

## Some notes on note names in Indian music

The seven degrees of the scale are equivalent to the notes of the western major scale. These are called the *sapta svaras*, named Sa Ri Ga Ma Pa Dha Ni. You can consider these as “scale degrees”; so, for instance, Ga is the third scale degree. **See Ex.1 sapta svara-s.**

Note that Sa can be transposed to any pitch, to suit the voice or instrument; thus the pitch of svaras are considered relative to the pitch of Sa

*Svarasthanas* are the sapta svaras together with their chromatic alterations. In both Hindustani and Carnatic music Sa and Pa take no alterations; they are fixed.

In Hindustani music, the other five svaras take one alternative pitch, flat (komal) for Ri, Ga, Dha, and Ni, and sharp (tivra) for Ma. This makes 12 svarasthanas. 1, b2, 2, b3, 3, 4, #4, 5, b6, 6, b7 7.

This gives 32 possible seven-tone scales in theory, only ten of which are among the *that* scales. Moreover, there are many Hindustani ragas that take more than one version of a scale degree. For instance, the raga *Jog* takes 3 in ascent and b3 in descent.) A list of the 12 svarasthanas with their various (often long) names is given in **Ex.2 (12 sv C and H)**. See **Ex.5 (thats)** for a listing of the ten thats.

The Carnatic system uses the 12 svarasthana system, but also introduces 4 more to make 16 svarasthanas. Sa and Pa are fixed and Ma has two varieties as in the Hindustani system. The other four svaras Ri, Ga, Dha, and Ni have three varieties. Ri and Dha have flat, normal and sharpened versions; Ga and Ni have double-flat, flat and normal versions. So there are enharmonic but different scale degrees: sharp Ri ~ flat Ga, and so forth. **Ex. 6 (12 and 16 svarasthana-s)** lists the 16 svarasthanas and compares them with the 12. You will see that numbers are affixed to the seven sapta svaras to indicate the svarasthana; for example, there is r1 (flat second degree), r2 (unaltered second scale degree), and r3 (sharpened second scale degree).

The 16 svarasthana system permits the generation of 72 seven-tone scales called *melakarta ragas* or *melas*, for short; but this is a misnomer, since these are scales, not ragas. See **APPENDIX A (mela chart)** for a list of all melas and the logical way they are organized. A long name and a number identify each mela. Carnatic musicians know all of these scales by both name and number. The mela equivalent to the western harmonic minor scale is called *Kiravani* and its number is 21.

Note that neither svarasthana system includes a scale degree equivalent to flat or sharpened Sa or Pa.

Note also that a given svarasthana may be tuned slightly lower or higher in a given raga. For instance, the svarasthana N3 is pitched higher in the Carnatic raga *Kalyani* than in the Carnatic raga *Shankarabharanam*.

Now here's the rub; when svaras are sung, verbally identified, or written down, only the seven sapta svaras are used. You are supposed to know which of the svarasthanas are used for each svara from the raga in play. So, "Ni" might mean flat 7, natural 7, or double-flat 7, depending on the raga given. For instance, if the Hindustani raga *Bhimpalasi* is used, then Ni is flatted (Ni komal). If the raga were the Carnatic raga *Nata*, then Ri would be understood as sharpened, r3.

Ragas are classified according to the that or mela that contains their notes. However, a good number of ragas have notes that are not subsets of a mela or that. There are also ambiguities since more than one that or mela might contain the notes of a six- or five-tone raga.

