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Contributions to Current Research in Indology

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The gaṇacchandas in the Indian metrical tradition

Andrew Ollett

1.1 The Sanskrit term gaṇacchandas refers to a family of metres (chandas) which are counted by units known as gaṇas or ‘groups’.¹ These gaṇas are themselves made up of a certain number (most commonly four) of mātrās. A mātrā is a sub-syllabic prosodic constituent which determines syllable weight: heavy syllables have two mātrās, and light syllables have one. (It is useful, though inaccurate, to think of mātrās as units of relative duration, such that heavy syllables last twice as long as light syllables.) Gaṇacchandas metres and other metres that count by mātrās are sometimes called jātis, as opposed to vrīttas, or metres that count by syllables (aṅkaras).

1.2.1 By the ‘Indian metrical tradition’ I mean texts in Sanskrit, Prakrit and Apabhraṃśa which define metrical forms. A quick survey of these texts will be useful; the editions are cited in the bibliography. Many belong to the tradition of Chandahśāstra, the technical discipline of metrics. It is impossible to give precise boundaries to Chandahśāstra, but it is characteristic of this tradition to locate authority in the sūtras of Pīngala. These sūtras, which are themselves often called the Chandahśāstra, classify and define both Vedic (ārṣa, 4.9) and non-Vedic (laukika, 4.8) metres. Thus Chandahśāstra, though in origin an auxiliary discipline to the study of the Veda

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¹In this essay I use symbols familiar from Western metrical notation, i.e. ◦ = light syllable, ◯ = heavy syllable, ◇ = two light syllables or one heavy syllable, | = word-break, || = line or pāda-break.
(vedāṅga), had thus widened its scope to include non-Vedic metres before or at the time of its earliest systematic text. (Piṅgala’s termini ad quem are furnished by references to him in the Turfan Chandoviciţă and Šabara’s Mīmāṁsāsūtrabhāṣya, both probably of the third century CE. I have found no reference to him in the Mahābhāṣya, as mentioned by Pollock 1977: 106). In principle this is not surprising: chandas simply refers to metre, and the Vedas and their associated texts by no means contained the only metrical verse in India around the turn of the first millennium. What is not clear is why Piṅgala or his precursors chose to include laukika metres: what were the ‘target texts’ of their analysis? Weber 1863 inferred from the names of many metres in Piṅgala’s sūtras which referred to female beauty that at least some of these hypothetical ‘target texts’ had erotic themes; these texts might plausibly be described as kāvyā or proto-kāvyā. After Piṅgala, authors in the tradition of Chandahsāstra certainly had kāvyā in mind, and theorists of kāvyā in turn recognized the importance of chandas.²

1.2.2 The discussion of ‘target texts’ might seem irrelevant to a general survey of the metrical tradition, but it is important for at least two reasons: (1) the emphasis on metres from kāvyā, a literary style shared between Buddhists, Jains, and Brahmanical authors, allowed Chandahsāstra to become a ‘nondenominational’ tradition; (2) as we will see, some metrical texts seem to have different ‘target texts’ than those of the Chandahsāstra-tradition, which allows us to ascribe them at least in part to an independent tradition. These two points are consonant with the general picture of the ‘Indian metrical tradition’ presented below, in which a mainstream Sanskrit tradition of Chandahsāstra, itself composite, coexisted with and interacted with a distinct Prakritic tradition.

1.2.3 The mainstream tradition, which we may also call the Paṅgala tradition, is not difficult to trace. Besides Piṅgala’s sūtras, there are the commentaries of Halāyudha (Mṛtaśaṅjijivā, 10th c.), Yādavaprabakāsa (11th c.), and Bhāskarācārya (12th c.), and a summary in the Agnipuṇa (chapters 327-334). The Jānāśrayi Chandoviciţă (late 6th c.) and the related Ratnamaṇjūśā (early 6th c.: cf. Tripathi 1977) are both written in sūtras with an auto commentary and example- verses. The Jayadevacchandas of Jayadeva, also of the 6th c., uses the lakṣya-lakṣaṇa method whereby a metre is defined and exemplified by the same verse; it was particularly influential, since it was cited by Halāyudha and Bhāṭotpala in his commentary to Varāhamihira’s Bhṛhataspaṁhitā (Velankar 1946). The Chandonuśasana of Jaya- kirti (11th c.) also uses the lakṣya-lakṣaṇa method. Hemacandra’s Chando-

²E.g. Daṇḍin in Kāvyādarsa 1.12: chandoviciţyāṁ sakalas tatprapañca nidārśitaḥ / sā vidgā naur vīvīkṣanāṁ gambhīrāṁ kāvyasāgaram !/
nuśāsana (12th c.), a sūtra-text with autocommentary and example-verses, is a synthetic and encyclopedic work. Both Jayakārtī and Hemacandra draw from Prakritic traditions, discussed below, as well as the Pāṇḍaga tradition. The author of the Ratnamāṇḍūśā was a Jain, as were Jayadeva, Jayakārtī, and Hemacandra. Uncited by Hemacandra is Kedarabhaṭṭa’s popular Vṛttaratnākara (11th or 12th c.), a practical collection of laksya-lakṣaṇa verses which inspired a host of commentaries. The Śrutiabodha, falsely ascribed to Vararuci and Kālidāsa, is another such practical collection of unknown date. Ratnākaraśānti’s Chandoratnākara and Jñānaśrimitra’s Vṛttālaśatū, both 11th c., are some of the very few Buddhist works on metrics to survive, but they follow Jayadeva closely (Hahn 1993b).³ The Vuttodaya of Sangharakshita, a metrical text written in Pali in the 12th or 13th c., seems to be closely based on the Vṛttaratnākara (but cf. Wright 2002). Other works in this tradition include the Chandomāṇjari of Gaṇḍāsa (18th c.) and the Vānībhūṣaṇa of Dāmodara Miśra (prior to 16th c.).

1.2.4 Other Sanskrit texts deal with metre, but stand somewhat outside of the Pāṇḍaga tradition. Here belong the 15th adhyāya (in the ‘Southern’ recension: cf. Kavi’s introduction) of Bharata’s Nātyaśāstra, an encyclopedic text on dramaturgy, and the closely related Turfan Chandovicīti, both of which date to the early 1st millennium CE. The 103rd adhyāya (in Bhat’s edition) of Varāhamihira’s Brhatatsamhitā, an astrological treatise of the 6th c., mentions various metres by way of mudrālaṃkāra, i.e., in describing the effects of planetary movements, Varāhamihira mentions the name of the metre in which he has written the verse. The commentators of the Nātyaśāstra and the Brhatatsamhitā, Abhinavagupta and Bhaṭṭotpala respectively, both belong to 10th c. Kashmir; only the latter gives a systematic overview of the metres discussed. Kṣemendra’s Suvṛttatilaka (11th c.) defines a selection of metres, and also uniquely discusses their aesthetic properties and different poets’ metrical propensities.

1.2.5 A number of Prakrit and Apabhraṃśa texts also deal with metre. While in some respects they also stand outside of the Pāṇḍaga tradition, certain Prakrit texts appeal to Pāṇḍaga’s authority, and the major compendium of Apabhraṃśa metres, the Prākṛtapāṇīgala (14th c.), bears his name. The Prākṛtapāṇīgala incorporates material from several earlier texts: the Gāthālakṣaṇa of Nanditādhya (mid-1st millennium), which limits itself to discussion of the gāthā; the Svayambhūchandas of the renowned Apabhraṃśa poet Svayambhū (probably 9th c.); the Vṛttājātisamuccaya of Viraḥāṅka (7th c.). Ratnaśekhara’s Chandaḥkośa (15th c.) postdates and refers

³The two scholars were colleagues at Vikramaśila (Hahn 1971: 6). For another Buddhist text, the Chandomāṇikya of Tathāgatadāsa, see Dimitrov (2007).
to the *Prākritapiṅgala*. In his edition of the *Svayambhūchandas*, Velankar mentions a fragmentary *Chandahśekhara* by Rājaśekhara which seems to be a Sanskrit rendition of the *Svayambhūchandas*. Finally, the *Kavīdarpaṇa* (probably 13th c.) discusses Prakrit and Apabhramśa metres; it is quoted by Jinaprabha in his *Gāthāchandasrallakṣaṇa* (15th c.), and its commentary (referred to here as the *Kavīdarpaṇa-ṭikā*) has some analysis that is not found elsewhere.

1.2.6 These are, in overview, the texts that constitute the ‘Indian metrical tradition’. Obviously not everything cited in this tradition survives, in particular the metrical authorities mentioned by Piṅgala (Yāska, Krauṣṭuki, Tāṇḍvatana, Kaśyapa, Rāta and Maṇḍavya) or Virahānaka (Sātavāhana, Vṛddhakavi). I have excluded two kinds of texts: (1) pre-systematic metrical analysis contained in Vedic texts, which is reviewed in Mitra (1989), and (2) texts primarily concerned with languages other than Sanskrit, Prakrit, or Apabhramśa. The discourse here circumscribed obviously abuts the metrical discourses of the modern Indo-Aryan and Dravidian languages, but at present I assume that it developed independently of them.

