Synchrony and Diachrony of Ancient Greek

Trends in Classics – Supplementary Volumes

Edited by
Franco Montanari and Antonios Rengakos

Volume 112

Synchrony and Diachrony of Ancient Greek

Language, Linguistics and Philology

Essays in Honor of Emilio Crespo

Edited by
Georgios K. Giannakis, Luz Conti, Jesús de la Villa
and Raquel Fornieles

DE GRUYTER

ISBN 978-3-11-071862-1
e-ISBN (PDF) 978-3-11-071919-2
e-ISBN (EPUB) 978-3-11-071933-8
ISSN 1868-4785

Library of Congress Control Number: 2020950013

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at http://dnb.dnb.de.

Editorial Office: Alessia Ferreccio and Katerina Zianna
Logo: Christopher Schneider, Laufen
Printing and binding: CPI books GmbH, Leck

www.degruyter.com

Preface

The volume contains 36 studies on Greek linguistics and philology offered in honor of Professor Emilio Crespo on the occasion of his retirement in September 2020. The editors and authors of these papers are united by academic respect and personal affection towards the honoree. Among them are his former students, colleagues of his university and of other universities and research institutes, members of the research projects which he has led, and friends. They come from different countries of Europe and from the United States, all of whom recognize Emilio Crespo's important scientific contribution to the field of Greek linguistics in the course of his distinguished career.

As per custom, the volume starts out with an academic and personal assessment of Crespo's work written by Professor Giannakis, which is in many respects the text of the *laudatio* delivered in 2017 on the occasion of the conferral upon Emilio Crespo of the Doctorate Honoris Causa by Aristotle University of Thessaloniki, and then follows a list of the honoree's publications.

The topics and the orientation of the articles and scientific notes with which the participants in this volume have chosen to honor Professor Crespo are diverse and range from phonetics to discourse in grammatical terms, and from Indo-European to Medieval and Modern Greek in historical terms. The papers analyze aspects of the linguistic fields that Emilio Crespo has dealt with in one way or another, such as epigraphy (Kaczko, Striano) and dialectology (del Barrio, Tzitzilis); the lexicon (Bernabé, Blažek, Janse, Kazazis, Kölligan, Kulikov, Meier-Brügger, Méndez Dosuna), naming constructions and onomastics (Dardano, Filos, Finkelberg, Hodot, Minon); phonology (Papanastassiou), metrics (Golston), syntax and clause structure (Jiménez, Luraghi, Bubenik, Lillo, Ruiz, de la Villa, Liosis), pragmatics and stylistics (Conti, Cuzzolin, Fornieles, Giannakis) and, especially, one of the areas in which Professor Crespo, together with the research groups he has led, has carried out pioneering work, as is the articulation of discourse and the particles (Allan, Martínez Vázquez, Poccetti, Redondo). Finally, some papers fall in the middle ground between the study of Greek language and literature (Benedetti, Melazzo).

This rich and varied collection of articles reminds us that Professor Crespo, following in the footsteps of teacher Martín Ruipérez and the tradition of classical studies in Spain, has dealt with both the linguistics as well as the literature of Ancient Greece with so much energy, zeal, and innovation; in addition, he has produced translations of Greek authors into Spanish which today constitute the reference version in the Hispanic world.

https://doi.org/10.1515/9783110719192-202

The editors and the participating authors offer this volume as a token of deep appreciation and gratitude to Professor Emilio Crespo for his extraordinary scholarly contribution and his exceptional human qualities.

Madrid – Thessaloniki, June 2020
The Editors

Contents

Part II: **Lexicon, Onomastics, Morphology, and Morphophonology**

Part III: **Syntax and Clause Structure**

List of Figures and Diagrams

https://doi.org/10.1515/9783110719192-204

List of Tables

https://doi.org/10.1515/9783110719192-205

Chris Golston

A Quantitative Tetrameter for Proto-Indo-European

There are line-for-line metrical equivalences between Ancient Greek anapests and a family of classical Sanskrit meters. Based on these, I reconstruct a purely quantitative meter for PIE that consisted of eight bimoraic feet with no specific rhythmic properties, distinct from the eight syllable meter already reconstructed for Proto-Indo-European. Anglo-Saxon meter may be a descendant of this meter as well, via descent with modification.

Wenn die Indogermanen den inhalt ihrer ältesten poesie gemeinsam haben, haben sie nicht vielleicht auch eine form ihrer ältesten poesie gehabt, die sich in der urheimath entwikkelt und in den neuen sitzen dann modificirt hat, doch so, dass der gemeinsame ausgangspunkt noch zu erkennen ist? (Westphal 1860, 437)

1 Introduction

Since the late 18th century, Linguists have reconstructed much of the language and culture of the ancestor to Greek, Latin, Persian, Sanskrit, and other Indo-European languages.[1] Most of this work involves the reconstruction of the sounds and grammar of the ancestor language (Proto-Indo-European or PIE), which was probably spoken in what is now Turkey some 9kya (Renfrew 1987, Gray/Atkinson 2003) or perhaps southern Russia about 6kya years ago (Gimbutas 1997).

A great deal of attention has also been spent on reconstructing the poetry (West 2007) and the types of poetic meter that were used in PIE, based primarily on early extant meters in Greek, Vedic, and Avestan (Westphal 1860), Slavonic (Jakobson 1952), and Old Irish (Watkins 1963). This has led to the reconstruction of an iambic octosyllable for PIE. Kiparsky has recently argued that "the Greek glyconic, ionic, and iambo-choriambic meters are historically derived from the

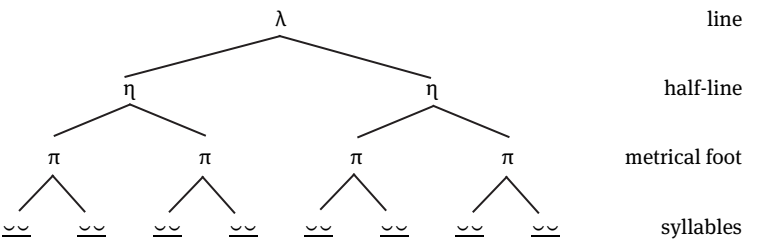
1 I would like to thank the audiences at the *International Workshop on Metrics, Phonology and Acquisition* in Paris, the Department of Ancient History and Classics, at Auckland University, and at *Frontiers in Comparative Metrics 3*, Tallinn University for helpful questions and feedback. Thank you to Steve Adisasmito-Smith for help with the Sanskrit and to Jean-Louis Aroui, Jason Brown, Maria-Kristiina Lotman, Mikhail Lotman, Donka Minkova, Bruno Paoli, and Geoffrey Russom for helpful discussion. Special thanks to Paul Kiparsky, Jesse Lundquist, Tomas Riad and Kevin Ryan for invaluable comments on earlier drafts of this paper. All errors are my own and my sincere thanks do not imply any agreement with the views expressed here on the part of those thanked.

https://doi.org/10.1515/9783110719192-034

Indo-European eight-syllable iambic dimeter line, and that hexameters, and probably also the dactylo-epitrite meters, are derived from distichs of such lines" (2018, 121).

