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F PENNSYLVANIA

The Rhythmic Structure of Persian Verse[1]

Bruce Hayes

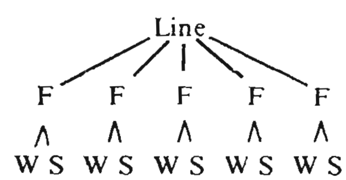
1. Some recent work on Persian meter has made it possible to gain insight into the rhythmic structure underlying Persian verse. In this paper I will present an analysis of this rhythmic structure, showing how it determines the inventory of possible meters, establishes their relationship to one another, and governs the realization of individual meters in poetry. It will be seen that the meters form a tightly organized system, in which all but the rare meters obey a number of laws and constraints.

I will assume as a general theory of meter the proposals advanced in Halle and Keyser (1971) and Kiparsky (1977). In these studies, a metrical system is viewed as a procedure by which certain phonological elements of a poem are matched up with an abstract pattern, or meter. A poetic line is designated as metrical or unmetrical according to whether or not it can be matched with the metrical pattern under the rules of the system. The process requires three types of rules: pattern-generating rules, correspondence rules, and prosodic rules. Pattern-generating rules create the abstract structures to which the linguistic representation is matched. In English, for example, the rules of (1):

(1) Line $\rightarrow$ F F F F F
F $\rightarrow$ W S

define the structure of iambic pentameter:

(2)



Arabic-based account of the meters.

2. Correspondence Rules

Although various scholars have attempted to assign a role to stress in Persian verse (Rypka, 1944; Khānlarī, 1958), none of these theories has been documented well enough to receive general support (cf. Elwell-Sutton, 1976, pp. 220-222), and it will be assumed here that Persian verse is purely quantitative. The pattern underlying a Persian poem may be viewed as a repeated sequence of lines consisting of macrons (–) and breves (⏑) in a fixed order. [2] The famous meter *mutaqārib muthamman mahdhūf*, for example, is represented by the pattern (4):

(4)

⏑ – – ⏑ – – ⏑ – – ⏑ –

⏑ – – ⏑ – – ⏑ – – ⏑ –

⏑ – – ⏑ – – ⏑ – – ⏑ –

⏑ – – ⏑ – – ⏑ – – ⏑ –

.
.
.

The task of the correspondence rules is to establish a matching between the macrons and breves and the string of phonological segments in the line. To see how this is done, we will need to examine briefly the structure of Persian syllables.

The first segment of a syllable in Persian may be either a vowel or a single consonant; no initial clusters are allowed. The vowel of the syllable may be either short (i, u, a) or long (ī, ū, ā). (Short i and u are phonetically /e/ and /o/.) Syllables may end with zero, one, or two consonants. The diphthongs /ey/ and /ow/ may occur as the nucleus of the syllable; for purposes of syllable structure these may be regarded as sequences of the appropriate vowel followed by a glide taking the role of a consonant. Consonants are always assigned to the syllable of an immediately following vowel: *gu.lis.tān*, not *gul.ist.ān*. However, when the following vowel belongs to a different word, the assignment is free, at least for poetic purposes.

The work of the correspondence rules is greatly facilitated if we regard the long vowels /ā, ī, ū/ phonologically as geminates /aa, ii, uu/. This is plausible, since long vowels in many languages pattern as if they were double. In addition, one of the prosodic rules for Persian verse can be expressed in a natural way if long vowels are phonologically geminate. This rule allows a long, high vowel optionally to be regarded as short if it directly precedes another vowel. Phonetically, we may regard this as the second half of the long vowel losing its syllabicity, turning into a glide, and becoming the initial consonant of the following syllable, as in (5):

(5) ii V → iy V → i yV

The rule predicts correctly that /ā/ before a vowel cannot be regarded as short in verse, since it has no homorganic glide in Persian. Note that a rule of this sort may well be applying in Persian speech today; cf. the phonetic data in Paper and Jazayery (1961).

Assuming this treatment of long vowels, we can set out the possible correspondences between the meter and the metrical pattern as follows:

(6)

Syllable Type		Metrical Pattern
CV, V	↔	˘
CVC, VC, CVV, VV	↔	˘ ˘ or –
CVCC, VCC, CVVC, VVC	↔	– ˘

Syllables of the type CVVCC, VVCC will be dealt with below. Two generalizations in (6) are clearly apparent: first, the presence or absence of an initial consonant makes no difference in the way in which a syllable is scanned. Second, the scansion of a syllable depends solely on the number of segments it contains, other than initial consonants. Third, the number of macrons and breves with which a syllable is set into correspondence is in a proportional relationship with the number of segments in the syllable (again ignoring initial consonants), provided that we count macrons as having twice the value of breves. These generalizations suggest the following form for the Persian correspondence rules:

(7) a. Ignore all syllable-initial consonants.

b. Every breve of the pattern must correspond to a single phonological segment of the line.

c. Every macron of the pattern must correspond to the first two segments of a syllable of the line (not counting initial consonants).

The rules of (7) define the following list of possible correspondences:

```
(8)  (C)V
       |
       ˘

     (C)VC    (C)VV    (C)VC    (C)VV
        ||       ||       \/       \/
        ˘˘       ˘˘       –        –

     (C)VCC   (C)VVC
        \/|      \/|
        – ˘      – ˘
```

The use of the rules is illustrated below in the scansion of the following line (which, like all lines to be quoted here, is from Saʿdī's *Gulistān*):

(9) ki nayāyad zi gurg chūpānī
"For a wolf will not do the work of a shepherd."

Represented phonologically, and paired with the meter *khafīf musaddas makhbūn mahdhūf*, the line appears as follows:

```
(10) ki na yaa yad zi gurg čuu paa nii
      |  |  V   V   |  V |  V   ||   V
      ˘  ˘  –   –   ˘  – ˘  –   ˘˘   –
```

Several aspects of (7) merit attention. The provision (a), requiring that syllable-initial consonants be ignored, seems to be typical of quantitative metrical systems, as it applies in Arabic, Greek, and Latin verse as well as in Persian. In addition, numerous phonological stress rules ignore the presence of syllable-initial consonants in their application. Thus (a) is a phonetically natural provision in any system that is sensitive to syllable weight. The restriction on (c), requiring that the two segments that match a macron be the first two of their syllable, rules out scansions like (11):

```
(11) (C)VCC   (C)VVC
        | V      | V
        ˘ –      ˘ –
```

Scansions of the form (12)

(12) (C)VCC (C)VVC
| | | | | |
⏑ ⏑⏑ ⏑⏑⏑

are theoretically possible, but never arise in practice since no meter contains a ⏑⏑⏑ sequence. Note finally that it would be highly misleading to view the symbols — and ⏑ as representing syllables under this system, since the number of syllables in the line will typically be fewer than the number of nodes in the meter. There is no *linguistic* entity with which the symbols — and ⏑ can be identified: they are simply abstract objects with which the segments of the poem are set into correspondence.

One property of the correspondence rules, however, does have an important linguistic consequence: with certain minor deviations, the rules are set up so as to conserve total quantity; that is, the number of segments in the line that are not syllable-initial consonants. For example, the meter of (10) will always be realized by lines having 16 such segments, certain deviations excepted. This conservation of quantity will later be seen to be crucial in establishing the rhythmic basis of the meters.

One of the factors that disturb total quantity is the treatment of syllables at the end of the line. It turns out that in line-final position, both the quantity of the syllable and the identity of the metrical node are irrelevant; that is, a syllable of any size may be set into correspondence with the final metrical node, whether that node is a macron or a breve. There are a number of ways in which this could be handled; I will assume here that an overriding correspondence rule applies to pair the final syllable of the line with the final metrical position. The correspondence rules of (7) then apply to what remains of the line and the metrical pattern. Note that because correspondence is free in line-final position, the quantity of the final metrical node of a meter cannot be determined by scansion. It can only be inferred from what the most general and explanatory system of pattern-generating rules would predict.

Another disturbance of total quantity arises from the correspondence properties of syllables of the form (C)VVCC, which typically are associated with the sequence — ⏑, rather than the expected — ⏑ ⏑. To account for this, an additional provision must be added to the correspondence rules:

(13) Ignore one segment (other than an initial consonant) of a (C)VVCC syllable.

Rule (13) will allow for correspondences like (14):

(14) (C)VVCC
V |
— ⏑

It is fairly reasonable that the metrical system should contain a rule like (13): many of the metrical patterns do not contain any — ⏑ ⏑ sequences, which in the absence of rule (13) are the only metrical sequences with which (C)VVCC syllables could be paired. Without (13), such syllables would be excluded from these meters except in line-final position.

A further complication is found in certain meters which begin with two breves, such as (15), *khafīf musaddas makhbūn*:

(15) ⏑ ⏑ — — ⏑ — ⏑ — ⏑ ⏑ —

Here we find that the first metrical node, which normally would be set in correspondence with a single segment, as in (16):

(16) pisar-i nūh bā badān benshast
"The son of Noah sat with evil ones."
pi sa rii nuuh baa ba dā̃ā bin šast[3]
| | V V | V | V || ~
⏑ ⏑ — — ⏑ — ⏑ — ⏑⏑ —

in many cases corresponds with two segments, as in (17) and (18):

(17) abr agar āb-i zindagī bārad
"If a cloud should rain the water of life"
ab ra gar aa bi zen da gii baa rad
V | V V | V | V || ~
⏑ ⏑ — — ⏑ — ⏑ — ⏑⏑ —

(18) kūr bihtar ki āftāb sīāh
"Better they should go blind than the sun should go dark."
kuur bih tar ki aaf taab si yaah
V| V V | V| V| | ~
⏑⏑ — — ⏑ — ⏑ — ⏑ ⏑ —

We are thus in need of a new correspondence rule to handle these cases:

(19) A line-initial breve, when followed by another breve, may optionally correspond with two segments.

The traditional prosodists used a very different system from the one proposed here to account for the correspondence properties of Persian verse. As in the case of the pattern-generating rules, the prosodists' approach was to assimilate the Persian system as much as possible to the Arabic, using a modified version of the Arabic correspondence rules to describe the Persian patterns. The Arabic prosodists expressed their correspondence rules in a rather complex and unrevealing way, as they did not recognize the notion of the syllable and based their system instead on Arabic orthography. In what follows I will simplify matters by stating in syllabic terms what in the tradition is expressed orthographically.

