

The Tala System in Karnatic Music

A **Tala** is a rhythmical cycle similar to a measure in Western Music, but often more complex.

The elements which construct a Tala are

- 1) **Anudrutam** (U) : contains 1 beat (Akshara), i.e.: 1 clap of the palm of right hand in the palm of the left hand.
- 2) **Drutam** (O): contains 2 beats, i.e.: 1 clap of the palm of right hand in the left hand and 1 clap with the back of the right hand in the palm of the left hand.
- 3) **Laghu** (I_n) or fingercount: it contains $n = 3$ (**Tisra**), 4 (**Chaturasra**), 5 (**Khanda**), 7 (**Misra**) or 9 (**Sankirna**) beats, i.e.: 1 clap of the palm of right hand in the left hand for the first beat. The 2nd beat you tap the little finger in the palm of the left hand. The 3rd beat the ring finger and so on. The 6th beat falls on the thumb, the 7th beat falls again on the little finger, the 8th and 9th beat fall respectively on the ring finger and middle Finger.
The different variations are called Jatis.
- 4) **Avartanam**: 1 whole Tala cycle, which contains at least 1 Laghu.

The system used nowadays in Karnatic Music contains 7 different Types of Talas.

- 1) **Eka Tala** (I_n): contains only a Laghu.
- 2) **Rupaka Tala** (O I_n): starts with 1 Drutam and is followed by 1 Laghu
- 3) **Jhampa Tala** (I_n U O): starts with a Laghu and is followed by 1 Anudrutam and 1 Drutam
- 4) **Tripata Tala** (I_n O O): starts with a Laghu and is followed by 2 Drutams
- 5) **Ata Tala** (I_n I_n O O): contains 2 Laghus followed by 2 Drutams
- 6) **Matya Tala** (I_n O I_n): starts with a Laghu and is followed by 1 Drutam and 1 Laghu
- 7) **Dhruva Tala** (I_n O I_n I_n): starts with a Laghu and is followed by 1 Drutam and 2 Laghus **Ava**

If there are more than 1 Laghu in a Tala they all must have the same number of counts. For example: *Chaturasra Jati Dhruva Tala* (I₄ O I₄ I₄) starts with a 4 beat Laghu and is followed by 1 Drutam and 2 x 4beat Laghus.

Every Tala-type has 5 Jati variations. The result lines up to 35 different Talas.

| | Eka | Rupaka | Jhampa | Triputa | Matya | Ata | Dhruva |
|------------|----------------|------------------|--------------------|-------------------|---------------------------------|----------------------------------|--|
| Tisra | I ₃ | O I ₃ | I ₃ U O | I ₃ OO | I ₃ O I ₃ | I ₃ I ₃ OO | I ₃ O I ₃ I ₃ |
| Chaturasra | I ₄ | O I ₄ | I ₄ U O | I ₄ OO | I ₄ O I ₄ | I ₄ I ₄ OO | I ₄ O I ₄ I ₄ |
| Khanda | I ₅ | O I ₅ | I ₅ U O | I ₅ OO | I ₅ O I ₅ | I ₅ I ₅ OO | I ₅ O I ₅ I ₅ |
| Misra | I ₇ | O I ₇ | I ₇ U O | I ₇ OO | I ₇ O I ₇ | I ₇ I ₇ OO | I ₇ O I ₇ I ₇ |
| Sankirna | I ₉ | O I ₉ | I ₉ U O | I ₉ OO | I ₉ O I ₉ | I ₉ I ₉ OO | I ₉ O I ₉ I ₉ |

The most common Tala in Karnatic music is the *Chaturasra Triputa Tala* or *Adi-Tala* (I₄ O O)

The Talas are played mainly in 3 different tempi:

1st speed or *Vilambitha Laya*,

2nd speed or *Madhya Laya* (double time)

3rd speed or *Duritha Laya* (triple time).

The subcounts are called *Gati*. There are 5 varieties:

| <i>Tisra Gati</i> | <i>Chaturasra Gati</i> | <i>Khanda Gati</i> | <i>Misra Gati</i> | <i>Sankirna Gati</i> |
|---|---|---|--|---|
|  |  |  |  |  |

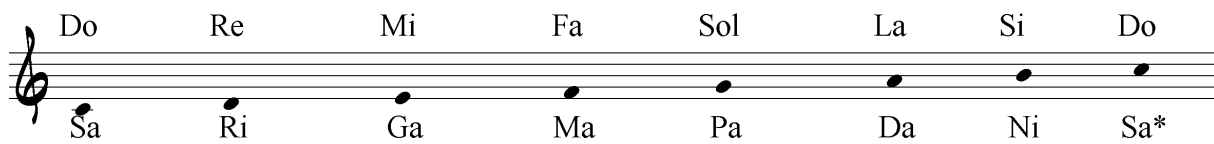
The combination of all possibilities line up to:

35 Talas x 5 Gatis x 3 speeds = 535 variations

The Melakarta Raga System in Karnatic Music

In western solfège we use the syllables Do, Re Mi, Fa, Sol, Si, Do to express the different pitches of a heptatonic (7 note) scale. .

