
Breaking the Beat

Fractional Time Indicators in Byzantine Music
by George K. Duvall


Normally, each note receives 1 beat. The beat is predetermined by the style of the music and as set by the Cantor. When referring to divisions within a beat, the notes lasting 1 beat are said to be held for a *full beat*. Beats, and portions of beats, can be either *arsis* or *thesis*. Arsis is the lighter upbeat, while the thesis is a heavier, stronger downbeat.

We give the name *Fractional Time Indicators or Markings* to those signs that confine the notes to less than 1 beat. The principal signs are the following:


Gorgón		Trigorgon	
Digorgon		Cross (Stavros)	+

Gorgón

The *Gorgón*¹ requires that 2 notes receive 1 beat. Therefore, the gorgón divides the length the 2 notes are held into 1/2 of a beat, i.e. a half beat. The 2 notes need to expend the 1 beat equally: the note on which the gorgón appears, and the one immediately *preceding* it.

In the line , the ison and the oligon together will expend 1 beat; each receiving 1/2 of a beat. The ison will be performed on the thesis and the oligon on the arsis. The apostrophos following receives a full beat.

Often, however, the musical line begins with a note having a gorgón on it. In this case, the character receives the

arsis, but the following character receives the thesis. The line , the ison receives the arsis and the oligon the thesis.

The gorgón can be placed over any voiced character except for the petaste and can be found over, or under the character.



¹ In case you were wondering, the gorgón has nothing to do with the mythological gorgon. There are actually 3 Greek words that can be transliterated as gorgon: γοργόν, which is probably short for γρήγορον, meaning 'quickly,' γοργών, the 3 sisters of mythology, and γύργον, which means 'fortress.'

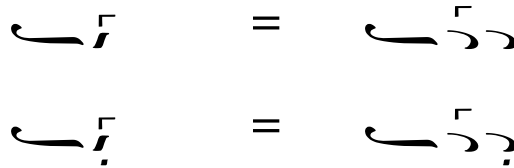
Gorgón over Hyporrhóe

In the case of the hyporrhóe, the gorgón is only ever placed above the character and always affects only its first note (the hyporrhóe contains 2 notes within a single character), which for this reason takes the arsis and its next sound the thesis. The note before the hyporrhóe is likewise affected, i.e. cut in half.

When the hyporrhóe has a gorgón above it and a haplé or diplé below it:

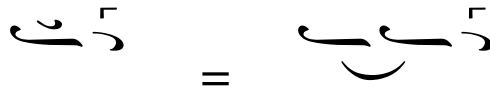


the gorgón affects its first note and the haplé or diplé its second note. Here is how this works:



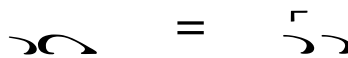
Clasma & Gorgón Combination

When a clasma is used on a note preceding a note with a gorgón, what is created is known in Western music as “dotted rhythm.” What occurs is that the clasma is robbed of 1/2 of a beat. The note then is held 1 1/2 beats and the note with the gorgón 1/2 beat.



Running Elaphron

The running elaphron represents a unique rhythmical structure consisting of an apostrophos followed by an elaphron. The apostrophos always takes the arsis, as though there were a gorgón over it; therefore, the running elaphron is equivalent to 2 apostrophes, the first having a gorgón:



The note preceding the running elaphron is cut in in half rhythmically and attached syllable-wise to the apostrophos. The elaphron descends only 1 note instead of its usual 2 and a separate syllable is attached to it.

When, however, the apostrophos and the elaphron are distant from each other, or if the apostrophos and elaphron each contain their own syllables of text, then this does not constitute a running elaphron, but each character has its regular effect, i.e. apostrophos = down 1 note, the elaphron = jumps down 2 notes.

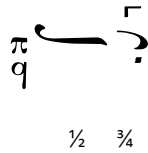



He fell to the earth



He fell to the earth

When an apostrophos has a gorgón above it and a haplé below it, the the gorgón is performed first (with the note preceding it, of course), then the haplé lengthens the apostrophos to 1½ beats. Similarly, when a diplé stands below the apostrophos, then the apostrophos receives 2½ beats.