In Classical Arabic the inventory of possible syllables is more limited than that found in Persian. For prosodic purposes, they fall into just two categories: short syllables, of the form CV, and long syllables, with the forms CV̄ and CVC. Determining what series of metrical longs and shorts a line represents is thus quite simple: short syllables correspond to breves and long ones to macrons. In Arabic, it is the realization of the underlying meter as a series of macrons and breves that is complex: for discussion see Maling (1973) and Prince (forthcoming).

The traditional prosodists tried to reduce the Persian correspondence rules to the simplicity of the Arabic ones by formulating rules that split up the longer Persian syllables into chunks. The means by which this was expressed varied; I will describe here the system employing the *nīm fatha*, or "half a" vowel. This vowel was inserted by a prosodic rule at the end of any syllable of the form (C)VCC, (C)VVC, thus creating the new syllable-strings (C)VC CV and (C)VV CV. These strings, taking the form long syllable-short syllable, could then be set into correspondence with the metrical pattern – ⏑ using only the simple rules needed for Arabic. To deal with the syllable type (C)VVCC, the system ignored one of the final consonants and inserted a *nīm fatha* to resolve the other one; the scansion – ⏑ would result.

The *nīm fatha* is pronounced (as a schwa) in the recitation of Persian poetry only by Turkish and Indian readers; those who are native speakers of Persian do not pronounce it. This in itself should not be counted against *nīm fatha* insertion as a valid analysis; as we have seen, it is often a property of prosodic rules to be used in scansion, but not in recitation. The main evidence against *nīm fatha* insertion lies in its inability to account for the possible correspondence of the (C)VC, (C)VV syllables with the metrical pattern ⏑ ⏑, and to capture the parallelism of this correspondence with the correspondence (C)VCC, (C)VVC ⟷ – ⏑. The theory presented above accounts for both phenomena and unites them by abandoning the assumption that breves must correspond with syllables, claiming instead that breves correspond with certain segments in the syllable. The traditional analysis, by contrast, had to relegate the correspondence (C)VC, (C)VV ⟷ ⏑ ⏑ in a somewhat confused fashion to the pattern-generating rules (see section 4 below). The confusion is illustrated by the fact that the prosodists would sometimes substitute a macron for two consecutive breves in the underlying form of a meter. The meter *mujtathth muthamman makhbūn mahdhūf*, for example, properly has the representation

(20) ⏑ – ⏑ – ⏑ ⏑ – – ⏑ – ⏑ – ⏑ ⏑ –

but appears in Thackston (ms.) as

(21) ⏑ – ⏑ – ⏑ ⏑ – – ⏑ – ⏑ – – –

The representation (21) obscures the fact that of all the macrons in the pattern, only the penultimate one may correspond with a sequence of two short syllables.

One might try to rescue the *nīm fatha* analysis by extending it to the two mora syllables. Inserting a *nīm fatha* after a (C)VC syllable gives us (C)V CV, or ⏑ ⏑, which is the right result. The (C)VV case might be handled by inserting *nīm fatha*, then converting the second half of the vowel into a glide by the prosodic rule (5), as in (22):

(22) (C)ii → (C)ii V → (C)i yV

The main problem with this is that the vowel /ā/ never undergoes rule (5), and is thus erroneously predicted by this analysis never to correspond to the sequence ⏑ ⏑. The *nīm fatha* analysis thus seems incapable of uniting the (C)VC, (C)VV ⟷ ⏑ ⏑ and (C)VCC, (C)VVC ⟷ – ⏑ correspondences in a coherent way.

3. The Pattern-Generating Rules

The account that follows of the rules needed to generate the metrical patterns of Persian verse is based largely on the data in Elwell-Sutton (1976). This work contains many valuable statistics covering the Persian meters, as well as an insightful analysis of their organization which draws upon prior work by Persian prosodists (Farzād, 1942; Khānlarī, 1958).

Elwell-Sutton organizes the Persian meters into five basic patterns. Each pattern may be visualized as an endless string of macrons and breves.

repeating at a given interval. The patterns are numbered by Elwell-Sutton as follows:

(23) I. ... ⏑ – – ⏑ – – ⏑ – – ⏑ – – ...

II. ... ⏑ – – – ⏑ – – – ⏑ – – – ⏑ – – – ...

III. ... ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ...

IV. ... ⏑ – ⏑ – ⏑ ⏑ – – ⏑ – ⏑ – ⏑ ⏑ – – ...

V. ... – – ⏑ ⏑ – ⏑ – ⏑ – – ⏑ ⏑ – ⏑ – ⏑ ...

The intervals of repetition for the five patterns can be seen to be three, four, four, eight, and eight nodes, respectively. The notion of a possible Persian meter is taken to be any string of adjacent nodes, from five to sixteen nodes long, drawn from any of the five basic patterns. To give some examples, the famous meter *mutaqārib muthamman mahdhūf*:

(24) ⏑ – – ⏑ – – ⏑ – – ⏑ –

consists of eleven adjacent nodes taken from Pattern I:

(25) ... ⏑ – – [⏑ – – ⏑ – – ⏑ – – ⏑ –] – ...

Similarly, the fourteen nodes from Pattern IV bracketed below:

(26) ... ⏑ – ⏑ – ⏑ ⏑ [– – ⏑ – ⏑ – ⏑ ⏑ – – ⏑ – ⏑ –] ...

form the very common meter *mudāri*ᶜ *muthamman akhrab makfūf mahdhūf*.

There are a few additional complications. In Patterns IV and V, it is possible to construct meters by first deleting four adjacent nodes from the string, joining the two ends together, then forming a meter as before. The derivation of the meter *qarīb musaddas akhrab makfūf mahdhūf* is carried out by this procedure:

(27) IV:
... ⏑ – ⏑ – ⏑ ⏑ [– – (⏑ – ⏑ –) ⏑ ⏑ – – ⏑ – ⏑ –] ⏑ ⏑ – ...

– – ⏑ ⏑ – – ⏑ – ⏑ –

In addition, a number of "doubled" meters are found. These meters are formed by taking a fairly short string of syllables (from five to nine), then aligning it with a copy of itself to form the metrical pattern. (28) illustrates the derivation of the doubled meter *mutadārik makhbūn maqtū*ᶜ:

(28) III: ... ⏑ ⏑ [– – ⏑ ⏑ –] – ⏑ ⏑ – – ...

x 2 = – – ⏑ ⏑ – – – ⏑ ⏑ –

Note that there is no source for this meter other than the doubling derivation. Other meters, however, are apparently ambiguous with respect to their sources. For example, *rajaz muthamman makhbūn matwī*, which takes the form

(29) ⏑ – ⏑ – – ⏑ ⏑ – ⏑ – ⏑ – – ⏑ ⏑ –

can be derived either as a simple or as a doubled meter, as (30) shows:

(30)
... – – ⏑ ⏑ – [⏑ – ⏑ – – ⏑ ⏑ –] ⏑ – ⏑ – – ⏑ –] ⏑ – ⏑ ...
x 2 ^ x 1

Elwell-Sutton is not clear about just what distinguishes a doubled meter in these cases. If a meter is doubled there will be at least a boundary between words in the poem corresponding to the boundary between the two halves of the line; more often there will be a phrase boundary. Often the two halves of the line rhyme. Finally, the doubled meter may sometimes be distinguished by its correspondence properties, in that the last node of the first half-line is allowed to correspond with a syllable of any length, just as the last syllable of the second half-line is. Additional research in this area will be required to clarify this picture.

Elwell-Sutton records a number of meters lying on the fringes of the system. These include a few "tripled" and "quadrupled" meters, parallel in their derivation to the doubled meters. In addition, there are a number of meters that simply cannot be fitted into one of the five patterns. These are all quite rare, however, and I will by and large ignore them in the analysis that follows.

The description of the meters using the five patterns provides a system of nomenclature which is far simpler and clearer than the Arabic system. Elwell-Sutton describes the simple meters using three numbers separated by periods. The first number tells which basic pattern the meter is drawn from. The second number indicates the node in the basic pattern where the meter begins, with the numbering determined as follows:

(31)

```
         1 2 3
I.   ... ⏑ – – ⏑ – – ⏑ – – ⏑ – – ...

         1 2 3 4
II.  ... ⏑ – – – ⏑ – – – ⏑ – – – ⏑ – – – ...

         1 2 3 4
III. ... ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ...

         1 2 3 4 5 6 7 8
IV.  ... ⏑ – ⏑ – ⏑ ⏑ – – ⏑ – ⏑ – ⏑ ⏑ – – ...

         1 2 3 4 5 6 7 8
V.   ... – – ⏑ ⏑ – ⏑ – ⏑ – – ⏑ ⏑ – ⏑ – ⏑ ...
```

The final number expresses the length of the meter in nodes. Thus 1.1.11, for example, serves as the designation of the *mutaqārib* meter above:

(32) ⏑ – – ⏑ – – ⏑ – – ⏑ –

For the meters derived by deleting a four-node length of the pattern, the first two indices remain the same, but the third is replaced by two numbers separated by a slash. The first of these represents the number of nodes preceding the deleted four-syllable section; the second, the number of nodes following it. The meter (27), for example, is designated as 4.7.2/8. Finally, the doubled, tripled and quadrupled meters are designated by the names of their subunits, followed in parentheses by the number of times they are repeated; thus 3.3.5(2) represents the meter of (28).

Elwell-Sutton lists 208 separate meters in his table. Of these, 93 do not appear in the poetic corpus and are cited only by prosodists. These will be ignored in what follows, as they often reflect the attempt of a prosodist to fill in the gaps in his particular theory, and are thus suspect when viewed as genuine realizations of the structures underlying Persian meter. The study of the remaining 115 meters is greatly aided by a survey of the poetic corpus undertaken by Elwell-Sutton. In this survey, Elwell-Sutton scanned about 20,000 randomly selected poems dating from the 800's to the 1800's A.D., and counted the number of poems appearing in each meter. I will quote this number preceded by an asterisk; thus 4.7.14 *2663 will indicate that the meter 4.7.14 appeared 2663 times in the sample, about 13% of the total. The use of statistics here is fairly important. It is possible to construct a theory which encompasses all of the meters that are at all common, but under the theory a few of the rare meters will have to be counted as unmetrical. The pattern that will emerge here is that as we deviate further from the central, fully acceptable patterns, the number of meters observed and their frequencies of occurrence will decline.

I believe that the system Elwell-Sutton proposes is fundamentally correct in its division of the meters into five basic patterns; this division will be incorporated into the analysis that follows. However, the analysis is not sufficiently restrictive: it predicts the existence of hundreds of meters which are either never used or are extremely rare. By adopting a more detailed theory, it is possible to place stricter constraints on the notion of a possible Persian meter, at the same time providing insights into the structures that the meters are based on.

