Meter Catalog & Codon–Gaṇa Dictionary

Machine-generated and machine-verified data tables for the series

Conventions. L = laghu (light, 1 mātrā, bit 0); G = guru (heavy, 2 mātrās, bit 1). The prastāra index is the meter's 1-based row under Piṅgala's uddiṣṭa algorithm within the 2^n patterns of its pāda length. The pāda-final syllable is anceps in performance; tables state the written form. Codon reductions: R/Y = purine {A,G} vs pyrimidine {C,U}; S/W = strong {G,C} (three hydrogen bonds) vs weak {A,U} (two). Two polarities are tabulated: R→guru and S→guru; complementing every syllable converts a polarity to its mirror. Every pattern, index, and class below was generated from the primary gaṇa-formula definitions and verified programmatically (syllable counts, naṣṭa/uddiṣṭa round-trips, class sizes 8×8, amino-acid degeneracy totals).

1 · Samavṛtta meters (fully fixed; pattern per pāda, ×4 per stanza)

Binary form (G=1, L=0) of each pattern is in the machine-readable files; the prastāra column gives the meter's index among all 2^n patterns of its pāda length.

Meter	Class (syll.)	Gaṇa formula	Pattern	Prastāra	Mātrās	Yati
Indravajrā	Triṣṭubh (11)	ta ta ja ga ga	GGLGGLLGLGG	357 / 2,048	18	—
Upendravajrā	Triṣṭubh (11)	ja ta ja ga ga	LGLGGLLGLGG	358 / 2,048	17	—
Rathoddhatā	Triṣṭubh (11)	ra na ra la ga	GLGLLLGLGLG	699 / 2,048	16	—
Śālinī	Triṣṭubh (11)	ma ta ta ga ga	GGGGGLGGLGG	289 / 2,048	20	4+7
Vaṃśastha	Jagatī (12)	ja ta ja ra	LGLGGLLGLGLG	1,382 / 4,096	18	—
Indravaṃśā	Jagatī (12)	ta ta ja ra	GGLGGLLGLGLG	1,381 / 4,096	19	—
Bhujaṅgaprayāta	Jagatī (12)	ya ya ya ya	LGGLGGLGGLGG	586 / 4,096	20	—
Toṭaka	Jagatī (12)	sa sa sa sa	LLGLLGLLGLLG	1,756 / 4,096	16	—
Drutavilambita	Jagatī (12)	na bha bha ra	LLLGLLGLLGLG	1,464 / 4,096	16	—
Sragviṇī	Jagatī (12)	ra ra ra ra	GLGGLGGLGGLG	1,171 / 4,096	20	—

Praharṣiṇī	Atijagatī (13)	ma na ja ra ga	GGGLLLLGLGLGG	1,401 / 8,192	20	3+10
Rucirā	Atijagatī (13)	ja bha sa ja ga	LGLGLLLLGLGLG	2,806 / 8,192	18	4+9
Vasantatilakā	Śakvarī (14)	ta bha ja ja ga ga	GGLGLLLGLLGLGG	2,933 / 16,384	21	—
Mālinī	Atiśakvarī (15)	na na ma ya ya	LLLLLLGGGLGGLGG	4,672 / 32,768	22	8+7
Pañcacāmara	Aṣṭi (16)	ja ra ja ra ja ga	LGLGLGLGLGLGLGLG	21,846 / 65,536	24	—
Śikhariṇī	Atyaṣṭi (17)	ya ma na sa bha la ga	LGGGGGLLLLLGGLLLG	59,330 / 131,072	25	6+11
Mandākrāntā	Atyaṣṭi (17)	ma bha na ta ta ga ga	GGGGLLLLLGGLGGLGG	18,929 / 131,072	27	4+6+7
Hariṇī	Atyaṣṭi (17)	na sa ma ra sa la ga	LLLLLGGGGGLGLLGLG	46,112 / 131,072	25	6+4+7
Pṛthvī	Atyaṣṭi (17)	ja sa ja sa ya la ga	LGLLLGLGLLLGLGGLG	38,750 / 131,072	24	8+9
Śārdūlavikrīḍita	Atidhṛti (19)	ma sa ja sa ta ta ga	GGGLLGLGLLLGGGLGGLG	149,337 / 524,288	30	12+7
Sragdharā	Prakṛti (21)	ma ra bha na ya ya ya	GGGGLGGLLLLLLGGLGGLGG	302,993 / 2,097,152	33	7+7+7

