Review:
Poetic Meter and Musical Form in Tashlhiyt Berber Songs
François Dell and Mohamed Elmedlaoui

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0. Introduction. While remaining somewhat peripheral within linguistics, in recent years generative metrics (hereafter GM) has seen a mild resurgence of interest reflected in the publication of Fabb and Halle's Meter in Poetry (2009), two substantial conference volumes (Drescher and Friedberg (2008) and Aroui and Arleo (2009)), as well as articles and reviews by Duanmu (2004), Deo (2007), Dell (2009), and Kiparsky (2010). These complement somewhat earlier articles by Hayes and Kaun (1996) and Hayes and McEachern (1998) which have turned out to be influential. While it is premature to refer to a second generation of GM, this work as a whole can be seen in marking certain shifts in empirical focus and theoretical orientation differentiating it in important respects from foundational studies of the seventies.

The focus here will be to identify those aspects of Dell and Elmedlaoui's Poetic Meter and Musical Form in Tashlhiyt Berber Songs (hereafter DE) which are indicative of this shift. It should be recognized that all of these studies are in important sense orthodox in maintaining the core assumption of GM: to elucidate the competence of those participating in a metrical idiom. At the same time, DE requires that metrical competence is understood somewhat more broadly than in traditional GM. For DE's core data does not derive from a familiar poetic form (such as Shakepearean iambic pentameter) but from a relatively exotic musical idiom: Tashilhyt Berber Song (hereafter TBS). The term ‘metrical form’ which is taken as a fundamental component of the abstract, internalized structure of language or in poetry is now required to be understood additionally in a musical sense, namely as the ‘meter’ that is applicable to the externalized rhythmic structure of musical sequences, as these are performed and/or exist

as notated musical scores. These two distinct senses of the term meter, which we will refer to as textual meter and musical meter respectively, are very easily confused. Among the important contributions of DE is in identifying some of the basis of this confusion though, as will be seen, certain questions having to do with their interaction are also raised by their analysis.

This review will be organized in three sections. The first provides a brief introduction to the TBS idiom and to the descriptive apparatus adopted by DE to represent salient aspects of each type of metrical structure. The second outlines their theoretical approach with respect to two elements of metrical form of texts: foot and line structure. The third provides some discussion of the broader significance of these results with respect to other more familiar metrical idioms.

1. Descriptive Apparatus. Even in an era of widespread dissemination of previously obscure ethnic and national musical traditions via the 'world music' genre, TBS is likely to appear at least somewhat exotic when it is encountered on the CD of TBS performances accompanying the volume. Partly, this is due to musical factors such as unfamiliar instrumental ensembles, non-western tunings, and the distinctive timbre of the vocalists and vocal ensembles. Related to the latter is an additional source of exoticism in the Berber language, namely non-sonorant syllabic nuclei within TBS (pp. 153-176) discussion of which is beyond the scope of this review.

In negotiating TBS, DE adopt a basic premise argued for in Dell and Halle (2009) which is to view what is informally referred to as a song as a composite object created from the interaction of two independent structures, a text and a tune. It follows that a

formal description of the TBS idiom implicates the relevant properties of two distinct objects, one musical-the independent phrasal, accentual and rhythmic patterns created by sequences of notes, and the other linguistic-the phonological, morphological and syntactic properties of the text assigned to the tune.

Since conventional and musical literacy is rare among Berber speakers and musical literacy virtually unheard of among Berber musicians (p. 24) the core data requires the importation of two external notational systems. For the phonemic features of Berber, DE adopt a slightly fortified variant of IPA with additional symbols representing clitic group and morphosyntactic boundaries, the latter necessary for syllabic segmentation and, by extension, for DE's analysis of TBS textual meter. For the melodic structure of the tunes, DE rely on standard western musical notation augmented by the grid representations advanced in cognitive music theories most notably in Lerdahl and Jackendoff's (1983) Generative Theory and elsewhere (e.g. Caplin 2000) to represent musical meter.

