An Easy Introduction to Comparative Metrics

(discontinued)

by

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1 Preliminary notes

1.1 Few words about the author

I have first faced the problematic in early nineties when, being a student of Russian philology at Petrozavodsk State University and fond of comparativistics, I read an article on *Indo-European Verse* by West [West 1973]. Another such an introduction to the subject became *A History of European Versification* by Michael Gasparov [Gasparov 1989]. I was lucky to attend his lectures on Russian verse, a course he delivered at Petrozavodsk State University in 1991, answering the invitation of professor Tatyana Malchukova, the founder and the head of the Chair of Classical Philology in Retrozavodsk University. Professor Malchukova supervised my final paper and I am most indebted to her for having ever graduated from the institution. I am also grateful to all my teachers who favoured my research, often done at the expense of their lectures.

In one of my course papers I tried to analyse intonational limitations ("constraints") in hexameter imposed by the system of its caesuras and bridges. Of my two speeches delivered at Student Conferences, where the first (1992) was showing isomorphism of Greek hexameter and iambic trimeter and the second (1993) was introducing to the study of Russian epic verse, both got the highest awards which I am still proud of. In 1993 I moved to Saint Petersburg planning to major in Classical Studies, which I did for one year only, and that was it.

Some years have past since, that I got some leisure to resume the studies.

1.2 Types of versification

1.2.1 Cluster-Syllabic Verse

Those who have heard of ancient Greek, Roman, classical Arabic or Sanskrit poetry know that verse meters in there, apart from very often containing a constant number of syllables (that is being isosyllabic), are known to distinguish long and short syllables, allowing in some positions of the   verse only short syllables (U), in the other — long syllables (-), whereas in some positions the syllable could be either long or short (X):

         X-U-X-|U-X-UX   *iambic trimeter*
         XX-UU-U-U-X   *hendecasyllabics*

The verse, that observes number of syllables distinguishing them by their "length", is traditionally referred as to "quantitative". It worth to note that the difference between short and long syllables here is purely qualitative for each in the most cases would take just one measure of verse. Further you will see why we define this type of verse as cluster-syllabic.

1.2.2 Moraic Verse

1.1.2. Some verses of Greeks, Romans and Indians observe a constant number of measures (called moras by Greeks or matras by Indians), being isomoric. In such meters a long syllable lasts two metrical measures and may be replaced by two short syllables of one metrical measure each. This is a type of "quantitative" verse where the difference between short and long syllable is quantitative indeed. Further we specify this type of verse as moraic.

\<Example\>

Both above types of versification, as I said, are often referred to as "quantitative".

1.2.3 Syllabic Verse

When people can not distinguish in a verse any other regularity but observance of the number of syllables, they speak of a pure syllabic verse.

\<Example\>

1.2.4 Accentual-Syllabic Verse

When a verse observes number of syllables and positions of stressed syllables we speak of accentual-syllabic verse.

\<Example\>

1.2.5 Accentual Verse

When we can not trace any regularity whatsoever we speak about an accentual verse, for nothing prevents us from supposing each line to contain a constant number of accents.

\<Example\>

The latter two types of verse are often referred to as "qualitative".

1.3 Classifications

The above distinction of "quantitative" and "qualitative" verse comes from the division of languages into those distinguishing vowels, or even vowel phonemes, by quantity (long and short vowels), like Early Greek, Latin, Arabic, Sanskrit or by their quality which only means stressed or unstressed (like the most Germanic languages), the former group of languages permitting "quantitative" verse (cluster-syllabic verse and/or moraic verse), the latter group - "qualitative" verse (accentual-syllabic verse and/or accentual verse). Those languages with a fixed position of stress in the word were noticed to have pure syllabic verse (French, Italian).

We, however, primarily distinguish syllabic verse (cluster-syllabic, accentual-syllabic and pure syllabic) and metrical verse (moraic verse and accentual verse), finding similarity of rhythmical patterns within each group.

1.4 Subject Matter

Our personal interest lies primarily within cluster-syllabic and moraic verse which permit their study without reference to accompanying musical transcriptions, for they often just have none such, however presenting such a transcription by themselves, allowing to study the metres comfortably resting still within presumed boarders of a "proper" linguistic subject matter. When analysing accentual meters we however find unreasonable to ignore available musical transcriptions, for "pure linguistic" material is in no way sufficient for their somewhat serious study.