Upajāti: each pāda independently Indravajrā or Upendravajrā (first syllable anceps). Śloka (Anuṣṭubh, 8 syll./pāda): semi-fixed — odd pādas ××××LGG×, even ××××LGL×; syllables 2–3 never both L; vipulā variants alter the odd-pāda cadence.

2 · Ardhasamavṛtta and viṣamavṛtta

Meter	Gaṇa formulas	Patterns (pāda order)	Notes
Viyoginī	sa sa ja ga / sa bha ra la ga	LLGLLGLGLG / LLGGLLGLGLG / LLGLLGLGLG / LLGGLLGLGLG	odd pādas / even pādas
Puṣpitāgrā	na na ra ya / na ja ja ra ga	LLLLLLGLGLGG / LLLLGLLGLGLGG / LLLLLLGLGLGG / LLLLGLLGLGLGG	odd pādas / even pādas

Udgatā	sa ja sa la / na sa ja ga / bha na ja la ga / sa ja sa ja ga	`LLGLGLLLGL / LLLLLGLGLG / GLLLLLGLLG / LLGLGLLLGLGLG`	all four pādas differ

3 · Vedic meters (count + cadence fixed, interior free)

Meter	Syllables / stanza	Structure	Typical cadence
Gāyatrī	24	3 × 8	`L G L ×`
Uṣṇih	28	8+8+12	`(mixed)`
Anuṣṭubh (Vedic)	32	4 × 8	`L G L ×`
Bṛhatī	36	8+8+12+8	`(mixed)`
Paṅkti	40	5 × 8	`L G L ×`
Triṣṭubh	44	4 × 11	`G L G ×`
Jagatī	48	4 × 12	`G L G L ×`

4 · Mātrā (moraic) meters

Meter	Quantity	Constraints
Āryā	30 + 27 mātrās	7.5 four-mora gaṇas per half; LGL barred from odd gaṇas; 6th gaṇa of 2nd half = single L
Gīti	30 + 30 mātrās	Āryā first half doubled
Upagīti	27 + 27 mātrās	Āryā second half doubled
Udgīti	27 + 30 mātrās	Āryā halves reversed
Āryāgīti	32 + 32 mātrās	extended Āryā
Vaitālīya	14 / 16 mātrās per pāda	odd pādas 14, even 16; fixed 8-mora cadence GLGLG

5 · Codon → Gaṇa dictionary (both polarities)

Each gaṇa names an equivalence class of exactly eight codons under either reduction — the mapping is a projection, not a one-to-one translation. * = stop.

Codon	Amino acid	R/Y	Gaṇa (R→G)	S/W	Gaṇa (S→G)
AAA	Lys (K)	RRR	ma GGG	WWW	na LLL
AAC	Asn (N)	RRY	ta GGL	WWS	sa LLG
AAG	Lys (K)	RRR	ma GGG	WWS	sa LLG
AAU	Asn (N)	RRY	ta GGL	WWW	na LLL
ACA	Thr (T)	RYR	ra GLG	WSW	ja LGL
ACC	Thr (T)	RYY	bha GLL	WSS	ya LGG
ACG	Thr (T)	RYR	ra GLG	WSS	ya LGG
ACU	Thr (T)	RYY	bha GLL	WSW	ja LGL
AGA	Arg (R)	RRR	ma GGG	WSW	ja LGL
AGC	Ser (S)	RRY	ta GGL	WSS	ya LGG
AGG	Arg (R)	RRR	ma GGG	WSS	ya LGG
AGU	Ser (S)	RRY	ta GGL	WSW	ja LGL
AUA	Ile (I)	RYR	ra GLG	WWW	na LLL
AUC	Ile (I)	RYY	bha GLL	WWS	sa LLG
AUG	Met (M)	RYR	ra GLG	WWS	sa LLG
AUU	Ile (I)	RYY	bha GLL	WWW	na LLL
CAA	Gln (Q)	YRR	ya LGG	SWW	bha GLL
CAC	His (H)	YRY	ja LGL	SWS	ra GLG
CAG	Gln (Q)	YRR	ya LGG	SWS	ra GLG
CAU	His (H)	YRY	ja LGL	SWW	bha GLL
CCA	Pro (P)	YYR	sa LLG	SSW	ta GGL
CCC	Pro (P)	YYY	na LLL	SSS	ma GGG
CCG	Pro (P)	YYR	sa LLG	SSS	ma GGG
CCU	Pro (P)	YYY	na LLL	SSW	ta GGL
CGA	Arg (R)	YRR	ya LGG	SSW	ta GGL
CGC	Arg (R)	YRY	ja LGL	SSS	ma GGG
CGG	Arg (R)	YRR	ya LGG	SSS	ma GGG
CGU	Arg (R)	YRY	ja LGL	SSW	ta GGL
CUA	Leu (L)	YYR	sa LLG	SWW	bha GLL