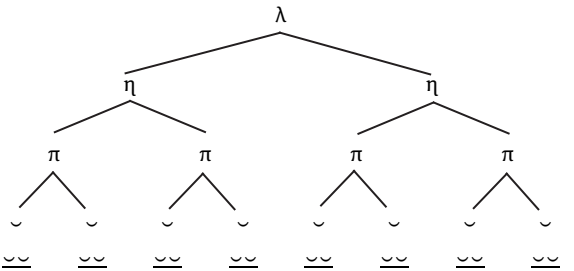
I propose here an additional meter for PIE, based on a complementary set of data from *later* sources than other scholars have used, from Classical Greek (5th c. BCE), Classical Sanskrit (3rd c. BCE), and to a lesser extent Anglo-Saxon (9th c. CE). The Greek meter is *anapestic tetrameter*, used in part to get the chorus (the oldest part of Greek drama) and other principals on (parodos) and off (exodos) the stage. The Sanskrit meters are the *Āryā* (Ollett 2012) and a large number of *akṣaragaṇavṛtta* meters analyzed by Deo (2007). She argues that some fifty named meters in Sanskrit are actually manifestations of a single meter; her groundbreaking analysis allows that meter to be fruitfully compared to Greek anapestic tetrameter, enabling the reconstruction I propose here. I propose that a quantitative tetrameter extends back into the oral culture of what Lundquist/Yates (2017) call Proto-Nuclear-Indo-European (PNIE), PIE without Hittite and its Anatolian sisters. The proposed meter can be characterized as follows:

(1) A quantitative 16μ meter for PIE



On somewhat less sure footing, I sketch the possibility that Germanic alliterative meters of the type found in *Beowulf* might come from the same source, but with a modification in how much material a line could hold. Following Golston/Riad (2001), I assume that the 8 metrical positions could be canonical bimoraic – or ⏑⏑, as found in the parent meter, *or* degenerate monomoraic ⏑, a single light syllable:

(2) A modified 8–16μ meter for Anglo-Saxon



The quantitative analysis of *Beowulf* is due to Golston/Riad (2001).

The basic argument is that traditional treatments have obscured the similarities behind these Greek, Sanskrit, and Anglo-Saxon meters; and that we can recover a parent meter by focusing on the many subtypes of line found in its daughters. Greek anapestic meter, traditionally based on ⏑⏑–, includes dactyls (–⏑⏑), spondees (– –) and proceleusmatics (⏑⏑⏑⏑) as well, creating *a family of line types* more diffuse than the expected ⏑⏑–⏑⏑–⏑⏑–⏑⏑–, which actually occurs fairly rarely in Greek. I follow Golston/Riad (2000) here, who point out that treating dactylic – ⏑⏑, spondaic – –, and proceleusmatic ⏑⏑⏑⏑ as *a type of* anapest ⏑⏑– is not justified by the available data: the family of types does not reduce in any simple way to an anapestic core, as the commonest foot in anapestic meter is actually a spondee rather than an anapest. For Sanskrit, traditional description has gone the other way, reifying specific line types into hundreds of distinct meters. Deo (2007) has done the field of metrics an invaluable service by showing that a great number of these 'meters' are nothing more than repeats from a single family of line types. I will show that Deo's Sanskrit trochaic tetrameter is *the same as* Greek anapestic dimeter, once we consider her forest rather than traditional trees. Anglo-Saxon meter is traditionally seen as an abstract family of 5 types (Sievers 1893), or 130 (Bliss 1958); but Golston/Riad (2001) argue that there is a simple quantitative basis to this: 8 metrical positions with one or two moras each. If this is right, we can relate the Anglo-Saxon line to those of Greek and Sanskrit above, using descent with modification: whereas Greek and Sanskrit retain the PIE requirement that positions in this meter have two moras, – or ⏑⏑, Anglo-Saxon adds the possibility of metrical positions with one mora, ⏑. The constant 16 moras of the Greek and Sanskrit meters is then met with an 8–16 μ meter in *Beowulf*.

After a brief discussion of theoretical backgrounding (§2), the rest of the paper outlines the Greek (§3), Sanskrit (§4), and Anglo-Saxon (§5) evidence for the proposed reconstruction (§6).

2 Background

I adopt the approach of *Prosodic Metrics* here, developed by myself and Tomas Riad as a way of closely linking discussion of meter with the phonology of specific languages, including Arabic, Greek, Old and Middle English, and Berber (Golston/Riad 1997, 2000, 2001, 2005; Golston 1998; Riad 2017). Part of that involves doing away with what we see as too much of a focus on the notion of *rhythm* in metrics and not enough of a focus on *measure*.

According to Primavesi (2014), a proper reading of Aristotle's *Poetics* 1.1447 makes a distinction between *metron*, which characterizes all meter (hence the term) and *rhythmos*, which characterizes lyric, iambic, and trochaic meters but not epic or didactic verse, which have *metron* but not *rhythmos*: "in Wahrheit involviert das *metron* als solches noch keinen *rhythmos*" (Primavesi 2013, 277). If he is right, we are in accord with Aristotle on this, and our proposal that some meters lack *rhythmos* has classical precedent. We take rhythm to be an important but not essential part of meter: some meters have it, some don't.

A clear case of arhythmic metra is the Greek spondaic invocation, a series of five spondees (West 1982), seen in the following, ascribed to Terpander:

(3) Spondaic invocation (698 *P.M.G.*)

Ζεῦ, πάντων ἀρχά, πάντων ἀγήτωρ, (– –)(– –)(– –)(– –)(– –)
Ζεῦ, σοὶ πέμπω ταύταν ὕμνων ἀρχάν.(– –)(– –)(– –)(– –)(– –)

Zeus, beginning of all, leader of all,
Zeus, to you I send this beginning of my hymns.

There is no rhythmic alternation here and we take this type of meter as proof that meter need not be rhythmic.

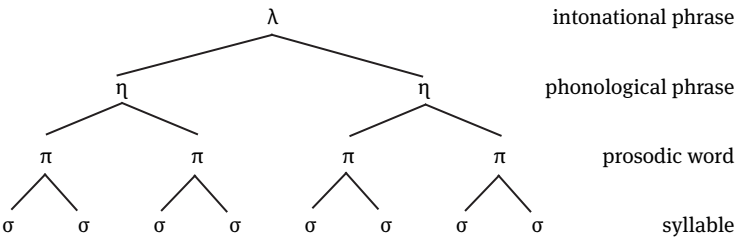
Further afield we find arhythmy in the traditional meters of Japanese, including Haiku and Tanka. Japanese lacks stress entirely, so that any kind of rhythmic stress is out of the question, whether in the phonology or in the meter. Haiku involves 5–7–5 audible moras against an 8–8–8 mora background (Kozasa 1997 and references therein); Tanka involves 5–7–5–7–7 audible moras against an 8–

8–8–8–8 mora background. Like the spondaic invocation, this is pure *metron* without *rhythmos*.

The reconstruction I propose does not depend on the claim that rhythm is an omissible part of meter; the reader can impose a rising or a falling rhythm on (1) or (2) if s/he likes. The problem is that the decision is arbitrary. The same facts are treated in the Greek tradition as rising (anapestic) and in Deo's work as falling (trochaic), though nothing in either meter supports a rhythmic analysis. Deo's analysis, as we will see, is couched in terms of strong-weak feet, but these range over ⏑⏑–, –⏑⏑, ⏑⏑⏑⏑ and – –, which are just as easily analyzed using weak-strong feet or feet with no rhythmic pattern at all.

Following Hayes (1989) and others, much work in metrics traces metrical structure (lines, half-lines, etc.) to prosodic structure in natural language (intonational phrases, prosodic words, etc.). Golston/Riad (2000) argue for a specific version of this, based on Selkirk's version of the prosodic hierarchy (1986, 1995), which I follow here, though again the details are not crucial to the reconstruction:

(4) Basic tetrameter



When everything is forced to be binary, we get a basic tetrameter with two half-lines, four-feet, and eight metrical positions, which may be realized as syllables, moras, or a combination of the two. Burling (1966) provides evidence that this basic tetrameter has a universal basis, as it is used in a great many languages for nursery rhymes: "If these patterns should prove to be universal, I can see no explanation except that of our common humanity. We may simply be the kind of animal that is predestined not only to speak, but also, on certain occasions, to force language into a recurrent pattern of beats" (1966, 1435).

I turn now to the evidence in Classical Greek (§3) and Sanskrit (§4) for a 16μ line, then to Anglo-Saxon for a possible modified version of the same (§5).