1.5 State of the Art

Situation in the Art seems to have drastically changed with the publication of Millet's "Origines" [Millet 1923]. Such a change may be illustrated by the change of interest and the approach from those in Trubetzkoy's article on Russian chastushka [Trubetzkoy 1927] to those in his article on Russian epic verse [Trubetskoy 1937], when in the former Trubetskoy honestly describes and analyses metrics of the verse within so called musical approach, whereas in the latter he applies a linguistic method which is to prove Indo-European origins of any given *n*-syllable line.

Somewhat presumptuous and superstitious denial of musical approach seems to have deprived self-proclaimed monopolists of the subject proper (which we believe to be first of all studying regularities of the verse and explanation of its form) confining it to mechanical calculation of say unstressed syllables or voluntary manipulations with metrical schemes.

Theoretical foundations for understanding of phonetic forms has been developed meanwhile within experimental phonetics (without knowledge of their colleagues still operating rather outdated, primitive and simplified, however peremptory, notions about speech, language and phonemes), within experimental musicology, studying rhythm perception and grouping, and within musical folkloristics, possessing much wider a scope of metrical material in their hands.

1.6 Language and Metre

1.6.1 Experimental phonetics

Experimental phonetics and typological study of language prosodies has developed quite a clear picture of the phonetic system of the language, as a system of prosodic units of different levels (e.g. syllables, words, syntagmas, phrases) each featuring their own specific prosodic means (vocalic wave, dynamic accent, intonation etc.), the unit of each higher level consisting of variable number of subordinate units and each level tending to be possibly isochronous. One may state relatively higher degree of such an physical isochronism of units of a certain level for a certain language, which however does not prevent the perception of other units as relatively isochronous at their respectful level [Kasevich 1990].

1.6.2 Musicology

In **musicology** relative nature of rhythm and meter in music has been long proved and accepted [Garbuzov 1950], as well as diversity of musical languages admitted [Kharlap 1978], whereas the notion of general metrical structure of temporal forms remain here laconic and unchanged since long not needing any adjustment, stating square structure of metrical grid with contrasting rhythms of fragmentation (division) and aggregation (grouping) to be the most common.

1.6.3 Language and Music

It is worth to state isomorphism (in units and means) of a particular musical prosody of modern new European music and those of modern European languages, which is no strange considering original syncretism of music and language in a song.

Speech	*Music*	*Means*
Syllable	Note	(Vocalism)
Word	Tact	(Accent)
Phrase	Phrase	(Intonation)

Musical prosody of a song (which, within us, most commonly is metrisation of speech in the accented metrical grid within intonational phrase, however embellished) is no way less a type of versification and a product of language prosody as any other, being just one among many, any verse being just a certain way of **possibly binary** correlation between phonetic units of different levels, normally within a phrase. Thus melody of a song can nothing but accord with phrasal intonation, prolongation of final syllables nothing but reflect, or document, temporal structure of phrase end, being in no way less a means of language exploration (I would say more) than such a linguistic description of a verse as "a line containing from 8 to 15 syllables and 2 or 3 accents" (the verse of bylinas [Gasparov 1978]).

On further pages we will deal mostly with elementary levels of a verse which structure very often does not fully explain nor itself neither the verse as a whole, however we should always bear in mind, that all phonetic levels trying to set within presumably squared metrical grid, physical isochrony on each level my be and usually is compromised.

Thus there is nothing "musical" in supposing a protraction of a syllable (or a pause) at the end of say catalectic anapaestic tetrameter which is done not for a sole sake of making the meter perfectly squared but for making possible its comparison with other meters and finding out that this anapaestic rhythm affords protractions quite differently from those of dactyl and that this indeed is not just an isolated correspondence.

It still makes, before we gather further comparative material, any analysis of verse sound somewhat speculative and even fantastic, but it does not mean that we should give up any attempts for such analyses within our tiny scope of knowledge.

1.7 *Musical Approach*

The so called musical approach tried to locate verse elements in accentual grid of musical beats. The approach has been criticised on the ground that, say, accentual-syllabic verse does not show isochrony of feet neither protractions of syllables nor pauses fill the presumed measure.