As both authors are linguists and authors of highly regarded previous studies of Berber (Dell and Elmedlaoui 1985, 1988, 1997, 2002 and 2007), it is appropriate to grant a high degree of confidence in their transcriptions and analyses of Berber linguistic sequences. As for the transcriptions of TBS melodies these were undertaken by Elmedlaoui, a fluent practitioner of the TBS idiom and will be recognized by musicians comparing them with the accompanying recordings to be at least plausible and in most cases unproblematically accurate. Insofar as a western trained ear detects discrepancies between the transcriptions and the metrical form imputed to the melodies, these may

indicate the effects of idiom specific parsing of metrical structure along the lines discussed by, for example, Temperly (2000).

While the transcriptions of performances by well known TBS artists are reliable, it should be noted that their empirical status within DE's analysis of TBS metrical form is somewhat different from that traditionally assumed by generative metrics. The core data of generative metrics is not the performance of a text but rather the text itself-or, more precisely, the text as it appears in an authoritative, published form; it is the latter, and not the former, which forms the basis for theoretically posited principles defining the textual meter.

As a consequence, the problem of recovering textual meter (assuming that the texts are indeed metrical) in TBS is one step removed from that of traditional GM. In particular, in poetic texts the fundamental metrical unit-the line-is inherent in the typography of the original text. In contrast, within TBS or any other non-literate idiom, the line is not a concrete object whose existence is verified by consulting the original source, but necessarily an abstract construct, inferred from the performance of the text documented on the recordings in question. To recognize this asymmetry does not constitute a challenge to DE's claim for the central role of the line in TBS. Rather, the purpose of mentioning it is to note that accepting the poetic entity of the line within song is dependent on the formal operation deriving the textual unit of a line from a musical performance. Insofar as the formal account is convincing, the abstract entities posited within it should be accepted a posteriori. There is, however, no a priori basis for assuming lines, foot structure, or any other textual metrical category applied to musical texts.

2. Foot Structure in TBS. Although one cannot assume the presence of a textual meter within TBS texts, the fact that all texts are well-formed utterances allows one to assume the inventory of linguistic structures defining Berber. Among those relevant to the description of the textual meter is a distinction between light (hereafter L) and heavy (hereafter H) syllables, consisting of one and two moras respectively. The syllabic parsing procedure which allows for the identification of these units relies on work on syllable structure undertaken by the same authors referred to above, assumed here to be unproblematically correct.

Two strong claims with respect to TBS textual meter are based on the categorical distinction between L and H syllables. The first of these is that TBS texts are parsed into four mora sequences composed of L and H. The iteration of all possible foot types subject to this constraint results in the following catalogue.

(1) a. | LLLL|
b. | LLH |
c. | LHL |
d. | HLL | *
e. | HH | *

Second, as indicated by *, the foot types shown in d and e are unattested according to DE and apparently are judged by participants to be ill-formed. The three foot types shown in 1 (a-c) , (referred to by DE as G, D and Γ) are demonstrated by DE to be necessary and sufficient to account for all metrical sequences categorized as lines of TBS texts. These two observations would seem to lead to a simple definition of the TBS foot, namely, that it 1) must contains four moras and 2) be initiated by L.

DE choose to generate the foot taxonomy in a more indirect manner, by defining the foot with respect to what they refer to as a ‘text grid’ along lines posited in Fabb and

Halle (2008). The particular form of the grid DE take to be applicable to TBS is that shown in 2. A string of moras m of indeterminate length (as indicated by ellipses) is assigned to a base level 0, with a left parenthesis indicating the reinitiation of the grid after four L(0) positions;

(2)

```
L(2)    o           o           o           o
L(1)    o     o     o     o     o     o     o     o
L(0)(o  o  o  o (o  o  o  o (o  o  o  o (o  o  o  o  . .
     m  m  m  m  m  m  m  m  m  m  m  m  m  m  m  m  . .
```

The exclusion of the two non-attested foot types in 1d and 1e is accomplished by requiring that every maximum, the position coupled with the highest column registered by the grid, 'corresponds to a syllable initial mora' (p. 34). It will be seen in 3 below that the maximum position does not align with a syllable onset in 3d and 3e, the two unattested forms shown in 1d and e. These are thereby predicted to be rejected while the three acceptable foot types 1a-c are predicted to be acceptable.

