

Carnatic Notation Method

The Carnatic note names:

The Tonic is known as

Sa (C) [ச].

The Dominant is known

as *Pa* (G) [ப].

The Sub-Dominant has two places known as *Ma*

(F) [ம] and *Me* (F#) [மெ].

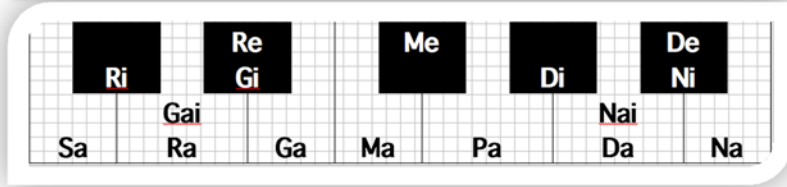
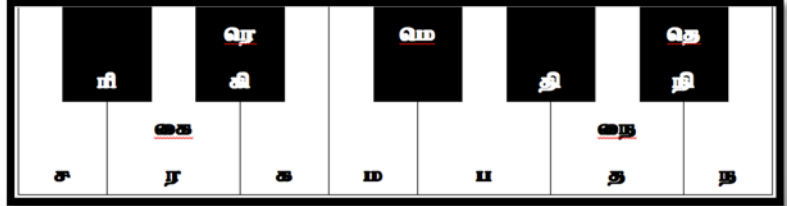
The Super-Tonic has three places known as *Ri* (Db), *Ra* (D) and *Re* (D#)

[ரி, ர, ரெ].

The Median is known by three places as *Gai* (Ebb), *Gi* (Eb) and *Ga* (E) [கை, கி, க].

Likewise, the Sub-Median is known as *Di* (Ab), *Da* (A) and *De* (A#) [தி, த, தெ].

The Leading Tone is known as *Nai* (Bbb), *Ni* (Bb) and *Na* (B) [நை, நி, ந].



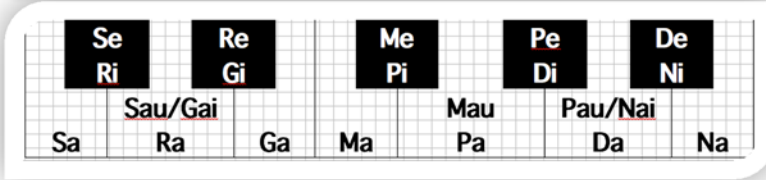
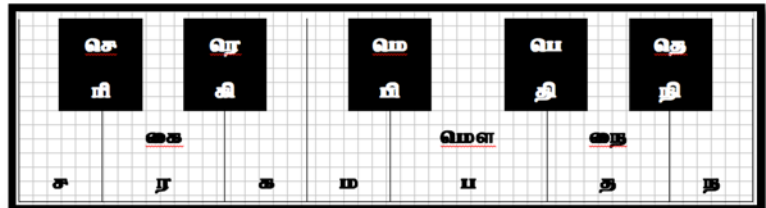
From the Western point of view:

Considering C as the Tonic, *the naturals*, the diatonic tones of C major (C, D, E, F, G, A, B), get the homogeneous names with 'a' sound as in 'at'. Thus, they are known as *Sa*, *Ra*, *Ga*, *Ma*, *Pa*, *Da*, *Na* [ச, ர, க, ம, ப, த, ந]

respectively.

The flats get the homogeneous sound of 'i' as in 'ink'. Thus they (Cb*, Db, Eb, Fb*, Gb, Ab and Bb)

are known as *Si**, *Ri*, *Gi*, *Mi**, *Pi*, *Di* and *Ni* [சி*, ரி, கி, மி*, பி, தி, நி] respectively.



The sharps get the homogeneous sound of 'e' as in 'end'. Thus, they (C#, D#, E#*, F#, G#, A# and B#*) are known as *Se, Re, Ge*, Me, Pe, De and Ne** [செ, ரெ, கெ*, மெ, பெ, தெ, நெ*] respectively.

The Double flats get the sound of 'ai' as in 'Sinai'. Thus Ebb and Bbb are known as *Gai and Nai* [கை, நை] respectively.