3 Classical Greek

Consider the following 'anapestic' meter, sung by the chorus as it leaves the stage (ø is a catalectic position, the metrical analogue of rest in music):

(5) Euripides, *Medea* 1414–1419

πολλῶν ταμίας / Ζεὺς ἐν Ὀλύμπῳ,	(– –)(⏑⏑–)(–⏑⏑)(– –)
πολλὰ δ' ἀέλπτως / κραίνουσι θεοί·	(–⏑⏑)(– –)(– –)(⏑⏑–)
καὶ τὰ δοκηθέντ' / οὐκ ἐτελέσθη,	(–⏑⏑)(– –)(–⏑⏑)(– –)
τῶν δ' ἀδοκήτων / πόρον ηὗρε θεός.	(–⏑⏑)(– –)(⏑⏑–)(⏑⏑–)
τοιόνδ' ἀπέβη / τόδε πρᾶγμα	(– –)(⏑⏑–)(⏑⏑–)(–ø)

Zeus is dispenser of many things on Olympus,
and the gods fulfill much that we didn't await.
Even what is expected is not accomplished,
but god finds a path for the unexpected.
So ends this thing.

Note that there is generally diaeresis (when word-break and foot break coincide) at the center of the line here (see, e.g., Raven 1962, 58). Although traditionally called *anapests*, the feet in this stretch of text are a mix of 8 spondees (– –), 6 anapests (⏑⏑–), and 5 dactyls (–⏑⏑). And this mix is what we find across authors, with spondees more common than anapests in all authors (Golston/Riad 2000):

(6) Common feet in 'anapestic' meter

	– –	⏑⏑–	–⏑⏑
Aeschylus	46	35	19
Euripides	47	35	18
Sophocles	54	26	20
Aristophanes	55	39	6

Traditional metrics sees anapests lurking behind each of the three columns above, but this is even less convincing than seeing spondees lurking behind them: – – isn't ⏑⏑– in disguise, nor is –⏑⏑. Golston/Riad (2000) argue for seeing these different types of foot as a family of feet, such that each contains two pairs of moras, each pair being either – or ⏑⏑. An analogy might make the claim more clearly: we *could* treat 5 dimes as really being 10 nickels, or 2 quarters, or 50 pennies, but the decision would be arbitrary. A less metaphysical approach is to simply admit that each amounts to 50 *cents*; whether the 50 cents is spelled out

in quarters, dimes, nickels, pennies or a combination of these is immaterial because the clear generalization is about *value* rather than *coins*.

If this is the right approach, we expect to find ⏑⏑⏑⏑ feet in this meter as well, which is of course the case: 'threnodic anapests' are relatively rare but securely attested for all authors:

(7) Euripides, *Iphigenia at Tauris* 130: 'threnodic anapest'

πόδα παρθένιον ὅσιον ὁσίας (⏑⏑–)(⏑⏑⏑⏑)(⏑⏑⏑⏑)(–Ø)

'Anapestic dimeter' is not then *a type of line with four anapests*, but a *family of line-types* that includes spondees, anapests, dactyls, and proceleusmatics in that order.

We can analyze the meter as 8 pairs of moras, a purely quantitative description that captures all of the line types found. Happily, – and ⏑⏑ are found not just in Greek meter, but as a basic element of Greek phonology (Allen 1973; Golston 1991; Gunkel 2010, 43–75, 2011; see Mester 1994 for evidence that Latin is based on moraic trochees as well). Indeed, this kind of foot is found in the phonology of a great many languages, where it is called a *moraic trochee* (see Kager 1993, Hayes 1995, *inter alios*). Returning to the notion of a family of line-types, we can calculate the size of this family as follows: there are two types of moraic trochee (– and ⏑⏑) and four ways of pairing them together (– –, ⏑⏑–, –⏑⏑, ⏑⏑⏑⏑); these four foot types make up 256 (=4^4) distinct types of line. So there are 256 line types that make up the family of meter traditionally called anapestic dimeter.

Note that there is no rhythm behind these four types: if ⏑⏑– is rising, –⏑⏑ is falling, so there is no convincing way of collapsing those types into a rhythmic category. Worse by far are – – and ⏑⏑⏑⏑ which do not alternate their categories and so cannot be rhythmic, by definition. What unites the family is the *measure* of the metron (four moras), not its *rhythm*.

One final comment about this Greek meter: some lines are missing the final moraic trochee (– or ⏑⏑) and are thus two μ shorter than the norm. This can be seen in the following, where all but the fourth line is catalectic:

(8) Euripides, *Iphigenia at Tauris* 130–134

πόδα παρθένιον ὅσιον ὁσίας	(⏑⏑–)(⏑⏑⏑⏑)(⏑⏑⏑⏑)(–ø)
κληδούχου δούλα πέμπω,	(– –)(– –)(– –)(–ø)
Ἑλλάδος εὐίππου πύργους	(–⏑⏑)(– –)(– –)(–ø)
καὶ τείχη χόρτων τ' εὐδένδρων	(– –)(– –)(– –)(– –
ἐξαλλάξασ' Εὐρώπαν	(– –)(– –)(– –)(–ø)

I send forth my holy virgin foot,
Servant of the holy holder of the keys,
Having left the towers and walls of Greece, full of fine horses,
and Europa, full of fine forests.

[Note that diaeresis is lost in the catalectic lines.] Note also that there is but a single ⏑⏑– among the 'anapestic' feet above. The commonest form of the 'anapestic dimeter' is in fact a full line of spondees (Raven 1962, 60), as we saw in (6).

Greek metricians counted two anapests per metron, so that the meter above is traditionally a dimeter (though it contains four anapests per line). Greek comedy also had a tetrameter, usually catalectic, which had eight feet per line for a total of 32μ (30 counting the catalexis).

(9) Aristophanes, *Clouds* 960ff.

(– –) (– –) (– –) (– –) ⋮ (– –)(– –) (⏑⏑–)(– ø)
λέξω τοίνυν τὴν ἀρχαίαν παιδείαν ὡς διέκειτο,
ὅτ' ἐγὼ τὰ δίκαια λέγων ἤνθουν καὶ σωφροσύνη 'νενόμιστο.
πρῶτον μὲν ἔδει παιδὸς φωνὴν γρύξαντος μηδέν' ἀκοῦσαι·
εἶτα βαδίζειν ἐν ταῖσιν ὁδοῖς εὐτάκτως εἰς κιθαριστοῦ
τοὺς κωμήτας γυμνοὺς ἀθρόους, κεἰ κριμνώδη κατανείφοι.

So I'll tell you about the state that the old education was in,
when I said the right things and bloomed and sanity was the rule.
First, you didn't have to listen to the voice of a grumbling boy.
Second, they had to march in formation on those streets to the sound of a lute,
naked neighbor boys in a column, even if it snowed as thick as oatmeal.

The last full foot is almost always ⏑⏑–, which some take as evidence that the meter is inherently anapestic, as Paul Kiparsky points out (p.c.); this is not true of the meter at the center of the discussion here, as seen above in (5), (7) and (8). Diaeresis is regular after the second metron (fourth foot) and common after the first metron (second foot) (Raven 1962, 58ff.).

4 Classical Sanskrit

At first blush, Classical Sanskrit meters are at the opposite end of the metrical pool from Greek. There are some 600 named meters and each line in a given meter is metrically identical to the next. The following is a good example (the name of the meter coming from the last word of the poem; I have supplied ':' to mark diaeresis):

(10) Campakamālā (also called Rukmāvatī)

tanvi guru syād ādya–caturthaṁ (–⏑⏑)(– –):(–⏑⏑)(– –)
slenderheavy let.befirst–fourth

pañcama–ṣaṣṭhaṁ c–āntyam upāntyam (–⏑⏑)(– –):(–⏑⏑)(– –)
fifth–sixthand–last next.to.last

indriya–bāṇair yatra virāmaḥ (–⏑⏑)(– –):(–⏑⏑)(– –)
sense–arrowswhenend

sā kathanīyā campaka–mālā(–⏑⏑)(– –):(–⏑⏑)(– –)
she named Champaka–garland

O slender girl, let the first to fourth day be heavy,
the fifth and sixth, last and next-to-last.
When is the end of these sensory darts?
She should be called Garland-of-Champaka-Flowers. (tr. Steve Adisasmito-Smith)

[The status of diaereses/caesurae is left open in Deo 2007, see p. 102ff.] The brilliance of Deo's analysis is to link the large number of Classical Sanskrit meters to the invariance of the line shapes within a poem. Her source for meters is Velankar (1949), a critical edition of Prakrit and Sanskrit meters with an invaluable index.