The gorgón also divides into 2 half beats the rest or silent characters. Written so,  when the preceding character receives the thesis, and is held for a half beat, the half beat rest receives the arsis.

Cross or Stavrós

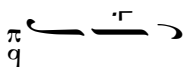
Similar to the half beat rest is the *cross* (+), which requires a short silence, a full half beat, which it steals from the note immediately preceding it. This momentary break allows the singer to breathe.

Hemigorgon and Trihemigorgon

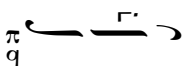
We stated previously that in the musical line , the 2 first notes each expend ½ of a beat. If we have a note with a tempo value of ½ beat, and want to add a duration longer than ½ beat and yet smaller than a whole beat to one of these notes, we would use a gorgón with a dot attached to its left or right side:



These gorgóns (plural also *gorgá*) are called *dotted gorgóns* (παραστιγμένα). The first is called a *hemigorgon*, because it has the value of ½ of a gorgón, or only ¼ beat. The other ¾ of a beat is expended by the preceding

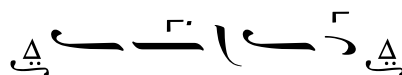
character. In the line , the ison lasts ¾ of the beat and the oligon lasts the remaining ¼ beat.

The gorgón with the dot on the right side in the above example, is called a *trihemigorgon* (tri-hemi-gorgon, because it equally divides 3 hemigorgons) and lasts ¾ of a beat, while the preceding note takes other ¼ beat.

Thus, in the line , the ison lasts ¼ of a beat and the oligon ¾ of a beat.

To simply this, when the dot is on the left, think of it as pointing to the previous note and lengthen that note; however, when the dot is on the right, then the note with the gorgón is lengthened.

The hemigorgon is used in the following common formulation:



The hemigorgon and trihemigorgon affect the rests in the same way they affect the sounded notes.

Summary

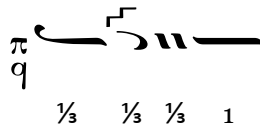
As such, the gorgón affects 2 consecutive notes, which it unites chronically, so that the 2 last 1 beat. The simple gorgón divides the 2 notes in half, giving each $\frac{1}{2}$ beat. The hemigorgon (left-dotted gorgon) divides 2 notes unequally, giving the first note $\frac{3}{4}$ beat and the note on which it stands $\frac{1}{4}$ beat. The trihemigorgon (right-dotted gorgon) also divides the 2 notes unequally, giving the first note $\frac{1}{4}$ beat and the note on which it stands $\frac{3}{4}$ beat.

Digorgon

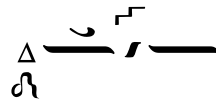
We stated that the gorgón has an effect on 2 characters, which are incorporated into 1 beat. Many times, however, we need to compress 3 characters into 1 beat. In this case, we use the *Digorgon*, which is a double gorgón.



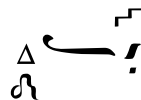
The digorgon stretches its affect to 3 consecutive notes and appears on the second of the 3. It unites 3 notes into 1 beat. In Western music, this formation is referred to as a *triplet*.



In the figure above, the digorgon affects the ison, the apostrophos and the kentemata, and gives all 3 the duration of 1 beat, each note receiving $\frac{1}{3}$ of that beat. The oligon following this formation receives a full beat.



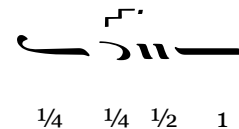
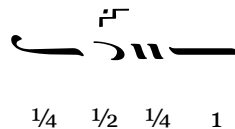
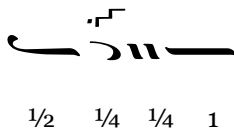
In the figure above, the digorgon unites the second half of the oligon, and the 2 notes of the hyporrhoe into 1 beat.



In the formation above, the digorgon unites the ison and the two notes of the hyporrhoe into 1 beat, not, however, the haplé, which belongs to the second note of the hyporrhoe and is performed on a thesis.