The Double sharps get the sound of 'au' as in 'Saudi'. Thus C## and F## are known as *Sau and Mau* [சௌ, மௌ] respectively. However, *the double sharps do not occur in the Carnatic Music.*

The octaves:

In Carnatic music, the octaves are represented by dots above or below the notes. The middle octave goes without any dots. See below:

- சு, ரு, க, ம, ப, த, ந - The lowest seven
- சு, ரு, க, ம, ப, த, ந - The lower seven
- சு, ரு, க, ம, ப, த, ந - The low seven
- சு, ர, க, ம, ப, த, ந - The middle seven
- சு, ரு, க, ம, ப, த, ந - The high seven
- சு, ரு, க, ம, ப, த, ந - The higher seven
- சு, ரு, க, ம, ப, த, ந - The highest seven

The Duration Values:

1) The Capitals: (The 4th Notes)

- In Carnatic music, *the Capitals get a crotchet value.*

The *Natural Capitals*: SA RA GA MA PA DA NA [சா ரா கா மா பா தா நா]

The *Flat Capitals*: SI* RI GI MI* PI DI NI [சீ ரீ கீ மீ ரீ தீ நீ]

The *Sharp Capitals*: SE RE GE* ME PE DE NE* [சே ரே கெ மெ பெ தே நெ]

- *Semi-Colons add up a Crotchet.*

Thus, each of the the following gets the *Minim* value.

The *Naturals*: SA; RA; GA; MA; PA; DA; NA; [சா; ரா; கா; மா; பா; தா; நா;]

The *Flats*: SI; RI; GI; MI; PI; DI; NI; [சீ; ரீ; கீ; மீ; ரீ; தீ; நீ;]

The *Sharps*: SE RE GE ME PE DE NE [சே; ரே; கெ; மெ; பெ; தே; நெ;]

P.S: Thus, SA;; [சா;;] gets a Dotted Minim value.

SA;;; [சா;;;] gets a Semi-Breve value etc..

2) The Small letters: (the 8th Notes)

- In Carnatic music, **the Small letters get a Quaver value.**

The *Natural Smalls*: Sa Ra Ga Ma Pa Da Na [ச ர க ம ப த ந]

The *Flat Smalls*: Si* Ri Gi Mi* Pi Di Ni [சி* ரி கி மி* ரி தி நி]

The *Sharp Smalls*: Se Re Ge* Me Pe De Ne* [சே ரே கே* மெ பெ தே நே*]

- Commas add up a Quaver.**

Thus, each of the following gets the *Dotted Crotchet* value.

The *Naturals*: SA, RA, GA, MA, PA, DA, NA, [சா, ரா, கா, மா, பா, தா, நா,]

The *Flats*: SI, RI, GI, MI, PI, DI, NI, [சி, ரி, கி, மி, ரி, தி, நி.]

The *Sharps*: SE, RE, GE, ME, PE, DE, NE, [சே, ரே, கே, மெ, பெ, தே, நே,]

3.1) **Horizontal lines drawn over notes reduce the original values by half.**

Thus, by drawing a single horizontal line, the following result:

$\overline{ச ச} = ச = \text{quaver} = \text{musical note}$

$\overline{சா,} = \overline{ச ச ச} = \text{quaver} = \text{musical note}$

$\overline{ச ச ச ச} = சா = \text{quaver} = \text{musical note}$

$\overline{சா ச ச} = \overline{ச ச ச ச} = சா = \text{quaver} = \text{musical note}$

$\overline{சா, ச} = \overline{ச ச ச ச} = சா = \text{quaver} = \text{musical note}$

3.2) The Small letters with two horizontal lines over: (32nd Notes)

- In Carnatic music, **two horizontal lines drawn over reduces the original value by a further half step.** Thus, the following result from this approach:

$\overline{\overline{ச ச}} = \overline{ச} = \text{quaver} = \text{musical note}$

$\overline{\overline{ச ச ச ச}} = \overline{\overline{ச ச}} = \overline{ச} = \text{quaver} = \text{musical note}$

$\overline{\overline{சா ச ச}} = \overline{\overline{ச ச ச ச}} = \overline{ச} = \text{quaver} = \text{musical note}$

$\overline{\overline{சா, ச}} = \overline{\overline{ச ச ச ச}} = \overline{ச} = \text{quaver} = \text{musical note}$

3.3) The Small letters with three horizontal lines over: (64th Notes)

- In Carnatic music, **three horizontal lines drawn over reduces the original value by still further a half step.** Thus, the following result from this approach:

$\overline{\overline{\overline{ச ச}}} = \overline{\overline{ச}} = \text{quaver} = \text{musical note}$

