllables. Therefore, a composer can use "filler notes" at the beginning of a formula given here in order to create a melody for a phrase that has more syllables than provided in the formula

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The rest of this phrase has a syllabic pattern 0101. Typically troparia in this mode stay around PA in the beginning, so let's find another formula ending on PA. The third entry on page 37 section C (XXX1) matches our pattern. So if we use it, the melody we have so far is as follows:

Pre - fig -ur-ing Thy Cross,   O____Christ,

The next phrase (#2) should be grouped together with phrase #3 due to the meaning of their words. Therefore, phrase #2 should not end of Pa (which is used for first mode cadences associated with a period in the lyrics) but on Ga, which is a medial cadence for first mode. So we will look for something that matches the binary code 100100 in section G, since this is the section with melodies ending on Ga that are accented on the third to last syllable. Although there isn't an entry for 100100, there are several for 100, 10X, 0100, and 010X, all of which can be applied for our phrase, simply by adding filler notes before them. If we choose the third formula given for 0100, the pattern for our filler notes will be 10 (for the word "Jacob"). Instead of just adding two isons for filler notes, it would be better to use filler notes that would emphasize the first syllable of "Jacob." These "filler notes" may also be called "heirmologic bridges" because they consist of syllabic melodies (i.e. melodies with one note per syllable) similar to heirmologic melodies. They are called "bridges" because they are used to join the sticheraric formulas of a hymn.

> **IMPORTANT COMMENT #2:**
> When composing a melody for a heirmologic bridge, accentuated syllables are usually written with a psefistón, a petastē, or as an oligon followed by an ison.

According to the rules of Byzantine music orthography,[*] in melodies with one note per syllable, a petastē is used when followed by only one descending note, whereas a psefistón is used when followed by two or more descending notes. Bearing this in mind, we can use a petastē followed by an apóstrophos for the two syllables of the word "Jacob." Afterwards, in order to end up at the right pitch for the formula of 0100 we chose, the petastē will have to be a jump of three. So adding all this, we now have:

Pre - fig -ur-ing Thy Cross,   O____Christ,   Ja-cob the   Pa- tri- - arch,

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[*] We have compiled more than 100 of these rules and have posted them at:
http://www.stanthonysmonastery.org/music/ByzOrthography.pdf (25 pages, 260 Kb)

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In order to choose a melody for the next phrase (#3), we must first decide if it should end on Ga or Pa. Since the next phrase (#4) ends with a period, we know that we will have to end on Pa then. So to avoid ending on Pa twice in a row, let's end phrase #3 on Ga. Since the last word in phrase #3 is accented on the second to last syllable, we will have to use a formula from section F. Another option would be to use a formula from section I (since this also has cadences on Ga). Because all melodies in section F go to high Nee, they are usually reserved for words that have something to do with spatial or spiritual height. But the words for our phrase are "when he gave the blessing to his descendants," which has nothing particularly lofty about it. So we will use a formula from section F.

Although section F doesn't have a formula that suits our needs exactly (remember, we're looking for something to match "00101000010") there is a formula for the pattern X010. This is good enough, since as we said (in "Important Comment #1") all that really matters is the final few syllables of a phrase. All we need to do now is to add some filler notes at the beginning to cover the first seven syllables of this phrase. Although this might seem quite a large number of syllables to use as a herimologic bridge, it really isn't.

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IMPORTANT COMMENT #3:
If we examine the sticheraric melodies found in *Mousike Kypsele* for troparia of the Lity, we will find that sometimes more than a dozen consecutive syllables are given one note each.

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To create a melody for these seven syllables, it is necessary to know what the dominant notes are in the mode at hand. In sticheraric first mode, Pa and Ga are the primary dominant notes. Since we are already at Ga, our syllabic melody should play around Ga. And as we stated in "Important Comment #2," we want to create a melody such that the accentuated syllables of the phrase will be a psefistón, a petastē, or an oligon followed by an ison. So following these guidelines, we can easily come up with a little melody, and then attach to it the X010 formula we chose, resulting in the following melody:

Pre - fig -ur-ing Thy Cross, O____Christ, Ja-cob the Pa- tri- - arch,

when he gave the bless-ing to his_____ de - - scend - - ants

As we already mentioned, we will want to end the next phrase (#4) on Pa since it ends with a period. Therefore, we will look in section A for a formula that will take us from Ga to Pa that matches our syllabic pattern: 101100101. Upon examining the formulas of this mode that lead the melody from Ga to Pa, we can see that there is a tremendous amount of freedom regarding placement of accentuated syllables, as witnessed by the numerous "X's" in the binary code. As a result, we have several melodies to choose from.