(3)

```
        o          L(2)
        o     o    L(1)
    o   o  o  o    L(0)
   (m   m  m  m
a.  L   L  L  L
b.  L   L  H
c.  L   H     L
d.* H      H
e.* H      L  L
```

While this organization succeeds in generating the correct forms, it is confusing in that the text grids in 2 and 3 are geometrically identical to what DE refer to as 'time grids' (p. 35), grids which represent patterns of metrical accent[1] in musical structure. This appearance is misleading in that what is being represented by identical formalisms are two distinct aspects of the participants' metrical competence. As DE observe, time grids

implicate what is known in the musical perception literature as beat induction: the capacity to infer a beat from a pattern of clicks, notes, or syllables in a rhythmic sequence (e.g. Honig and Desain 2003, Benadon 2009). In contrast, text grids implicate the core focus of GM, namely participants' intuitions with respect to acceptable and unacceptable textual lines within poetic idioms.

There is, furthermore, an asymmetry in the character of the relationship of the grid to each type of metrical form. With respect to musical meter, the grid is a more or less representative picture of how the rhythmic structure of melodies is experienced by listeners. Thus, to take two very simple examples shown in 4, the first four notes of the Christmas Carol 'God Rest ye Merry Gentlemen' is understood to begin 'off the beat' with a one note anacrusis whereas 'Good King Wencesles' begins 'on the beat'. This distinction is concretely represented by the structure of the grids which shows the first note of a assigned to the maximally high grid column while that of b is assigned to minimal position:

(4)

a.

```
   x
   x         x
   x   x     x  x
  (F   F     F  G
 Good King Wences (les looked out)
```

b.

```
     x
     x        x
 x   x    x   x
(D   D    A   A
God rest ye mer   (ry Gentlemen)
```

In contrast to the concrete representation of the patterns of metrical accentuation in musical time grids, the Fabb-Halle textual grids in DE serves as an abstract 'counting mechanism' for registering the iterations of the four mora sequence. As such, unlike time grids, none of the elements within the sequence are experienced as having inherent prominence in relation to the others. Indeed, DE explicitly reject the possibility of inherent hierarchical relationships of moras-noting 'it is doubtful that the sound pattern of TB includes anything that could be called stress or accent.' (p. 29) Thus, the main candidate for hierarchical structuring of the units by means of the grid, namely stress, is not present in the language. Furthermore, DE provide arguments for rejecting other possible elements of linguistic structure which might result in particular moras being represented as prominent (p. 30).

Given that there is no inherent hierarchy attributable to the sequence of moras, it follows that any of the following orientations of a well formed binary grid with respect to a four mora sequence can serve to represent TBS foot structure.

(5)

a.

```
      o         L(2)
      o     o   L(1)
   (o  o  o  o   L(0)
    1  2  3  4
    m  m  m  m
```

b.

```
            o   L(2)
      o     o   L(1)
   (o  o  o  o   L(0)
    1  2  3  4
    m  m  m  m
```

c.

```
    o           L(2)
    o     o     L(1)
   (o  o  o  o  L(0)
    1  2  3  4
    m  m  m  m
```

d.

```
          o     L(2)
    o     o     L(1)
   (o  o  o  o  L(0)
    1  2  3  4
    m  m  m  m
```

DE's choice of the structure in 5a to represent the TBS foot is apparently dictated by expository simplicity. Specifically, the constraint that the second mora corresponds with the initiation of a syllable can be easily stated as a mandate that the grid maximum must correspond with a syllable onset. But notice that if DE had chosen to orient the grid with respect to the four mora sequence as shown in 5b the same requirement could be reformulated as mandating a syllabic onset on what could be defined as a medial location i.e those position having grid columns extending up to L (1). Similar reformulations of the constraint could be devised for the other two orientations of the grid in 5c and 5d.