Deo has us imagine picking any line from the *Iliad* and extracting the patterns of heavies and lights:

(11) *Iliad* 1.1

μῆνιν ἄειδε θεὰ Πηληϊάδεω Ἀχιλῆος (–⏑⏑)(–⏑⏑)(– –)(–⏑⏑)(–⏑⏑)(– –)

then making a poem *every line of which has that exact configuration* of heavy and light syllables. We could then name the meter after the last word in the first line and say the poem was written in the meter *Achilles*. Each meter would look extremely complicated and there would be a great many of them, from – –– –– –– –– –– – – to –⏑⏑–⏑⏑–⏑⏑–⏑⏑–⏑⏑– –.

In essence, Deo's solution is that what appear to be a great many rigid meters are merely repeated instantiations of a single flexible meter: "The aperiodic syllable sequences listed as distinct meters in the Sanskrit tradition are NOT the underlying metrical structure; they are actually SURFACE INSTANTIATIONS of a relatively small set of underlying periodic structures" (2007, 72). She finds meters similar to *Campakamālā* that have the same 16μ but with – where Campakamālā has ⏑⏑, or with ⏑⏑ where *Campakamālā* has –:

> The total number of permutations, given eight metrical positions that can be realized by either a single heavy or two light syllables, is 256 (2^8). Although the tradition doesn't document all these permutations, it does document as distinct meters approximately fifty. (p. 73)

She gives the following meters as examples (see original for list of sources):

(12) Sanskrit 'trochaic tetrameter' (Deo 2007)

(– –)(– –)(– –)(– –)	Vidyunmālā	(H.2.74)
(– –)(– –)(–⏑⏑)(– –)	Sundaralekhā	(Jk.2.74)
(– –)(– –)(⏑⏑–)(⏑⏑–)	Haṁsakrīḍā	(Jk.2.95)
(– –)(– –)(⏑⏑⏑⏑)(– –)	Mattā	(H.2.107)
(– –)(– –)(⏑⏑⏑⏑)(⏑⏑–)	Bhramaravilasitā	(H.2.138)
(– –)(–⏑⏑)(–⏑⏑)(– –)	Uddhata	(H.2.124)
(– –)(–⏑⏑)(⏑⏑–)(– –)	Paṇava	(H.2.110)
(– –)(⏑⏑–)(– –)(⏑⏑–)	Suṣamā	(Pp.2.96)
(– –)(⏑⏑–)(–⏑⏑)(– –)	Madirākṣī	(Jk.2.88)
(– –)(⏑⏑–)(⏑⏑–)(⏑⏑–)	Moṭanaka	(H.2. 147)
(–⏑⏑)(– –)(– –)(– –)	Vaktra	(H.2.88)
(–⏑⏑)(– –)–⏑⏑(– –)	Rukmāvatī	(H.2.113)
(–⏑⏑)(– –)(⏑⏑⏑⏑)(– –)	Śrī	(H.2.132)
(–⏑⏑)(– –)(⏑⏑⏑⏑)(⏑⏑–)	Lalanā	(H.2.186)
(–⏑⏑)(–⏑⏑)(– –)(– –)	Bandhuka	(Jk.2.94)
(⏑⏑–)(– –)(⏑⏑–)(– –)	Kalagīta	(Mm. 13.7)
(⏑⏑⏑⏑)(– –)(–⏑⏑)(– –)	Patitā	(H.2.140
(⏑⏑⏑⏑)(– –)(⏑⏑⏑⏑)(– –)	Kusumavicitrā	(H.2.168)
(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑–)Maṇiguṇanikara		(H.2.245)
(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑⏑⏑)Achaladhṛti		(H.2.269)

Deo's analysis makes sense of three peculiarities about Classical Sanskrit meters. *Aperiodicity* is the surprising mix of what seem to be random strings of – and ⏑, when taken in isolation: e.g., Madirākṣī – –⏑⏑– –⏑⏑– –, is aperiodic if taken at face value. *Invariance* is what classicists know as *responsion*, but in Classical Sanskrit it seems that every line is in responsion with the previous line of the poem, another odd characteristic from a cross-linguistic perspective. Finally, there is the *rich repertoire* of over 600 meters in the system, vastly more than we find in most metrical traditions. Her solution to all three issues is that specific Sanskrit 'meters' are just instantiations of a given *meter*: e.g., the 'meters' in (13) are just instantiations of a single kind of tetrameter. They constitute a *family of line types* that make up a single meter.

A minor criticism of Deo's analysis: she claims that the meter is trochaic (SW in her terms) but the analysis works just as well if the meter is iambic (WS). The

commonest foot in her meters is – – and the most trochaic type (–⏑⏑, presumably) is in fact the least common foot in (12), as the following shows:

(13) (= Diagram 3) Prevalence of foot types in Sanskrit 'trochaic tetrameter'

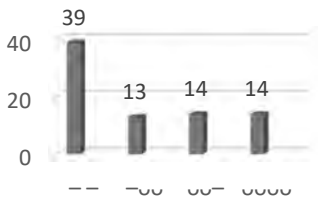


Diagram 3: Prevalence of foot types in Sanskrit 'trochaic tetrameter'.

The arbitrariness of classifying all of these as trochaic can be seen in the fact that Deo herself mistakenly classifies *Kalagīta* both ways, as left-strong (p. 72) and as right-strong (p. 80).

Many of these meters are actual lines of anapestic dimeter in Greek. The meter *Toṭaka*, for instance, has an exact correspondent in Aeschylus:

(14) *Agamemnon* 40 = Toṭaka

> δέκατον μὲν ἔτος τόδ' ἐπεὶ Πριάμῳ (⏑⏑–)(⏑⏑–)(⏑⏑–)(⏑⏑–)
> μέγας ἀντίδικος,
>
> This is the tenth year since Priam's great adversary

Sanskrit *Dodhaka* has three dactyls and a spondee, mirrored exactly in Sophocles:

(15) *Oedipus at Colonus* 1777 = Dodhaka

> Ἀλλ' ἀποπαύετε μηδ' ἐπὶ πλείω (–⏑⏑)(–⏑⏑)(–⏑⏑)(– –)
> θρῆνον ἐγείρετε
>
> Stop and raise up this lament no more

Campakamālā has an exact correspondent in Euripides:

(16) *Medea* 1417 = Campakamālā (=Rukmāvatī)[2]

καὶ τὰ δοκηθέντ'οὐκ ἐτελέσθη (–⏑⏑)(– –)(–⏑⏑)(– –)

and what is expected is not accomplished

And *Maṇiguṇanikara* matches a line from Aristophanes, point for point:

(17) *Lysistrata* 481 = Maṇiguṇanikara

ἐφ' ὅτι τε μεγαλόπετρον ἄβατον ἀκρόπολιν(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑⏑⏑)
ἱερὸν τέμενος.

on the untrodden holy place, the great rock of the Acropolis.