In particular, we could use the melodies for 100001, XX0X0XX, 1X0X0XX, 01X0X0XX, 1010000XX, 10010X, 0100100, or 00100100. I personally think that the melody of XX0X0XX on page 42 fits nicely, so let's use it. But since our syllabic pattern has two extra syllables in the front, we will have to invent a heirmologic bridge to fill the gap. Since our extra syllables have an accentuation pattern "10" (for the words "laid his") we can use an ison over a petastē for the accentuated syllable "laid," and then use an apóstrophos for the word "his." Then, to join this bridge we constructed with the 1X0X0XX we chose, it is necessary to change the first ison in this formula into an oligon.

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IMPORTANT COMMENT #4: It is the absolute pitch of the first character in a formula that is important rather than its intervallic jump. For example, a formula beginning with a martyria of Ga and an ison can be used as a formula from Pa by replacing the ison with a jump up of two.

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So pasting the words into this formula and adding it to what we already have, provides the following:

Notice that the syllable "on" of the word "upon" is an accentuated syllable, but it was placed in a formula that does not accentuate it.

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IMPORTANT COMMENT #5: There is usually nothing wrong with putting an accented syllable in a place where the melodic formula would normally call for an unaccented syllable. However, doing the opposite is a mistake that sticks out like a sore thumb, i.e., placing an unaccented syllable in place where the melodic formula calls for an accented syllable.

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To continue, the next phrase is: "And today as we exalt Thy Cross." Since words like "exalt," "heaven," etc., are frequently emphasized by using a melody that goes high, we can try to do this by using a formula from section I on page 53 that goes to high Nee for the word "exalt." The words "exalt Thy Cross" have the binary code 0100. So we can use the first formula in section I (which is 100) if we just add an ison before it. But in order to use this formula which begins on Ga, the previous words "And today as we" must take us from Pa to Ga. So looking in section G on page 48 for a formula that matches our syllabic pattern (00100), we see that there is none with this pattern. However, there are several with the pattern 0100. We can easily use one of these by simply inserting an ison at the beginning of it. The question is, which one should we choose? Notice that the first one is not a sticheraric formula but a heirmologic bridge (i.e., it has one beat per syllable). Since we are composing music for a troparion of the Lity (as opposed to some fancy doxastikon), we don't want it to be too lengthy. Therefore, we should be using heirmologic bridges whenever we have a choice. So we will use that heirmologic bridge, which gives us the following::

Pre - fig - ur-ing Thy_Cross, O____ Christ, Ja - cob the Pa- tri- - arch,

when he gave the bless-ing to his_____ de - - scend - - ants laid his hands_

_____ cross - - - wise up - - on their_____ heads. And to - day

as we ex - alt___Thy__ Cross,_

But now that we put those pieces together for that last phrase, those three isons in a row don't sound very elegant. So let's discard that idea for those last two pieces (for the words: "And today as we" and "exalt Thy Cross") and choose instead a formula from section G that goes directly from Pa to Ga. Although there is no formula that is a perfect match for our syllablic pattern (001000101), the last formula in the section of formulas accented on the third to last syllable (on page 49) has the code: 100100100010X. At first glance, these two codes appear quite different, but since it is the ending of each code that is most important, we can see that they will match perfectly if we merely delete the first four syllables of the formula and use minimal creativity to change the pitch of the fifth syllable from Ga to Pa so that the transition is smoother. So pasting the words into this formula gives us the following:

Pre - fig - ur-ing Thy_Cross, O____ Christ, Ja - cob the Pa- tri- - arch,

when he gave the bless-ing to his_____ de - - scend - - ants laid his hands_

_____ cross - - - wise up - - on their_____ heads. And to - day

as we ex - alt___Thy_Cross,

The next phrase ("O Sa-viour, we cry:") ends with a colon. This means that we don't want to end the phrase at Ga (which is only for temporary medial cadences) but at Pa. So we will look for a phrase that takes us from Ga to Pa that matches our code: 01001. Unfortunately, there is no formula in section D in the subsection with formulas from Ga to Pa (on page 42) that ends with 1001 (or even 1000, which would have sufficed). However, we can borrow a formula from the first part of section D that has formulas from Pa to Pa (on page 41), as long as we change a note or two in the beginning to make the transition smooth. The formula at the bottom of page 41 (010XX) is a perfect match to our code. But since its first note is a Pa, we can change it to a Vou so that there is not a sudden jump down of two from where we are. We are allowed to tinker with the initial Pa of this formula, because when a formula begins with an ison, that ison is usually superfluous.