A measure of, say, a syllabic verse thus was decided to be a syllable: however not isochronous, it does not require being such as "a fact of language", and a verse, being a fact of language, does not require any further evidence for its study but this.

This arguments hardly stand any critic now, for neither beats in music have to be isochronous to be perceived as such, nor a syllable, an accent or a mora have ever been units of language but speech, which in the verse or a song are building elements of phonetic form inasmuch as of a language message, often at the expense of the latter.

As we will see further, the prosody (or, say, system of building elements) of new-European music, which was chosen as tool for understanding the verse by adepts of the musical approach, is not universal, as neither is any other. The simple principles of squaring and binary grouping however seem to be such a tool, having already proved to be working in at least one prosody.

1.8 Case study

If we take a closer look at the two core meters of Greek poetry, which are dactylic hexameter and iambic trimeter [Snell 1955], we can not but notice their striking similarity manifested in isomorphism of their metrical structure, the system of caesuras and bridges, their ethos, alternation of the the whole verses in Margites, or their parts in asynaretes and epods, syncopated variants (scazon/meiouros), noticed already in ancient times ("ei pean"), which makes us think of metrical equivalence of dactylic and iambic dipodia both being realisation of the a similar metrical structure by different means, that is in different prosodies (moraic and syllabic). Fantastic that may sound this assumption, it explains the above similarities of their structure and usage.

This however does not not explain the very structure (5|7). Adding to our comparison another similar pair of not uncommon catalectic anapaestic tetrameter and catalectic trochaic tetrameter we may suppose, that the fist two metres are filling the same squared metrical grid, their catalectic part of one syllable before normal caesura being protracted[1] within full meter inside the verse, which just as well might make them sound more "natural" than the latter two "fully staffed" meters.

hexameter	-UU	-UU	-		UU-	UU-	UU-	-
anapaestic	UU UU	UU UU	UU UU	UU -	UU UU	UU UU	UU-	-
paroemiac					UU UU	UU UU	-	-
hemiepes	-UU	-UU	-					

iambic	X-	U-	-		-U	-X	-U	-
trochaic	-U	-X	-U	-X	-U	-X	-U	-
ithyfallic					-U	-U	-	-
adonic	-U	U-	-					

Such a comparison within just a compact system of the core Greek metres makes us believe that possible catelexes of the meter (protraction of the end syllable in a metrical grid) may depend on its rhythm, being different for meters of a presumably "straight" rhythm, where a syllable may stand for (or feel in) a bigger metrical unit than those of a "refracted" rhythm.

This, in particular, allows us consider as quite regular a similar correlation in Vedic prosody, where along with an 8-syllable pada of straight rhythm of anuṣṭubh and gāyatrī X-X-U-U-‖ we find a catalectic 5-syllable pada X-U--‖ of dvipadā virāj, whereas catalectic 7-syllable padas are met among eight-syllable padas of trochaic gāyatrī.

The applied squaring of elementary elements of the verse within a colon, implying protractions or pauses, violates the isochronism of syllables or moras in as much as the isochronism of the colons is violated by their squeezing into a syllabic or moraic grid, such a reciprocity resulting from a natural contradiction between metrical units of different levels. The contradiction finds a limited number of solutions reflected by specific metrical repertoire of each given poetic tradition.

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1   There is no need to explain catatlexis by protraction or a pause.

2 Cluster-Syllabic Verse

2.1 Rhythmical Units of Syllabic Verse

If rhythm in metrics is still somewhat conceivable and explicable as an alternation of long and short syllables being rhythmical units of different length measured in a metrical grid of moras or matras, in syllabics, with the metrical unit being a syllable and long and short thus being metrically equal, alternation of what and what do we have?