Codon	Amino acid	R/Y	Gaṇa (R→G)	S/W	Gaṇa (S→G)
CUC	Leu (L)	YYY	na LLL	SWS	ra GLG
CUG	Leu (L)	YYR	sa LLG	SWS	ra GLG
CUU	Leu (L)	YYY	na LLL	SWW	bha GLL
GAA	Glu (E)	RRR	ma GGG	SWW	bha GLL
GAC	Asp (D)	RRY	ta GGL	SWS	ra GLG
GAG	Glu (E)	RRR	ma GGG	SWS	ra GLG
GAU	Asp (D)	RRY	ta GGL	SWW	bha GLL
GCA	Ala (A)	RYR	ra GLG	SSW	ta GGL
GCC	Ala (A)	RYY	bha GLL	SSS	ma GGG
GCG	Ala (A)	RYR	ra GLG	SSS	ma GGG
GCU	Ala (A)	RYY	bha GLL	SSW	ta GGL
GGA	Gly (G)	RRR	ma GGG	SSW	ta GGL
GGC	Gly (G)	RRY	ta GGL	SSS	ma GGG
GGG	Gly (G)	RRR	ma GGG	SSS	ma GGG
GGU	Gly (G)	RRY	ta GGL	SSW	ta GGL
GUA	Val (V)	RYR	ra GLG	SWW	bha GLL
GUC	Val (V)	RYY	bha GLL	SWS	ra GLG
GUG	Val (V)	RYR	ra GLG	SWS	ra GLG
GUU	Val (V)	RYY	bha GLL	SWW	bha GLL
UAA	Stop (*)	YRR	ya LGG	WWW	na LLL
UAC	Tyr (Y)	YRY	ja LGL	WWS	sa LLG
UAG	Stop (*)	YRR	ya LGG	WWS	sa LLG
UAU	Tyr (Y)	YRY	ja LGL	WWW	na LLL
UCA	Ser (S)	YYR	sa LLG	WSW	ja LGL
UCC	Ser (S)	YYY	na LLL	WSS	ya LGG
UCG	Ser (S)	YYR	sa LLG	WSS	ya LGG
UCU	Ser (S)	YYY	na LLL	WSW	ja LGL
UGA	Stop (*)	YRR	ya LGG	WSW	ja LGL
UGC	Cys (C)	YRY	ja LGL	WSS	ya LGG
UGG	Trp (W)	YRR	ya LGG	WSS	ya LGG
UGU	Cys (C)	YRY	ja LGL	WSW	ja LGL
UUA	Leu (L)	YYR	sa LLG	WWW	na LLL
UUC	Phe (F)	YYY	na LLL	WWS	sa LLG

Codon	Amino acid	R/Y	Gaṇa (R→G)	S/W	Gaṇa (S→G)
UUG	Leu (L)	YYR	sa LLG	WWS	sa LLG
UUU	Phe (F)	YYY	na LLL	WWW	na LLL

Companion to “The Meter and the Molecule,” ayurastro.com/writings.html. Data files (JSON/CSV): sanskrit-meter-data.zip.