Dotted Digorgon

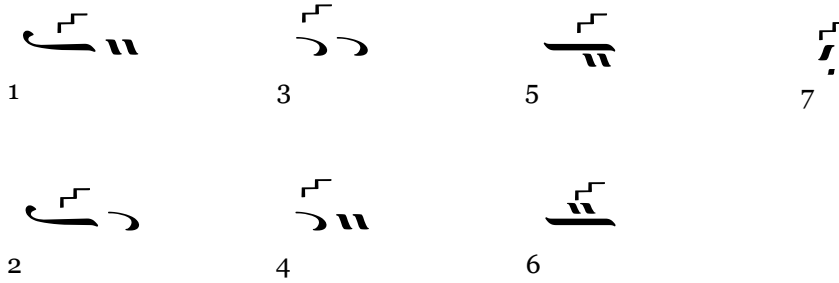
When we wish to divide the 3 notes of the beat unevenly, then we utilize the *dotted digorgon*. The dot can appear on different points of the digorgon and signify different percentages of the beat to be apportioned to the notes.



Note, now the proportions are no longer equal thirds of a beat, but are now distributed in $\frac{1}{4}$ beats, giving 2 quarters of a beat to the note affected by the placement of the dot.

The digorgon is placed over any voiced notes except for the petaste, kentema and hypselé.

Some digorgonic formations:

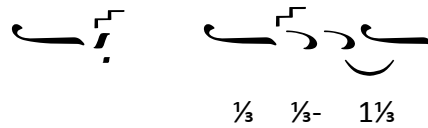


In examples 1 through 4, the digorgon acts normally, uniting the note preceding it with the 2 pictured to form 1 beat.

In example 5, the digorgon unites the kentemata and oligon along with the preceding note into 1 beat.

In example 6, however, the digorgon affects the 2 notes of the compound character (oligon/kentemata) *but also affects the note following them.*

Finally, in example 7, the hyporrhoe is surmounted by a digorgon and also has a haplé below it. In this case, the digorgon divides the first note of the hyporrhoe along with the preceding note. Then the haplé receives the rest of the beat.



Summary

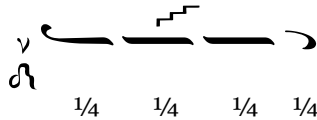
When a digorgon is placed on the second of 3 notes, the 3 notes are combined into a triplet, i.e. the 3 notes are sung in 1 beat, each note being of equal duration. When a dotted digorgon is present, the dot being in 1 of 3 places on the digorgon, then the notes are divided into 3 again, but with the dotted note taking $\frac{1}{2}$ of the beat, while the other 2 notes take $\frac{1}{4}$ of a beat each.

Trigorgon

To review, the gorgón acts on 2 characters, causing them to halve their beat values. The digorgon divides 3 notes into equal or unequal parts having a total of 3 notes to a single beat. Dots included in the gorgón or digorgon formation change the proportion of the beat that is distributed between the notes.

Now we come to the *Trigorgon* (triple gorgón), which allows for 4 notes to be contained in a single beat.

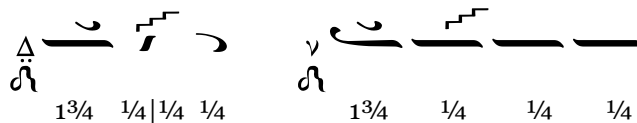
When a trigorgon is placed on the second note of a series of 4 notes, the 4 notes are performed in 1 beat.



Above, the trigorgon attached to the first oligon affects the ison standing before it. It also affects the second oligon and the apostrophos. The 4 notes are compressed into 1 beat. The ison receives the thesis and continues over to the second oligon, which receives the arsis.

Trigorgon with Clasma

When placed after a note with a clasma, the trigorgon acts by splitting off the last 1/4 beat of the 2-beat clasma and continues through the second note (containing the trigorgon) and the notes after it, up to 2 beats.



In the example above, both formulations last 2 1/2 beats.

In the first formulation, the oligon is cut by a quarter beat, the 2 notes of the hyporrhoe both receive 1/4 beats, and the apostrophos, too, receives 1/4 beat.

In the second formulation, the ison receives the 1 3/4 portion of the 3 beats, then the 3 oliga take up 3/4 of a beat.

Dotted Trigorgons

Dotted Trigorgons exist in modern music, but are rare.