In Karnatic music the syllables (*Svaras*) Sa, Ri Ga, Ma, Pa, Da Ni, Sa* are in use. The star(*) over the second Sa signifies the octave of the fundamental note and is normally written as a dot over the Sa. For the C major scale we got:

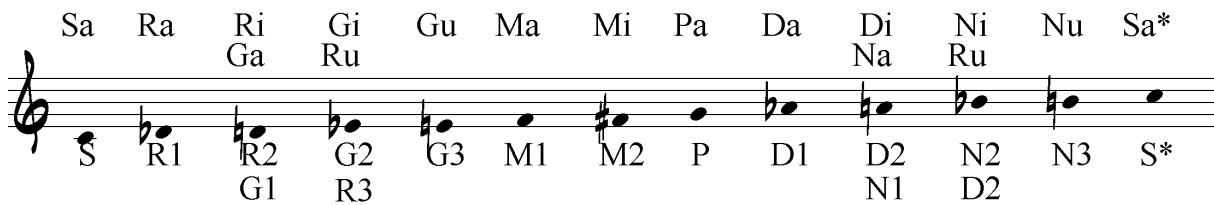


To identify the the diminished, minor and major intervals, there are two ways of differentiation:

1. the indexation of the syllables, i.e. R1, R2, R3; G1, G2 G3, M1, M2; D1,D2,D3, N1,N2,N3.
2. changing the voals of the syllables, i.e. Ra, Ri, Ru; Ga Gi, Gu; Ma,Mi; D, Di, Du; Na, Ni, Nu. (Solfa System)

In Karnatic music the fundamental Sa and the 5th Pa are never altered .

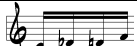

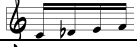

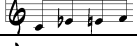
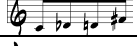
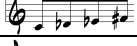
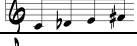
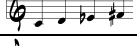


Here are all possibilities in the chromatic scale:



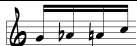
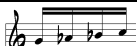

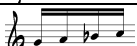


Like you can see in the above example, the note D(Re) can be a major second R2 (Ri) or a diminished third G1(Ga). It depends which scale step that specific note takes in the scale (*Raga*). There can be more than one type of each *Svara* in a raga.

The heptatonic scale is divided in 2 tetrachords. In Karnatic music there are only 12 possibilities for the lower and 6 for the upper tetrachord, because the 5th Pa is not altered.

The lower 12 tetrachords (*Chakras*) are divided in 6 with M1 (perfect 4th) and 6 with M2 (#4):

| | chakra | tetrachord | half notes | frame interval | svaras | solfa | |
|----|--------|---------------|------------|----------------|------------|----------|---|
| 1 | Indu | Blues3 | 113 | perfect 4th | S R1G1 M1 | SaRaGaMa |  |
| 2 | Netra | Phrygian | 122 | | S R1G2 M1 | SaRaGiMa |  |
| 3 | Agni | Hm5 | 131 | | S R1 G3 M1 | SaRaGuMa |  |
| 4 | Veda | Dorian | 221 | | S R2 G2 M1 | SaRiGiMa |  |
| 5 | Bana | Ionian | 212 | | S R2 G3 M1 | SaRiGuMa |  |
| 6 | Rutu | Blues2 | 311 | | S R3 G3 M1 | SaRuGuMa |  |
| 7 | Rishi | Firebird1 | 114 | #4th | S R1G1 M2 | SaRaGaMi |  |
| 8 | Vasu | Phrygian#4 | 123 | | S R1G2 M2 | SaRaGiMi |  |
| 9 | Brahma | Span.Phryg.#4 | 132 | | S R1 G3 M2 | SaRaGuMi |  |
| 10 | Disi | Hm4 | 213 | | S R2 G2 M2 | SaRiGiMi |  |
| 11 | Rudra | Lydian | 222 | | S R2 G3 M2 | SaRiGuMi |  |
| 12 | Aditya | Hm6 | 312 | | S R3 G3 M2 | SaRuGuMi |  |