IMPORTANT COMMENT #6: When a formula begins with an unaccented ison, that ison may be removed to create a new formula.

So plugging the text into this formula gives us:

Pre - fig - ur-ing Thy_Cross, O____ Christ, Ja - cob the Pa- tri- - arch,

when he gave the bless-ing to his_____ de - - scend - - ants laid his hands_

_____ cross - - - wise up - - on their_____ heads. And to - day

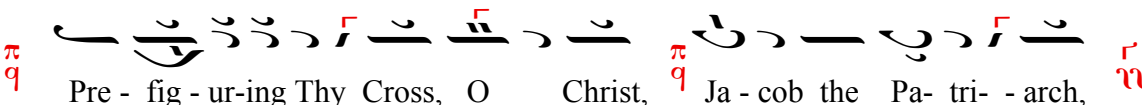as we ex - alt___Thy_Cross, O Sa - viour, we_____ cry:

This worked just fine, except for one small detail: the rhythm is "trisemos" (in Western notation, this would be a measure with 3:4 time) between these last two formulas, i.e., from the word "Cross" to "Saviour." Although it is not unheard of to join sticheraric formulas in this manner, composers often avoid doing so.

> **IMPORTANT COMMENT #7:** In order to avoid a trisemos rhythm between formulas, either the klásma of the last character in the former formula is removed (or replaced by a diplē), or a gorgón is added to the first character in the latter formula.
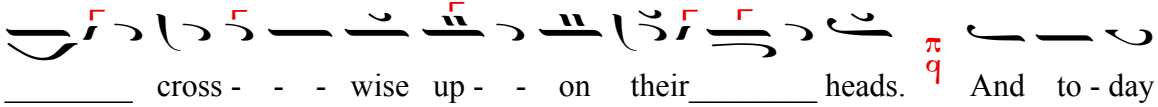
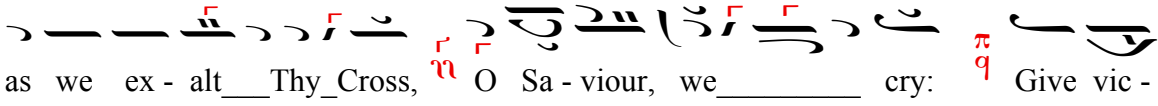In our case, adding a gorgón to the apóstrophos would sound appropriate.

The next phrase (#7) could end either on Ga or Pa. Since sticheraric melodies in first mode frequently have two consecutive cadences on Pa, let's end this phrase on Pa again. So looking in section B for a match to our phrase (that has the binary code: 01000010010), we see that there four options for the syllabic pattern 010010. This is exactly what we need, since as we have said, the important thing is to match the final syllables of a phrase. I myself like the sound of the third option (at the bottom of page 32), so I will choose that one. The only problem is that these 010010 formulas don't have enough syllables in the beginning to match our 01000010010 phrase. So we can break up this phrase into two pieces, based on the meaning of the words in it. In particular, we can put the words "Give victory" in the first half, and "to Thine Orthodox people" in the second half. As we just said, the second half of the phrase (which has the pattern 0010010) is already taken care of by the melody we chose at the bottom of page 32 with the code 010010. Our extra unaccented syllable can be accounted for by simply attaching an ison to the beginning of that melodic formula. As for the first half of the phrase (which has the pattern 0100), we will look in section C, since we have a phrase accented on the third to last syllable that starts and ends on Pa. We see on page 36 that we have six formulas to choose from (not including the 100 and 010X formulas on this page which we could also use). The first two 0100 formulas are heirmologic bridges because they have one beat per syllable, while the other 0100 formulas have two or more syllables that are held for two beats. In this particular place in our troparion, we don't want a melody that has an ending that sounds like a final cadence, since the meaning of these words of our 0100 phrase ("Give victory") needs to bind seamlessly with the next phrase ("to
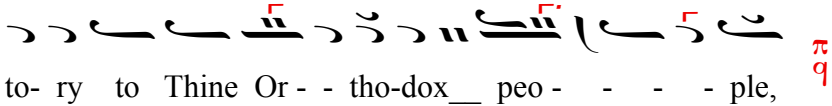
Thine Orthodox people"). And since this is just a simple troparion for the Lity, we want to use heirmologic bridges wherever possible. Therefore, the most appropriate of these 0100 formulas will be one of the first two, which are simple heirmologic bridges. So if we choose the first one and add these fomulas to our hymn along with the words, we now have:

Pre - fig - ur-ing Thy_Cross, O____ Christ,   Ja - cob the Pa- tri- - arch,

when he gave the bless-ing to   his_____ de - - scend - - ants   laid his hands_

_____ cross - - - wise up - - on   their_____ heads.   And to - day

as we ex - alt___Thy_Cross,   O Sa - viour, we_____   cry: Give vic -

to- ry to Thine Or - - tho-dox__ peo - - - - ple,

Since there is a "trisemos" rhythm between the words "cry" and "victory," we could add a gorgon on "Give" or remove the klásma on "cry" in order to avoid this rhythm. However, doing so would make the break between the phrases "we cry" and "Give victory" less pronounced. This would be detrimental in this situation, because these phrases are separated not just by a comma (as there was between "Cross" and "O") but a colon, which denotes a separation between two independent clauses. Therefore, we should not diminish the break between these phrases, and so we will the leave the trisemos rhythm as it is.

Now we have finished everything except for the last phrase. The final cadences of sticheraric first mode almost always ascend to Di before ending on Pa. That is why the list of formulas of this mode has two separate sections for final cadences: a section with melodies ending on Di, and a section for the final ending on Pa. So in order to match our pattern (0001000100), we will try to build a melody having this pattern by combining a formula that takes us from Pa to Dee (in section N) with a formula that takes us from Dee down to Pa (section O). Ideally, we should break our 0001000100 phrase into two pieces such that the resulting pieces are independent units, grammatically speaking. So it would make sense to make the first piece: "as Thou once gavest it" (000100) and the second piece: "to Constantine" (0100). However, the formulaic rules won't let us do this, because there are no semi-final cadences on Di that end with the pattern "100". There are two that

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end with "101" (at the bottom of page 65) but using either of these will unduly emphasize the word "it". We can't break it up as "as Thou once gavest it to" (0001000) and "Constantine" (100) because there are no formulas in section O that have only three syllables to match our "100" phrase. So instead, we will have to break up the words as follows: "as Thou once gavest" (00010) and "it to Constantine" (00100).

Section N has only two melodies that match our syllabic pattern of 00010 (at the top of page 68). I don't particularly like either of them for our words, because they both seem to give too much emphasis on the word "gavest" by dragging out that accented syllable for four beats.

Another option is to use a formula from section M. Even though these are labelled as formulas with melodies from *Ga* to Di, while we want a formula with a melody from *Pa* to Di, we can still adapt it. As I mentioned in "Important Comment #4," all we need to do is to increase the intervallic jump of the first character by two, and then we are free to use it. So we can take the formula for 00010 in section M (on page 65), and change its first ison into a jump up of two, and it will work just fine.

And now to find a melody for the final four syllables of our troparion, we need to find a match for our pattern of 00100 in section O. So we could either use the formula for 0XX0X or any of the three for 001XX. Theoretically, any of these would be alright, but applying the formulas with a jump down of three would make the break between the words "gavest" and "it" too abrupt, so let's use the one that gradually descends with three apóstrophoses.

So now, we just need to add the ison and a nice-looking drop cap (available online at: http://www.stanthonysmonastery.org/music/ByzDropCaps.zip), and we have the final product (on the following page):

re - fig -ur-ing Thy_Cross, O___ Christ, Ja- cob the Pa- tri- - arch,

when he gave the bless-ing to his_____ de - - scend - - ants laid his hands_

_____ cross - - - wise up - - on their_____ heads. And to - day

as we ex - alt___Thy_Cross, O Sa - viour, we_____ cry: Give vic -

to- ry to Thine Or - - tho-dox__ peo - - - - ple, as Thou once gav -

est it___ to Con - - - - stan - - - - tine.

Voilà! With a minor effort that required only minimal creativity, we were able to set this hymn nicely to Byzantine music. The following page is a transcription of this melody in Western notation.

Prefiguring Thy Cross

Sticheraric
First Mode

Andante ♩=96

Pre - fig - ur - ing Thy___ Cross, O___ Christ,

Ja - cob the Pa - tri - arch, when he gave the bless - ing to his___

de - scend - ants laid his hands___ cross - wise up - on___ their___

___ heads. And to - day as we ex - alt___ Thy___ Cross, O Sa - viour,___

we___ cry: Give vic - to - ry to Thine Or - tho - dox___ peo - ple,

as Thou once gav - est it___ to Con - stan - tine.