

Melakarta Scales

In south Indian classical music there are 72 basic scales called *melakarta ragas*.

However, the melakarta ragas are not “ragas” but scales.

Each melakarta scale (abbreviated *mela*) is built from two tetrachords: one of 12 bottom tetrachords and one of 6 top tetrachords. There are 72 melas.

Each tetrachord has two stable pitches a fourth apart; the two other intervening tones can take six different positions. The fourth in the bottom tetrachord can be either perfect or augmented, while the top tetrachord only takes a perfect fourth.

Here are the tetrachords where the tonic note sa is set to the pitch-class C. Each tetrachord has a number.

bottom tetrachord numbers	top tetrachord numbers
1 = C Db Ebb F	1 = G Ab Bbb C
2 = C Db Eb F	2 = G Ab Bb C
3 = C Db E F	3 = G Ab B C
4 = C D Eb F	4 = G A Bb C
5 = C D E F	5 = G A B C
6 = C D# E F	6 = G A# B C
7 = C Db Ebb F#	
8 = C Db Eb F#	
9 = C Db E F#	
10 = C D Eb F#	
11 = C D E F#	
12 = C D# E F#	

Note that the bottom tetrachord numbers 1-6 convert to the other bottom tetrachord numbers; just sharp the F and add 6.

The melas are numbered from 1 to 72. The first mela takes bottom tetrachord 1 and top tetrachord 1; mela 2 takes a bottom tetrachord 1 and top tetrachord 2; mela 3 takes bottom tetrachord 1 and top tetrachord 3; etc.; mela 6 takes bottom tetrachord 1 and top tetrachord 6; mela 7 takes bottom tetrachord 2 and top tetrachord 1; mela 8 takes bottom tetrachord 2 and top tetrachord 2; mela 9 takes bottom tetrachord 2 and top tetrachord 3; etc.; until we get to mela 72, which takes bottom tetrachord 12 and top tetrachord 6.

Melas 1 to 36 have a natural fourth (F) and melas 37-72 have a sharped fourth (F#)

See the next pages for a flow chart and list of all 72 melas, their Sanskrit names,, and their set-class affiliations.

To convert a mela number to the component tetrachords:

Let N = mela number

1) If 6 divides N :

$N/6$ = bottom tetrachord number; 6 = top tetrachord number

2) If 6 does not divide N :

Then $N/6$ rounded up to next whole number = bottom tetrachord number,
and the remainder of $N/6$ = top tetrachord number