The theory to be presented makes crucial use of metrical feet. It is a frequently recurring question in metrical studies whether the use of feet has any explanatory value (see for example Halle and Keyser, 1971; Prince, forthcoming). Elwell-Sutton claims that in the case of Persian, the use of feet has no explanatory value, and would in fact be "misleading" (p. 85). However, it seems that the existence of feet in Persian meter can be argued for on several grounds.

First, note that the Persian meters are periodic, consisting of patterns that repeat at specified intervals, whether this be three, four, or eight nodes. There are two formal ways in which periodic patterns may be described: either we list the entire pattern whole, or we break it into its periodic subparts, describe the subparts, and describe the pattern as a concatenation of these. Thus the meter 3.1.16 may either be listed as a unit:

(33) ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – –

or it may be described as a sequence of feet, with the rules of (34):

(34) Line → F F F F
F → ⏑ ⏑ – –

As Prince (forthcoming) points out, there is a crucial difference between the two descriptions: it is only the latter one in which the periodic nature of the meter follows from the formalism. A description such as (33) implies that we would be just as likely to find completely aperiodic meters as well, such as (35):

(35) ⏑ – – ⏑ ⏑ – – – – – – – ⏑ – ⏑ ⏑ ⏑

Another, more complex, argument can be derived from an examination of the inventory of Persian meters. It turns out that the meters do not appear in arbitrary lengths; rather, there are strict constraints on where a meter can begin or end, which can be formulated coherently only by using feet. The evidence to support this claim will be presented in full below, but as an example note that the length of the longest meters of any basic pattern is always a multiple of the interval of repetition for that pattern. In Pattern I this is twelve nodes (4 x 3); in Patterns II and III it is sixteen nodes (4 x 4); and in Patterns IV and V it is again sixteen nodes (2 x 8). I will show later that this follows from the restriction that Persian meters may contain at most four feet.

Let us suppose now that the feet underlying the meters of Pattern III are as follows:

(36) ⏑ ⏑ – –

– ⏑ ⏑ –

– – ⏑ ⏑

If we assume that only one type of foot is used in a line, we can string these feet together to produce some reasonably common Persian meters, for example

(37) 3.1.16 *56
⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – –
3.4.16 *25
– ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ –

Most commonly, however, we find meters in which one or two nodes at the

end of the last foot have been deleted:

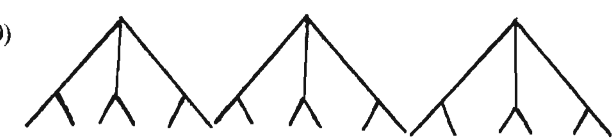
(38) 3.1.11 *219
⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ –
3.1.15 *1965
⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ –
3.3.14 *1159
– – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – –
3.4.11 *222
– ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑
3.4.7(2) *240[4]
– ⏑ ⏑ – – ⏑ ⏑ x 2

This final deletion, it turns out, is quite constrained: the only sequences of final nodes that normally may delete are either one macron or two breves. The constraint applies to both Pattern III and Patterns IV and V. It will be seen shortly to provide an important clue to the structure of the foot.

At this point I will borrow from Prince (forthcoming) the notion that feet are composed of a constant number of *musical beats*. The beats of a foot provide a framework to which the nodes of the metrical pattern are attached, and provide the nodes with a rhythmic organization. In the Persian meters of Patterns III through V, the foot will contain three beats, which I express here with the branches of inverted trees. The rhythm underlying a three-beat trimeter, for example, may be noted roughly as in (39):

(39)


Just as quarter notes in music are divisible into two eighths, the beats of the metrical pattern are divided into two sub-beats, so that the full representation of the rhythmic pattern (39) is as follows:

(40)


We now assign rhythmic values to the nodes of the metrical patterns: macron will have the length of a full beat, while breve takes on the value of half a beat. This assignment is entirely natural under my interpretation of the correspondence rules: the equivalence is that each phonological segment will correspond with half a beat, since macrons correspond with two segments and breves with one. Note that the assignment of rhythm to the segments is necessarily abstract: no one would read Persian poetry in regular triple rhythm any more than one would read English iambic pentameter in regular double rhythm. The role of the beat in both traditions is to organize the metrical patterns, not to govern recitation (for the case of English, see Prince, forthcoming).

The rhythmic pattern just proposed provides a natural means of generating the inventory of feet that best accounts for the Pattern III meters. (That this is the correct inventory will be shown below.) The procedure is as follows:

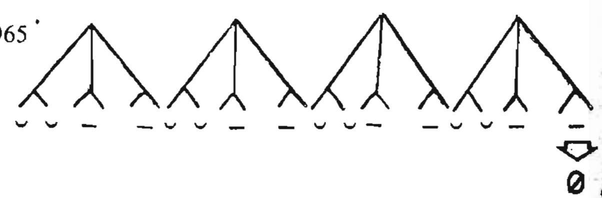
(41) In a three-beat measure, fill one beat with two breves, the other two beats with one macron; i.e.

The logically possible, but undesirable foot ⏑ – – ⏑ is excluded, since its nodes fail to fit into the metrical beats. In addition, the rhythmic pattern provides a simple formulation for the final deletions found in the meters of (38), despite their formal differences:

(42) Optionally delete the final beat of the line.

The application of (42) is exemplified below:

(43) 3.1.15 *1965



3.4.11 *222

3.3.14 *1159

If we assume now that meters may consist of two to four identical feet, while each half of a doubled meter contains two feet, then the procedures outlined here for foot-formation and final beat deletion will account for almost all of the common meters of Pattern III:

(44) 3.1.11 *219
⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ –

3.1.15 *1965
⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ –

3.1.16 *56
⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – –

3.4.11 *222
– ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑

3.4.16 *25
– ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ –

3.4.7(2) *240
– – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – –

3.3.14 *1159
– ⏑ ⏑ – – ⏑ ⏑ x 2

as well as the majority of the rare ones. The remaining meters will be dealt with below.

The meters of Patterns IV and V, it will be recalled, are derived under Elwell-Sutton's system from the following sequences:

(45) IV. ... ⏑ – ⏑ – ⏑ ⏑ – – ⏑ – ⏑ – ⏑ ⏑ – – ...

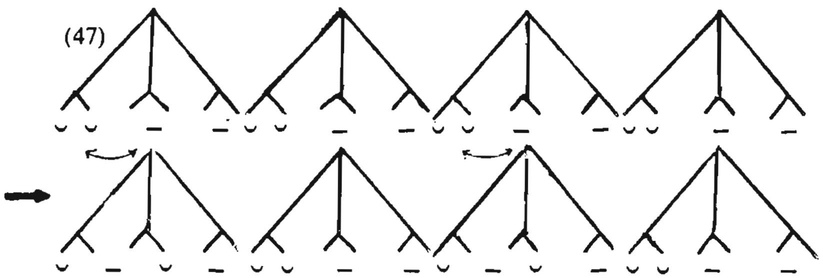
V. ... – – ⏑ ⏑ – ⏑ – ⏑ – – ⏑ ⏑ – ⏑ – ⏑ ...

These meters also allow the deletion of four adjacent syllables from the basic pattern before the meter is "cut out." I propose to derive the Pattern IV and V meters using the same structures that underlie Pattern III: that is, the same rhythmic pattern, the same feet, and the same final beat deletion rule. What distinguishes Patterns IV and V is the application of rules that create *syncopated rhythms*. These syncopation rules will reverse the positions of a macron and a breve, so that the macron no longer fills a single beat, but rather occupies the last half of one beat and the first half of the next. In Pattern IV, the syncopation rule is

(46) ⏑ – ⟶ – ⏑

This rule applies twice in (47) to derive the meter 4.1.16 *134:

(47)

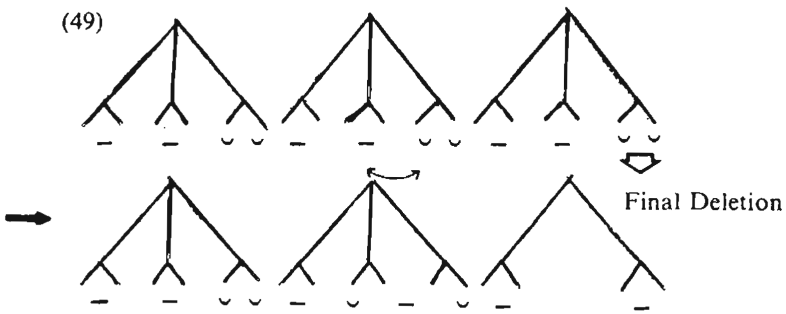


The Pattern V syncopation rule is exactly the reverse of its Pattern IV counterpart:

(48) – ⏑ ⟶ ⏑ –

It applies once in the derivation of 5.1.10 *640:

(49)



Equipped with the appropriate foot inventory, the final deletion rule, and the two syncopation rules, we can now generate many of the common meters of Patterns IV and V. For the sake of clarity I have expressed the meters in a form prior to the application of the syncopation rules, and have indicated with arcs which metrical nodes must switch places.

(50) 4.1.15 *3032

⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ –

4.1.16 *134

⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ – –

4.5.11 *1789

⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ –

4.8.8(2) *15

– ⏑ ⏑ –   – ⏑ ⏑ –   x 2

4.7.14 *2663

– – ⏑ ⏑   – – ⏑ ⏑   – – ⏑ ⏑   – –

5.3.16 *127

⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ – –

5.2.16 *160

– ⏑ ⏑ –   – ⏑ ⏑ –   – ⏑ ⏑ –   – ⏑ ⏑ –

5.1.10 *640

– – ⏑ ⏑   – – ⏑ ⏑   – –

Note that in meters such as 4.7.14 and 5.3.16, the syncopation rules apply across foot boundaries.