1.3 In what follows I will examine the treatment of the *gāṇacchandas* in the Indian metrical tradition. First I will review the early history of the *gāṇacchandas* in Indian literature. Then I will exposit the traditional analysis of the metres of this family, sometimes with reference to empirical data, while attempting to historicise the texts in which this analysis is found and understand their *modus operandi*. At each stage I will briefly mention some relevant problems of Indian intellectual and literary history—viz. the relationship between literary theory and poetic practice, and the origins of *kāvyā*—with the hope of showing that metrical research may still prove useful in navigating them.

1.4.1 At the onset I will address two methodological questions: how can we justify looking at only one family of metres, and why should we look at the *gāṇacchandas* family in particular? There are certain indications of a ‘modular’ organization in every metrical text and in the metrical discourse as a whole. To use the *gāṇacchandas* as an example: modularity means that the coherence and distinctiveness of these metres was a cognitive fact for Indian metrical writers, and was reflected in their texts. There are several ways of motivating a *gāṇacchandas* module in this sense. (1) For writers that provide a taxonomy, *gāṇacchandas* metres belong to the same taxon (*mātrāvyutta* or *jāti*). (2) One metre serves as the basis for deriving the others (usually the *āryā*, but in Svayambhū the *skandhaka*). (3) Consequently, the metres are grouped together, and hence form a discrete and continuous unit of the text. (4) Perhaps also in consequence of (2), the names for the metres are similar, being based on the words *gīti* or *gāthā*. (5) Nan-
ditāḍhya discusses only the gaṅacchandās metres, while Kṣemendra omits them. (6) Distinct analytic units—gaṇas—are specially employed for their description.

1.4.2 The gaṅacchandās holds particular interest as a module of the metrical tradition for two main reasons. First, the relevant unit of measure for these metres is the mātrā, whereas in most Sanskrit metres it is the aksara or syllable; further, the gaṅacchandās metres observe complex restrictions on syllabic patterns and word-boundaries. In other words, the gaṅacchandās metres are structurally unique, and a priori we would expect them to receive a correspondingly unique description in the metrical tradition. Secondly, the gaṅacchandās metres have a unique history in literature. Unlike Vedic metres, they are not inherited from Proto-Indo-European (cf. Meillet 1923), and when they do appear, they have affiliations with particular communities and genres, as the following section will show in outline.

2.1.1 The history of the gaṅacchandās in literature actually begins with forms which were unknown to the Indian metrical tradition and to Carl Cappeller in his 1872 Habilitationsschrift on the gaṅacchandās. Hermann Jacobi (1884: 596) discovered, while working on texts of the Śvetāmbara Jain canon (Āyāruṅgā 1.9 and Śuyagaḍaṇgā 1.4), that many verses were composed in a metre which bore clear similarities to the classical āryā (viz. organization into gaṇas, differences between odd and even gaṇas). Unlike the classical āryā, however, this metre was composed of four pādas; word-break was obligatory at the end of each pāda, and the syllable before the break could be either light or heavy. Jacobi called this final syllable a close (‘Schlusstact’) because it followed three complete gaṇas. The even pādas were like the odd, except that in addition to the close they had a pickup (‘Auftact’) of one or two syllables before their first gaṇa, and as Alsdorf (1958) later observed, the odd and even pādas allowed different syllabic patterns in their second gaṇa. Jacobi called this metre the ‘old āryā’. Subsequent research (Schubring 1966 [1910]; Alsdorf 1958; Oldenberg and Pischel 1966; Alsdorf 1966; Alsdorf 1967; Alsdorf 2006 [1965]; Warder 1967) found old āryās also in Uttarajjhāyā 8 and in several texts of the Theravāda Buddhist canon (primarily in the Mētassutta, the Tuvaṭakasutta, the Buddhastotra of Upāli, and some of the Theragāthās). The structure, as given by Alsdorf (1958), is given in Table 15.1.

As an example, verse 1.1 of the Itthiparinnā (Śuyagaḍaṇgā 1.4), from Alsdorf (1958):

---

4The ārṣā gāthā mentioned in Jānāśrayī 7.74 has nothing to do with the old āryā; it appears to be a cover-term for any irregular gaṅacchandās metre.
Table 15.1:

<table>
<thead>
<tr>
<th></th>
<th>odd pādas</th>
<th></th>
<th></th>
<th>even pādas</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>gaṇa</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>close</td>
<td>pickup</td>
<td>1</td>
</tr>
<tr>
<td>line 1</td>
<td>✖</td>
<td>✖</td>
<td>✖</td>
<td>✖</td>
<td>✖</td>
<td>✖</td>
</tr>
<tr>
<td>line 2</td>
<td>✖</td>
<td>✖</td>
<td>✖</td>
<td>✖</td>
<td>✖</td>
<td>✖</td>
</tr>
</tbody>
</table>

jē māyaram ca piyaram ca vippajahāi puvva-sanjōgaṇa
ēgē 'sahiē carissāmi ārya-mēhunō vivittēśi

‘(A monk) who leaves mother and father (and his) former (family) connection, (resolving:) “I will live alone, without companion, as one for whom sexual pleasure has ceased, seeking solitary places”—’

2.1.2 Though a detailed discussion of the old āryā is beyond the scope of this essay, a few points deserve mention. (1) In many cases we can point to ‘transitional forms’ between the old and classical āryā, viz. verses of which the pickup to the even pādās consists of a full four mātrās (i.e., a complete gaṇa), or verses with one line composed according to the old and one according to the classical schema. (2) Especially in the Pali texts, there is a tendency for pādās of the āryā—both the old and classical varieties—to combine with pādās of the śloka, no doubt because the sequence ☐☐☐☐ could be analysed as either an ārīyā- or a śloka-pāda. Some of the apparent ‘instability’ of the old ārīyā is due to the transmission of the texts, but some is original (hence Smith 1949-1950 recognized the mixed ārīyā-vaktra as a separate metre). Randle (1960) attributed this instability, probably correctly, to ambiguity of metrical analysis: the old ārīyā was in some respects a syllabic metre (it tolerated less variation in syllabic shapes per gaṇa than the classical ārīyā, as shown by comparison of the schemata in examples 15.1 and 15.3) and in others a mātrā-based metre (its gaṇas are defined in terms of mātrās, and hence in certain positions ☐ alternates with ☐). This structural instability might help to explain the fact that the metre is only found in the older parts of the Śvetāmbara and Theravāda canons—hence only in Ardhamagadhī and Pali—and therefore, according to Norman (1987: 206), in texts which ‘were probably composed in the Magadha region’. Norman
argues that the old ārya was a transitional metre and had fallen out of favor already by the time of the Ardhamāgadhī and Pali texts.

2.1.3 The rest of Norman’s argument is worth summarizing, because it is the most recent and most detailed contribution to the history of the ārya metre. Observing that the classical ārya also appears in older texts of the Śvetāmbara and Theravāda canons, he infers that this metre had already reached Magadha (from a putative western region of metrical experimentation) by the 4th c. BCE. He speculates that the Jains, who remained in India, continued to use it, while the Buddhists lost the knowledge of composing in classical āryas as well when they moved to Sri Lanka. Like Jacobi (1884) and Warder (1967), Norman maintains that the old ārya developed from mātrāchandas metres, which count mātrās towards the beginning of the line and syllables towards the end. But he also adduces the vedha (veśṭaka in Sanskrit), a metre used in descriptive passages (varṇakas) in Ardhamāgadhī, Pali, and Buddhist Hybrid Sanskrit: this metre consists of any even number of gaṇas—usually four or eight—with the differentiation between odd and even gaṇas characteristic of other gaṇacchandas metres, though in the case of the vedha it is the odd gaṇas which take the shape ـʿ. Together, the mātrāchandas metres, the gaṇacchandas metres, and the vedha constitute a variety of ‘popular’ metrical practice based on the commensurability of ـʿ and ـ, and in the case of the latter two, on gaṇas. Norman is willing to admit some Dravidian influence for this ‘popular’ metrical practice, but his acceptance of the Jacobi-Warder theory of how the gaṇacchandas metres developed within Old and Middle Indic amounts to a rejection of Hart’s (1975) theory that Dravidian metres were their direct ancestors. Most interestingly, he suggests that these ‘popular’ metres were developed by ‘travelling folk musicians’ (210) in an area between Maharashtra and Magadha who brought them to both areas; some such metres, like the old ārya, never quite caught on, while others, like the classical ārya, became especially popular in certain areas. Norman suggests that Buddhists and Jains adopted these metres precisely because they were ‘popular’.