**Example 1.** The 7 Sapta Svара-s



**C   D   E   F   G   A   B   (C) (Western note names)**

**do   re   me   fa   so   la   ti   (do) (Solfège)**

**Sa   Ri   Ga   Ma   Pa   Dha   Ni   (Sa) (svara names)**

**S   R   G   M   P   D   N   (S') (svara abbreviations)**

**Example 2**  
The 12-svarathana-s

#	Carnatic Name	Syllable	Hindustani Name	12-ETS (approximation)
1	Shadja	S	Shadja	C
2	Sudha Rishaba	R1	Komal Rishab	Db
3	Chatusruti Rishaba	R2	Shudh Rishab	D
4	Sadharana Gandhara	G1	Komal Gandhara	Eb
5	Antara Gandhara	G2	Shudh Gaandhara	E
6	Sudha Madhyama	M1	Shudh Madhyam	F
7	Prati Mashyama	M2	Tivra Madhyam	F#
8	Panchama	P	Pancham	G
9	Sudha Dhaivata	D1	Komal Dhaivat	Ab
10	Chatusruti Dhaivata	D2	Shudh Dhaivat	A
11	Kaishiki Nishada	N1	Komal Nishad	Bb
12	Kakali Nishada	N2	Shudh Nishad	B

**Example 5.** The Ten (Hindustani) That Scales

1. Kalyan

S R2 G2 M2 P D2 N2 S'

2. Bilawal

S R2 G2 M1 P D2 N2 S'

3. Khamaj

S R2 G2 M1 P D2 N1 S'

4. Bhairava

S R1 G2 M1 P D1 N2 S'

5. Purvi

S R1 G2 M2 P D1 N2 S'

6. Marwa

S R1 G2 M2 P D2 N2 S'

7. Kafi

S R2 G1 M1 P D2 N1 S'

8. Asavari

S R2 G1 M1 P D1 N1 S'

9. Bhairavi

S R1 G1 M1 P D1 N1 S'

10. Thodi

S R1 G1 M2 P D1 N2 S'

solid note heads indicate included (enharmonic) pentatonic scale

### Example 6.

Correspondence between the 12 (Hindustani) svarasthana-s and the 16 (Carnatic) svarasthana-s

12-ETS	C	Db	D/Ebb	D#/Eb	E	F	F#	G	Ab	A/Bbb	A#/Bb	B	C'
12-svarasthana-s	S	R1	R2	G1	G2	M1	M2	P	D1	D2	N1	N2	S'
16-svarasthana-s	s	r1	r2 g1	r3 g2	g3	m1	m2	p	d1	d2 n1	d3 n2	n3	s'

Upper case denotes the 12-svarasthana-s.  
Lower case denotes the 16-svarasthana-s.

## Appendix A The 72 melakarta scales page 1

### Sudha madhyama scales (with F)

mela #	pcs	set-class	name
1	C Db Ebb F G Ab Bbb C	SC (7-20I)	Kanakangi
2	C Db Ebb F G Ab Bb C	SC (7-29I)	Ratnangi
3	C Db Ebb F G Ab B C	SC (7-19I)	Ganamurti
4	C Db Ebb F G A Bb C	SC (7-27I)	Vanaspati
5	C Db Ebb F G A B C	SC (7-24I)	Manavati
6	C Db Ebb F G A# B C	SC (7-12)	Tanarupi
7	C Db Eb F G Ab Bbb C	SC (7-30I)	Senavati
8	C Db Eb F G Ab Bb C	SC (7-35)	Hanumattodi
9	C Db Eb F G Ab B C	SC (7-30)	Dhenuka
10	C Db Eb F G A Bb C	SC (7-34)	Natakapriya
11	C Db Eb F G A B C	SC (7-33)	Kokilapriya
12	C Db Eb F G A# B C	SC (7-24)	Rupavati
13	C Db E F G Ab Bbb C	SC (7-21I)	Gayakapriya
14	C Db E F G Ab Bb C	SC (7-32)	Vakulabharanam
15	C Db E F G Ab B C	SC (7-22)	Mayamalavagaula
16	C Db E F G A Bb C	SC (7-32I)	Chakravakam
17	C Db E F G A B C	SC (7-30I)	Suryakantam
18	C Db E F G A# B C	SC (7-19)	Hatakambari
19	C D Eb F G Ab Bbb C	SC (7-29I)	Jhankaradhvani
20	C D Eb F G Ab Bb C	SC (7-35)	Natabhairavi
21	C D Eb F G Ab B C	SC (7-32)	Kiravani
22	C D Eb F G A Bb C	SC (7-35)	Kharaharapriya
23	C D Eb F G A B C	SC (7-34)	Gaurimanohari
24	C D Eb F G A# B C	SC (7-27)	Varunapriya
25	C D E F G Ab Bbb C	SC (7-27I)	Mararanjani
26	C D E F G Ab Bb C	SC (7-34)	Charukeshi
27	C D E F G Ab B C	SC (7-32I)	Sarasangi
28	C D E F G A Bb C	SC (7-35)	Harikhamboji
29	C D E F G A B C	SC (7-35)	Dhirasankarabharana
30	C D E F G A# B C	SC (7-29)	Naganadini
31	C D# E F G Ab Bbb C	SC (7-17)	Yagapriya
32	C D# E F G Ab Bb C	SC (7-27)	Ragavardhani
33	C D# E F G Ab B C	SC (7-21)	Gangeyabhusani
34	C D# E F G A Bb C	SC (7-29)	Vagadhibhusani
35	C D# E F G A B C	SC (7-30)	Sulini
36	C D# E F G A# B C	SC (7-20)	Chalanata