To convert the component tetrachord numbers to a mela number

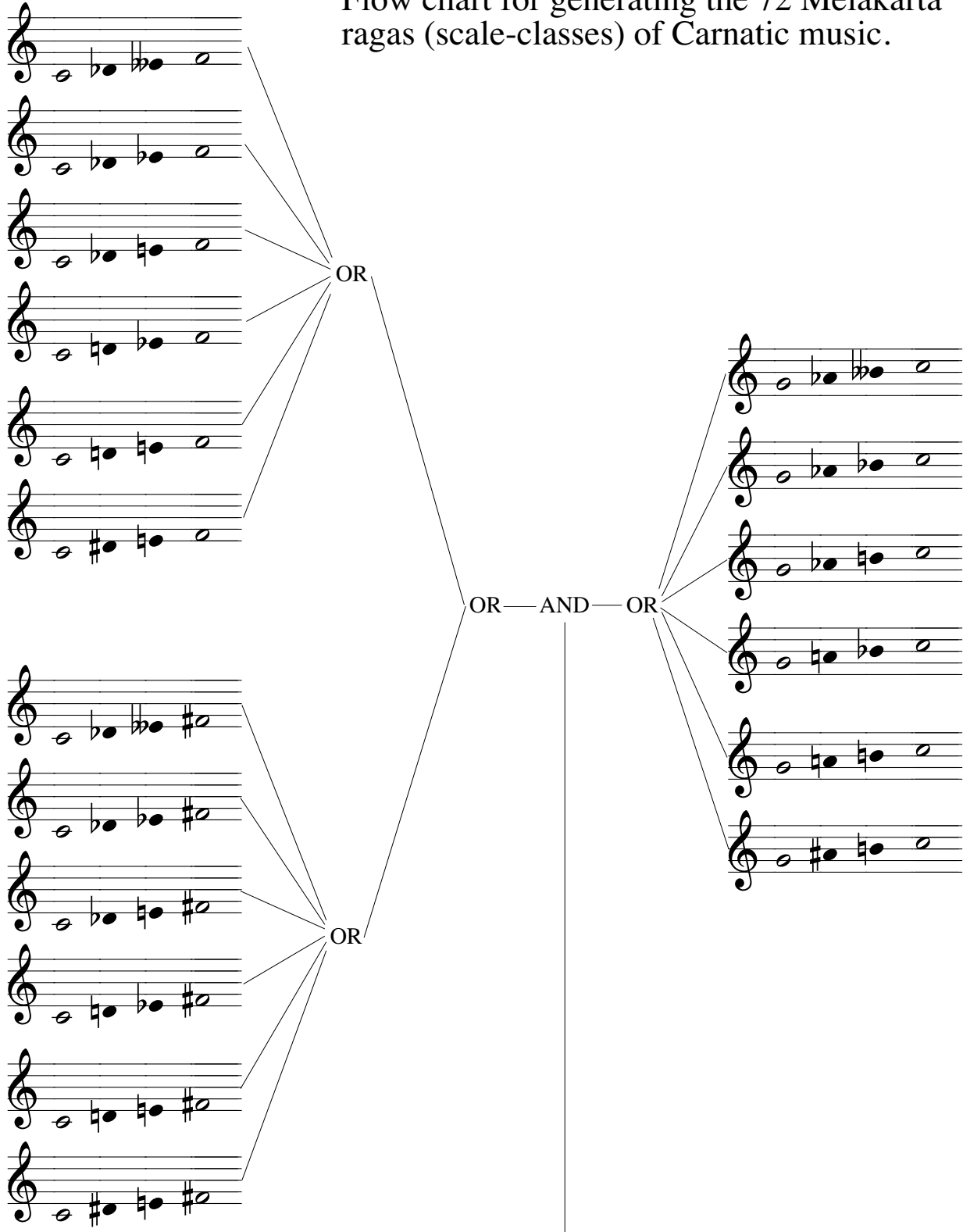
Let N = mela number

b = bottom tetrachord number

t = top tetrachord number

$N = 6(b-1) + t.$

Flow chart for generating the 72 Melakarta ragas (scale-classes) of Carnatic music.



The 72 Melakarta scales of Karnatak Music

melakarta scale	pcs	set-class	mela #	mela name
C Db Ebb F G Ab Bbb C	0125789	SC(7-20I)	1	Kanakangi
C Db Ebb F G Ab Bb C	012578A	SC(7-29I)	2	Ratnangi
C Db Ebb F G Ab B C	012578B	SC(7-19I)	3	Ganamurti
C Db Ebb F G A Bb C	012579A	SC(7-27I)	4	Vanaspati
C Db Ebb F G A B C	012579B	SC(7-24I)	5	Manavati
C Db Ebb F G A# B C	01257AB	SC(7-12)	6	Tanarupi
C Db Eb F G Ab Bbb C	0135789	SC(7-30I)	7	Senavati
C Db Eb F G Ab Bb C	013578A	SC(7-35)	8	Hanumattodi
C Db Eb F G Ab B C	013578B	SC(7-30)	9	Dhenuka
C Db Eb F G A Bb C	013579A	SC(7-34)	10	Natakapriya
C Db Eb F G A B C	013579B	SC(7-33)	11	Kokilapriya
C Db Eb F G A# B C	01357AB	SC(7-24)	12	Rupavati
C Db E F G Ab Bbb C	0145789	SC(7-21I)	13	Gayakapriya
C Db E F G Ab Bb C	014578A	SC(7-32)	14	Vakulabharanam
C Db E F G Ab B C	014578B	SC(7-22)	15	Mayamalavagaula
C Db E F G A Bb C	014579A	SC(7-32I)	16	Chakravakam
C Db E F G A B C	014579B	SC(7-30I)	17	Suryakantam
C Db E F G A# B C	01457AB	SC(7-19)	18	Hatakambari
C D Eb F G Ab Bbb C	0235789	SC(7-29I)	19	Jhankaradhvani
C D Eb F G Ab Bb C	023578A	SC(7-35)	20	Natabhairavi
C D Eb F G Ab B C	023578B	SC(7-32)	21	Kiravani
C D Eb F G A Bb C	023579A	SC(7-35)	22	Kharaharapriya
C D Eb F G A B C	023579B	SC(7-34)	23	Gaurimanohari
C D Eb F G A# B C	02357AB	SC(7-27)	24	Varunapriya
C D E F G Ab Bbb C	0245789	SC(7-27I)	25	Mararanjani
C D E F G Ab Bb C	024578A	SC(7-34)	26	Charukeshi
C D E F G Ab B C	024578B	SC(7-32I)	27	Sarasangi
C D E F G A Bb C	024579A	SC(7-35)	28	Harikhamboji
C D E F G A B C	024579B	SC(7-35)	29	Dhirasankarabharana
C D E F G A# B C	02457AB	SC(7-29)	30	Naganadini
C D# E F G Ab Bbb C	0345789	SC(7-17)	31	Yagapriya
C D# E F G Ab Bb C	034578A	SC(7-27)	32	Ragavardhani
C D# E F G Ab B C	034578B	SC(7-21)	33	Gangeyabhusani
C D# E F G A Bb C	034579A	SC(7-29)	34	Vagadhibhusani
C D# E F G A B C	034579B	SC(7-30)	35	Sulini
C D# E F G A# B C	03457AB	SC(7-20)	36	Chalanata