2.1.4 For now I would like to focus on the characterization of the gaṇacchandas metres as ‘popular’. It seems to depend on (1) the characterization of Śramaṇic religions as ‘popular’ in opposition to Brahmancial exclusivity, since gaṇacchandas metres are reasonably frequent in Buddhist and Jain texts but are completely absent from Vedic texts; (2) the characterization of Prakrit poetry, represented by the Sattasai, as ‘popular’, since in this literature gaṇacchandas metres dominate; (3) the notion that a new prosodic concept, the commensurability of ـʿ and ـ, can only have been introduced through a ‘popular’ (in the sense of ‘indigenous’ or ‘non-Indo-Aryan’) element. There is nothing extremely problematic in combining these three
senses, but individually they are open to doubt. (1) might be too simplistic; (2) depends on a reading of Prakrit poetry which does not call its ‘popular’ self-presentation into question (in other words, there are plenty of reasons to doubt that Prakrit poetry was produced by villagers on the shores of the Godāvari river who were ignorant of Sanskrit); (3) is false, in my view, since commensurability may well have arisen from within Indo-Aryan, and the similarities between the ganacchandas metres and Tamil metres such as the venpā are mostly superficial (Ollett 2012).

2.2.1 Outside of Pali and Ardhamāgadhi, the classical ganacchandas metres occur in Buddhist Hybrid Sanskrit (Smith 1949-1950) and in a number of technical genres in Sanskrit. The earliest ganacchandas verses in Sanskrit are probably the sloka-vārttikas, verses which comment on the sūtras of Pāṇini, that Patañjali cites and discusses in his Vyākaraṇa-mahābhāṣya (2nd-1st c. BCE). Of 240 verses, around 40 are āryaś, and one and a half are gītis (Kielhorn 1886). The following example (ad Aṣṭādhyaśī 1.4.51 akathitaṃ ca) is typical in that it is essentially a versified commentary rather than a mnemonic verse:

\[
\text{etena karmasaṃjñāḥ sarvā śiddhā bhavaty akathitena} \\
tatrepsitasya kiṃ syāt prayojaṇam karmasaṃjñāyaḥ
\]

‘By this (rule) akathitaṃ (ca) every karmā-designation can be justified. This being so, what purpose is served by the designation karma for the īpsita (object)?’ (Joshi and Roodbergen 1975: 226)

In philosophy, Nāgārjuna (2nd c. CE) also used the ārya in his Śānyatāsaptati (Erb 1990: xxiii; only extant in Tibetan translation), Vigrahavyāvartani, and Pratītyasamutpādahṛdaya, and Iśvarakṛṣṇa (3rd-4th c. CE) used it for his Śāmkhyakārikās. In astronomy, the ārya was used by Āryabhaṭa in his Āryabhaṭīya and by Varāhamihira in his BṛhatSaṃhitā, both of the 6th c. CE. Smith (1949-1950) remarked that ‘L’ārya bouddhique, comme celle de Varāhamihira et d’Iśvarakṛṣṇa, est capable de loger tout terme (et toute forme) de la langue scientifique et religieuse dans ses 12, 13, 17, 18 ou 15 mores...’. Once the ārya was available, its flexibility made it a natural choice for technical literature; what is not clear, however, is how the ārya became available in the first place. It may have been introduced into

\footnote{The following summary updates Cappeller (1872: 15ff.); more detailed information about the metrical practice of particular poets can be found in Kühnau (1890) and Velankar (1948-1949). I will not discuss here early inscriptions which may or may not present ganacchandas verses (for which see, e.g., Falk 1991).}
technical discourses by Buddhists, who knew it from their canonical and non-canonical literatures. In any case, the Vyākaraṇa-mahābhāṣya shows relatively clearly that in its milieu—which was, among other things, Sanskritic—the āryā was a technical rather than a poetic metre: āryās make up 40 of 240 or one-sixth of the śloka-vārttikas, but none of the 41 poetic citations collected by Kielhorn (1885).

2.2.2 Gaṇacchandas metres are absent in the Rāmāyana and Mahābhārata, but for a handful of late verses in the latter (Hopkins 1901: 354). They start to appear, however, in other types of poetry in the first centuries CE. In drama, their earliest occurrence is probably in a fragment of Aśvaghoṣa’s Śāriputraprakaraṇa (no. 8 in Lüders 1911): introduced by kim khu dāṇi, it is spoken by a courtesan in a form of Prakrit, and could be the beginning of an āryā:

suradavimaddakkha[ma]…

Enduring the trampings of lovemaking…

Ganacchandas metres are also found in the Trivandrum plays of Bhāsa and the Mṛcchakaṭṭhā, and are favoured by Kālidāsa; in all of these texts, the metres are used for both Sanskrit and Prakrit. They also appear in inscriptional praśastis of the Gupta period (for example, the Mandasar inscription of Vatsabhāṭṭī).

2.2.3 The gaṇacchandas metres are, however, most strongly associated with Prakrit lyric and narrative poetry. The Satṭasaṁ (also known as the Gāhākosa, or Gāthāsaptasati), an influential anthology of mostly erotic verses compiled by Hāla (also known as Sātavāhana) around the 2nd-3rd c. to 1st c., consists of seven hundred āryā (gāthā) verses. It was the model forGovardhana’s Āryāsaptasati (12th c.). Other early anthologies include Jayavallabha’s Vajjalagga (Prakrit, pre-10th c.), the Buddhist Āryakośa (pre-9th c., Sanskrit, and extant only in Tibetan translation and some quotations: cf. Hahn 1993a: 53-56), and the Chappaṇṇaagāhā (mid-1st millennium: Balbir and Besnard 1992-1993). Narrative literature in Prakrit includes the Setubandha (also known as the Rāvaṇavaho) ascribed to Prarasa, 5th c. (and in āryāgīti or skandhaka verses); the Gaṇḍavaho of Vākpatirāja, 8th c.; the Līlāvai of Koūhala, 8th c. In Sanskrit, the Kuṭṭanīmata of Dāmodara Gupta (8th c.) is, like the Gaṇḍavaho and the Līlāvai, written in āryās.

Aśvaghoṣa is probably punning on vimardakṣamā, literally ‘patient of trampling’, which is an epithet of the earth (cf. the final verse of the fifth aṅka of the Uttararāma-carita).
3.1.1 The metrical tradition is another source for the galacchandas; it has not been effectively utilized in part because the relationship of texts within this tradition has only been partially set out (as in, e.g., Hahn 1971: 49), so some summary remarks on its history are in order. Piṅgala is certainly the starting-point for most authors in this tradition. But one of the implications of the modularity of Indian metrics mentioned above is that different components of a text might reflect different influences, and this is true of Piṅgala's Chandaḥsūtras. The text is broadly divided into Vedic (2.1-4.7) and non-Vedic (4.8-8.35) sections. The Vedic section probably derives from the analysis of the Vedic sākhās, but in both sections Piṅgala quotes previous metrical authorities, which confirms the assumption that families of metres in different texts were subject to analysis at different times. The texts of these authorities no longer survive, but some are cited as late as the 10th c.7 Thus, while the metrical tradition—especially the Piṅgala tradition—tends to look back no further than Piṅgala's synthetic text, elements prior to or independent of Piṅgala continue to appear.

3.1.2 The galacchandas module of the tradition has been motivated in 1.4.1. Its specific content presents differences across texts which are not likely to be due to authorial preferences alone. This suggests that the authors had different ideas of what the galacchandas module actually contained, which they in turn received from different stages of a tradition or even different traditions. Investigating the differences might help to establish the chronology of and relations between texts in the metrical tradition, and to relate the metrical tradition to actual practices of versification. This essay will draw some modest conclusions along these lines from the treatment of the galacchandas, but I hope it will show that Indian metrics in general is deserving of a more detailed archaeology.

3.2.1 I start with Piṅgala. After beginning the section on non-Vedic metres, he introduces the term gana (4.12-13) and begins defining the metres as follows (his trika-designations are boldfaced and glossed in the translation):

4.14 svarā ardhamā cāryārdham
‘Seven and a half (gaṇas constitutes the first) half of an ārya.’
4.15 aṛāyuṇa na j
‘Of these (seven and a half gaṇas), the odd-numbered ones cannot be J (\(\sim\))’.
4.16 āsato j
‘The sixth (gaṇa is) J (\(\sim\)).’
4.17 nla j vā

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7Bhāṭṭotpāla cites Rāta and Māṇḍavya, who are also mentioned by Piṅgala, in his Saṃhitāvivṛti (Velankar 1946). It is possible that Varāhamihira also used their work.
‘Or (the sixth gaṇa is) NL (なのです).