The meter 5.1.10 provides the basis of another argument for the final beat deletion rule (42). The *mathnawī*, which is a native verse form in which a separate rhyme is assigned to each couplet, may only be written in one of a set of seven meters, at least according to tradition. Often a poet would write a set of seven poems (*sabᶜa*) using each meter once. The *mathnawī* meters are 1.1.11, 2.1.11, 2.4.11, 3.1.11, 3.4.11, 4.5.11, and 5.1.10. The last of these naturally stands out sharply, since apart from it we could simply say that the *mathnawī* is written in lines containing eleven metrical nodes. Why did the Persian poets not write the *mathnawī* in 5.1.11 instead of 5.1.10? The answer appears if we line up a few *mathnawī* meters according to their metrical rhythms:

(51) 3.1.11 ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ –

3.4.11 – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑

4.5.11 ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ –

5.1.10 – – ⏑ ⏑ – – ⏑ ⏑ – –

The *mathnawī* meters apparently are not defined as eleven-position meters, but rather as eight-beat meters: i.e. trimeters whose final beats have been deleted. 5.1.10 is one node shorter than the others because it has two final breves deleted, rather than one final macron. The only exception to the generalization is the meter 1.1.11. But since this meter is based on a different rhythmic structure than the others (see below), its exceptionality is understandable: since its rhythmic structure cannot be made equivalent, its node length is made equivalent instead.

A number of meters not yet examined initially appear anomalous, in that only half of a beat appears to have been deleted at the end of a line:

(52) 3.3.7(2) *280 – – ⏑ ⏑ – – ⏑ x 2

4.7.11 *70 – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑

4.7.2/9 *36 – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑

4.7.7(2) *409 – – ⏑ ⏑ – – ⏑ x 2

5.1.11 *142 – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑

A large number of less common meters also follows this pattern. I would argue that in fact no deletion has applied to these meters: instead, they contain final feet which consist of three macrons, as in (53):

(53) 3.3.7(2) – – ⏑ ⏑ – – – x 2

4.7.11 – – ⏑ ⏑ – – ⏑ ⏑ – – –

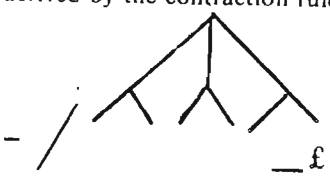
4.7.2/9 – – ⏑ ⏑ – – ⏑ ⏑ – – –

4.7.7(2) – – ⏑ ⏑ – – – x 2

5.1.11 – – ⏑ ⏑ – – ⏑ ⏑ – – –

These final feet are derived by the contraction rule (54):

(54)



⏑ ⏑ → – / ___ £ (£ = line boundary)

which replaces two breves with a macron in the third beat of the last foot of the line.

The correspondence rules provide no basis for deciding between the patterns of (52) and (53). The final syllable of a line always corresponds with the final metrical node, no matter what their respective quantities are. The evidence for the rule (54) lies in the fact that meters having a final foot of the form – – ⏑ ⏑ are almost non-existent. The rare meter (55) is the only example:

(55) 4.7.12 *9 – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑

If this is not to be regarded as a coincidence, some means must be found to account for this skewing of the inventory of meters. We can do this simply by stipulating that (54) applies obligatorily. As a side benefit, this will preserve the principle that final deletion is confined to dropping whole beats.

The contraction rule applies only to two breves occupying the third beat of their foot. If two breves occur at the end of a line by virtue of final beat deletion, they normally remain separate:

(56) 3.4.11 *222 – ⌣ ⌣ – – ⌣ ⌣ – – ⌣ ⌣
3.4.7(2) *240 – ⌣ ⌣ – – ⌣ ⌣ x 2
3.4.7 *1 – ⌣ ⌣ – – ⌣ ⌣
5.2.11 *1 – ⌣ ⌣ – – ⌣ ⌣ – – ⌣ ⌣
5.6.7(2) *3 – ⌣ ⌣ – – ⌣ ⌣ x 2

Contraction occurs only in two rare meters:

(57) 3.4.6(2) *0 – ⌣ ⌣ – – – x 2
4.4.10 *1 – ⌣ ⌣ – – ⌣ ⌣ – – –

I have expressed this fact in the contraction rule (54) by requiring that the contracting syllables be dominated by the third beat. Alternatively, we could require that contraction apply before final beat deletion: in this case, the environment for contraction could be simplified to _£. I see no way to distinguish the two possibilities.

The syncopation rules (46) and (48) have so far been described as optionally applicable whenever their structural requirements are met. In fact, a number of restrictions apply. In most of the dimeters and trimeters (including all of the common ones), syncopation applies only once:

(58) 4.5.11 *1789 ⌣ ⌣ – – ⌣ ⌣ – – ⌣ ⌣ –
4.7.11 *70 – – ⌣ ⌣ – – ⌣ ⌣ – – –
4.7.2 9 *36 – – ⌣ ⌣ – – ⌣ ⌣ – – –
5.1.10 *640 – – ⌣ ⌣ – – ⌣ ⌣ – –
5.1.11 *142 – – ⌣ ⌣ – – ⌣ ⌣ – – –

4.8.8(2) *15 – ⌣ ⌣ – – ⌣ ⌣ – x 2

The exceptions include one meter from Pattern IV:

(59) 4.1.12 *0 ⌣ ⌣ – – ⌣ ⌣ – – ⌣ ⌣ – –

as well as four rare meters from Elwell-Sutton's Pattern VI, which consists of an endless sequence of alternating macrons and breves. The Pattern VI meters are all analyzable as over-syncopated members of Patterns IV and V:

(60) 6.1.12 *2 ⌣ – ⌣ – ⌣ – ⌣ – ⌣ – ⌣ –
= ⌣ ⌣ – – ⌣ ⌣ – – ⌣ ⌣ – –
or – ⌣ ⌣ – – ⌣ ⌣ – – ⌣ ⌣ –
6.1.8(2) *7 ⌣ – ⌣ – ⌣ – ⌣ – x 2
= ⌣ ⌣ – – ⌣ ⌣ – – x 2
or – ⌣ ⌣ – – ⌣ ⌣ – x 2
6.2.11 *0 – ⌣ ⌣ – – ⌣ ⌣ – – ⌣ ⌣
6.2.8(2) *0 – ⌣ – ⌣ – ⌣ – ⌣ x 2
= – ⌣ ⌣ – – ⌣ ⌣ – x 2
or – – ⌣ ⌣ – – ⌣ ⌣ x 2

Among the tetrameters, syncopation almost always applies twice, with the syncopations evenly spaced: they occur either within the odd-numbered feet, within the even-numbered feet, or across the boundaries between the first and second and the third and fourth feet. Syncopation cannot apply between the second and third feet. Typical examples of syncopation in tetrameters are

(61) 4.1.15 *3032

⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ –

5.2.16 *160

– ⏑ ⏑ –   – ⏑ ⏑ –   – ⏑ ⏑ –   – ⏑ ⏑ –

4.7.14 *2663

– – ⏑ ⏑   – – ⏑ ⏑   – – ⏑ ⏑   – –

Again, the exceptional meters are rare:

(62) 4.5.4/11 *1

⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ –

4.4.5/8 *0

– ⏑ ⏑ –   – ⏑ ⏑ –   – ⏑ ⏑ –   –

4.7.2/11[5] *1

– – ⏑ ⏑   – – ⏑ ⏑   – – ⏑ ⏑   –

5.2.4/12 *0

– ⏑ ⏑ –   – ⏑ ⏑ –   – ⏑ ⏑ –   – ⏑ ⏑ –

The result of the "even spacing" phenomenon seen in (61) is that tetrameters must consist of two identical halves, ignoring the effects of final beat deletion. Within each half, syncopation may apply only once, just as in the full lines of dimeters and trimeters. These observations suggest a revision of the rules which generate the line. Instead of allowing tetrameters to be generated directly by Line → F F F F, I now propose to limit the line-structure rule to generate only two or three feet:

(63) Line → F F (F)

Once the F's generated by (84) have been realized as particular feet, the syncopation rules may apply, but only once within the line. After this, the tetrameters are generated by a rule copying sequences of two feet:

(64) $F_1\ F_2 \rightarrow F_1\ F_2\ F_1\ F_2$

Line boundaries (£) are then placed on either side of the result. These boundaries condition the application of final beat deletion, the contraction rule (54), and the free correspondence rule governing line-final syllables. This theory unites three observations: that syncopation applies once in dimeters and trimeters, that it applies twice in tetrameters, and that tetrameters consist of parallel halves. In addition, it provides a plausible account of the doubled meters: we need only assume that the insertion of line boundaries occurs before the copying rule applies rather than after.[6] If the doubled meters are generated by the rule (64), we would expect that the halves of which they consist must always be dimeters. With rare exceptions, this prediction is true.

The above theory of line structure and syncopation provides an explanation for the only two common meters of Patterns IV and V that remain anomalous so far. These are 4.4.13 and 5.1.13:

(65) 4.4.13 *304

– ⏑ ⏑ –   – ⏑ ⏑ –   – ⏑ ⏑ –   –

5.1.13

– – ⏑ ⏑   – – ⏑ ⏑   – – ⏑ ⏑   –

The latter, although it appears only five times in Elwell-Sutton's survey, is in fact a very common and characteristic Persian meter, for it is the principal manifestation of the meter used in composing the *rubāʿī* (pl. *rubāʿiyāt*). (Further complications concerning this meter will be presented below.) Elwell-Sutton elected not to include in his sample any poems written in a verse form associated with a particular meter, and thus excluded *rubāʿiyāt* and most instances of 5.1.13.

The anomaly of the meters of (65) is that they end on the first beat of their final feet, and thus could not be derived by the rules so far presented. To be sure, there is a scattering of meters throughout Patterns III-V which end on this beat:

(66) 3.3.13 *1

— — ⏑ ⏑ — — ⏑ ⏑ — — ⏑ ⏑ —

3.4.5 (2) *2

— ⏑ ⏑ — — x 2

4.8.5(2) *1

— ⏑ ⏑ — ⏑ x 2

4.7.2 11 *1

— — ⏑ ⏑ — — ⏑ ⏑ — — ⏑ ⏑ —

5.3.14 *0

⏑ ⏑ — — ⏑ ⏑ — — ⏑ ⏑ — — ⏑ ⏑

5.6.5(2) *2

— ⏑ ⏑ — — x 2

5.6.5(4) *4[7]

— ⏑ ⏑ — — x 4

but all of these are rare. Since the empirical predictions of the system are greatly reduced if we allow the deletion of two final beats, it would be useful to find an appropriate distinction between the meters of (65) and those of (66) so that the latter are still regarded as being on the fringes of the system, derivable only by breaking the rules, while the former have the exceptional, but motivated privilege of deleting two final beats.