The conclusion required by these observations is that the attribution of a hierarchical structure (as represented by the text grid) to the sequence of moras is arbitrary. What appears to be fundamental for the construction of feet in TBS is not the hierarchical relationships inherent in the elements, but simple constituency. The minimalist definition of a 'flat' TBS foot, i.e. as a tetramoraic sequence initiated by L, would appear to be sufficient for DE's purposes. The importation of the Fabb-Halle textual grid does not seem to be necessary and introduces a degree of unnecessary terminological confusion.

3. Line Structure in TBS. In contrast to the great majority of western meters which tend to consist of repeated iterations of single foot type, DE initially describe TBS metrical form as ‘apparently aperiodic’ meaning that the order in which sequences of metrical feet can appear within a line is unconstrained.

Strictly speaking, this turns out not to be the fact of the matter. The reason for this is the principle of alternation (p. 38) which mandates adjacent occurances of what DE define as odd (G and Γ) and even (D) foot types. This organization results in what is by definition a form of periodicity, albeit a weak one in that the two odd feet G and Γ may be freely substituted. Consequently a larger class of possible metrical patterns is observed in TBS beyond what a strict alternating scheme would allow for.

The class of possible metrical patterns is augmented further by three additional formal mechanisms. First, TBS also allows for incomplete feet at the left and right edges of lines resulting from truncation of initial or final positions of the line. Second, DE also propose the principle of complementarity (p. 88) which allows for relatively short lines to be combined into distich units. The truncated feet just discussed now may appear in medial positions within the distich where they would otherwise be excluded. Thirdly, DE allow for a form of line internal catalexis or ‘silent syllables’ (p. 98), namely positions on the time grid but which are not occupied by an event.

These enrichments to the taxonomy of foot types accounts for a substantial repertoire of defined line types within TBS, one which exceeds the relatively impoverished number of defined meters within familiar western traditions. A closer comparison obtains with non-western systems, most notably the Sanskrit metrical system discussed in Deo (2007). These are, however, strictly aperiodic in that any foot type can,

in principle, occur in any position in a line. Consequently, there are well over 600 line types according to Deo. An additional point of comparison is that Sanskrit meters, like Berber, are quantitative based on the patterning of heavy and light syllables. Finally, like TBS, all practitioners in Sanskrit are aware of the basic form of the tunes with which metrical texts are associated: DE's observation that all almost TBS poetry is sung (p. 23), and all song is poetry appears to apply to traditional Sanskrit metrical practice as well.

On this final point, however, an important difference should be noted which is that while Berber and Sanskrit texts are both understood by practitioners to be intrinsically connected to their musical settings, the rhythmic structure of Sanskrit melodies is systematically derivable from the underlying metrical form. This derivation is achieved according to a mapping procedure which assigns heavy syllables to long events in the musical setting, these carrying twice the durations of short events which are required to be assigned to light syllables.

Thus, for example, the metrical form Rathoddhata of which the line 'deva deva jagataam pate vibho'[2] constitutes one instance, is on the one hand, purely textual, according to Deo's analysis namely, the sequence of light and heavy syllables shown in 7:

(7)

```
H   L  H  L  L  L  H    L  H  L   H
de va de va ja ga taam pa te vi bho
```

'O God, the lord of this world, the shining one.'

On the other hand Rathoddhata is simultaneously a musical pattern defined by the sequences of durations according to the mapping procedure just mentioned. Thus, given

the line of x's representing isochronous timepoints shown in 8 it will be seen that H syllables in the melody assigned to 7 are accorded twice the durations of L syllables.