The full list of correspondences that I have been able to find is given below, which is all but one of the types Deo discusses, plus four in Velankar (1949) that she does not discuss:

(18) Greek-Sanskrit correspondences

line	*Greek*	*Sanskrit meter*
(– –)(– –)(– –)(– –)	Iphigenia Tauris 145	Vidyunmālā
(– –)(– –)(⏑⏑–)(– –)	Agamemnon 81	Sundaralekhā
(– –)(– –)(⏑⏑–)(⏑⏑–)	Agamemnon 97	Haṁsakrīḍā
(– –)(– –)(⏑⏑⏑⏑)(– –)	Knights 503	Mattā
(– –)(– –)(⏑⏑⏑⏑)(⏑⏑–)	Persians 930	Bhramaravilasitā
(– –)(⏑⏑–)(⏑⏑–)(– –)	Trachiniai 175	Uddhata
(– –)(–⏑⏑)(⏑⏑–)(– –)	Electra 1328	Paṇava
(– –)(⏑⏑–)(– –)(⏑⏑–)	Trachiniai 165	Suṣamā
(– –)(⏑⏑–)(–⏑⏑)(– –)	Medea 1415	Madirākṣī
(– –)(⏑⏑–)(⏑⏑–)(⏑⏑–)	Agamemnon 100	Moṭanaka
(–⏑⏑)(– –)(– –)(– –)	Birds 526	Vaktra
(–⏑⏑)(– –)(–⏑⏑)(– –)	Medea 1417	Rukmāvatī
(–⏑⏑)(– –)(⏑⏑⏑⏑)(– –)	Wasps 398	Śrī
(–⏑⏑)(– –)(⏑⏑⏑⏑)(⏑⏑–)	*	Lalanā
(–⏑⏑)(–⏑⏑)(– –)(– –)	Clouds 718	Bandhuka
(–⏑⏑)(–⏑⏑)(–⏑⏑)(– –)	Oed. Colonus 1777	Velankar 11.27/Dodhaka
(–⏑⏑)(–⏑⏑)(–⏑⏑)(–⏑⏑)	Agamemnon 1528	Velankar 12.38
(–⏑⏑)(–⏑⏑)(⏑⏑–)(⏑⏑–)	Hecuba 147	Velankar 12.41
(⏑⏑–)(– –)(⏑⏑–)(– –)	Rhesus 995	Kalagīta

2 Campakamālā was also called Rukmavatī by Hemacandra (1088–1173 CE); double names for meters are not uncommon (https://www.wisdomlib.org/definition/campakamala).

(⏑⏑–)(⏑⏑–)(⏑⏑–)(⏑⏑–)	Agamemnon 40	Toṭaka
(⏑⏑⏑⏑)(– –)(–⏑⏑)(– –)	Medea 196	Patitā
(⏑⏑⏑⏑)(– –)(⏑⏑⏑⏑)(– –)	Aristoph. fr 506, 2	Kusumavicitrā
(⏑⏑⏑⏑)(⏑⏑–)(⏑⏑⏑⏑)(⏑⏑–)	Persians 936	Velankar 14.10
(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑–)	Aristophanes 698 fr.	Maṇiguṇanikara
(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑⏑⏑)(⏑⏑⏑⏑)	Lysistrata 481	Achaladhṛti

Deo notes that many of these meters appear to occur in catalectic versions as well (2007, 100) and some of these have exact parallels in Greek. I have not yet attempted an exhaustive search, but the following are suggestive:

(19) Greek-Sanskrit correspondences (catalectic)

line	*Greek*	*Sanskrit meter*
(– –)(– –)(– –)(– ø)	Iphigenia Tauris 131	Gāndharvī
(– –)(⏑⏑⏑⏑)(– –)(– ø)	Clouds 443	Makaralatā
(⏑⏑–)(⏑⏑–)(– –)(– ø)	Persians 155	Tāra

Classical Sanskrit also has 16μ meters with one or more anaclastic feet $(\breve{}-\breve{})^3$:

(20) Anaclasis in Sanskrit

(⏑–⏑)(⏑⏑–)(⏑–⏑)(⏑⏑–)	Jaloddhatagati (H.2.169)
(⏑–⏑)(⏑–⏑)(⏑–⏑)(⏑–⏑)	Mauktikadāma (H.2.172)

Deo does not include these among her list of meters in the 'trochaic tetrameter' family, but they include the only possible anaclastic version of a foot.

Like Greek, Prakrit and Sanskrit had a double-long version of the same meter, *Āryā* (see Ollett 2012), which comes in two-line verses:

(21) Āryā

(⏑⏑–)(⏑⏑–)(⏑⏑–)(–⏑⏑)(– –)(⏑–⏑)(– –)(– Ø)
lahuaṃti lahuṃ purisaṃ pavvaa–mettaṃ pi dō vi kajjāiṃ

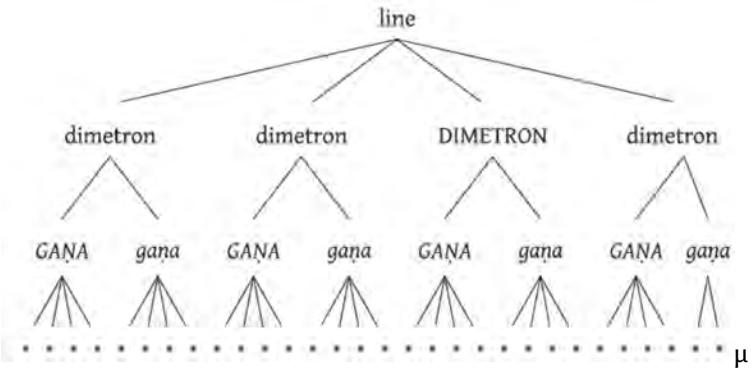
(–⏑⏑)(⏑⏑–)(– –)(– –)(– –)(⏑)(–⏑⏑)(– Ø)
ṇivvaraṇam aṇivvūḍhē ṇivvūḍhē jaṃ aṇivvaraṇaṃ

Even if someone is as great as a mountain, two things can bring him down:
revealing what he hasn't accomplished, and not revealing what he has (tr. Ollett)

3 Berber meter has these as well, often in great abundance. See Riad (2017, 512ff.).

Each line is the same length as a Greek anapestic tetrameter. The first line of the verse is almost exactly like the one in Greek:

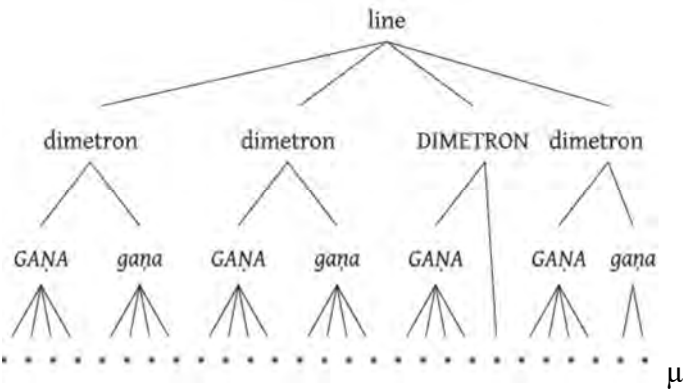
(22) *Āryā*, first line of a verse



The only difference is that the Sanskrit version has caesura, where the Greek version has diaeresis. Like many other Indo-European meters, *Āryā* allows for anaclasis, which shows up regularly in even numbered gaṇas (⏑–⏑).

The second line of the verse is a slightly modified version of the first, the difference being that the third dimetron has an extremely abbreviated gaṇa (with one μ rather than four):

(23) *Āryā*, second line of verse



This part of *Āryā* has no correspondent in Greek (or Anglo-Saxon, see below) and I treat it as an innovation: Sanskrit inherited the shape of the first line of each verse (22), and modified that to get the shape of the second (23).

As in Greek, there is a mid-line word-break, but it is *caesura* (within feet) rather than *diaeresis* (across feet). Ollett gets the off-center break that comes with caesura with two constraints *BALANCEPĀDAS >> BALANCEPĀDAS. The first bans (*) balanced half-lines, the second requires them. Ranked this way, the best place to have a break is as close to the center of the line as possible without actually being at the center of the line (see Prince 1989 for this LAW OF CAESURA in Greek). Mid-line diaeresis can be modeled with the opposite ranking: the best way to satisfy BALANCEPĀDAS >>*BALANCEPĀDAS is with mid-line diaeresis, rather than caesura.