Consider the source of the meters of (65) under the system proposed here. Assuming that they are tetrameters, we would expect that they have been derived by copying the pattern of the first two feet onto the second

two. The last two beats would then contain a syncopated section at an underlying level of representation, as in (67):

(67) 4.4.13

— ⏑ ⏑ — — ⏑ — ⏑ — ⏑ ⏑ — — ⏑ — ⏑

5.1.13

— — ⏑ ⏑ — ⏑ — ⏑ — — ⏑ ⏑ — ⏑ — ⏑

The two meters are in fact unique among the regular tetrameters in ending with a syncopation, and thus are the only meters in which the final beats begin within a metrical mode rather than between two nodes. This provides us with an intuitively plausible explanation for the deletion of two final beats in these meters: since the deletion of a single final beat would result in the splitting of a metrical node, the more marked option of deleting the last two beats of the line is made available.

The *rubāʿī* meter 5.1.13 exhibits another peculiarity: typically *rubāʿīyāt* give the appearance of being written in two different meters. Although 5.1.13 is favored, many lines take the form of 3.3.13:

(68) — — ⏑ ⏑ — — ⏑ ⏑ — — ⏑ ⏑ —

This dual nature of the *rubāʿī* meter seems to have thrown the Persian prosodists for a loop. In many cases they stated the meter as a collection of twenty-four separate forms, abandoning much of the explanatory value of their system. Even the modern, though Arabic-based, reformulation of Maling (1973) seems complex and arbitrary, as Maling concedes. But under the theory presented here, it is fairly natural that 5.1.13 and 3.3.13 should be related, since they differ only in whether the syncopation rule (48) has applied in the second foot:

(69) 3.3.13 — — ⏑ ⏑ — — ⏑ ⏑ — — ⏑ ⏑ —

5.1.13 — — ⏑ ⏑ — ⏑ — ⏑ — — ⏑ ⏑ —

Formally, the correspondence properties of the *rubāᶜī* meter could be accounted for by an extension of the notion "metrical range" (cf. Kiparsky, 1972): just as the correspondence rules must in many cases have access to phonological representations occurring prior to the surface phonetic level, so must they sometimes have access to representations that occur before the surface level in the derivation of the metrical pattern. 3.3.13 is allowed to be the pattern of correspondence for the *rubāᶜī* in some cases because it is in a sense the derivational source of 5.1.13.

The analysis as presented so far is sufficient to derive the majority of the meters of Patterns III-V, including all the common ones. Of the remaining "irregular" meters, a large number can be fitted into two patterns, which can be accounted for by the following deletion rules:

(70) Delete the last two beats of a line.

(71) Delete the first half beat of a line.

Rule (70) can be seen to be necessary in deriving meters such as 3.4.13 *0:

(72)

Rule (71) derives meters such as 3.2.15 *9:

(73)

Note that (71) is formulated in rhythmic terms: it is an initial half-beat, not an initial breve that is deleted. This formulation will be shown below to have empirical consequences.

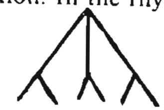
The deletion rules (70) and (71) apply in complementary distribution: no meter, no matter how rare, is derived by applying both of them. This suggests that both rules obscure the rhythmic structure of the meter. Acting alone, they produce rhythmically-complex rare meters. Acting together, they raise the rhythmic complexity beyond the acceptable level.

To enable the reader to check up on my conclusions, I will now list the

complete inventory of meters in Patterns III-V. According to the analysis presented here, the "regular" meters are those which are derived by the following rules only:

(74) a. Line → F F (F)

b. Foot Construction: In the rhythmic structure



fill one beat with ᴗ ᴗ, the other two with – .

c. Syncopation rules: – ᴗ → – ᴗ; ᴗ – → – ᴗ } apply just once

d. Doubling Rule: $F_1\ F_2 \rightarrow F_1\ F_2\ F_1\ F_2$

e. Insertion of line boundaries

f. Final-Deletion: Optionally delete the final beat of the line. If this would result in the splitting of a macron, the final two beats may be deleted.

g. Contraction: ᴗ ᴗ → – /

For doubled meters the insertion of line boundaries applies before the doubling rule instead of after it. I have listed below the meters that are regular as defined by this analysis. The number in parenthesis following some of the meters indicates the example in which the meter is displayed.

(75) Pattern III

3.1.11	*219	(44)	3.1.12	*0
3.1.15	*1965	(44)	3.1.7(2)	*1
3.1.16	*56	(44)	3.3.6	*0
3.3.14	*1159	(44)	3.3.10	*4
3.3.7(2)	*280	(53)	3.3.11	*4
3.4.11	*222	(44)	3.3.6(2)	*0

3.4.16 *25 (44)
3.4.7(2) *240 (44)
3.3.15 *4
3.4.7 *1 (56)
3.4.10 *0

Pattern IV

4.1.15 *3032 (50)
4.1.16 *134 (50)
4.4.13 *304 (65)
4.5.11 *1789 (50)
4.7.11 *70 (53)
4.7.2/9 *36 (53)
4.7.14 *2663 (50)
4.7.7(2) *409 (53)
4.4.12 *3
4.4.5/7 *1
4.5.12 *2
4.5.4/8 *0
4.5.16 *8
4.7.6 *0
4.7.7 *1
4.7.10 *4
4.7.2/8 *11
4.7.6(2) *6
4.7.15 *0
4.8.8(2) *15 (58)

Pattern V

5.1.10 *640 (50)
5.1.11 *142 (53)
5.1.13 (*rubāʿī* meter) (65)
5.2.16 *160 (50)
5.3.16 *127 (50)
5.2.11 *1 (56)
5.3.15 *1
5.5.7(2) *3
5.6.7(2) *3 (56)
5.6.16 *0

The irregular meters that may be derived using the marginal rules (70) and (71) include the thirteen meters of (76), all of them rare, in which two final beats are deleted:

(76) 3.1.14 *0
3.3.5(2) *6
3.3.13 *1 (66)
3.4.5(2) *2 (66)
3.4.13 *0 (72)
4.4.5/8 *0 (62)
4.7.2/11 *1 (62)
4.8.5(2) *1 (66)
4.8.5(4) *2
5.3.6(2) *0
5.3.14 *0 (66)
5.6.5(2) *2 (66)
5.6.5(4) *4 (66)

Two of these meters, 4.8.5(4) *2 and 5.6.5(4) *4, have the additional irregularity of a quadrupled structure. The meters where an initial half beat has been deleted are as follows:

(77) 3.2.7(2) *10
3.2.15 *9 (73)
4.2.14 *1
4.2.15 *20
4.6.10 *0
4.6.11 *1
4.6.3/8 *9
4.6.7(2) *2
4.6.15 *2

All ten poems in Elwell-Sutton's survey written in 3.2.7(2) are by the same poet, as are all twenty poems written in 4.2.15. The survey therefore probably overestimates the importance of these meters.

The meters where syncopation applies irregularly are the following:

(78) 4.1.12 *0 (59)
4.5.4/11 *1 (62)
5.2.4/12 *0 (62)
6.1.12 *2 (60)
6.1.8(2) *7 (60)
6.2.11 *0 (60)
6.2.8(2) *0 (60)

In addition, 4.4.5/8 *0 and 4.7.2/11 *1, listed under (76), are also syncopated irregularly. In 4.7.12 *9 (55), contraction of two breves in the third beat fails to apply.

A small set of meters must remain anomalous under the system:

(79) 3.1.13 *18 ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑
3.4.6(2) *0 – ⏑ ⏑ – – ⏑ x 2
4.1.13 *14 ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑
↔ ↔
4.4.10 *1 – ⏑ ⏑ – – ⏑ ⏑ – – ⏑
↔

3.1.13 and 4.1.13 would be more explainable if we assume that contraction of two final breves applies in the first beat as well as the third. The analysis would then be

(80) 3.1.13 ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – –
4.1.13 ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – –
↔ ↔

The one counterexample to this assumption is very rare:

(81) 3.1.14 *0[8] ⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑ – –   ⏑ ⏑

But the proposal is badly in need of a theory explaining why contraction should apply in the first and third beats, but not in the second.

In general, however, the fit of the rules to the data is good: all of the meters that are not regular are reasonably rare. The rules designate as acceptable meters only a fraction of the strings that could be derived under Elwell-Sutton's proposal, and all of the common meters fall within this fraction.

The meters of Patterns I and II remain to be fitted into the system. These patterns, it will be recalled, display the following repeating sequences:

(82) I. ... ⏑ – – ⏑ – – ⏑ – – ⏑ – – ...

II. ... ⏑ – – – ⏑ – – – ⏑ – – – ⏑ – – – ...

I claim that the meters of the patterns are composed of the following feet:

(83) I: ⏑ – –   II: ⏑ – – –

– ⏑ –   – ⏑ – –

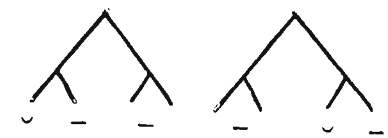
– – ⏑ –

These feet differ crucially from those of the previous foot inventory (⏑⏑– –, – ⏑⏑–, – – ⏑⏑) in that they are normally set into correspondence with an odd number of segments; that is, five for Pattern I and seven for Pattern II versus six for Patterns III-V. This means that if Patterns I and II are to be set to a rhythmic structure having an integral number of beats, a different system must be used in assigning rhythmic values to the metrical nodes. The solution that is adopted, I believe, is to give macrons the value of a full beat, just as before, but to assign the breves no rhythmic value at all: instead, they are prefixed to a following macron, and are subsumed under that macron's beat. The role of the breve in Patterns I and II is thus quite similar to the role of the grace note in music. Assuming this, we can construct the feet underlying these patterns on the same lines as those of Patterns III-V:

(84) In a measure of either two or three beats, fill one beat with the sequence breve-macron, the other(s) with a macron.

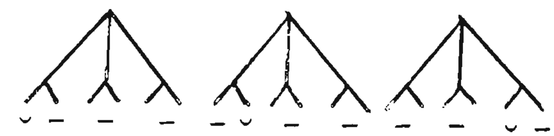
Rule (84) generates for Pattern I

(85)



and for Pattern II

(86)



The remaining theoretical apparatus needed to describe these meters is carried over from the analysis of Patterns III-V. This includes the rules for constructing lines out of identical feet, and the rules deleting final beats or series of beats.