4.18 nīlau cet padaṁ dvitiyādi
‘If (the sixth gaṇa is NL (なのです)), a word must start on the second syllable.’

4.19 saptamaḥ prathamādi
‘(If) the seventh (gaṇa) is NL (のです)), a word must start on the first syllable.’

4.20 antye pāñcamāḥ
‘(If) the fifth (gaṇa) in the latter half (of the āryā is NL (のです)),
a word must start on the first syllable.’

4.21 saṣṭaś ca l
‘And (in the latter half of the āryā) the sixth (gaṇa) must be L (のです).

4.22 triṣu gaṇesu pādah pathyādeye ca
‘(If in the latter half of the āryā) as well as in the previous half,
the first three gaṇas make a pāda, it is called pathyā.’

4.23 vipulānī
‘Otherwise it is called vipulā.’

4.24 capalā dvitiyācaturthau gmadhye jau
‘It is called capalā if the second and fourth gaṇas are J (のです) with a G (のです) on either side.’

4.25 pūrve mukhacapalā
‘(If the conditions in 4.24 hold) in the first half, it is called mu-
khaṇacapalā.’

4.26 jaghaṇacaṇaṭaṛatra
‘(If the conditions in 4.24 hold) in the other half, it is called jaghaṇacaṇā.’

4.27 ubhavor mahācapalā
‘(If the conditions in 4.24 hold) in both halves, it is called ma-
hācaṇalā.’

4.28 ādyārdhasamā gitiḥ
‘The giti is (a metre of which both halves are) the same as the
first half (of the āryā).’

4.29 antyenaṇopagitiḥ
‘The upagiti is (a metre of which both halves are the same) as
the second half (of the āryā).’

4.30 utkramaṇoṇdagitiḥ
‘The udgiti is (a metre of which the halves are) in reverse order
(to that of the āryā).’

4.31 ardhe vasugana āryāgitiḥ
‘If a half has eight (four-māṭrā) gaṇas, it is āryāgiti.’
Sūtras 14-21 define the basic form of the āryā, which can be presented schematically in Table 15.3:

Table 15.3:

<table>
<thead>
<tr>
<th>gaṇa:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>line 1:</td>
<td>∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧</td>
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<tr>
<td>line 2:</td>
<td>∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧ ∧∧∧∧∧∧∧∧∧∧∧∧</td>
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</tr>
</tbody>
</table>

3.2.2 The āryā is the derivationally basic form. The other metres, however, share the element gīti in their names. Warder (1967: §203) took this to mean that the gīti was the ‘original metre from which the others evolved’, and since he quite reasonably sees the gīti as a continuation of the old āryā, this statement is borne out by the chronological precedence of the old āryā in Pali and Ardhhamāgadhī texts. In partial agreement with Warder, I propose that the Paṅgala terminology developed in several stages. In the first stage, the most common gaṇacchandas metre was a ‘balanced’ stanza consisting of two lines of the same length. At this stage it matters little whether we call this stanza an old āryā or a gīti. They differ only in that the gīti has been subject to Katametronisierung, a complete reanalysis of the old āryā’s pickups and closes in terms of gaṇas or parts of gaṇas.8 Crucially, the reanalysis is cognitive: it reflects how versifiers and theorists would have thought about the metre. This means that any synchronic classification would have been blind to the distinction between the old āryā and the classical gīti. What distinctions might a synchronic classification have captured, then?

3.2.3 The individual metres treated in the Chandaśāstra differ in their stanzaic structure; any combination of ‘long’ lines and ‘short’ lines (i.e., lines with a full sixth gaṇa and lines with a single-mātra sixth gaṇa) is licensed. In the pre-classical period, a stanza of two long lines (i.e., an old āryā) is most common; in the classical period, a long first and a short second line (an āryā) is overwhelmingly dominant. One might assume an intermediate stage in which lines of either type could be freely combined into stanzas. If the most common stanza-type was called the gīti, prefixes might have

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8The term Katametronisierung is from Berg’s (1978) discussion of the origin of the Greek dactylic hexameter.
been an easy way of labelling the other types. Specifically, the prefixes used in the Pāṇgala tradition refer to the position of the short line—in *udgīti*, the short line is what is ‘on top’—and thus the Pāṇgala āryā might have originally been called something like the *avagīti*. This scenario would put the gīti-names in the 4th or 5th c. BCE, since the āryā is already dominant in texts of the 3rd c. The word gīti, which means ‘song’ or ‘singing’, is probably the most directly-signifying name in the Pāṇgala tradition, which might be another argument in favor of an early date for this nomenclature.

3.2.4 At a later stage, when this *avagīti* had become the standard form of the ganacchandasa stanzas, it was felt to be a fixed form rather than a particular stanzic configuration of the gīti. And as a fixed form, it received its own name. The name āryā—the feminine form of the word for ‘noble’, hence probably ‘noble lady’—evokes lyric poetry, like the names for many other non-Vedic metres related in the Chandaśūtras. Probably the metre received this name around the same time as them, i.e. at the time that the discipline of metrics turned its attention to laukika literature. This ‘laukika turn’ occurred at least several generations before Pāṇgala, in view of his citations of earlier authorities. The āryagīti is a special case. It differs from the other metres in having a complete eighth gana. Under an analysis similar to that of the old āryā, this would mean that the even pūdas had an extra gana instead of a monosyllabic close. It seems more likely that the āryagīti arose only when Katametrisierung of the other metres had occurred, and thus when their final syllable was analysed as a half-gana. In any case, it falls outside of the old gīti-system, and judging from its later use as a narrative metre (e.g. in the Setubandha), it, like the āryā, attained some popularity as a fixed form. When this metre was brought under analysis—which might have been at the same time as the āryā or afterwards—it received a name which reflected its similarity to the primary metre of the family (āryā); the gīti-element might come from the fact that both lines of the āryagīti are equal, like the gīti, or simply from the fact that the names of the other metres of the family contain this element.

3.2.5 Pāṇgala thus knew a metre called the āryā and several similar metres with names based on the word gīti. His Chandaśūtras treat the āryā as derivationally basic because by his time it had already become the most common ganacchandasa metre, but perhaps also because it included both types of lines and therefore made the derivation more economical: starting from the gīti or upagīti would only provide a model for long or short lines, respectively, and the other type would have had to be introduced in the discussion of another form.

3.2.6 A characteristic feature of Pāṇgala’s analysis is his use of metrical ‘subvarieties’: a metre that fits a structural description might receive a
certain name, but it can receive other names if it fits more specific descriptions. The gaṇacchandas metres are necessarily either pathyā or vipulā, and optionally either mukhacapalā, jaghanacapalā, or maḥacapalā. Piṅgala also uses the terms pathyā, vipulā, and capalā in his discussion of the vaktra (i.e., the anuṣṭabh śloka), where they refer to different syllabic configurations at the end of each pāda (cf. Steiner 1996). With reference to the gaṇacchandas metres, the terms pathyā and vipulā refer not to syllabic configurations but to the presence and absence, respectively, of a word-break after the third gaṇa. The sense of the terms, however, is the same: the pathyā is the ‘normal’ form, and the vipulā is an ‘extension’ (adapting the terminology of Hahn apud Steiner 1996: 228). These meanings are suggested by the words themselves and by the fact that the pathyā form dominates in all texts where the distinction is possible (i.e., excluding old ārṇyās). The idea that a form may deviate from the ‘normal’ pattern but still be metrical is quite original: I know of nothing similar in the Greco-Latin metrical tradition, but it bears some similarity to the idea of ‘gradient metricality’ in modern statistical and generative metrics (e.g. Hayes 2010). Interestingly, Piṅgala does not distinguish between verses that are vipulā in their first, second, or both halves, though Halāyudha and later writers do. The fact that Piṅgala relates different opinions about the application of the term pathyā in 5.15 guarantees that the use of the terms pathyā and vipulā predate him, although he may have been the first to apply them to the ārṇyā.