Ollett gives the following schema for the *Āryā*, where the traditional Greek spondees, anapests, dactyls and proceleusmatics are clear:

Tab. 15: Schema of *Āryā* (= (24))

***gaṇa*:**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
First line:	– –	– –	– –	– –	– –		– –	–
	⏑⏑–	⏑⏑–	⏑⏑–	⏑⏑–	⏑⏑–		⏑⏑–	
	–⏑⏑	–⏑⏑	–⏑⏑	–⏑⏑	–⏑⏑		–⏑⏑	
	⏑⏑⏑⏑	⏑⏑⏑⏑	⏑⏑⏑⏑	⏑⏑⏑⏑	⏑⏑⏑⏑	⏑ ⏑⏑⏑	⏑⏑⏑⏑	
		⏑–⏑		⏑–⏑		⏑–⏑		
Second line:	– –	– –	– –	– –	– –		– –	–
	⏑⏑–	⏑⏑–	⏑⏑–	⏑⏑–	⏑⏑–		⏑⏑–	
	–⏑⏑	–⏑⏑	–⏑⏑	–⏑⏑	–⏑⏑		–⏑⏑	
	⏑⏑⏑⏑	⏑⏑⏑⏑	⏑⏑⏑⏑	⏑⏑⏑⏑	⏑⏑⏑⏑		⏑⏑⏑⏑	
		⏑–⏑		⏑–⏑		⏑		

The gaṇa (⏑–⏑), common in feet 2, 4, 6, is a case of *anaclasis*, familiar from Greek, the sharing of a mora into another syllable (Golston/Riad 2005). Kiparsky notes that anaclasis (or *syncopation*) appears to be unique to Indo-European meters:

> Syncopation operates systematically in Indic, Persian, and Greek quantitative meters. In these three traditions, syncopation is optional in some meters, obligatory at a specific point in the line as an invariant feature of some important stable meters, and generates additional rare or nonce meters. It is an important source of variation in the Rigvedic meters (Arnold 1905: 36), and continues to function productively in Classical and Middle Indic verse. It is well-documented in Persian meters (Hayes 1979) and in their Urdu adaptations (Deo/

> Kiparsky 2011). In classical Greek it has been recognized since antiquity under the term ANACLASIS. (2018, 8)

Summing up, I have tried to show that Deo's 'Sanskrit trochaic tetrameter' (12 above) is essentially identical to the Greek anapestic dimeter, as laid out in (18). I have suggested that both meters go back to PIE times but have not yet spelled out how the two changed. Since the *families* are identical, I assume they reconstruct. What changed was that Sanskrit innovated a way of realizing the meter in poems, which Deo identifies but does not name; bowing to Greek, I will call it *responsion*, specifically local responsion. The specific manifestation of line *n* is identical to line *n* +1 in a given poem. There is no evidence I see to reconstruct local responsion to PIE.

On the other hand, there is a sort of family resemblance between the very local responsion Deo identifies in Classical Sanskrit and the quite distal strophic responsion familiar from Greek drama. The difference is that the Greek version copies exact line instantiations at a distance of twenty lines or so while Sanskrit copies them in the immediately following line. But this metrical *lex talionis* of a light for a light and a heavy for a heavy is surely the same. It seems that Greek and Sanskrit may have inherited responsion from PIE (it is unknown elsewhere to my knowledge) and then developed it in slightly different ways, locally in Sanskrit and distally in Greek.

5 Anglo-Saxon

The meter of *Beowulf* is a tetrameter (Creed 1990) with about four words per line (Russom 1998 and 2017) and is generally thought to have a quantitative basis. Golston/Riad (2001) find that the meter allows from 8–16μ,[4] with each metrical position in the tetrameter filled either by two moras, – or ⏑⏑ as in the Greek and Sanskrit meters we have just seen, or by one, ⏑.

4 They count only long vowelled syllables as heavy, noting that Old English *phonology* treats closed syllables heavy as well. Taking closed syllables as heavy reduces the 99% coverage to 95%. Kevin Ryan points out that meter/phonology weight mismatches happen in both directions: closed syllables in Malayalam are light in the phonology but heavy in the meter and the reverse is found in Nanti, Kayardild (possibly), and Avestan (possibly: see Kümmel 2018). Other ways of scanning Old English are possible, even probable: Minkova (2017), for instance, presents evidence that vowels in monosyllabic function words like *hŭ, ðă, mĕ* scan light. It is also possible that *word-final* consonants do not make a syllable heavy. More research is needed.

The result is a fairly loose meter, such that there is usually more than one way to scan a line, but there are some results the analysis brings that are of interest.

(25) *Beowulf* 1–11 (Golston/Riad 2001)

(hwæt, wē) (Gārdena)	(in geār)(dagum)	(⏑–)(–⏑⏑) (⏑–)(⏑⏑) 12μ
(þēod)(cyninga)	(þrym ge)(frūnon)	(–)(⏑⏑⏑) (⏑⏑)(–⏑) 10μ
(hū ðā) (æþelingas)	(ellen)(fremedon)	(⏑⏑)(⏑⏑⏑⏑) (–⏑)(⏑⏑⏑) 12μ
(Oft Scyld) (Scēfing)	(sceaþena) (þrēatum)	(⏑⏑)(–⏑) (⏑⏑⏑)(–⏑) 11μ
(monegum) (mægþum)	(meodosetla) (oftēah)	(⏑⏑⏑)(–⏑) (⏑⏑⏑⏑)(⏑–) 13μ
(egsode) (eorlas)	(syððan) (ærest wearð)	(⏑⏑⏑)(⏑⏑) (⏑⏑)(–⏑⏑)11μ
(fēasceaft) (funden hē)	(þæs frōf) (re gebād)	(–⏑)(⏑–) (⏑–)(⏑⏑–) 13μ
(wēox under) (wolcnum)	(weorðmyn) (dum þāh)	(–⏑⏑)(⏑⏑) (⏑⏑)(⏑–) 11μ
(oðþæt him) (æghwylc)	(þær ymbsit) (tendra)	(⏑⏑⏑)(–⏑) (–⏑⏑)(⏑⏑)12μ
(ofer hron) (rāde)	(hȳran) (scolde)	(⏑⏑⏑)(–⏑) (–⏑)(⏑⏑) 11μ
(gomban) (gyldan)	(þæt wæs gōd) (cyning)!	(⏑⏑)(⏑⏑) (⏑⏑–)(⏑⏑) 10μ

The analysis assumes that short vowels in closed syllables scan ⏑, unlike Greek and Sanskrit, where they scan –; this scansion has the result that 99% of the lines in the sample (the first 1892 half-lines) have less than 16μ, i.e., fit neatly into a loosened quantitative tetrameter of the type we saw in Greek and Sanskrit. There are on this hypothesis 39 maximal lines with 16μ and 6 minimal lines with 8μ; the other line lengths distribute in a rough bell curve that peaks over the mode of 12μ, as we would expect *ceteris paribus*:

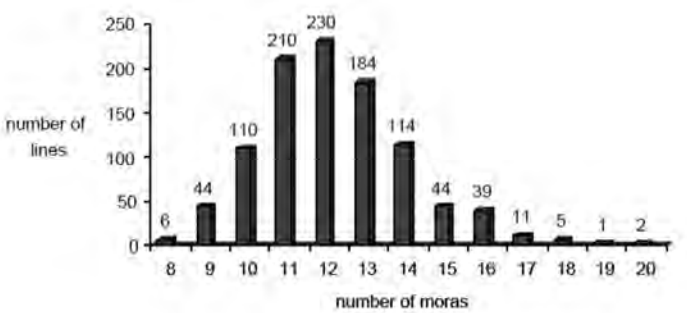


Diagram 4: (=(26)). *Beowulf*, number of μ per line.