(8)[3]

```
  x  x  x  x  x  x  x  x  x  x  x  x  x  x  x  x   L(0)
  A     Bb C     C  Bb D  C    Bb  Bb   Bb  A
  H     L  H     L  L  L  H     L  H     L  H
 de    va de    va ja ga taam  pa te    vi bho
```

In contrast to Sanskrit, the melodic settings of Berber texts are connected only obliquely to their textual meters. The mapping from text to tune is accomplished by the principle BEAT (p. 40) which dictates that 'the second syllable of every foot is on the tactus.' Given that BEAT only specifies locations of one of the three or four elements within a foot, all others may appear in other available metrical positions. As a consequence, as DE point out (p. 44), a relatively large class of melodic sequences can realize a given textual meter.

In this respect, TBS is closer to Western traditions in which a text in an underlying meter can assume a variety of melodic forms. This can be observed in the numerous settings of well known poems such as Goethe's 'Kenst du das Land'. The flexibility is achieved at the expense of relinquishing the meter's capacity to dictate a particular melodic sequence.

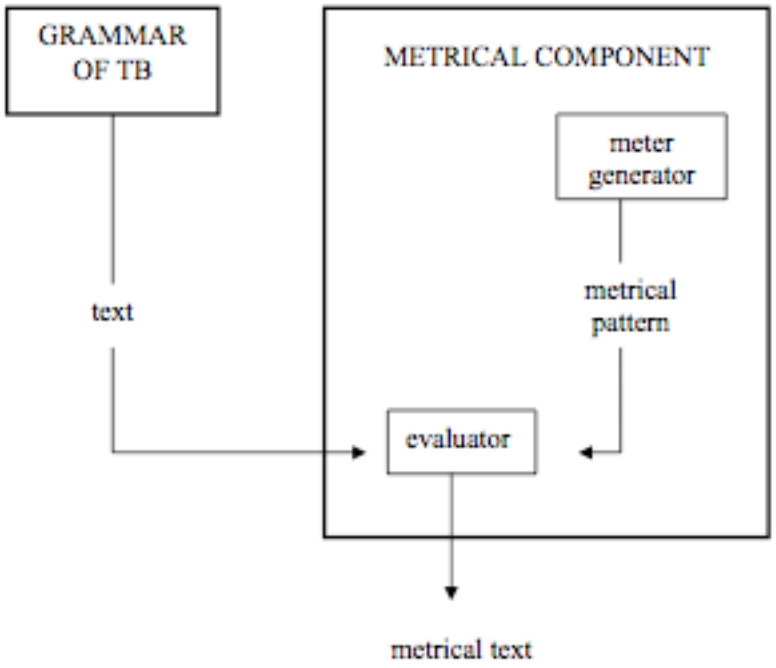
The aperiodic meters in Sanskrit serve a function, namely as a proxy system of rhythmic notation whereby the duration of each note of a melody can be directly inferred from the meter of the text. Here a comparison can be made to the rhythmic modes which existed prior to western notation (Taruskin 2004, Busse-Berger 2005) and which allowed for the transmission of rhythmic sequences based on a similar mapping procedure applied to Greco-Roman classical textual meters. Also comparable in this respect is the system

of Greek rhythmic notation as proposed in West (1994) as is the thirteenth century system of Safi al Din based at least in part on long and short durations mapped to elements defined within Arabic poetic meters (Wright 1978).

In comparison, the function of Berber textual meters is somewhat mysterious; one wonders why practitioners go to the trouble of constructing textual sequences meeting the specifications of a textual meter when these are only obliquely related to the relationship between text and tune as this is presented to and experienced by the listener. This somewhat counter-intuitive aspect of DE's characterization suggests that additional work in this area might unearth closer connections between the two forms of metrical competence.