In dealing with the predictions made by the theory, I will discuss the Pattern II meters first. The six common meters of the pattern are all regular under the system, derivable as trimeters and tetrameters, sometimes with deletion of the final beat:

(87) 2.1.11 *989
⏑ – – –   ⏑ – – –   ⏑ – –

2.1.16 *1203
⏑ – – –   ⏑ – – –   ⏑ – – –   ⏑ – – –

2.4.11 *648
– ⏑ – –   – ⏑ – –   – ⏑ –

2.4.15 *2452
– ⏑ – –   – ⏑ – –   – ⏑ – –   – ⏑ –

2.4.16 *41
– ⏑ – –   – ⏑ – –   – ⏑ – –   – ⏑ – –

2.3.16 *247

– – ⏑ –   – – ⏑ –   – – ⏑ –   – – ⏑ –

Note that all three of the Pattern II feet are employed. The theory also predicts that various strings taken from Elwell-Sutton's pattern will not exist as meters: we expect never to find meters that are cut off at either end between a breve and the following macron. This follows from a general property of the system proposed here: deletion rules, whether they are central to the system or metrical licences, are always defined in terms of beats, rather than metrical nodes. The sequence ⏑ – in Pattern II constitutes a rhythmic unity, and cannot be split up by any rule that refers to rhythmic structure. We would expect, then, that no Pattern II meters will begin with three macrons, since according to the foot inventory (86), at least one of the first three beats of a line must consist of a breve-macron sequence. This prediction is true without exception. As for meters which end in a breve, we find only one example:

(88) 2.3.7(2) *0   – – ⏑ –   – – ⏑ x 2

This meter may be an attempt to imitate (in a doubled version) the Arabic meter *rajaz murabba^c maqtū^c*, which has as its basic form

(89) – – ⏑ –   – – –

The influence of Arabic meters on the Persian system is generally strongest in Patterns I and II, as we will see.

The decision to regard the Pattern II meters as composed of three-beat feet, despite the greater overall quantity of each foot, is supported by the use of Pattern I meters in the *mathnawī*. The traditional meters for this form, it will be recalled, are trimeters in which final beat deletion has applied; that is, they contain eight beats. Under the analysis proposed here, the Pattern II meters which are traditionally used in the *mathnawī* conform to the rule:

(90) 2.1.11   ⏑ – – –   ⏑ – – –   ⏑ – –

2.4.11   – ⏑ – –   – ⏑ – –   – ⏑ –

I will now review the inventory of Pattern II meters. The common meters, all of which are regular, are listed as (87). In addition, the following rare meters are also regular:

(91) 2.1.8 *1
2.1.12 *2
2.3.8 *0
2.3.12 *0
2.3.14 *0
2.4.12 *13
2.4.8(2) *0

Five meters require the deletion of two final beats by rule (70):

(92) 2.1.14 *0
2.3.13 *1
2.3.9(2) *0
2.4.5(2) *1
2.4.13 *1

2.3.9(2) also violates the constraint that doubled meters may only have dimeters as their component halves. Pattern II also contains a tripled meter, 2.3.4(3) *1. The final aberrant meter is 2.3.7(2), discussed above under (88).

The meters of Pattern I are fairly few in number; hence the possibilities implied by the metrical system are not fully instantiated. The two common meters are

(93) 1.1.11 *382   ⏑ – –   ⏑ – –   ⏑ – –   ⏑ –

1.1.12 *258   ⏑ – –   ⏑ – –   ⏑ – –   ⏑ – –

both of which are regular and employ the ⏑ – – foot. Meters employing the – ⏑ – foot are all rare, a fact for which I have no explanation. The other regular meters of Pattern I are

(94) 1.1.9 *2   ⏑ – –   ⏑ – –   ⏑ – –

1.1.6(2) *0   ⏑ – –   ⏑ – – x 2

1.3.10 *1   – ⏑ –   – ⏑ –   – ⏑ –   –

1.3.12 *0   – ⏑ –   – ⏑ –   – ⏑ –   – ⏑ –

This pattern has one irregular meter, a doubled trimeter:

(95) 1.3.7(2) *0   – ⏑ –   – ⏑ –   – x 2

The remaining meters that Elwell-Sutton ascribes to Pattern I probably belong elsewhere. For example, it is probably better to reassign his 1.2.5(2):

(96) 1.2.5(2) *19   – –   ˘ – –   x 2

to Pattern II, as 2.3.5(2):

(97)   – – ˘ –   –   x 2

The meters 1.2.8 and 1.2.8(2):

(98) 1.2.8   *0   – –   ˘ – –   ˘ – –

1.2.8(2) *0   – –   ˘ – –   ˘ – – x 2

may be imitations of the Arabic *mujtathth murabba*[c] *sālim*, whose basic form is

(99)   – – ˘ –   – ˘ – –

We will see later that this meter plays an important role in the traditional Persian metrical system, as it is an underlying form for several of the meters of Pattern IV.

The final meter of Pattern I remains somewhat anomalous, for it appears to involve splitting of the ˘– beat:

(100) 1.1.7(2) *0 ˘ – –   ˘ – –   ˘ x 2

Conceivably it is an imitation of the Arabic *tawīl muthamman sālim*, whose basic form is

(101) ˘ – –   ˘ – – –   ˘ – –   ˘ – – –

Once again, we can see that the observed meters fit the rules fairly well: all of the common meters of Patterns I and II are regular, and all of the irregular meters are rare. No additional rules had to be added to account for these meters other than the foot construction procedure (84); the overall structure of the line and the possible final deletions are determined by rules already posited for Patterns III-V. The ability of the analysis to predict what the common meters will be suggests that it has in some degree captured the structures that underlie the Persian metrical system.

4. The Traditional Account

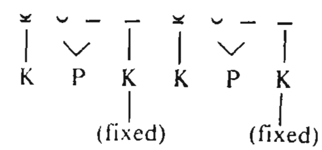
In the remaining section I will briefly describe and evaluate the traditional, Arabic-based system for describing the Persian meters. Although this system has been shown in the literature to be insightful and revealing as a theory of Arabic verse (cf. Weil, 1958; Halle, 1966; Maling, 1973; Prince, forthcoming), it will be seen below that it is inadequate as a theory of Persian meter. In order to facilitate comparison with my own system, I will discuss the Arabic system as it is presented by modern scholars, rather than the traditional prosodists themselves.

In Arabic verse the *misrā*[c] or half-line consists of from two to four feet, just as in Persian. The foot itself contains a peg (abbreviated P) and one or two cords (K), which form an intermediate level between the foot and the metrical nodes. P is realized as the sequence ˘ –, except in line-initial position, where it may optionally be realized as – . K may be realized either as ˘ or –, except that one of the cords of the foot is usually fixed as – . For example, the underlying dimeter pattern

(102) KPK KPK

may be realized as any of the patterns of (103):

(103)



The macrons and breves are then set into correspondence with long (CV̄, CVC) and short (CV) syllables respectively.

Typically the peg and cords of a foot may occur in any order, provided that this order is the same among all feet of the line. The meters of the so-called Third Circle, for example, have the following underlying forms:

(104) PKK PKK PKK   *hazaj*
KPK KPK KPK   *ramal*
KKP KKP KKP   *rajaz*

In Circle V we have

(105) PK PK PK PK   *mutaqārib*
KP KP KP KP   *mutadārik*

Additional meters are created by further extensions of the system. In the Circle I meters, for example, we find an alternating pattern of feet having one or two cords:

(106)	PK PKK PK PKK	*tawīl*
	KKP KP KKP KP	*basīt*
	KPK KP KPK	*madīd*

In the Second Circle, one of the cords, marked as K', may optionally be realized by two breves instead of one macron:

(107)	PK'K PK'K PK'K	*wāfir*
	K'KP K'KP K'KP	*kāmil*

Neither of these circles plays a role in the Persian adaptation of the system. The only exception may be the meter 1.1.7(2) *0, which I have suggested is an imitation of the Arabic *tawīl*:

(108)


The remaining pattern, Circle IV, does play an important role in Persian. It is formed by realizing one peg of a two-cord trimeter as the sequence – ⏑, rather than ⏑ –. This aberrant peg is denoted Q in the meters below:

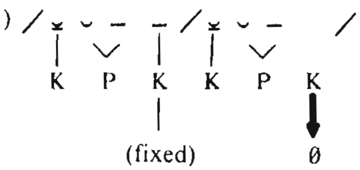
(109)	---	
	KQK KPK KPK	*mujtathth*
	KKQ KKP KKP	*muqtadab*
	PKK QKK PKK	*mudāri*ᶜ
	KPK KQK KPK	*khafīf*
	KKP KKQ KKP	*munsarih*

	KKP KKP KKQ	*sarī*ᶜ

Note that the distribution of Circle IV meters is defective: *a priori*, we would expect meters to fill the gaps indicated by dashes. This has a reasonable explanation within the Arabic system (cf. Maling, 1973), but posed problems in the application to Persian. The Persian prosodists accordingly filled the gaps, providing names for the new meters:

(110)	QKK PKK PKK	*mushākil*
	PKK PKK QKK	*qarīb*
	KPK KPK KQK	*jadīd* (or *gharīb*)

The pattern generating rules for Arabic also contain rules for final deletions: K may be dropped, and P may be reduced to the form –, if they occur in final or penultimate position in the line. This may be seen in the following *ramal* dimeter:

(111)


Although the Arabic metrical system contains many more subtleties, the information presented so far should be sufficient for a comparison with the theory advocated here. The validity of the Arabic system depends in part on what it is regarded as accounting for: we will see that if it is taken to be a complete theory, comprising both pattern generating rules and correspondence rules, it cannot be regarded as correct in any sense. Taken as a set of pattern generating rules, it is more successful, but fails in a number of crucial cases.

In adapting the Arabic correspondence rules to describing Persian verse, the traditional prosodists faced a basic dilemma. Arabic verse is syllable based, in that the metrical nodes are realized by certain syllable types. Ignoring a few complications, each line is realized by the same number of syllables. Persian verse, however, is segment based: the metrical nodes are realized by certain segments or sequences of segments in the line, so that the line always has the same quantity, again ignoring some complications. The result is that the main source of metrical freedom in the Arabic system — the rule allowing K to be realized freely as macron or breve — has no real role to play in Persian meter, for it affects the total quantity of the line. Thus in the Persian adaptation of the system, the cords are normally set at a constant value, which removes much of the motivation for positing pegs and cords in the first place. Even in those cases where a cord is allowed to vary, an adjacent peg is always adjusted to preserve total quantity.