There is an absolute lower limit of 8μ per line and a slightly messy upper limit of 16μ per line, as we encounter nineteen lines with 17, 18, 19, or 20 moras per line.

Golston/Riad's analysis is in some ways stricter than competing analyses of Anglo-Saxon meter. First, most analyses leave out a good chunk of the text in order to squeeze it into the meter proposed. Thus Heusler (1891) ignores stressless syllables between stresses; Bliss (1958) ignores stressless syllables as needed *metri causa*, Russom (1987) ignores syllables in prefixes, Keyser (1969) and Fabb/Halle (2008) ignore *all* stressless syllables. Our 2001 analysis counts *every* μ and σ in the text and is in that sense a tighter fit with the actual text. Scanning all closed syllables as – brings the coverage down to 95%. Other options are possible, but this is not the place to pursue them. Second, most analyses of *Beowulf* posit *multiple* metrical patterns, from 5 types per half-line (Sievers 1885, 1893; Russom 1987), to 130 (Bliss 1958), to 279 metrical patterns per line (Pope 1966). We posit a single type of line, the one in (2).

Our claim is that *Beowulf* used a much looser type of meter than we see in (any) Greek or Sanskrit meters, with 6561 (3^8) distinct types of line, instead of the 256 (2^8). *Beowulf* only has 3182 lines in it, so if the meter is as loose as we propose, most line types shouldn't repeat in the poem. This is true: singleton types make up a stunning 54% of *Beowulf* and 2-token-types make up another 16%. If we look at line-types with three tokens or more, the number of lines per type drops off dramatically and follows a Zipf-like pattern:

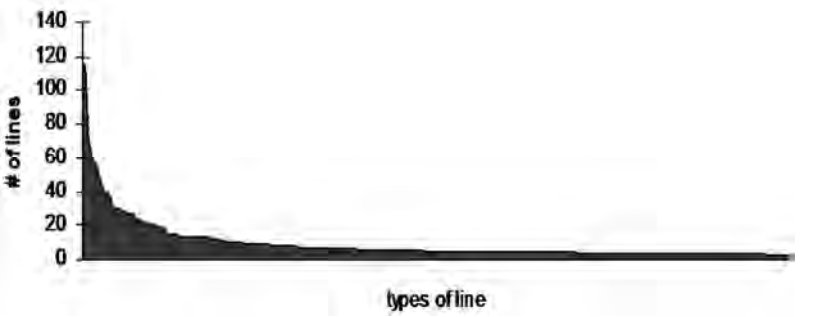


Diagram 5: (= (27)), *Beowulf*, tokens per type.

Anaclasis is not reported for Anglo-Saxon meter as far as I know, but Golston/Riad's scansion does require some cases of it, as we can see in *Beowulf* 7, repeated below:

(28) *Beowulf* 7

(fēasceaft) (funden hē) (þæs frōf) (re gebād) (–⌣)(⌣–) (⌣–)(⌣⌣–) 15μ

The first 8μ do not divide neatly into four sequences of –, ⏑⏑, and ⏑. The problem is that the two ⏑ syllables are separated by a heavy. Without anaclasis, there is no way to parse the string into four metrical positions; anaclasis allows us to split the two μ of the middle – syllable into distinct metrical positions. Alongside feet shaped ⏑–⏑, this suggests that anaclasis was a property of Anglo-Saxon meter.

Most lines in *Beowulf* will not match lines in Greek or Sanskrit because they fall below the 16μ requirement there. Half-line matches are easier to find:

(29) Greek, Sanskrit, Anglo-Saxon equivalents

(– –)(⏑⏑–)	*Suṣamā*
ūs lārena gōd	*Beowulf* 269b
ἔκ τ’ ᾱθανάτων	Euripides, *Ion* 878b

6 Reconstruction

To account for the striking similarities, I propose that Greek and Sanskrit inherited a fully quantitative tetrameter from PIE, alongside the eight syllable iambic[5] meter reconstructed since Westphal.

The meter in (1) above is inherited in Greek as ‘anapestic dimeter’ (counting metra rather than feet) and in Sanskrit as Deo’s ‘trochaic tetrameter’ (counting feet rather than metra). As I have tried to show above, the terms anapestic and trochaic are not apt descriptions of these meters, for which the 16μ length and grouping into spondaic, anapestic, dactylic, and proceleusmatic feet are the crucial factors.

In both languages this meter occurs in catalectic and acatalectic lengths, in regular 16μ and double 32μ lengths, and in combinations of these. Anaclasis is reported for Āryā in Sanskrit, but not for Deo’s types or for Greek anapests. Since it appears to be a property of PIE meters generally (Kiparsky 2018), the fact that it occurs in Āryā may be taken as a separate inheritance. Āryā innovated a degenerate metron ⏑, as well, seen in the fifth foot of the truncated catalectic line. This is anomalous on my account.

5 The first four syllables of the reconstructed meter were quantity-insensitive: xx xx ⏑– ⏑–, making the meter iambic only in its second half. Kiparsky (2018) argues for abstracting away from this using correspondence constraints that constrain the first half of the line less than the second; this allows a fully iambic meter whose actual realization is iambic only in its second half.

Greek and Sanskrit would also have inherited the notion of responsion, having identical realizations of an abstract meter in successive lines. Sanskrit took this to immediately successive lines as local responsion, Greek took it to lines that occur after an interval of other lines, as distal responsion, familiar from the responsion in strophe and anti-strophe.

The PIE meter in (1) would have undergone a major change in Anglo-Saxon and other early Germanic meters to (2), where a metrical position could be monomoraic ⏑ as well as bimoraic ⏑⏑ or –. The result is a very loose meter that allows multiple scansions for a single line; this loose meter was augmented with a strict system of alliteration and alignment of feet to words (Russom 2017) that were not inherited from PIE, perhaps to impose some structure on a meter whose quantitative basis had become too permissive.

At the level of the half line, where there are only 16 combinations of feet, we find that all three traditions have all sixteen types of half-line (Greek, Sanskrit, Anglo-Saxon):

(30) Shared half-lines

	– –	–⏑⏑	⏑⏑–	⏑⏑⏑⏑
– –	√√√	√√√	√√√	√√√
–⏑⏑	√√√	√√√	√√√	√√√
⏑⏑–	√√√	√√√	√√√	√√√
⏑⏑⏑⏑	√√√	√√√	√√√	√√√
	GSA	GSA	GSA	GSA

7 Shortcomings of the proposal

There are at least two problems with the reconstruction I am proposing.

7.1

Jesse Lundquist and Kevin Ryan point out (p.c.) that Indo-Europeanists will be skeptical of basing a reconstruction on *Classical* Sanskrit rather than on earlier Vedic, especially since classical meters are traditionally taken to be derived from Vedic meters. The general point is well taken, but the exact correspondences discussed above seem to me too strong to be accidental.

As I understand it, the main divisions in Indic meters are between syllabic (akṣaravṛtta, including most Vedic), quantitative (mātrāvṛtta, including Āryā),

and syllabo-quantitative verse (akṣaragaṇavṛtta/varṇavṛtta, including the classical meters Deo analyzes). Deo argues (2007, 67ff.) that the usual textual tradition (*Chandaḥśāstra*) of analyzing the latter set of meters is not a good guide for how they work, especially the three-part trika system used to describe any meter in the tradition. She opts instead for "the rich oral tradition of verse recitation, which has been transmitted through the generations, although its antiquity is not clearly established" (p. 70); her results speak for themselves and for the strong possibility that the long Indic textual tradition may not be the best source for how these meters work or how they were developed. Vedic and classical meters are distinct enough that it seems unlikely that the latter came from the former: "the epic Śloka is transparently derived from the Vedic anuṣṭubh, but the lyrical meters of Classical Sanskrit look quite different from anything in Vedic" (Kiparsky 2018, 92).