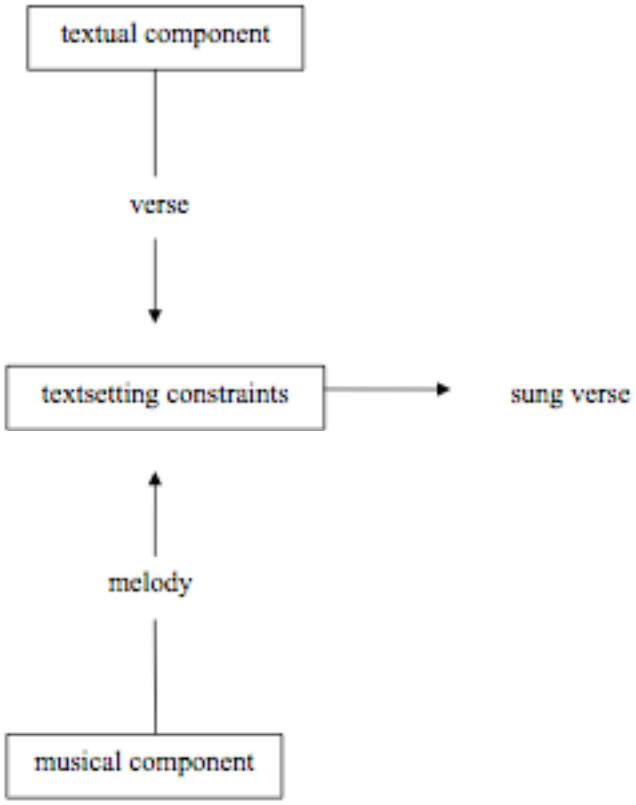
4. General organization. DE represent the process by which TBS participants produce songs by two schematic diagrams reproduced below. First, as shown in 9, the TBS participant fashions a textually metrical line in a manner consistent with other models proposed within GM (e.g. Kiparsky 1977): a well formed Berber utterance is evaluated with respect to a given metrical pattern within the repertoire of textual meters within a given tradition. If the evaluation is positive, the text is judged acceptable and emerges as output.

(9)



The output of 9 subsequently functions as input to the text setting computation in 10, namely as the ‘verse’ appearing at the top of the diagram. The output shown on the right of the text setting computation is classified by DE as ‘sung verse’.

(10)



While 9 and 10 capture the procedure which DE take to be operative within TBS, it is worth noting that they also apply to other traditions. In particular, they apply directly to Western art song traditions in which composers typically set to music pre-existing metrical texts.

However, it should be recognized that 9 and 10 is by no means the only procedure according to which vocal music is created. First, contrary to what DE take to be the case within TBS, songs do not require metrical texts. In this connection, it will suffice to mention the best known choral work in English, Handel's Messiah, which sets to music prose, biblical texts. Simple popular songs have made use of prose texts, such as the Declaration of Independence[4], Ecclesiates 3:1 in Pete Seeger's 'Turn, Turn Turn', or the

Beatles' 'For the Benefit of Mr. Kite', a melody assigned to words of a circus advertisement. While virtually all of the 19th century lieder repertoire mirrors TBS in consisting of settings of metrical texts, many have agreed with Debussy that 'real poetry has its own rhythm which is awkward for us [composers]' (Nichols 2003) and have gravitated to prose on this basis.

Furthermore, while DE's model of TBS requires that the metrical texts be derived first, and then subsequently set to music according to the specifications in 10, songs in other traditions are frequently composed 'tune first' which is to say that words can be fashioned to match the tune, rather than the converse. Among the best known of these are 'The Star Spangled Banner', as well as the 'Twinkle Twinkle Little Star', 'Bah Bah Black Sheep' and others which assign new words to the melody 'Ah je vous dirai Maman'. (List 1977).