Whereas some still do not give up attempts to measure syllabic meters in moras however fruitless they were, the question has been answered long ago by the theorists of Arabic verse. Arabs called them *sabab*, *watid*, *fasila* and *big fasila,* they being 1, 2, 3 and 4 syllables' long respectfully and resulting from segmentation of syllabic continuum by consonant clusters[2]. Arabic notation, which we use here from left to right, represents such a continuum of syllables with clusters, dividing them into groups, as a row of circles separated by vertical lines, which quite visually represents the pattern of rhythmical units measured in a syllabic grid:

       O|O|OO|O|OOO|OO|OO|
       taMtaMtataMtaMtatataMtataMtataM

Variations of four-syllable foot of *radjaz* in this notation will look as follows:

       O|O|O O| (basic form)   <> | ½ ¼ ¼ [3]
       O O|O O| <> | ½ ½
       O|O O O| <> | ¾ ¼
       O O O O| (only in radjaz)   <> | 1

Further we use this notation in a modified form, marking positions where such a cluster is permissible by a single vertical line and by a double line where the cluster is obligatory, so that we could possibly represent different variations of a meter in one scheme, which for three-feet *radjaz* makes:

       O|O|OO||O|O|OO||O|O|OO||
       ta(M)ta(M)tataM-ta(M)ta(M)tataM-ta(M)ta(M)tataM

The phonetic notation we give along for those wanting not just to see the rhythm but to get a feeling of it by scanning the scheme, in a way, follows the Arabic one too.

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2 Arabs represent what we call with them "a long vowel" as a compound of vocalic and less vocalic elements, the latter creating «a position» before a consonant, which is only logic. Bearing in mind that Greek and Indian prosody similarly equals syllables with long vowels and diphthong and those closed (C)VC we do not discern further consonant clusters proper and "prosodic" clusters. Cf. W. P. Lehmann on Proto-Indo-European Phonology: "With the current phonemic analysis of PIE, the rules of prosody are a series of unrelated formulae. When, however, we assume that PIE 'diphthongs' and 'long vowels' were clusters of vowel and resonants or laryngeals, the general principle of IE metrics becomes obvious. CLOSED SYLLABLES WERE METRICALLY LONG, OPEN SYLLABLES WERE METRICALLY SHORT. Examples of metrically long syllables in PIE would then be /tet-t . . . tey-t . . . teX-t . . . tet|/; types of metrically short syllables would be /te-t . . . te-y . . . te-X . . . /.

3 Here we give normal rhythmical variations of musical tact to show that those of Arabic foot are no less logic.

2.2 Foot, Rhythm and Syncopation in Arud

Before we move forward to the verse of Greeks and Indians, we will dwell for a while upon Arabic classical verse for it is here that the cluster-syllabic verse seems to find such a consistent and clear realisation.

The borders of a foot are easily traceable in Arabic verse for it is within them that rhythmical units are always placed. The basic foot of four syllables (meters of Circle 3 of Al-Khalil) shows the rhythm of aggregation in its basic form O|O|OO| (opposite to rhythm of division in the tact), which alternates with OO|OO| similarly to iambic dipodia of Greeks. The disappearance the cluster normally expected after the second syllable of the foot O|OOO| (call it the inner syncope) in Arabic verse is an acceptable deviation from its even rhythm, which only contributes to integration of its two halves into a single four-syllable unit, which may be also represented by one solid block OOOO|. Such an integrity of the foot affords to derive not only meters of "iambic" and "trochaic" rhythm, but that of *hadjaz*:

O|O|OO||O|O|OO|...	*radjaz*	cf.	*iambus*	O|O||OO||...
O|OO||O|O|OO|...	*ramal*	cf.	*trochee*	|O||OO||O|...
|OO||O|O|OO|...	*hazadj*	cf.	-	

A left shift of the cluster normally expected after the fourth syllable with its return to the right place in the next foot:

O|O|OO||O|O|OO|| >   O|O|O||OO|O|OO||
ta(M)ta(M)tataM-ta(M)ta(M)tataM   ta(M)ta(M)taM-tata(M)ta(M)tataM

- produces another sort of syncope (call it outer), that feature meters of Circle 4 of Al-Khalil.

	Three-feet meters		Two-feet meters	
Metres of Circle 3	O|O|OO||O|O|OO||O|O|OO|| O|OO||O|O|OO||O|O|OO||O| - -	Rajaz Ramal -	O|O|OO||O|O|OO|| O|OO||O|O|OO||O| OO||O|O|OO||O|O| -	Radjaz Ramal Hazadj -
Metres of Circle 4 with syncopated end foot (except bracketed)	O|O|OO||O|O|OO||O|O|O||**O** O|OO||O|O|OO||O|O|O||**OO**| - -	(Sari) (Madid) -	O|O|OO||O|O|O||**O** O|OO||O|O|O||**OO**| OO||O|O|O||**OO**|O| -	Munsarih Hafif Mudari -
Metres of Circle 4 with syncopated penultimate foot	O|O|OO||O|O|O||**OO**|OOO|| O|OO||O|O|O||**OO**|O|OO||O| - -	Munsarih Hafif -	O|O|O||**OO**|OOO|| O|O||**OO**|O|OO||O| - -	Mukdatab Mudjtatt -