The 6 upper tetrachords have the same structure like the first 6 lower tetrachords, only transposed up on the perfect 5th Pa. They have no Indian names

| | tetrachord | half notes | frame interval | svaras | solfa | |
|---|------------|------------|----------------|-----------|----------|---|
| 1 | Blues3 | 113 | perfect 4th | P D1 N1 S | PaDaNaSa |  |
| 2 | Phrygian | 122 | | P D1 N2 S | PaDaNiSa |  |
| 3 | Hm5 | 131 | | P D1 N3 S | PaDaNuSa |  |
| 4 | Dorian | 221 | | P D2 N2 S | PaDiNiSa |  |
| 5 | Ionian | 212 | | P D2 N3 S | PaDiNuSa |  |
| 6 | Blues2 | 311 | | P D3 N3 S | PaDuNuSa |  |

If you write out all possibilities of heptatonic scales with unaltered Pa you get 36 scales with M1 and 36 scales with M2. The system which results is named **Melakarta Raga Scheme** invented by Venkatamakhi (1660 A.D).

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The Melakarta Raga System

| | Raga | lower tetrachord Ma 4 | | | upper tetrachord | | lo tetra | 2 up tetra | scale |
|----|----------------------|-----------------------|--------|------------|------------------|------------|----------|------------|-------------------|
| 1 | Kanakangi | Indu | Blues3 | RaGa b2 bb | Blues3 | DaNa b6 bb | 113 | 113 | blues heptatonic3 |
| 2 | Ratnangi | | | | phrygian | DaNi b6 b7 | | 122 | h |
| 3 | Ganamurti | | | | hm5 | DaNu b6 7 | | 131 | |
| 4 | Vanaspati | | | | dorian | DiNi 6 b7 | | 212 | |
| 5 | Manavati | | | | ionian | DiNu 6 7 | | 221 | |
| 6 | Tanarupi | | | | Blues2 | DuNu #6 7 | | 311 | |
| 8 | Hanumatodi | | | | phrygian | DaNi b6 b7 | | 122 | phrygian |
| 9 | Dhenuka | | | | hm5 | DaNu b6 7 | | 131 | phrygmaj7 |
| 10 | Natakapiya | | | | dorian | DiNi 6 b7 | | 212 | dorianb2 melmol2. |
| 11 | Kokilapriya | | | | ionian | DiNu 6 7 | | 221 | |
| 12 | Rupavati | | | | Blues2 | DuNu #6 7 | | 311 | |
| 13 | Gayakapiya | Agni | hm5 | RaGu b2 3 | Blues3 | DaNa b6 bb | 122 | 113 | |
| 13 | Gayakapiya | Agni | hm5 | RaGu b2 | phrygian | DaNa b6 bb | 131 | 113 | |
| 14 | Vakulabhranam | | | | phrygian | DaNi b6 b7 | | 122 | hm5 |
| 15 | Mayamalava gaula | | | | hm5 | DaNu b6 7 | | 131 | ionian b2 b6 |
| 16 | Chakravakam | | | | dorian | DiNi 6 b7 | | 212 | mixo b2 |
| 17 | Suryakantam | | | | ionian | DiNu 6 7 | | 221 | ionianb2 |
| 18 | Hatakambari | | | | Blues2 | DuNu #6 7 | | 311 | |
| 19 | Jhankaradhvani | Veda | dorian | RiGi 2 b3 | Blues3 | DaNa b6 bb | 212 | 113 | |
| 20 | Nathabhairavi | | | | phrygian | DaNi b6 b7 | | 122 | aeolian |
| 21 | Kiravani | | | | hm5 | DaNu b6 7 | | 131 | harm minor |
| 22 | Kharaharapriya | | | | dorian | DiNi 6 b7 | | 212 | dorian |
| 23 | Gaurimanohari | | | | ionian | DiNu 6 7 | | 221 | mel minor |
| 24 | Varunapriya | | | | Blues2 | DuNu #6 7 | | 311 | |
| 25 | Mararanjani | Bana | ionian | RiGu 2 3 | Blues3 | DaNa b6 bb | 221 | 113 | |
| 26 | Charuskesi | | | | phrygian | DaNi b6 b7 | | 122 | mixo b6 |
| 27 | Sarasangi | | | | hm5 | DaNu b6 7 | | 131 | ionian b6 harm D |
| 28 | Harikambhoji | | | | dorian | DiNi 6 b7 | | 212 | mixolydian |
| 29 | Dhirasankarabharanam | | | | ionian | DiNu 6 7 | | 221 | ionian |
| 30 | Naganandini | | | | Blues2 | DuNu #6 7 | | 311 | |
| 31 | Yagapriya | Rutu | Blues2 | RuGu #2 3 | Blues3 | DaNa b6 bb | 311 | 113 | |
| 32 | Raga vardani | | | | phrygian | DaNi b6 b7 | | 122 | mixo #2 b6 |
| 33 | Gangeyabushani | | | | hm5 | DaNu b6 | augSc+4 | 131 | ionian #2 b6 |
| 34 | Vagadhisvari | | | | dorian | DiNi 6 b7 | | 212 | mixo #2 |
| 35 | Sulini | | | | ionian | DiNu 6 7 | | 221 | ionian #2 |
| 36 | Chalanata | | | | Blues2 | DuNu #6 7 | | 311 | |