**Appendix A The 72 melakarta scales page 2**

Prati madhyama scales (with F#)

mela #	pcs	set-class	name
37	C Db Ebb F# G Ab Bbb C	SC(7- 7)	Salagam
38	C Db Ebb F# G Ab Bb C	SC(7-15)	Jalarnavam
39	C Db Ebb F# G Ab B C	SC(7- 7I)	Jhalavarali
40	C Db Ebb F# G A Bb C	SC(7-38I)	Navanitam
41	C Db Ebb F# G A B C	SC(7-14I)	Pavani
42	C Db Ebb F# G A# B C	SC(7- 6I)	Raghupriya
43	C Db Eb F# G Ab Bbb C	SC(7-19)	Gavambhodi
44	C Db Eb F# G Ab Bb C	SC(7-29)	Bhavapriya
45	C Db Eb F# G Ab B C	SC(7-20)	Subhantuvrali
46	C Db Eb F# G A Bb C	SC(7-31)	Shadvidhamargini
47	C Db Eb F# G A B C	SC(7-28)	Suvarnangi
48	C Db Eb F# G A# B C	SC(7-18)	Dvyamani
49	C Db E F# G Ab Bbb C	SC(7-18I)	Dhavalambari
50	C Db E F# G Ab Bb C	SC(7-28I)	Namanarayani
51	C Db E F# G Ab B C	SC(7-20I)	Kamavardhani
52	C Db E F# G A Bb C	SC(7-31I)	Ramapriya
53	C Db E F# G A B C	SC(7-29I)	Gamanashrama
54	C Db E F# G A# B C	SC(7-19I)	Visvambari
55	C D Eb F# G Ab Bbb C	SC(7-19I)	Syamalangi
56	C D Eb F# G Ab Bb C	SC(7-30)	Sanmukhapriya
57	C D Eb F# G Ab B C	SC(7-22)	Simhendramadhyama
58	C D Eb F# G A Bb C	SC(7-32)	Hemavati
59	C D Eb F# G A B C	SC(7-32I)	Dharmavati
60	C D Eb F# G A# B C	SC(7-21)	Nitimati
61	C D E F# G Ab Bbb C	SC(7-24I)	Kantamani
62	C D E F# G Ab Bb C	SC(7-33)	Risabhapriya
63	C D E F# G Ab B C	SC(7-30I)	Latangi
64	C D E F# G A Bb C	SC(7-34)	Vachaspati
65	C D E F# G A B C	SC(7-35)	Mechakalyani
66	C D E F# G A# B C	SC(7-30)	Chitrambari
67	C D# E F# G Ab Bbb C	SC(7-16I)	Sucharitra
68	C D# E F# G Ab Bb C	SC(7-26)	Jyotisvarupini
69	C D# E F# G Ab B C	SC(7-21I)	Dhatuvaradhani
70	C D# E F# G A Bb C	SC(7-31)	Nasikabhusani
71	C D# E F# G A B C	SC(7-32)	Kosalam
72	C D# E F# G A# B C	SC(7-22)	Rasikapriya