There are also meters based on alternation of tree- and four-syllable feet (Circle 1), consisting of only three-syllable feet (Circle 5), and those similar to *radjaz* and *hazadj*, but allowing UU- at the place of two first syllable of the foot (circle 2). A similar local violation of syllabic principle is well known in the beginning of Indian syllabic <u>Ćloka</u>

2.3 Cluster-Syllabic Verse of Greeks and Romans

For two-halved Greek dipodia of iambus and trochee, inner syncopes seem to be too strong a violation of rhythm to be normally permitted as a rhythmical variation, which along with outer syncopes distinguish a separate group of syncopated meters, where the two types of syncopes can freely alternate with non-syncopated variants, like in Anakreon's verse with its rather internal syncope:

UU - - UU - X   and   UU - U - U - X
OOO||O|OOO||O| OOO||OO|OO||O|
tatataMtamtatataMtam   tatataMtatamtataMtam

- alternate and coexist like in Corinna's verse:

<Example>

- or form fixed meters, like glyconic or, say, hendacasyllabics, with their rather outer syncope:

glyconic   *hendecasyllabics*
 XX - UU - UX   XX - UU - U - U - X
O|O|O||OOO||OO| O|O|O||OOO||OO||OO||O|
tamtamtaMtatatamtataM   tamtamtaMtatatamtataMtatamtam

- and great many meters, that expose in syllabic grid quite perceptible "squarish" rhythmical patterns.
I do not know for Arabs, but Romans and Greeks this sort of syncopation seems to find additional bearing in word ends:

Cui dono lepidum novum libellum
  - - -|UU -   U - U - -
Arida modo pumece expolitum?
 - - -| U U - U   - U - -

2.4 Ćloka (and anustubh)

In previous chapters we made a try to explain the nature and rhythmical possibilities of cluster-syllabic versification using as an example the four-syllable foot of classical Arabic poetry. The clarity of realization of this prosody in Arabic verse makes it a convenient starting point for explanation of a more complicated Indian meter *ćloka*.

Notation:
For clarity we use here a traditional notation (a) along with a modified "Arabic" notation (b) – both from left to right – and, for even better clarity, a sort of phonetic notation (c), which in a way also follows that of Arabs.

(a)	U	X	-
(b)	O	O|	O||
(c)	ta	ta(M)	taM

2.4.1 Pada

As we said before the four-syllable foot of Arabic verse shows a higher degree of integrity than *iambic dipodia* of Greeks, based on regular inner syncopation (the one within a foot), like:

- U U -   X - U -
O||OOO|| along with "pure" iambic alternations: O|O||OO||
taM-tatataM   ta(M)taM-tataM

In Vedic *anustubh* we witness what (also considering variation not included in the scheme) we may already call an eight-syllable feet — the *pada*. Integrity of this eight-syllable unit is provided by the regular violation of iambic rhythm in the first half of the pada with its complete restoration in the second half.

[Schematic formulas of the meters:]

iambic dipody	*radjaz*	*pada of anustubh*
X - U - X - U -	X X U - X X U -	X X X X U - U -
O|O||OO||O|O||OO||	O|O|OO||O|O|OO||	O|O|O|O|OO||OO||
ta(M)taM-tataM-ta(M)taM-tataM	ta(M)ta(M)tataM-ta(M)ta(M)tataM	ta(M)ta(M)ta(M)ta(M)tataM-tataM

[Structure:]

(1+1)(2)(1+1)(2)	((1+1)+2)((1+1)+2)	((1+1+1+1)+2+2)

Integrity of this eight-syllable pada gets strengthened even further in *ćloka* where inner syncopation becomes not just regular but obligatory, manifesting itself in complete (even padas) or partial (odd padas) prohibition of non-syncopated openings of the pada:

*X X U - ...
*O|O|OO|| ...
*ta(M)ta(M)tataM-...