| | Raga | lower tetrachord Mi #4 | | | upper tetrachord | | lo tetra | 1 | up tetra | scale |
|----|--------------------|-------------------------------|-------------|-----------|-------------------------|------------|-----------------|----------|-----------------|----------------|
| 37 | Salagam | Rishi | firebird I | RaGa b2 b | Blues3 | DaNa b6 bb | 114 | | 113 | |
| 38 | Jalamavam | | | | phrygian | DaNi b6 b7 | | | 122 | wholetone+b2+5 |
| 39 | Jhalavarali | | | | hm5 | DaNu b6 7 | | | 131 | |
| 40 | Navanitam | | | | dorian | DiNi 6 b7 | | | 212 | |
| 41 | Pavani | | | | ionian | DiNu 6 7 | | | 221 | |
| 42 | Raghupriya | | | | Blues2 | DuNu #6 7 | | | 311 | |
| 44 | Bhavapriya | | | | phrygian | DaNi b6 b7 | | | 122 | |
| 45 | Subhapantuvarali | | | | hm5 | DaNu b6 7 | | | 131 | phryg#4maj7 |
| 46 | Shadvidha margani | | | | dorian | DiNi 6 b7 | | | 212 | phryg#4maj6 |
| 47 | Suvarangi | | | | ionian | DiNu 6 7 | | | 221 | |
| 48 | Diyamani | | | | Blues2 | DuNu #6 7 | | | 311 | |
| 49 | Davalambari | Brahma | span.-phry# | RaGu b2 3 | Blues3 | DaNa b6 bb | 132 | | 113 | |
| 50 | Namanarayani | | | | phrygian | DaNi b6 b7 | | | 122 | mixo b2 #4 b6 |
| 50 | Namanarayani | | | | phrygian | DaNi b6 b7 | | | 122 | |
| 51 | Kamavardhani | | | | hm5 | DaNu b6 7 | | | 131 | lydian b2 b6 |
| 52 | Ramapriya | | | | dorian | DiNi 6 b7 | | | 212 | mixo b2 #4 |
| 53 | Gamanasrama | | | | ionian | DiNu 6 7 | | | 221 | lydian b2 |
| 54 | Visvambhari | | | | Blues2 | DuNu #6 7 | | | 311 | |
| 55 | Syamalangi | Disi | hm4 | RiGi 2 b3 | Blues3 | DaNa b6 bb | 213 | | 113 | |
| 56 | Shanmukhapriya | | | | phrygian | DaNi b6 b7 | | | 122 | aeolian#4 |
| 57 | Simhendra madhyama | | | | hm5 | DaNu b6 7 | | | 131 | harm minor#4 |
| 58 | Hemavati | | | | dorian | DiNi 6 b7 | | | 212 | dorian #4 |
| 59 | Dharmavati | | | | ionian | DiNu 6 7 | | | 221 | mel minor#4 |
| 60 | Nitimati | | | | Blues2 | DuNu #6 7 | | | 311 | |
| 61 | Kantamani | Rudra | lydian | RiGu 2 3 | Blues3 | DaNa b6 bb | 222 | | 113 | |
| 62 | Rhishabhapriya | | | | phrygian | DaNi b6 b7 | | | 122 | mixo #4 b6 |
| 63 | Latangi | | | | hm5 | DaNu b6 7 | | | 131 | lydian b6 |
| 64 | Vachaspati | | | | dorian | DiNi 6 b7 | | | 212 | mixo #4 |
| 65 | Mechakalyani | | | | ionian | DiNu 6 7 | | | 221 | lydian |
| 66 | Chitrambari | | | | Blues2 | DuNu #6 7 | | | 311 | |
| 67 | Sucharitra | Aditya | hm6 | RuGu #2 3 | Blues3 | DaNa b6 bb | 312 | | 113 | |
| 68 | Jyotisvarupini | | | | phrygian | DaNi b6 b7 | | | 122 | mixo #2 #4 b6 |
| 69 | Dhatuvaridhani | | | | hm5 | DaNu b6 | augSc +#11 | | 131 | lydian #2 b6 |
| 70 | Nasika bhushani | | | | dorian | DiNi 6 b7 | | | 212 | mixo #2 #4 |
| 71 | Kosalam | | | | ionian | DiNu 6 7 | | | 221 | lydian #2 |
| 72 | Rasikapriya | | | | Blues2 | DuNu #6 7 | | | 311 | |