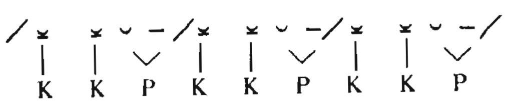
The meter 5.2.16 illustrates these problems clearly. As I have analyzed it,

(112)

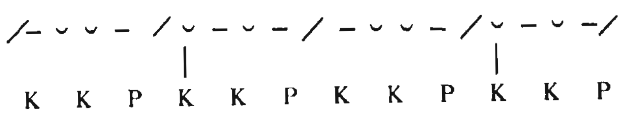

this meter is perfectly regular, consisting of four – ⏑ ⏑ – feet, with the – ⏑ ► ⏑ – form of syncopation applying in the second foot of each half of the line. In the Arabic system, 5.2.16 is considered to be based on the *rajaz*, extended in Persian to tetrameter:

(113) KKP KKP KKP KKP

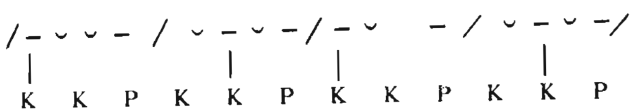
In Arabic, *rajaz* displays the virtues of the organization into pegs and cords with great clarity: cords are everywhere realized freely as either ⏑ or –, while pegs always take the form ⏑ –. Thus in its trimeter form, the meter appears as (114):

(114) 

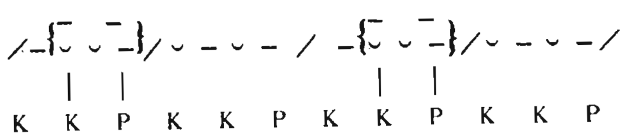
In Persian no such simplicity may be found: the eight cords of the meter are treated in three different ways. Two of them are fixed as short:

(115) 

Four are fixed as long:

(116) 

and the remaining two are free, subject to a condition: if they are realized as –, the following peg must be – rather than ⏑ –, as in (117):

(117) 

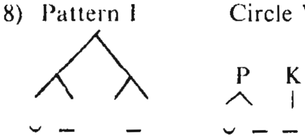
This contextual variation is in fact the means by which the Arabic system duplicates the effect of my correspondence procedure (7), allowing a (C)VC or (C)VV syllable to correspond with two consecutive breves in the metrical pattern. (The correspondence (C)VCC, (C)VVC ↔ – ⏑

is accomplished by *nīm fatha* insertion, as discussed in Section 1.) The procedure is undesirable for several reasons. First, the original Arabic system doesn't allow for contextual dependency in the realization of cords and pegs: such dependencies are found only in the realization of adjacent cords. Second, the theory makes illegitimate use of the correspondence P ↔ –, for in Arabic this correspondence may be used only as a pattern-generating rule at the end of a line, or as a correspondence rule line-initially. Third, the process is not a general one, since in the even-numbered feet of (117), as well as in numerous other meters, the peg remains set at ⏑ – when the preceding cord is –. Fourth, the theory uses an elaborate contrivance to capture a simple result: the fact that the total quantity of a line is constant follows only by careful tinkering with the correspondence rules, rather than as a natural result of the system. Under the theory I have proposed, it is a natural result, since the metrical nodes are not shortened or deleted, but merely set in correspondence with the segments of the line. Finally, the theory fails to capture the similarity between the correspondences (C)VCC, (C)VVC ↔ – ⏑ and (C)VC, (C)VV ↔ ⏑ ⏑ : it uses a completely different mechanism in each case, while under my theory, the two correspondences follow from the same principle.

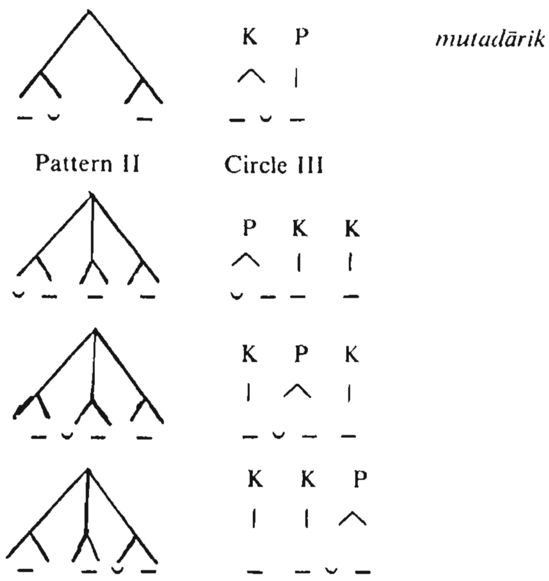
The meter 5.2.16 is not unique in the complexity with which the Arabic system describes its correspondence possibilities: other meters such as that of the *rubāᶜī* are even more complex. Even among the simpler meters, it is always the case that each cord is fixed in length, either alone or in association with an adjacent peg. In reality, the syllables of the line are set in correspondence not with the pegs and cords themselves, but with a specified, fully realized instantiation of the pegs and cords. Thus it seems that pegs and cords have no role to play in the Persian correspondence rules.

The question remains how well the Arabic system would work as a set of pattern generating rules for Persian, with the work of correspondence taken over by the rules adopted here. The system appears to do best at describing the meters of Patterns I and II: the feet I have posited for these meters turn out to be isomorphic to the feet used in the Arabic Circles III and V, with each peg or cord corresponding to a single metrical beat:

(118) Pattern I Circle V



mutaqārib



The derivation of the meters is thus parallel in the two systems. The only assumption that is needed under the Arabic system is that pegs are always set at ⌣ — and cords at — . The Arabic system in fact has a minor advantage over mine in that its counterpart to the final deletion rule (42) is formulated to delete final cords, not pegs (cf. Maling, 1973, pp. 105-106). This makes the true prediction that meters in which the final sequence ⌣ — has been deleted will be rare:

(119) 2.3.14 *0 — — ⌣ — — — ⌣ — — — ⌣ — — —

1.3.10 *1 — ⌣ — — ⌣ — — ⌣ — —

1.3.7(2) *0 — ⌣ — — ⌣ — — x 2

However, one should not jump to the conclusion that in using Patterns I and II the Persians were writing Arabic verse. First, there are important synchronic differences: the Pattern II Persian meters occur in the trimeters and tetrameters preferred throughout the Persian metrical system, while their Circle III Arabic counterparts are dimeters and trimeters. The Arabic pattern generating rules regularly allow a final peg to be realized as —, but in Persian this is quite rare, the only example being

(120) 2.3.7(2) *0 — — ⌣ — — — —

Finally, the correspondence patterns in the two systems are very different, as I have already shown.

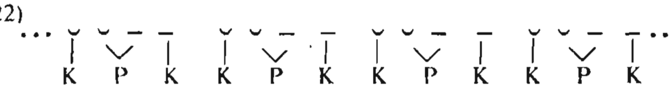
In addition, Elwell-Sutton (1976, pp. 172-174) has shown that the Pattern I/Circle V meters existed in Persian before they did in Arabic; in fact, the Arabic meters of Circle V are probably borrowed from Persian. Elwell-Sutton tries to show that the Pattern II Circle III meters are native Persian as well, but without nearly as much evidence. My own suspicion is that the Pattern II meters were in fact borrowed from Arabic, but that they were borrowed into a pre-existing system that was remarkably well prepared to receive them, and which imposed its own extensive modifications on the borrowed meters. The three-beat rhythm of Pattern II was already found in Patterns III-V, which Elwell-Sutton shows to be Persian in origin. In addition, the native Pattern I meters had already established the principle of filling a single beat (in a two-beat foot) with the sequence ⌣ — . It was thus a simple matter to imitate the Arabic Circle III meters with the Persian Pattern II, providing the new meters with the characteristic Persian line structure, rhythmic character, and correspondence rules.

The Circle III meters of the Arabic system also form the basis for its account of the Pattern III Persian meters. Observe that any string of identical feet taken from Circle III

(121) ... K P K K P K K P K K P K ...

will give us Elwell-Sutton's underlying string for Pattern III if every cord occurring immediately to the left of a peg is realized as short:

(122)



This is the approach taken in the Arabic-based system: the appropriate correspondence rule realizing the K immediately to the left of P as short is adapted to be a pattern generating rule. Note that the traditional prosodists did not actually describe the cord-shortening as shortening the cord to the left of the peg; in fact, the rule shortening the appropriate cord has a different name in each of the three Circle III meters. However, Maling (1973) has shown that in other cases (involving the correspondence rules), the traditional prosodists would express simple generalizations of pattern using what seems to Westerners as rather complex means. The overall organization of the system suggests that the prosodists must have discovered the right generalizations, but could not express them directly with the notation available to them, which was based on the Arabic orthography rather than on the syllable. Thus in the present situation it seems better to assume that the traditional prosodists knew that the shortened cords of Pattern III had something in common, but were unable to state this explicitly.

The Arabic system provides a foot inventory slightly different from my own: we have

```
(123) /⏑ – –  ⏑ / ⏑  ⏑ – – / –  ⏑ ⏑ – /
       P  K  K   K  P  K   K  K  P
```

rather than ⏑ ⏑ – –, – ⏑ ⏑ –, and – – ⏑ ⏑. Because of the different feet, it is impossible for the Arabic system to duplicate in a unitary way the effects of my final beat deletion rule. For the PKK and KPK feet, the deletion may be expressed as the deletion of a final cord, which is quite common in Arabic meter:

```
(124) 3.1.15   *1965
   /⏑ ⏑ – – / ⏑ ⏑ – – / ⏑ ⏑ – – /⏑ ⏑ – /
    K  P  K  K  P  K  K  P  K  K  P  Ø
```

But in KKP meters, the final metrical node cannot be deleted, since it forms part of the peg. The effect of final beat deletion in these meters must therefore be expressed as peg shortening instead:

```
(125) 3.4.11 /–  ⏑ ⏑ – /–  ⏑ ⏑ – /–  ⏑  – /
              K  K  P  K  K  P  K  K  P
```

The Arabic PKK foot (⏑ – – ⏑) seldom appears in its basic form in initial position. Instead, the Arabic correspondence rule by which P may appear as – in initial position is invoked (as a pattern generating rule), with derivations like (127) resulting:


```
(126) 3.3.14
   /–  –  ⏑ / ⏑ – –  ⏑ / ⏑ – –  ⏑ / ⏑ – –   /
    P  K  K  P  K  K  P  K  K  P  K  K
                                     ↓
                                     Ø
```

Although this correspondence is never invoked in the meters of Patterns I and II, the move is not as arbitrary as it might seem, since it obviates the need for a rule like my (54), collapsing two final breves together. Just as in my analysis, the predicted meters will be six, seven, ten, eleven, fourteen, and fifteen metrical nodes long, instead of seven, eight, eleven, twelve, fifteen, and sixteen: it is simply that an initial breve rather than a final one has been deleted.