2.4.2 Hemistich

We have already shown how an outer syncope, arising from the shift of border of a metrical unit with its return to the right place in the next one, couples the two feet in a larger unit:

radjaz   *mukdatab*
X X U - X X U -   X X - U X X U -
O|O|OO||O|O|OO|| >   O|O|O||OO|O|OO||
ta(M)ta(M)tataM-ta(M)ta(M)tataM   ta(M)ta(M)taM-tata(M)ta(M)tataM

A similar outer syncopation takes place at the end of the odd pada of *anustubh* from the following violation of its iambic rhythm[4]:

U - U -   U - - X
OO||OO|| >   OO||O||O|
tataMtataM   tataMtaMta(M)

This coupling odd padas with the following even padas into 16-syllable units forms hemistichs of a new metre - the *ćloka*.

In *ćloka* the co-joint work of inner and outer syncopes prevents restoration of the iambic rhythm till the very end of the 16-syllable hemistich:

hemistich in anustubh   *hemistich in ćloka*
 X X X X U - U -, X X X X U - U -   X X X X U - - X, X X X X U - U -
O|O|O|O|OO||OO||,O|O|O|O|OO||OO|| >   O|O|O|O|OO||O||O|,O|O|O|O|OO||
OO||
ta(M)ta(M)ta(M)ta(M)tataMtataM , ta(M)ta(M)ta(M)ta(M)tataM-tataM   ta(M)ta(M)ta(M)ta(M)tataMтаMta(M),ta(M)ta(M)ta(M)ta(M)tataM-
tataM

Remark:

Discrimination of inner syncope, outer syncope, foot, dipodia, pada, hemistich and verse is here pure conventional and relative.

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4   Same as in the end of choliamb of Hypponax, that made his iambic trimetre limping (skazon)

2.5 Sanskrit Syllabic Meters

2.5.1 Vedic Meters

Equivalence of X-X-||UU--U-X and X-X--||UU-U-X in Vedic tristiubh (and that of correspondent variants in Jagati) is still remains something I only wish to be able to give a satisfactory explanation. Having none such we give here the following one.

*Verses 7, (4), 4|7 look quite syllabic with caesuras and scaling as a sole constructive means of a pure syllabic verse, showing rather natural rhythmical patterns of syllables "squared" within a member:

1111112‖	=	a 7 syllable "catalectic" line
(2 2 2 2‖)	=	a 4-syllable member
2 2 2 2‖111112	=	X-X-‖UU--U-X
11114	= (?)	x-U-X

The 8-syllable member which would be "arhythmical" as a pure syllabic (11111111‖), uses means of cluster grouping

O|O|O|O|OO‖OO‖

Of which x-U-X, being rather catalectic cluster-syllabic dipodia O|O|OO‖O| could produce "a more cluster-syllabic variant" of tristubh:

X - X - -‖UU - U - X   <   X - U - X   +   X - U - X
O|O‖O|O‖O|OOO‖OO‖O| <   O|O‖O|O‖O| O|O‖O|O‖O|

To the times of metrical equivalence of the two verses in the Vedic period

 X - X -‖U U - - U - X   and   X - X - -‖ UU- U- X
O|O‖O|O‖OOO‖O|OO‖O| O|O‖O|O‖O|OOO‖OO‖O|

both seem to be rather cluster-syllabic trimeters with syncopated middle foot and have their "acatalectic" forms in jagati. Both find further continuation of their history in the Classic period, where the latter develops into uncaesured syllabic trimeters of perfectly squared rhythm (upajati).

 X - U - - ‖ UU- U- X
O|O‖OO‖O|OOO‖OO‖O|

and completely freezes into two separate meters:

 - - U - - ‖ UU- U- X   U - U - - ‖ UU- U- X
O‖O‖OO‖O|OOO‖OO‖O| and   O O‖OO‖O|OOO‖OO‖O|

2.5.2 Frozen Cluster-Syllabic Meters

Among over 200 fixed "syllabic" meters, along with numerous "frozen" metrical meters, many frozen rhythmical variations of syllabic dimeter or trimeter can be found.

2.5.3 Cumulative Meters

Such a name can be given to a group of Sanskrit meters, derived through "mechanical" repetition of a certain rhythmical member.