3.2.7 The wording of sūtra 4.22 was a matter of some consternation: it says that the name pathyā applies when the first three gaṇas constitute a pāda. This might be taken to mean that pathyā verses have four pādas, while vipulā verses have only two (so Velankar on p. 45 of his edition of the Ratnaniśyā). This would entail a violation of the de facto principle that pāda-structure hierarchically characterizes metres, or more accurately families of metres, such that subvarieties of a metre inherit the pāda-structure of that metre. But this is precisely the descriptive crux: How can we assign structure to a metre on the basis of one of its subvarieties? Mitra (1989: 294-295) argued that Sanskrit metrical texts considered the ārṇyā a two-pāda metre, while Prakrit texts considered it a four-pāda metre. If this was true, it would mean that Sanskrit texts ignored the major break of the pathyā in order to make their definition of the ārṇyā as inclusive as possible, and that Prakrit texts took the major break of the pathyā to be representative of the ārṇyā in general. But this does not seem to be the case. Some Prakrit texts (the Chandaḥskośa and the Kavidarpana) explicitly mention four pādas, and all divide it into four groups of mātrās, but nowhere is the ārṇyā explicitly described as consisting of only two pādas. It is always described as consisting of two parts or halves (dala, ardha), but these units cannot be equated
with pādas, since even texts which recognize four pādas still refer to the two halves. I submit that Piṅgalā viewed the āryā, and hence the other gaṇacchandās metres, as consisting of four pādas in accordance with Chandahsāstra 4.10 pādaś caturbhāgaḥ ‘the pāda is a fourfold division’. Since pādas are marked by word-breaks, specifying a pāda-boundary at the end of the third gaṇa in the pathyā variety has the effect of fixing a word-break in that position, which is why Halāyudha ad loc. says pādaegrhaṇaṁ yatuyu-palakaṣanātham, ‘the word pāda is used to indicate word-break (yatī)’. The vipulā is then defined as a verse in which a pāda-boundary does not coincide with the end of the third gaṇa. In other words, in the general schema of the āryā, there were four pādas; the boundaries between odd and even pādas, however, were not fixed. The tendency for such a boundary to occur at the end of the third gaṇa was expressed by specifying a normative subvariety with this property.

3.2.8 This schema implies a ‘floating’ pāda-boundary in the vipulā form. If we start from the assumption that pāda-boundaries are (1) fixed, (2) marked by word-break, and (3) marked by heaviness of the preceding syllable whatever the weight assigned by the general rules of syllabification, the structural articulations of the āryā hardly resemble pādas: the pathyā āryā violates (3), and the vipulā ārya potentially violates (1) and (2) in addition. But the pāda-boundaries of the old ārya fulfill all three requirements. In 3.2.2 the difference between the old ārya and classical gītī was framed in terms of gaṇa-structure alone; the gītī could therefore reflect the pāda-structure of the old ārya. Alternation between the old pāda-structure and the pathyā form, and a diachronic tendency towards the latter, has been noted in Pali texts by Warder (1967: §232). Informally, one might say that the weakly-marked pāda-structure of the classical ārya is due to the fact that Katametronisierung, the imposition of gaṇa-structure throughout the line, has made the line (the ‘half’) a more structurally significant unit than the pāda. There are, however, indications that the pāda remained structurally significant, at least in the earlier history of its literary deployment and its theoretical description.

3.2.9 Sūtra 6.1 defines yatī as viccheda, ‘break’, and it is commonly understood as ‘word-break’ or ‘caesura’. But Pollock (1977: 43) noted that Piṅgalā does not use the term yatī at all in his discussion of the gaṇacchandās and suggested that, in the Chandaḥsūtras, yatī in part serves to articulate structural units smaller than the pāda. Piṅgalā’s avoidance of the term (followed by the Ratnamāṇjūśā and Jayadeva, and Jayadeva by Kedārabhaṭṭa) suggests that he was concerned with a ‘structural’ description of the gaṇacchandās: for him, the pathyā and vipulā varieties differed primarily with respect to the location of the pāda-boundary; further, he probably
wanted to maintain the general distinction between pādas and the smaller units articulated by yatī. Other writers, for whom yatī primarily signified ‘word-break’, were content to describe the pathyā form of the āryā using this term: these include Bharata, whose approach we have independent reason to consider more practical and less theoretical than Piṅgala’s, as well as Jayakīrti and, probably following him, Hemacandra.

3.2.10 Another argument in favor of ascribing structural significance to the word-break of the pathyā form revolves around Jacobi’s ‘law of vipulā’ (Jacobi 1886):

‘Wenn die Cäsur vor dem vierten Fusse fehlt, muss dieser ein Amphibrachys [-,-, AO] oder der gleichwerthige Proceleusmati-
cus mit Cäsur nach der ersten Kürze [-,-, AO] sein.’

Jacobi formulated this law, which significantly restricts the possibilities of word-break and syllabic structure in vipulā verses, for the Sattasaī. The fact that the law is observed relatively strictly in earlier texts and loosely in later texts might be taken to support Jacobi’s own view that the law is a relic of the old pāda-structure. The problem with this interpretation is that Jacobi’s law does not categorically require a word-break in the fourth gaṇa of vipulā verses; it requires either -,- or -,-,-, and the word-break of the latter is not an indication of pāda-structure but a feature which makes the two forms rhythmically equivalent. Jacobi’s law is therefore best considered as a rhythmic law. But its conditioning factors must be structural rather than rhythmic: word-break may be a rhythmic feature, but absence thereof hardly is; also, it is uniquely the absence of word-break after the third gaṇa that triggers the law, not after the first. (Absence of word-break after the fifth gaṇa is not probative, since the sixth gaṇa must have the form -,- or -,-,- anyway.) Thus Jacobi’s law generally supports Piṅgala’s view that the āryā was made up of four pādas.

3.2.11 Jacobi’s law went unnoticed by the entire Indian metrical tradition, probably because it applied to vipulā forms, which were marginal to begin with and became even more marginal as time went on (the Sattasaī contains many times more vipulā verses than its imitation, the Āryāsapta-
satī). But the vipulā form is never entirely absent (except in Bhāsa’s plays, perhaps accidentally), and hence the requirement that the target-text of the analysis which produced the pathyā/vipulā distinction shows variation

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9Warder’s (1967: §232) claim that it is not observed in Pali āryās rests on a misunderstanding of the law (‘if the forms -,- or -,-,- occur in the fourth gaṇa there must instead be a caesura after the first syllable of that gaṇa’).
between these two subvarieties brings us no closer to a dating of this analysis.

3.2.12 The other subvarieties enumerated by Piṅgala are the mukha-, antya-, and mahācapalā. Like the corresponding subvariety of the vaktra (5.16), these subvarieties refer to specific configurations of syllables. But as Cappeller (1872: 74) already noted, the capalā forms of gaṇacchandas verses are rare in actual practice: the fact that two capalā lines almost never combine to form a mahācapalā even suggests that their occurrence is due to chance. In view of the more pronounced rhythmic alternation of the old āryā, it is possible that the capalā forms were better represented in earlier literature not now extant, but this is quite unlikely.\(^\text{10}\) Why, then, would anyone single out this particular syllabic configuration as a subvariety? Cappeller suggested that it was because the capalā represented what today we might call the ‘underlying form’ of the metre, which could be realized as any number of ‘surface forms’ (specifically, 81,920,000 in the case of the āryā: a fact noted in Gāthālakṣāṇa 51 and Kaviḍārapaṇa 2.6). He had already posited a similar ‘underlying form’ on the model of Greco-Latin metres, for which he took the capalā form as confirmation. Compare a line of Cappeller’s schema (15.5) with a capalā line (15.4):

Table 15.4:

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\begin{array}{cccc}
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\end{array}
\]

Table 15.5:

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& \_& \_& \_ \\
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& \_& \_& \_ \\
\end{array}
\]

3.2.13 Cappeller was correct in assigning the capalā forms a structural function, but I think that its function was not exactly a derivational template on the Greco-Latin model. A principle of rhythmic alternation is enforced in the exclusion of syncopated rhythms from the odd gaṇas. But an unsyncopated rhythm in the even gaṇas does not make a verse unmetrical (except in the sixth gaṇa, and in the fourth gaṇa of vipulā verses, by Jacob’s law): a definition which merely excluded syncopated rhythms from\(^{10}\)Warider (1967: §204) also seems to have misunderstood the definition of capalā as merely having \(\_\_\_\) in the second and fourth gaṇas, and hence does not discuss capalā forms in Pali.
odd \(gaṇa\)s would be surface-true, but it would leave unstated the principle of alternation which motivates this very exclusion. That is why the \(capalā\) forms are introduced: in these ideal patterns, the alternation between un-syncopated and syncopated rhythms in the odd and even \(gaṇa\)s is made explicit by setting the even \(gaṇa\)s as \(-\sim\) and flanking them with heavy syllables. In embodying this alternation, the \(capalā\) forms arguably indicate a distinct metrical constituent, composed of an odd and even \(gaṇa\) in sequence, which is the domain of rhythmic alternation. (Two other pieces of evidence for an awareness of such a constituent can be found: the first is in the \(Kavidarpana-ṭikā\), of which verse 5, on \(Kavidarpana\) 2.8, distinguishes four subvarieties of \(gāthā\) named \(gāḍhā\), \(agāḍhagāḍhā\), \(daragāḍhā\), and \(sara\-ralagāḍhā\), which are composed of the units \(-\sim\sim\), \(-\sim\sim\), \(-\sim\sim\), and \(-\sim\sim\) respectively; the second are the ‘extensions’ to the \(gāthā\) discussed in 3.7.6, which extend the first line by an odd followed by an even \(gaṇa\).) The names of the forms have an erotic double-meaning (\(mukhaycapalā\) is both ‘modulating in the front’ and ‘talkative’; \(jaghangacapalā\) both ‘modulating in the back’ and ‘with swaying hips’), which suggest they, like the name \(āryā\), come from an analysis for which lyric poetry was the primary target-text. It is much less clear why Piṅgala distinguishes three types of \(capalā\) if these forms only existed to imply certain structural details about the metre.