The traditional system derives the Pattern IV meters in a way similar to that of the Pattern III meters: every cord immediately to the left of a peg is realized as ⏑. The effect of the syncopation rule (46) (⏑ – → – ⏑) is achieved by using as a base the Arabic Circle IV meters, in which a trochaic – ⏑ peg is substituted for the normal iambic one. Typical examples are

```
(127) 4.1.15
   /⏑ – ⏑ –/⏑ ⏑ – –/⏑ – ⏑ –/⏑ ⏑ – Ø/
    K  Q  K  K  P  K  K  Q  K  K  P  K = mujtathth

4.5.11
   /⏑ ⏑ – – / ⏑ – ⏑ – / ⏑ ⏑ – Ø/
    K  P  K  K  Q  K  K  P  K = khafīf

4.7.14
   /–  – ⏑/– ⏑ – ⏑/⏑ – – ⏑/– ⏑ – Ø/
    P  K  K  Q  K  K  P  K  K  Q  K  K = muḍāri
```

Note that in meters like 4.7.14, an initial peg is realized as –, just as it was in the Pattern III meters.

The adaption of the Arabic Circle IV to account for the Persian Pattern IV meters involved a lot of stretching. All but two of the underlying meters that are used were extremely rare in Arabic, and three of them do not exist at all, one example being the Persian invention *qarīb*, which is used to account for 4.7.2/9 *36:

(128)
/– – ⏑/ ⏑ – – ⏑/– ⏑ – –/
P K K P K K Q K K

In addition, the underlying Arabic dimeters and trimeters must be extended by a foot to account for Persian trimeters and tetrameters. Often we must give the traditional prosodists the benefit of the doubt as to what kind of peg is found in the final foot.

On the whole, however, the Arabic system as presented so far constitutes a highly predictive theory for the Persian pattern generating rules. It accounts for most of the existing meters and excludes many non-existing meters using a small array of formal devices: the pegs and cords, their groupings into feet, the rule shortening K before P, and various terminal deletions and shortenings. In fact, the system has more explanatory value than I have suggested. Recall that under the Arabic system not all cords may vary freely, as some are fixed as long. As it turns out, every cord that is fixed as long in Arabic verse is in fact realized as long among the Persian meters presented thus far. It is only when we examine the Pattern V meters that the defects of the system become truly apparent.

The repeating string of nodes that characterizes Pattern V is as follows:

(129) ... – – ⏑ ⏑ – ⏑ – ⏑ – – ⏑ ⏑ – ⏑ – ⏑ ...

If we adopt the strategy that has already been used successfully, the correct way to generate this string would be to assume an underlying sequence of feet which alternate in containing iambic and trochaic pegs:

(130) ... K Q K K P K K Q K K P K ...

and realize every cord occurring to the right of a peg (instead of to the left) as a breve:

(131) ... – – ⏑ ⏑ – ⏑ – ⏑ – – ⏑ ⏑ – ⏑ – ⏑ ...
...K Q K K P K K Q K K P K...

But this is not what the traditional prosodists did. Instead, they derived the Pattern V meters using all iambic pegs, and arbitrarily shortened the right cords to get the correct result: [10]

(132) 5.1.10
/– – ⏑/ ⏑ – ⏑ –/ ⏑ – – –/
P K K P K K P K K = *hazaj*

5.2.16
/– ⏑ ⏑ –/⏑ – ⏑ –/– ⏑ ⏑ –/⏑ – ⏑ –/
K K P K K P K K P K K P = *rajaz*

5.3.16
/⏑ ⏑ – ⏑/ – ⏑ – –/ ⏑ ⏑ – ⏑/ – ⏑ – –/
K P K K P K K P K K P K = *ramal*

Clearly there is no real pattern in the cord-shortenings of (132): note in particular the meter 5.1.10, where a different option is selected in each foot. The analyses of (132) are little better than a complete listing of the strings of nodes would be.

Why should the traditional prosodists, once they had erected a simple and explanatory theory for most of the meters, have gutted the system at the last minute? One reason that comes to mind is that the derivation suggested in (131) would require that certain cords that are fixed as long in Arabic be shortened in Persian. But this cannot be right, since even the analysis that the prosodists adopted requires the shortening of cords which are fixed as long in Arabic, as shown below in the traditional *hazaj* analysis of 5.1.10:

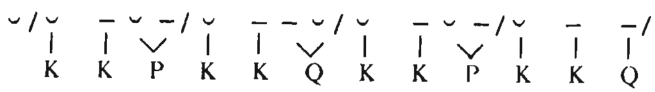
(133)
/– – ⏑/ ⏑ – ⏑ –/ ⏑ – – –/
P K K P Ⓚ K P K K

Another reason for the prosodists' inconsistency might be a desire to simplify the correspondence rules: if the proposal of (132) is adopted, it is no longer possible to express the collapsing of two breves into a macron as the mutually compensatory realization of a cord and a following peg. The traditional analysis does preserve this principle.

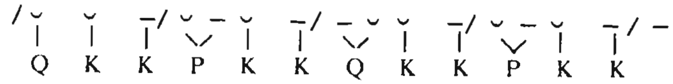
I believe that the most important reason why the traditional prosodists did not adopt the analysis of (131) was that it fails to account for the meter 5.3.16:

(134) 5.3.16 *127 ⌣ ⌣ – ⌣ – ⌣ – – ⌣ ⌣ – ⌣ – ⌣ – –

This meter simply fails to line up with any possible sequence of four feet from Circle IV. If we choose the meter *munsarih*:

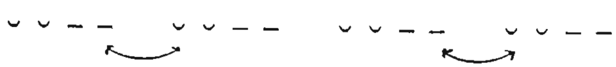
(135)


we get an unexplainable breve at the beginning of the line. The meter *mushākil* does even worse:

(136)


Here we not only have a macron dangling at the end of the line, but also must allow the initial peg to correspond to ⌣, something which is unheard of in the Arabic system. The traditional prosodists really had no choice but to derive 5.3.16 using only iambic pegs, arbitrarily shortening the appropriate cords as in (133). Since the strategy of shortening every cord to the right of a peg was of no use in this meter, it must have seemed of little benefit to use it with other common Pattern V meters. Thus these meters received their own *ad hoc* analyses as well.

My own account of 5.3.16:

(137)


seems fairly well motivated in comparison: it uses no theoretical devices that are not independently needed elsewhere. The crucial advantage it has is that syncopation is defined as a structure-changing rule, rather than as a principle of foot construction, so that it can apply across foot boundaries when necessary.

The importance of this contrast should not be underestimated. The bad effects of the foot inventory adopted under the Arabic system are in most cases removed by the use of slightly different terminal-deletion rules, for example in the use of the rule P↔ ⌣/£_ in the Arabic system in place of my final breve contraction rule (54). We would expect *a priori* that the cases in which the two theories differ would be rare, and accordingly very important.

The sum of the evidence, particularly that from the correspondence rules and the Pattern V meters, suggests that the Arabic system cannot be taken as the correct synchronic account of Persian meter. Even the Pattern II meters, which may have been borrowed from Arabic, have been made thoroughly Persian in correspondence properties and line structure. It is still remarkable, though, just how far the traditional prosodists got in adapting an alien system to the description of Persian verse. That they succeeded as well as they did suggests that there are close similarities between the two systems. The influence that each system had on the development of the other remains an important topic for future research.

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NOTES

1. I would like to thank Wheeler Thackston, Paul Kiparsky, and especially Morris Halle for helpful discussions of the material presented here. Any remaining shortcomings or errors are sole responsibility of the author.

2. The lines are actually referred to as "hemistitches" (*misrā'*) by the traditional prosodists, since they are written in pairs down the page. The distinction seems to be of no importance.

3. The scansion of *pisar-i* as ⌣ ⌣ – results from a prosodic rule that optionally lengthens short vowels in word final position.

4. Elwell-Sutton refers to this meter at one point as 4.4.7(2):

(i) – ⌣ ⌣ – – – ⌣ – – ⌣ ⌣ – – – ⌣ –

and at another point as 4.4.15:

(ii) – ⌣ ⌣ – – – ⌣ – – – ⌣ – – ⌣ – – – ⌣ –

The two are difficult to distinguish, since an overlong syllable corresponding to the last node of 4.4.7(2) can also correspond lawfully to the sequence – ⌣ found at the same place in 4.4.15. I have assumed that the meter is in fact doubled, and have fitted it into the system proposed here by reanalyzing it as 3.4.7(2):

(iii) – ⌣ ⌣ – – ⌣ ⌣ x 2

Since final metrical nodes correspond to any syllable, (i) and (iii) are equivalent descriptively, though not theoretically. Elwell-Sutton's 4.4.7 has similarly been reanalyzed as 3.4.7.

5. In the meters 4.4.5/8 and 4.7.2/11, two beats are deleted finally. This phenomenon will be discussed shortly.

6. We must also assume that if final beat deletion or contraction apply, they apply wherever possible. This insures that the copied half line will always be identical to its model.

7. This meter and the last appear in Elwell-Sutton as 4.1.5(2) and 4.1.5(4) respectively.

8. In 5.3.14 *0 and 5.3.6(2) *0, contraction would presumably be blocked by the prior application of syncopation:

(i) 5.3.14 *0 ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑ – – ⏑ ⏑

(ii) 5.3.6(2) *0 ⏑ ⏑ – – ⏑ ⏑ x 2

9. The system actually states that it is a trochaic – ⏑ peg that is shortened in final position rather than an iambic one.

10. The prosodists did derive a few Pattern V meters from Circle IV, which contains trochaic pegs. However, in each of these meters, the only trochaic peg occurs line-finally and is reduced to the form – by a shortening rule. The cord shortenings that are required for these meters are just as arbitrary as those required when all the pegs of the meter are iambic.

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Corrections to B. Hayes, "The Rhythmic Structure of Persian Verse"

(<u>Edebiyat</u> 4.193-242)

p. 202, ex. (23):

V. ... - - u u - u - u - - u u - u - u ...

p. 203, ex. (30):

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... - - u u - [ u - u - - u u - ] u - u - - u u - ] u - u ...
                                x 2                x 1
```

p. 214, ex. (56):

3.4.11 *222 - u u - - u u - - u u

p. 216, ex. (61):

4.7.14 *2663

- - u u - - u u - - u u - -

p. 233, middle:

(C)VC, (C)VV <--> u u:

p. 241, fourth line:

P --> - /ℓ ___

p. 242, footnote 8:

(i) 5.3.14 *0 u u - - u u - - u u - - u u

(ii) 5.3.6(2) *0 u u - - u u x 2