$\overline{\overline{\overline{ச ச ச ச}}} = \overline{\overline{\overline{ச ச}}} = \overline{\overline{ச}} = \text{quaver} = \text{musical note}$

$\overline{\overline{\overline{சா ச ச}}} = \overline{\overline{\overline{ச ச ச ச}}} = \overline{\overline{ச}} = \text{quaver} = \text{musical note}$

$\overline{\overline{\overline{சா, ச}}} = \overline{\overline{\overline{ச ச ச ச}}} = \overline{\overline{ச}} = \text{quaver} = \text{musical note}$

P.S.:

1. In the western approach, the dotted note and the note or notes that complete the value have different beams. On the contrary, by the Carnatic approach, all the notes get the beam of the note or notes that complete the value.

2. However, if the note or notes that complete the value are steps apart, the Carnatic system too has to employ different beams. See the following:

$$\begin{aligned} \overline{(\text{Sa}, \text{Ri})} = \overline{(\text{Sa} \text{ Ri})} = \text{SaRi} = \text{Sa} \text{ Ri} = \text{Sa} \text{ Ri} = \text{Sa} \\ \overline{(\text{Sa}, \text{Ri} \text{ Ga})} = \overline{(\text{Sa} \text{ Ri} \text{ Ga})} = \text{SaRiGa} = \text{Sa} \text{ Ri} \text{ Ga} = \text{Sa} \text{ Ri} \text{ Ga} = \text{Sa} \end{aligned}$$

3. Note that the simple brackets are used where two or more notes constitute a unit. We may say that the role of the simple brackets is equivalent to the role of beams in the Western Music.

The Modal Scales: (36+36)

There are 72 Modal Scales in the Carnatic Music. The first set of 36 scales are created by fixing the Tonic, Dominant and the 1st place of the Sub-Dominant while varying the others. The second set of 36 scales are created in the same manner but with the 2nd place of the Sub-Dominant.

For example, 1. Sa, Ri, Gai, **Ma, Pa**, Di, Nai, Sa (C, Db, Ebb, F, G, Ab, Bbb, C)
37. Sa, Ri, Gai, **Me, Pa**, Di, Nai, Sa (C, Db, Ebb, F#, G, Ab, Bbb, C)

By the way, from the notation software point of view, we do not need to go in to the details of these scales, because the Carnatic Musician/ Student knows what modal scale (the raga) he is dealing with and accordingly he will input a particular note.

The Key Signatures: (Index Numbers)

A bird-eye understanding of the Key Signatures in Carnatic Music will help.

As it was pointed out earlier, there are 72 Modal Scales in Carnatic Music. These scales are identified by the *index numbers* (serial numbers) that tabulate the Scales.

Thus, for example, **15, the integer, indicates the Maya Malava Gowlai scale**, that occurs on the 15th place in the list. The Carnatic student knows that this *modal scale* has the following ascending and descending tones:

†15: Ascending: **Sa (C), Ri (Db), Ga (E), Ma (F), Pa (G), Di (Ab), Na (B), Sa**
Descending: **Sa (C), Na (B), Di (Ab), Pa (G), Ma (F), Ga (E), Ri (Db), Sa**

The Header and Sub Scales: (72 scales)

The above 72 Modal Scales are known in Carnatic Music as Perum Panngal or Mela Karthas or Header Scales. They contain 7 tones in each both in the ascending and the descending order. The sub-scales to the above-mentioned 72 header scales are created by rearranging the tones in the ascending or the descending order or varying the number of tones. Even particular use of phrases makes a difference in the grammar of the branch level scales.

Boopalam (†15), for example, is a sub-scale of the above-said **Maya Malava Gowlai (†15)**. It contains only 5 tones. See below:

Ascending: **Sa (C), Ri (Db), Ga (E), Pa (G), Di (Ab), Sa**
Descending: **Sa (C), Di (Ab), Pa (G), Ga (E), Ri (Db), Sa**

Thus, either the index number and or the name of the Header Scale are given to signify the Keys. See below:

↑₁₅: *Maya Malava Gowlai*

∩₁₅: *Boopalam*

Optionally, the ascending and the descending order of tones are given. Thus, the complete representation is as follows:

↑₁₅: *Maya Malava Gowlai:*

Ascending: Sa (C), Ri (Db), Ga (E), Ma (F), Pa (G), Di (Ab), Na (B), Sa

Descending: Sa (C), Na (B), Di (Ab), Pa (G), Ma (F), Ga (E), Ri (Db), Sa

∩₁₅: *Boopalam:*

Ascending: Sa (C), Ri (Db), Ga (E), Pa (G), Di (Ab), Sa

Descending: Sa (C), Di (Ab), Pa (G), Ga (E), Ri (Db), Sa

The Time Signatures: (Composite Time Signatures)

The Carnatic Music has 7 Header Rhythms. They are as follows:

1. Egam (1)
2. Rupagam (0, 1)
3. Jambam (1, $_$, 0)
4. Thiripudam (1, 0, 0)
5. Mayam (1, 0, 1)
6. Thuruvam (1, 0, 1, 1)
7. Adam (1, 1, 0, 0)

- In the above classification, the symbol $_$ stands for one unit.
- The symbol 0 stands for two units. Thus it, sometimes, is indicated with suffix '2'.
- The symbol 1 has always a suffix number (3, 4, 5, 7 or 9).
- Since the symbol 1 is variable by 5 kinds (3, 4, 5, 7, 9), 35 rhythms are born. Of course, the 35 simple rhythms can have the corresponding 35 compound rhythms.
- Except for Egam (1), which can be suffixed with the above five kinds (3,4,5,7,9) and thus represent any one rhythm such as 3/4, 4/4, 5/4, 7/4, 9/4, 3/8, 4/8, 5/8, 7/8, 9/8 etc., all the other rhythms are composite.

For example, *Rupagam* is equivalent to the western 3/4 Time Signature. However, Carnatic Music treats it as a Composite Time (0₂, 1₄). Thus there are six units in this rhythm. If the unit is fixed as the 8th note, the Rupaga Rhythm is understood as the composite rhythm 2/8+4/8 equivalent but contrary to the Western 3/4.

- In the traditional system, the single bars indicate the sub-bars of the composite bar and the double bars indicate the end of a composite bar. However, the modern approach is to give backward slashes to the sub-bars and single bars to the end of the composite bar.

For example, in one composite bar of Rupaga Rhythm (0₂, 1₄) notice the bars:

Traditional System (one composite bar): ॥ ॥ ॥ ॥ ॥ ॥ ॥

Modern Approach (one composite bar): ॥ ॥ \ ॥ ॥ ॥ ॥ ॥

The Pitch Signatures: (The Numeral representation of one of the 12 tones as the Tonic)

Since Carnatic Music is movable, the pitch of the Tonic should be specified. The Carnatic Music represents the pitch by considering the major and perfect tones as 1,2,3,4,5,6,7 and the minor or diminished tones by the fraction 1/2. Thus the pitch signatures are as follows:

1	= C
1½	= C#
2	= D
2½	= D#
3	= E
4	= F
4½	= F#
5	= G
5½	= G#
6	= A
6½	= A#
7	= B

The Input Methods: [C̣, C̣]

The traditional Carnatic Music [C̣] notates with *only seven tonal names*. Thus, if the traditional clef is used [C̣], only 7 *tonal names* will be used as follows:

- The traditional Carnatic Music considers **Sa** as **Sa**
- It considers **Ri, Ra and Re** (Db, D, D#) as **Ri**
- It considers **Gai, Gi and Ga** (Ebb, Eb, E) as **Ga**
- It considers **Ma and Me** (F, F#) as **Ma**
- It considers **Pa** (G) as **Pa**
- It considers **Di, Da and De** (Ab, A, A#) as **Da**
- It considers **Nai, Ni and Na** (Bbb, Bb, B) as **Ni**

On the contrary, if the modern method is meant by C̣, 16 names *viz. Sa, Ri, Ra, Re, Gai, Gi, Ga, Ma, Me, Pa, Di, Da, De, Nai, Ni, Na will be used.*

The Tonal Input methods: [C̣, C̣]

Western tonal input method employs fixed names. Thus, if T clef [C̣] is used, the names as found in the picture are used.

Se	Re	Me	Pe	De		
Ri	Gi	Pi	Di	Ni		
Sau/Gai			Mau	Pau/Nai		
Sa	Ra	Ga	Ma	Pa	Da	Na

The Trans clef [C̣] is for the instruments that use special clefs such as Alto, Tenor and Bass clefs. In this case, the above Clef will act on concert pitches.