3.2.14 The last important part of Piṅgala’s analysis is his specification of places in the verse where a word must begin, conditional upon certain syllabic configurations. These are ostensibly word-break rules (hence they are called \(yati\) in \(Chandoratnākara\) 5.4), but because they depend on certain syllabic configurations, they have somewhat of a different status than unconditionally obligatory word-breaks or even the major word-break of the \(pathyā\); hence it is not a surprise that Piṅgala does not use the term \(yati\) for them. Cappeller referred to them as ‘Nebencāsuren’, again on the model of Greco-Latin metrics. Their purpose, informally stated, seems to be the maintenance of the \(gaṇa\)’s rhythmic qualities. A sequence of light syllables is generally rhythmically ambiguous: \(-\sim\sim\sim\) might be parsed as \(-\sim\sim\) or as \(-\sim\)\(\sim\); the first parse is rhythmically equivalent to \(-\sim\), and the second to \(\sim\sim\). Word-break, however, can decide in favor of one or the other parse. Thus where a ‘syncopated’ rhythm is structurally required (i.e. in the sixth \(gaṇa\), \(-\sim\sim\sim\) must have a word-break after the first light syllable in order to rule out the parse \(-\sim\)\(\sim\)). The parse \(-\sim\)\(\sim\) seems to have been the ‘default’ parse for the sequence \(-\sim\sim\sim\), which explains why the assistance of a word-break before the first light syllable is only required in two locations: in the seventh \(gaṇa\) of the first line and the fifth \(gaṇa\) of the second (i.e., precisely those locations where the following syllable does not belong to a
complete gana and therefore might affect the parse of the preceding light syllables). See Ollett (2012) for a detailed analysis of these patterns.

3.2.15 Poets had other ways of enforcing certain rhythms (e.g., by proscribing word-break in certain positions), but these went unnoticed in the metrical tradition. The identification of these ‘Nebencăsuren’, however, is remarkable and unique (Pollock 1977: 61 even claimed that Indian metrists had not noticed any ‘Nebencăsuren’). Two points about their position in the metrical discourse must be made: (1) they are discussed in all Sanskrit metrical texts (excluding those whose discussion of the ganaccandas is obviously based on Prakrit texts, such as the Vānībhūṣaṇa and presumably the Chandaśśekhara), but no Prakrit metrical texts; (2) they ought to have been present in the target-text. A preliminary survey of the literature shows that the seventh gana almost never consists entirely of light syllables in most early texts (Nāgārjuna, Īśvarakṛṣṇa, Kālidāsa, Bhāsa, the Sattasaī), but in the Āryāsaptasātī such a pattern is roughly as common in the seventh as it is in the other odd ganaś. The rules of the Chandaśśūtras seem to presuppose a practice in which seventh ganaś could consist of four light syllables, but no contemporary text seems to fit this description.

3.3 Other texts of the Sanskrit metrical tradition present the same analysis of the ganaccandas metres as Piṅgala in content; the form of the analysis, of course, differs (including its presentation in sūtras or ślokas, the choice of terminology and symbols, etc.). The main exception is the Jānāśrayī. This work presents the āryā, gītī and āryāgītī, but it calls the upagītī the vāmanikā (5.39), defines the dhruvā as a gītī with a word-break after the fourth gana (5.41), and adds a gitikā (5.42), which is a gītī with ōōō or ōō in its seventh gana. After this, it defines a number of other metres which are ‘current among the people’ (5.45 loke pracarantyaḥ): though based on ganaś, these are different from the āryā-type metres, but similar to Prakrit and Apabhraṃśa metres. The author of the Jānāśrayī evidently wanted to update and extend the ganaccandas module by incorporating some popular names and variants. The sources on which he drew, however, do not seem to belong to the Prakrit tradition discussed below; this tradition knows the gitikā, but does not call the upagītī the vāmanikā.

3.4 Ratnamārjūṇēśa 2.16, which appears to also extend the ganaccandas module by including the galatika metre, is an interpolation (Tripathi 1977: §3.3). The text, however, is a good example of the modularity of Indian metrics, since it draws example-verses from an earlier text (the Turfan Chandoviciti, which Tripathi 1977 has called the Sāmudrika-chandoviciti) but only for certain kinds of metres. Its Jain author apparently composed his own examples for the ganaccandas metres. Verses from the Sāmudrika-
chandoviciti, however, have found their way into the Nāṭyaśāstra’s section on the gaṇacchandas.

3.5.1 The Nāṭyaśāstra’s text is famously jumbled and corrupt, and the section on metre is no exception. Since it largely follows the Pāṇḍaga analysis of the gaṇacchandas, it would not merit discussion here at all, but scholars have drawn different conclusions about its position in the metrical discourse, which in turn bear on the history of the gaṇacchandas module. Jacobi (1933) concluded that Bharata’s analysis must be more recent than Piṅgala’s, because Bharata uses the trika-symbols which Piṅgala is supposed to have invented. But Bharata may have used Piṅgala for some sections, and cited other, possibly older authorities for other sections. Further, Abhinavagupta suggests that the trika-symbols have been introduced into the Nāṭyaśāstra secondarily.11 The gaṇacchandas section has been suspected of being an interpolation, either in whole (Ghosh) or in part (Kavi), primarily on the grounds that the details given therein are irrelevant, in varying degrees, to the composition of verses for plays. The example-verses are also absent in some manuscripts (e.g. the one from which Regnau prepared his edition of the metrical portions of the Nāṭyaśāstra in 1880). But Schlingloff (1958) has argued that Bharata relied on the Sāmudrika-chandoviciti for both its organization and for its example-verses, which indicate the name of the metre by way of mudrālaṅkāra.

3.5.2 After Bharata says (15.193-194)12 that certain metres are only to be used in songs, he proposes (15.195-197) to discuss the āryās (referring to the āryā and its subvarieties, not to the other gaṇacchandas metres). But the following discussion is somewhat of a mess. It starts without a clear definition of the āryā; half-verses are rearranged and repeated; verses from a probably-interpolated section of prastāra interrupt the exposition; information is repeated in different words. What is clear is that this discussion contains (1) the rules of Piṅgala, expressed in the form of ślokas, regarding the āryā, and (2) example-verses similar to those found in the Turfan text.13 Less likely to be original are (3) a rule expressed in āryā (212), which is redundant with a śloka-rule (220), and (4) rules regarding

11 tatreśādhyāye bharatamunikrtam iti trikair makārādibhir kaiścit kiṃcīlkaśayaṃ sva-ktam iti dvividhāḥ (pustaka/pāho drīgāte / madhye ca cintanāya (cīrantanēsu Kane 1961) pustakesābhayaṃ api pāthayata iti ‘In this chapter, the readings of the text are divided in two: one part written by Bharata, and a certain method of definition with trika-signs such as m that has been interpolated; among them, both are read in the most ancient texts.’

12 I follow the numeration of Kavi, who edits a ‘Southern recension’; the 15th adhyāya in this recension corresponds to the 16th in the ‘Northern recension’.

13 Interestingly the Nāṭyaśāstra’s example-verse at 15.216 lacks the reference to a monastery (vihāra) in verse 6 of the Turfan text.
prastāra, or calculation of syllables, which are neither found in Piṅgala nor relevant for Bharata’s expository purposes. (1) and (2) can be understood on the assumption that Bharata decided to relate what had already become by his time the traditional rules for the formation of the āryā, and exemplify those rules by citing a text which conveniently ‘labelled’ each metre through mudrā. He might have limited himself to the āryā because it had already become the only gaṇacchandas metre in common use. (3) is probably due to interference from a text that used the lakṣya-lakṣaṇa method. (4) is likely to come from a text of the Prakrit tradition, as discussed below, though the ślokas are in Sanskrit. The source for this content is perhaps the Gāthālakṣaṇa, one verse of which (4, on Prakrit phonology) has made its way verbatim into the Nāṭyaśāstra (Nitti-Dolci 1972 [1938]: 72).