Accounting for these well-attested practices requires that 9 and 10 be subject to certain revisions. Specifically, with respect to the musical setting of prose texts, the input into 10 is not verse, as required by the DE's model for TBS but any linguistically well-formed text. Also, the output, by definition, is not 'sung verse' but simply song. It should be noted that incorporating these alterations into the text setting computation in 10 does not fundamentally effect its basic structure: the text is assigned to a tune and the match either is or is not judged acceptable by practitioners. This judgment depends on the relevant features of the linguistic and musical idioms implicated in the interaction of text and tune, represented in the central module of 10 as 'textsetting constraints'. Furthermore, it is apparent that practitioners in many other traditions are able to judge the acceptability of matches between text and tune independent of whether the texts are

metrical. This fact raises the question of whether the requirement for 'verse' assumed within DE's model results in an impoverished view of TBS capacities.

Turning to the question of how tune-first song composition is to be incorporated into DE's model, 10 now needs to be understood as being initiated from the bottom of the diagram, with a text fashioned to meet the requirements of the tune rather than the converse as obtains in TBS. Again, the question comes up as to how TBS participants will respond to the requirement-one contrary to their normal practice- that they assign a text to an existing tune. If the text which emerges from this process is metrical, then this provides a mechanism through which metrical texts can be generated through matching a given tune thereby obviating the need for a separate computation of textual meter shown in 9. If, on the other hand, the text which emerges is not textually metrical, the fact that it forms an acceptable match with the tune is directly contradictory to DE's assumption that well formed text-tune composites in TBS require metrical texts. In short, either possibility brings into question certain underlying assumptions of DE's model.

5. Conclusion. For the reasons just outlined, the separate computations schematized in 9 and 10 seem to lead to somewhat counter-intuitive conclusions. To note this does not, of course, constitute a refutation of DE's approach. The facts of TBS may require a bifurcation of the data and of the cognitive processes responsible for the two types of metrical form as described by DE.

At the same time, it is worth noting that if DE are correct, a somewhat disappointing conclusion follows, namely, that there is no unified definition of 'meter' applicable to TBS and, possibly to other idioms as well. Rather, the term, needs to be

understood as a kind of homynym-denoting fundamentally distinct sets of facts depending on the whether the structure of the text or the tune is implicated. In much the same way that the term 'vector' has an entirely different technical meaning for the physicist and for the pathologist, so too does 'meter' mean something fundamentally distinct when examined from the standpoint of cognitive music theory and generative metrics: closer examination of each cognitive faculty is likely at best to reveal metaphorical not fundamental similarities.

In drawing a sharp distinction between the two types of meter, DE reflect what is the consensus position both within GM and traditional prosody. The latter has tended to be dismissive of a 'musicalist' conception imposed on poetic conceptions of meter regarding these, at their worst, as 'pouring sand in the eyes and wax in the ears.' (Gross 1964) More recently, Tarlinskaya (2002), gives voice to what is still probably the dominant rejectionist position, arguing with respect to Attridge (1982) that that 'though music and language used to be intertwined, they parted ways long ago. Musical meter and meter of verse texts cannot be equated; musical theories of meter need no resurrection.'

The shift in empirical focus of recent work in GM mentioned at the outset towards idioms requiring an incorporation of a musicalist conception of meter would seem initially to constitute reconsideration of this skepticism. However, DE demonstrate that even within an idiom which would seem to most naturally admit of it, a unified conception of meter remains beyond the horizon. DE's conclusions constitute an important advance in shining a bright light on those obstacles which stand in the way.

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Footnotes

[1] For a description of the three distinct types of accent relevant to musical structure, a subject which continues to create considerable confusion, see Lerdahl and Jackendoff (1983: 17)

[2] The line cited by Deo is from Chando'nu´s asana of Hemacandra (cir. 1150 A.D.)

[3] The melody is transcribed from Deo's performance available at http://pantheon.yale.edu/~asd49/sound/rathoddhata.mp3. Please note that the text employed there is a different Rathoddhata line. However, according to Deo (p.c.) the text in 8 makes an acceptable fit with the tune, as would any metrical line in the meter.

[4] http://www.schoolhouserock.tv/Preamble.html