My proposal must assume therefore that later quantitative and syllabo-quantitative verse retains things from PIE that are not found in earlier Vedic texts. Comparison with Greek makes this seem less problematic, at least to me: the earliest meters do not provide us with anapestic tetrameter, but it occupies an old and venerable spot in drama, being closely associated with the chorus. It does not seem to me problematic to assume that classical Greek drama retains things from PIE that are not found in early epic or lyric: anaclasis is unknown in Homer but common in later Greek and most likely reconstructs to PIE. Further research is needed here.

7.2

With any kind of reconstruction, there is the possibility that universal aspects of metrics are responsible for shared similarities rather than a shared common ancestor. So when we find syllables in Greek, Sanskrit, and Anglo-Saxon we don't attribute *them* to a shared common ancestor but to the universal grammatical abilities of humans. The meters discussed in the preceding pages share two traits that are found in many kinds of metrics. Foremost among these are the tetrameter, which Burling (1966) has argued is part of our shared common humanity; if he is right, the fact that Greek, Sanskrit, and Anglo-Saxon meters were tetrameters need not imply descent from a common ancestor with that trait. The second trait is the quantitative nature of the meters, based on light and heavy syllables. This is found in meters from Japanese *Haiku* and *Tanka* to the many classical meters of Arabic; again, there is no reason to assume that Greek, Sanskrit, and Anglo-Saxon inherited sensitivity to syllable quantity, as it is known to be a common thing in the languages of the world.

My proposal must then rely on the fact that these traits occur together in the meters I have discussed, along with catalexis (in Greek and Sanskrit) and, to a lesser extent, anaclasis. The strength of the reconstruction depends on the likelihood that just this set of traits would come down together in a meter. Whether that argument goes through will also need to be further researched. I hope to have presented some grist for these mills.

References

Allen, W.S. (1973), *Accent and rhythm. Prosodic features of Latin and Greek: a study in theory and reconstruction*, Cambridge.

Arnold, E.V. (1905), *Vedic metre in its historical development*, Cambridge.

Burling, R. (1966), "The metrics of children's verse: a cross-linguistic study", *American Anthropologist, New Series,* 68.6, 1418–1441.

Deo, A./Kiparsky, P. (2011), "Poetries in contact: Arabic, Persian, and Urdu", in: M.-K. Lotman/M. Lotman (eds), *Frontiers of Comparative Metrics*. Bern/New York, 147–173.

Deo, A.S. (2007), "The metrical organization of Classical Sanskrit verse", *Journal of Linguistics* 43, 63–114.

Gimbutas, M./Dexter, M.R./Jones-Bley, K. (1997), *The Kurgan culture and the Indo-Europeanization of Europe: Selected articles from 1952 to 1993*, Washington, DC.

Golston, C. (1991), "Minimal word, minimal affix", in: T. Sherer (ed.), *Proceedings of NELS* 21, 95–110.

Golston, C. (2009), "Old English feet", in: T.K. Dewey/Frog (eds), *Versatility in Versification: Multidisciplinary Approaches to Metrics*, New York, 105–122.

Golston, C./Riad, T. (1997), "The phonology of Classical Arabic meter", *Linguistics* 35.1, 111–132.

Golston, C./Riad, T. (2000), "The phonology of Classical Greek meter", *Linguistics* 38.1, 1–69.

Golston, C./Riad, T. (2001), "Scansion and alliteration in *Beowulf*", *Jahrbuch für Internationale Germanistik* 77–105.

Golston, C./Riad, T. (2005), "The phonology of Greek lyric meter", *Journal of Linguistics* 41, 77–115.

Gray, R.D./Atkinson, Q.D. (2003), "Language-tree divergence times support the Anatolian theory of Indo-European origin", *Nature* 426, 435–439.

Gunkel, D. (2010), *Studies in Greek and Vedic prosody, morphology, and meter*. Ph.D. diss., University of California, Los Angeles.

Gunkel, D. (2011), "The emergence of foot structure as a factor in the formation of Greek verbal nouns in -μα(τ)-", *Münchener Studien zur Sprachwissenschaft* 65, 77–103.

Hayes, B. (1979), "The rhythmic structure of Persian verse", *Edebiyat* 4/2, 193–242.

Hayes, B. (1995), *Metrical stress theory: principles and case studies*, Chicago/London.

Jakobson, R. (1952), "Studies in comparative Slavic metrics", *Oxford Slavonic Papers* 3.

Kager, R. (1993), "Alternatives to the iambic-trochaic law", *Natural Language and Linguistic Theory* 11. 381–432.

Kiparsky, P. (2003), "Accent, syllable structure, and morphology in Ancient Greek", in: E.M. Athanasopoulou (ed.), *Selected Papers from the 15th International Symposium on Theoretical and Applied Linguistics,* Thessaloniki, 81–106.
Kiparsky, P. (2018), "Indo-European origins of the Greek hexameter", in: D. Gunkel/O. Hackstein (eds), *Language and Meter*, Leiden/Boston, 77–128.
Kozasa, T. (2000), "Moraic tetrameter in Japanese poetry", in: G. Sibley/N. Ochner/K. Russell (eds), *Proceedings 2000: Selected Papers from the 4th College-wide Conference for Students in Languages, Linguistics and Literature,* Honolulu, 9–19.
Kümmel, M.J. (2018), "Silbenstruktur und Metrik", in: D. Gunkel/O. Hackstein (eds), *Language and Meter*, Leiden/Boston, 129–157.
Mester, A. (1994), "The quantitative trochee in Latin", *Natural Language and Linguistic Theory* 12, 1–61.
Minkova, D. (2017), "Right-edge Grenzsignale in Old English alliterative verse", paper presented at *Frontiers in Comparative Metrics III*, Tallinn, Estonia.
Ollett, A. (2012), "Moraic feet in Prakrit metrics: a constraint-based approach", *Transactions of the Philological Society* 110.1, 1–42.
Raven, D.S. (1962), *Greek metre,* London.
Renfrew, A. Colin (1987), *Archaeology and language: The puzzle of Indo-European origins*, London.
Riad, T. (2017), "The meter of Tashlhiyt Berber songs", *Natural Language and Linguistic Theory*, 35, 499–548.
Russom, G. (1987), *Old English meter and linguistic theory*, Cambridge.
Russom, G. (1998), *Beowulf and old Germanic metre*, Cambridge.
Russom, G. (2017), *The evolution of verse structure in Old and Middle English poetry from the earliest alliterative poems to iambic pentameter*, Cambridge.
Selkirk, E.O. (1986), "On derived domains in sentence phonology", *Phonology Yearbook* 3, 371–405.
Selkirk, E.O. (1996), "The prosodic structure of function words", in: J.L. Morgan/K. Demuth (eds), *Signal to Syntax. Bootstrapping from speech to grammar in early acquisition*, Mahwah, NJ. 187–213.
Smyth, H.W. (1896), "Notes on the anapaests of Aischylos", *Harvard Studies in Classical Philology*, Vol. 7, 139–165.
Velankar, H.D. (1949), *Jayadaman: a collection of ancient texts on Sanskrit prosody and a classified list of Sanskrit meters with an alphabetical index*, Bombay.
Watkins, C. (1963), "Indo-European metrics and archaic Irish verse", *Celtica* 6, 194–249.
West, M.L. (1973), "Indo-European metre", *Glotta* 51, 161–187.
West, M.L. (1982), *Greek metre*, Oxford.
West, M.L. (2007), *Indo-European poetry and myth*, Oxford.
Westphal, R. (1860), "Zur vergleichenden Metrik der indogermanischen Völker", *Zeitschrift für vergleichende Sprachforschung auf dem Gebiete des Deutschen, Griechischen und Lateinischen* 9, 437–58.
Yates, A./J. Lundquist (2018), "The morphology of Proto-Indo-European", in: J.S. Klein/B.D. Joseph (eds), *Handbook of Comparative and Historical Indo-European Linguistics*, Vol. 3, 2079–2175.8.