3.6 Two other Sanskrit authors who have been influenced by the Prakrit tradition regarding the gaṇacchandas are Jayakṛiti and Hemacandra. Though both relate the Piṅgala rules, they use some of the Prakrit names, as shown below. Jayakṛiti had a relatively wide outlook—he is notable for defining Kannada metres alongside Sanskrit metres (the first work of Kannada metrics in Kannada, the Chandombudhi of Nāgavarman, is roughly contemporaneous)—which could explain why his account of the gaṇacchandas is somewhat synthetic of both Sanskrit and Prakrit traditions. Hemacandra envisaged his work as a complete synthesis of Prakrit and Sanskrit metrics. It is perhaps not a coincidence that both authors were Jains, since Jains participated in the Sanskrit tradition but were also critically engaged in the Prakrit and Apabhraṃśa traditions. Two other texts are written in Sanskrit but adapt their treatment of the gaṇacchandas from Prakrit texts: as mentioned in 1.2.4, the Chandaḥsekharu follows the Svayambhūchandas, and the Vāṇibhūṣaṇa probably follows the Prākritapiṅgala or a similar text.

3.7.1 The first difference to note between the Sanskrit and Prakrit traditions is their terminology. The difference was already in place by the 6th c., since Varāhamihira refers to it in Bṛhatāṇīta 103.54:

\[
sūryasuto 'rkaphalasamaś candrasutaś \\
chandataḥ samanyāti yathā \\
skandhatam āryāgītir vaitāliyaṃ ca \\
māgadhī gāthāryāṃ
\]

‘Just as Saturn has the same effects as the Sun, and Mercury follows at the will (of its coplanet), so the āryāgīti (follows) the skandhaka, the māgadhī (follows) the vaitālya, the gāthā (follows) the āryā’
The parallelism is systematic, i.e. it applies not to one or two metres, but throughout the ganacchandas module. The names given for the individual metres are given below (Table 15.6) in Sanskrit form (excluding the Jñānāśrayī, discussed in 3.3).

The Paṅgalā nomenclature was discussed in 3.2.2-4. The nomenclature in Prakrit texts presents some variety, but of a transparent kind: each text relates some of the Paṅgalā names, based on the word gīti, and some non-Paṅgalā names, based on the word gāthā (except for the skandhaka). The exception is Nanditādhiya’s Gāṭhālakṣaṇa, which only relates the non-Paṅgalā names. The most likely explanation is that Nanditādhiya relates the original Prakrit names, which other authors have changed in varying degrees under influence from the Paṅgalā tradition, moving from right to left on the table. This would entail giving Nanditādhiya priority in the Prakrit discourse, in time, in influence, and in independence from the Sanskrit discourse. There are several reasons for granting him this priority anyway. (1) Unlike Virahānaka and the Prākṛtapiṅgala, Nanditādhiya does not appeal to the authority of Paṅgalā. (2) Nanditādhiya’s concern was specifically with the Prakrit discourse, as indicated by his mention of pātyakava in verse 2 and his contempt of Apabhraṃśa in verse 31. (3) Nanditādhiya discusses only the gāthā and its varieties, which, as noted in 2.2.3, is the Prakrit metre par excellence and the most common metre of Jain texts. (4) Nanditādhiya is quoted in a number of other works, such as Hemacandra’s Chandonuśāsana, the Prākṛtapiṅgala, and even the Nāṭyaśāstra. Nanditādhiya’s Jainism, evident in his maṅgalacarāṇa and example-verses, might constitute another reason for his non-engagement with the Sanskrit metrical discourse, but only if he lived at a time when this discourse was still largely Brahmanical, i.e. before Jayadeva and the Ratnamāraṇīṣa established the Jains as major contributors to the Sanskrit metrical discourse. If such is the case, Nanditādhiya might have written around the 5th c. CE.

3.7.2 Nanditādhiya, however, almost certainly did not invent the Prakrit names for the metres. Gāthā, which like gīti derives from the root śrava ‘sing’, is a generic term for a verse or a composition in verse; the Chandaḥ-sūtras (in a sūtra that is, however, certainly later than Paṅgalā: cf. Weber 1863) refer to any metre not defined in the text as gāthā (8.1 atrāṅka-taṁ gāthā). Its Avestan cognate gaθa refers to the metrical compositions of Zarathushtra; in the later Vedic period gāthā refers to verses (mostly ślokas) which are not affiliated with a particular Vedic text (Horsch 1966); in Pali gāthā refers to the songs—some in the old ārya or āryā metre—of Buddhist monks and nuns; in Prakrit gāthā refers to verses in this metre such as those of the Sattasaī (also, and probably originally, known as the
<table>
<thead>
<tr>
<th>mātrās</th>
<th>Pīngala et al.</th>
<th>Jayakṛti, Hemacandra</th>
<th>Kaviśaṅkara, Virahānka, Svayambhū</th>
<th>Ratnaśekhara, Dāmodarāmiśra</th>
<th>Prākṛtapīṅgala</th>
<th>Nanditāḍhyā</th>
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<td>27 + 27</td>
<td>upagiti</td>
<td>upagiti</td>
<td>upagiti</td>
<td>upagiti (D)</td>
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<td>gāthā</td>
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<tr>
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<td>—</td>
<td>vigāthā</td>
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<td>giti</td>
<td>giti</td>
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<td>29 + 32</td>
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<tr>
<td>32 + 29</td>
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<td>avaskandhaka</td>
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</table>
Gāhākosa: cf. Mirashi 1960); its Tamil version, kātai, refers to a poetic composition or a chapter of a longer composition. The use of the word gāthā as the name of a particular metre is probably due to a semantic development of VERSE > VERSE-FORM. This development almost certainly took place in a Prakrit discourse, but further specificity is possible. Virahānika refers (2.8-9) to Bhuaahiva (Bhujagādhipa), Sālāhaṇa (Sātavāhana), and Buḍdhakaī (Vṛddhakavi or Harivyṛddha) as metrical authorities. Sātavāhana—also cited as an authority on Prakrit lexicography in Hemapocandra’s Deśīnamamālā—is probably identical with the editor of the Suttasaī, under the biruda or nom-de-plume of Hāla. The fact that nearly all of the verses in the Suttasaī are gāthās implies that the editor had metrical criteria for inclusion. If he can be credited with establishing a Prakrit metrical discourse, his first task would have been the naming and description of the primary Prakrit metre. The term skandhaka is somewhat more difficult to explain. Its meaning (‘aggregate’, ‘grouping’) fits with its use as a kind of composition in Prakrit—narrative poems such as the Setu-bandha—from which a semantic shift similar to the one posited for the gāthā is possible (COMPOSITION > COMPOSITIONAL FORM). It seems to have been more important in the Prakrit analysis than the āryāgītī was in the Paṅgala analysis, since Virahānika devotes roughly equal attention to the gāthā and skandhaka, and since Svayambhū uniquely treats the skandhaka as the derivationally basic metre.

3.7.3 Mitra (1989: 295) noted that Sanskrit texts define the metre first in terms of gaṇas, while Prakrit texts tend to specify the number of mātrās in each pāda before anything else (e.g. Gāthālakṣaṇa 6, Prākratapīṅgala 1.54). Gaṇas are indispensible for the analysis of any gaṇacchanda metre, and are common to both Sanskrit and Prakrit texts, but the mātrā-specification is unique to Prakrit texts (excluding the verses of the Nāṭyaśāstra mentioned in 3.5.2). Implicit in the mātrā-specification is the recognition of four pādas. From a practical point of view, this mātrā-specification is unnecessary, since the number of mātrās can be derived from the number of gaṇas, which are far more important to the structure of the metre. But concern for the ‘the-

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14I thank Jean-Luc Chevillard for alerting me to the use of kātai.
15The identity of Bhujagādhipa is uncertain. Velankar thought it referred to Piṅgala (who is conventionally considered to be a nāga). But the commentator glosses the name as Kambalāśvatara, so joint authors are possible; it is even possible that Rūta and Māṇḍavya are meant (if Piṅgala can be considered a nāga, his predecessors might be as well).
16The authors who contributed to the Suttasaī also composed verses in other metres, as citations in the Svayambhūchandas indicate (e.g., a sārdulavikṛdīta verse by Hāla at 1.97).
17Cf. Kāvyādarśa 1.37; I thank Csaba Dezső for alerting me to this.
ory’ of the metre, its numerical properties and possibilities, is characteristic of the Prakrit discourse. Unique to and common within Prakrit texts is the *prastāra* of the *gāthā*, an enumeration of the possible combinations of light and heavy syllables, in which every possibility is assigned a name. The Gāthālaksāṇa additionally assigns each possibility in the *prastāra* a number (the number of light syllables less one divided by two) and a corresponding naksatra-name (53-55). The number of configurations is different across texts, but 26, the number related by Nanditādhya and Ratnaśekhara, is correct, and permits a close mapping of the different configurations to the 27 *naksatras*. The assumption that Virahāṅka’s *prastāra* is incorrect is supported by the observation that his *prastāra* of the skandhaka is also inaccurate (cf. Velankar’s note ad 4.9-12).^{18}

<table>
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<td>haṃsīḥ</td>
<td>gauḍhavī</td>
<td>brāhmaṇi</td>
</tr>
<tr>
<td>3</td>
<td>51</td>
<td>54</td>
<td>kuṛūrī</td>
<td>haṃsavidhāḥ</td>
<td>maṃjarī</td>
<td>māgadhī</td>
</tr>
</tbody>
</table>

^{18}Virahāṅka begins to differ from the *Prākyaptapīṅgala* after kīrtī. Since the preceding 13 names are related in the same verse, it seems likely that Virahāṅka and the *Prākyaptapīṅgala* share a source for these 13 names, but one of them—presumably Virahāṅka—did not have the second verse at hand, and either supplemented the list with a different text or made it up himself.
If these varieties are merely theoretical configurations, it is not clear why they should be assigned names. Cappeller had the idea that the prastāra had axiological significance: the greater the number of heavy syllables, the more beautiful the verse was supposed to be. He adduced Prākṛtapiṅgala 1.58:

\[
\text{sattāśā hārā sallā jassāmī tīṇī rehāī /}
\text{sā gāhānāṃ gāhā aā tīṣakkharā lacchī ||}
\]

The first gāthā of the gāthās is the lakṣmī with thirty syllables, in which there are twenty-seven praiseworthy heavy syllables and three light syllables.