3 Moraic Verse

Metrical verse differs from that syllabic in that a syllable instead of being a metrical unit of measure becomes a rhythmical unit measured in the grids other than syllabic. One particular case of metrics is moraic verse that fairly strictly distinguishes short and long syllables, the first in metrical grid filling position of one mora (or matra), the second – two moras (or matras). The nature of the grid (that is is it accentual or other, say, clasteral structure) we believe may be further specified through a closer analysis of rhythmical patterns within such grids.

Musical transcription of songs shows how syllables become rhythmical units of different length in accentual grids. The length of a syllable here is rather arbitrary, if only "stronger" positions in the grid are more often filled with longer syllables, which often bare a word stress. In the absence of musical transcription we can nothing but make only vague guesses of metrical structure of accentual verse (from the number of accents in a line) and rhythm within it.

3.1 Moraic Meters with Indians

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3.1.1 Frozen Meters

...

3.1.2 Microsyncopation

...

3.2 Moraic Meters with Greeks

...

3.2.1 Anapaestic Meters

...

3.2.2 Metrization. Galliambus

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4 Accentual-Syllabic Verse and Accentual Verse

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4.1 Rhythm and Meter

...

4.2 Accentual-Syllabic Verse. Inversions. Dolnik

Accentual-syllabic verse is known as a verse of fixed number of syllables, position of word accents being fixed within. The definition can be and usually is adjusted further, however without becoming nothing but a more refined statement of properties of its metrical grid (syllabic) without giving any hint at rhythmical units that are measured within.
We have nothing against representing of this verse through the percentage of stressed syllables for every position as such, it needs however to be translated into other terms to make any comparison possible.

To cut it short, stressed syllables mark groups of syllables of different length measured and correlated in syllabic grid similarly to clusters in cluster-syllabics. Projecting stress statistics onto such a representation we will see not uncommon rhythm of squared patterns with tendency to aggregation within a verse and possible syncopation within a four syllable foot. Below we show a scheme for Russian four-feet iamb, where circle denote syllable, vertical lines stand after stressed syllables, where a single line marks less often stressed syllable and double line – most often stressed syllable.

OO|OO|OO|OO||(O)

A common rhythmical variations O|OOO| (inversion) of OO|OO| allows us to suppose that a qualitative marker of a syllable (stress) here marks the end of a syllable group as a qualitative marker (cluster) does it in the cluster-syllabic verse.

If so called two-syllable feet of accentual-syllabics feel quite stable in squared grid, the so called tree-syllable meters (accentual analogues of Greek anapest, dactyl and "amphibrach", still allowing opposition to two-syllable meters in syllabics

O|OOO|OOO|

tend to find squareness in another prosody, that is accentual metrical grid, which is only favored by quantitative difference between stressed and unstressed syllable:

|-UU|-UU|-

- with further transition into accentual verse of "dolnic", with syllables being rhythmic units correlated in accentual/vocalic grid:

|-$\overline{UU}$|-$\overline{UU}$|-

4.3 Accentual Verse

4.3.1 Russian Chastushka

The verse of Russian chastushka within linguistics approach would be probably described as an accentual verse of two accents (1-2)' (1-3)'. Such a description may probably help some in there metrical studies. We however find more informative the one made by Trubetzkoy [Trubetzkoy 1927] in his green years still within musical approach of Korsch, which reveals quite typical a structure of accentual grid ("trochaic" rhythm of quarters within a "iambic" rhythm of halves) that stands at the background of anapestic rhythmical pattern.

' U̲ "U̲ ' U̲ "U̲   x4

4.3.2 Russian Heroic Verse

The linguistic definition of the verse of Russian bylinas we cited elsewhere seems to compromise the very notion of the definition, in musical notation variation of the verse being limited by a compact system of tunes (metrical-rhythmical patterns), which remarkably repeats that of Greek hexameter, trimeter and their syncopated variants):

1) A fully metricized in accentual greed dimeter and its variant with a syncopated ending (meiouros -type)

UU " U̅ UU UU UU " U̅U̅ '
 1 2 3   4 5 6 7 8 9 10 11 12[5]

UU " U̅ UU UU UU " U '

(Which permitted Korsch to compare the verse with catalectic anapestic dimeter of Greeks. For us, however, such similarities being a common place these are minor differences that matter and require their explanation)