melakarta scale	pcs	set-class	mela #	mela name
C Db Ebb F# G Ab Bbb C	0126789	SC(7- 7)	37	Salagam
C Db Ebb F# G Ab Bb C	012678A	SC(7-15)	38	Jalarnavam
C Db Ebb F# G Ab B C	012678B	SC(7- 7I)	39	Jhalavarali
C Db Ebb F# G A Bb C	012679A	SC(7-38I)	40	Navanitam
C Db Ebb F# G A B C	012679B	SC(7-14I)	41	Pavani
C Db Ebb F# G A# B C	01267AB	SC(7- 6I)	42	Raghupriya
C Db Eb F# G Ab Bbb C	0136789	SC(7-19)	43	Gavambhodi
C Db Eb F# G Ab Bb C	013678A	SC(7-29)	44	Bhavapriya
C Db Eb F# G Ab B C	013678B	SC(7-20)	45	Subhapanthuvrali
C Db Eb F# G A Bb C	013679A	SC(7-31)	46	Sadvidhamatgini
C Db Eb F# G A B C	013679B	SC(7-28)	47	Suvarnangi
C Db Eb F# G A# B C	01367AB	SC(7-18)	48	Dvyamani
C Db E F# G Ab Bbb C	0146789	SC(7-18I)	49	Dhavalambari
C Db E F# G Ab Bb C	014678A	SC(7-28I)	50	Namanarayani
C Db E F# G Ab B C	014678B	SC(7-20I)	51	Kamavardhani
C Db E F# G A Bb C	014679A	SC(7-31I)	52	Ramapriya
C Db E F# G A B C	014679B	SC(7-29I)	53	Gamanasrama
C Db E F# G A# B C	01467AB	SC(7-19I)	54	Visvambari
C D Eb F# G Ab Bbb C	0236789	SC(7-19I)	55	Syamalangi
C D Eb F# G Ab Bb C	023678A	SC(7-30)	56	Sanmukhapriya
C D Eb F# G Ab B C	023678B	SC(7-22)	57	Simhendramadhyama
C D Eb F# G A Bb C	023679A	SC(7-32)	58	Hemavati
C D Eb F# G A B C	023679B	SC(7-32I)	59	Dharmavati
C D Eb F# G A# B C	02367AB	SC(7-21)	60	Nitimati
C D E F# G Ab Bbb C	0246789	SC(7-24I)	61	Kantamani
C D E F# G Ab Bb C	024678A	SC(7-33)	62	Risabhapriya
C D E F# G Ab B C	024678B	SC(7-30I)	63	Lantangi
C D E F# G A Bb C	024679A	SC(7-34)	64	Vachaspati
C D E F# G A B C	024679B	SC(7-35)	65	Mechakalyani
C D E F# G A# B C	02467AB	SC(7-30)	66	Chitrambari
C D# E F# G Ab Bbb C	0346789	SC(7-16I)	67	Sucharitra
C D# E F# G Ab Bb C	034678A	SC(7-26)	68	Jyotisvarupini
C D# E F# G Ab B C	034678B	SC(7-21I)	69	Dhatuvaradhani
C D# E F# G A Bb C	034679A	SC(7-31)	70	Nasikabhusani
C D# E F# G A B C	034679B	SC(7-32)	71	Kosalam
C D# E F# G A# B C	03467AB	SC(7-22)	72	Rasikapriya