If theorists considered heavy syllables ‘praiseworthy’ (salla), Cappeller could explain the prevalence of the rhythm — even in the even gaṇas, which were fixed as ωω on his ‘underlying’ schema, as due to these general rhythmic preferences. While the Prākṛtapiṅgala, a 14th-c. compilation, is itself too late to have influenced any of the texts Cappeller discussed in Die Gaṇachandas, the preference for heavy syllables may be much older. I am unwilling, however, to assign much significance to this passage of the Prākṛtapiṅgala, since the occurrence of heavy syllables is likely to be due to the high proportion of heavy to light syllables in the Prakrit language (in a 3000-word sample of the Āyāraṅga, 64% of the syllables are heavy; compare 46% for the Sattasāi). The Prakrit metrical tradition places a value on heavy syllables, but such a value is difficult to motivate on the basis of Prakrit versification. It seems, rather, that this value was purely notional, based on the fact that heavy syllables were ‘worth’ twice as many mātrās as light syllables.

3.7.4 The notion that heavy syllables are preferable to light syllables finds expression in other passages: Gāthālakṣaṇa 33 mentions the vippī, khaṭṭīṇi, vaiśi, and suddī (viprā, kṣatriyā, vaiśyā, and śūdrā): on this axiological scale are mapped, respectively, a gāthā with both lines maximally heavy, a gāthā with the first line maximally heavy and the second maximally light, a gāthā with the first line maximally light and the second maximally heavy, and a gāthā with both lines maximally light. The Prākṛtapiṅgala (1.64), somewhat obscurely, assigns these names to gāthās of 13, 21, 27 and more (?) light syllables, respectively. Nanditāḍhya, a Jain, could hardly be the originator of this distinction, which lends support to the idea that the core of
the Prakrit gaṅacchandas module comes from a Brahmanical milieu. The 
vṛpa-vieties are certainly not common in literature, and they actually 
neutralize the characteristic alternating rhythms of the gāthā. But like the 
prastāra-vieties, they are constructs illustrative of the metre’s possibilities, 
except that here precise configurations of syllables are on display.

3.7.5 Other purely theoretical explorations of the possibilities of the 
gāthā include Prākṛtapiṅgala 1.63, which puns on the use of nāyaka as 
a metrical symbol for a... by saying that a gāthā with one such pattern 
is a faithful woman (kulamaṇḍī); with two, a remarried widow (samanjadi-
nī); with none, a whore (raṃḍā); and with many, a prostitute (vesā). The 
remarks of the Kavidarpana-tikā on gāḍhā or ‘compact’ subvarieties have 
been mentioned above (3.2.13). Since these distinctions are isolated, they 
are likely to be late.

3.7.6 Swayambhū, Jayakīrti, and Hemacandra all recognize a number of 
‘extensions’ to the gāthā, which are formed by adding 2n gaṇas (i.e., an odd 
followed by an even gaṇa, multiplied n times) to the first line, and are named 
by prefixing ud-, vi-, ava-, sam-, and upa- to the term gātha (in Hemacandra 
also 1n, with the prefixes attached to the term dāma). An arbitrarily long 
extension of the gāthā goes by the name mālāgātha (mālādāma). Swayam-
bhū and Jayakīrti do not go in for the theoretical distinctions mentioned 
above, which suggests that they had a practical reason for including these 
‘extensions’. Although the matter requires further investigation, I suggest 
that the metres described in this section are ‘hypermetres’ like the veḍha 
(2.1.3), and possibly used, like the veḍha, for long descriptions (Hemacan-
dra’s example-verbs are prāsastīs).

3.7.7 The main characteristics of the gaṅacchandas module in Prakrit 
texts therefore include a definition in terms of mātrās, an elaborated prastā-
ra and several other distinctions of theoretical interest, and names based on 
the words gāthā and skandhaka. Often elements of the Piṅgala analysis are 
included as well, such as the definition of pathyā, vipulā, and capalā forms. 
But these elements were not associated specifically with Piṅgala: they are 
present, for example, in the Gāthālakṣaṇa, which makes no reference to 
Piṅgala, but absent in the Vṛttajātisamuccaya, which often refers to him. 
Interestingly, the ‘Nebencāsuren’ are never mentioned in Prakrit texts. The 
Prakrit analysis exhibits, in contrast to the Piṅgala analysis, a preoccu-
piration with the gātha (and to a lesser extent, the skandhaka) as a way of 
relating and organizing light syllables, heavy syllables, and mātrās—as a 
matrix of prosodic calculation. It seems likely that this analysis was not 
conceived independently of the Piṅgala (or pre-Piṅgala) tradition, but as a 
competitor to it. This would account for its pretensions to exhaustivity in 
its various subdivisions, and also its assignment of names to each pra-
stāra-variant: inflating its inventory of metres might have been one way of rivaling the rich metrical inventory of the Sanskrit tradition. I suggested (3.7.2) that Sātavāhana may be responsible for the basic Prakrit analysis, not simply to pick out a ṣāṅkṣeravṛtī for the tradition, but because the attempt to give Prakrit metres a distinct character, which is undermined by the normativity of Piṅgala in later Prakrit texts, might plausibly be assigned to the person who defined Prakrit literary culture through his poetic, scholarly, and editorial efforts.

4 I thus propose the following line of development. The ‘core’ of the gaṇacchandas module dates back to the 4th c. BCE, and consists of a taxonomy of stanzaic forms: giti, udgiti, upagiti, *avagiti. This taxonomy was probably used by poets; it was not incorporated into the discourse of Chandaḥśāstra until a century or so later, when Chandaḥśāstra turned its attention towards laukika literature. At this point, the *avagiti had become the standard gaṇacchandas metre (the old āryā having fallen into desuetude) and hence merited its own name, the āryā. The gaṇacchandas module now included a basic definition of the āryā, from which it derived the other giti-metres. Later, but before Piṅgala, the terms pathyā, vipulā, and capalā were introduced. These are the only distinctions made in the Turfan (Śānvṛdrika) Chandovici, and the earliest Prakrit metrical writers probably were acquainted with this form of the gaṇacchandas module. Piṅgala completed his synthesis of metrics in the 1st c. BCE or CE, in which he astutely added rules for the āryā’s ‘Nebencäsuren’. Around the 1st c. CE, Prakrit authors—including Sātavāhana and Harivṛddha—initiated a Prakritmetrical discourse, and formulated an analysis of the gaṇacchandas metres that differed, somewhat superficially, from the Sanskrit analysis that they knew. Some later authors in this Prakrit discourse were less concerned with maintaining their independence from the Sanskrit discourse, and drew on Piṅgala’s work to a greater or lesser extent. This story, parts of which are certainly speculative, should be considered a hypothesis: a history of the gaṇacchandas module, and the history of the Indian metrical tradition reflected therein, constructed from clues in the metrical texts themselves and subject to revision as new evidence (or better interpretations) becomes available.

Primary Texts (Metrics)

**GANACCHANDAS**

*Chandaḥkośa* of Ratnaśekhara: ed. in Schubring (1921) and as an appendix (pp. 54-61) to Velankar (1933) and pp. 99-110 in his 1962 edition of the *Kavidarpaṇa*.


*Chandonośāsana* of Jayakirti: see Velankar (1949).

*Chandaḥsekhara* of Rājaśekhara: see *Swayambhūchandas*.


*Jayadevacchandhas* of Jayadeva: see Velankar (1949).


*Mṛtasaṁjīvani* of Halāyudha: see *Chandaḥsāstra*.


Vṛttaratnakarā of Kedārabhaṭṭa: See Velankar (1949).


References