2) And a rather syllabic trimeter and its variant with a syncopated ending (scazon-type)

O||OO||O||OO||OO||OO||OO||
1 2 3 4 5 6 7 8 9 10 11 12
O||OO||O||OO||OO||OO||O||O||

---

5   The numbers help to compare distribution of syllables within each of the tunes.

5 Pure Syllabic Verse

In the so-called pure syllabic meters with fixed number of syllables we do not see much how isosyllabizm explains their form, for apart from meters of eight-syllables or seven-syllable which easily fit a squared syllabic grid we find longer caesured meters with six-, five- and four-syllable members in combinations unique for each given tradition. This difference in metrical repertoire we explain by the difference in the structure of backlaying metrical grids conditioned by the prosody of a correspondent language. All in all we see these meters as language specific and limited in number ways of distribution of syllables in the same squared metrical grid like:

```
 -  -  -  - | -  -  -  - (4|4)
 -  -  -  - | uuuu - - (4|6)
uuuu -  - | uuuu - - (6|6)
```

- which, without supporting musical material, is nothing but a pure guess.

Such violation of syllabic isochronizm is not unique for pure syllabic meters, as you have seen we suppose a possibility of a syllable to fill metrical position of higher levels in other verses, but here such a **scaling**, together with caesuras, seems to be a sole means of any rhythmical diversification within a squared metrical grid.

6 Verse and its Structure

We believe that elementary elements of verse are com-measured with the verse as a whole via intermediation of binary structure.
I can not imaging a verse to preserve a constant number of syllables, say in 11-syllable verse, by counting 11 syllable with each line. Even in shorter verses it resorts to their binary grouping, building feet through which every elementary unit is correlated with a verse as a whole. That is why this very often results in eight syllable lines.

O|O||OO||O|O||OO||

The prosodic means supporting such grouping within syllabics may be caesuras, clusters or accents, which may be used for changing the binary structure of the verse, which we have already seen. The thing is that even if the number of syllable does not equal 2^n it does not deny the squared structure of the whole verse, this squareness being supported on higher metrical levels. What is more, such cataletic verses permit us to discern such bigger metrical elements and give us a notion of structural relation between different levels of the verse.

Thus for a 11 syllable line I would most probably suppose a caesura somewhere after the fourth syllable with the following "squaring":

- - - - ||UUUUUU-

7 General Matters

7.1 Language and Speech

8 Summary

We see nothing special neither new in our approaches to the verse but may be that we apply them somewhat more consistently.

8.1 Isometrism and Squareness of as Key Criteria for Metrical Diagnostics

1. One may derive from a line different rhythmical patterns, depending on the measure (prosody) he choses, however we maintain, not without reason, that the most probable generative, and accordingly, perceptive one is that, which assures isometrizm of its variations and reveals the most clear and simple rhythmical patterns.

8.1.1 Example

When Frolov in his work [Frolov 1991] applies the notion of the Greek mora to the classical verse of Arabs, he gets rhythmical variant of one feet varying in number of such moras from 5 to 7, each verse having irregular and unique metrical structure. Projected onto syllabic grid the verse reads as metrically regular and shows simple and very common square-based rhythmical patterns.

8.2 Uniformity and Consistency of Metrical Representation

Our consistent representation of verses rhythm, whatever their prosody is, as alteration of rhythmical units of different length measured in a correspondent metrical grid (syllabic, moraic, accentual) allows to compare rhythmical patterns of different prosodies and see correspondences, thus permitting further study of the verse.

8.3 Universal Properties of Metrical Grids

Musical form based on the squared metrical grid bing just a particular type of prosody among others, we suppose not without reason such a grid to lay in the bases of verse-building in other prosodies, which proves itself.

8.4 Interdisciplinary and Outsourcing

"Proper" linguistic material, which is only meters of few traditions is too sparse by itself to allow its finer analyses, where as huge amount of musical transcriptions of folk songs still waits to be taken inti consideration. We would like to note that musical transcriptions of folk songs are no less characteristic for a given language than metrical schemes deducted from ancient texts.

9 Conclusion

In the present work we made an attempt to present the verse as a complex structure of prosodic units within which prosodic units of different levels and of different metrical and rhythmical prominence tend to establish reciprocal binary correspondences.

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