

Sigmatic and Sumerian Verb Forms [SSVF]

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1 Set Equivalents of Sumerian Verb Strings

1.1 Introduction

1.1.1 In *Towards a Morphology of the pre-Semitic Verbal System (MPSVS)*, an attempt is made to reconstruct the morphology of prefixing G-form verbs in Sigmatic, the language from which Common Semitic, Berber and Egyptian are argued to have descended. It is further argued in *MPSVS* that Sigmatic was in all probability an agglutinating language. Sumerian also being a language of this type. the purpose of the present study is to compare the morpheme sets proposed for the Sigmatic G-form verb in *MPSVS* with those of the verb in Sumerian ; the generalised Sigmatic verb string $G_{P\Sigma}$ is set out in Section 6 of *MPSVS* and is repeated as expression 16 at §2.1.1 below.

1.1.2 In order to facilitate comparison of syntagmatic relationships between the morphemes of the Sigmatic and Sumerian strings, along with quantitative analysis where appropriate, it will be necessary to express the Sumerian verb in a similarly generalised form. In this section, therefore, a parallel string is developed which attempts to summarise the morpheme sets from which Sumerian verb forms are taken to

be constructed. No attempt is made to offer an exhaustive analysis of the Sumerian data, the emphasis being rather on what seem to be the most central morphemes.

1.1.3 It should be emphasised at the outset that if the verbal systems of Sumerian and Sigmatic turn out to be related in some way, the two systems would have begun to diverge well before the invention of writing. Thus even allowing for an extended period of oral transmission of Sumerian literary texts it is likely that the earliest attested form of Sumerian would have been later than any form of Sigmatic, which latter would in the meantime have developed those characteristics which make the verbal systems of the Semitic and Egyptian languages so different from those of Sumerian.

1.1.4 The analysis of Sumerian which follows is based principally on the work of Sollberger, Falkenstein, and Edzard, particularly the first of these, with occasional reference to Jacobsen and Poebel.¹ A comparison of these studies makes clear that interpreting the data is not without its difficulties. In particular, differences of opinion on syntagmatic ranking of the various morphemes inevitably render the composition of the Sumerian morpheme sets, and hence the generalised expression, somewhat provisional. For the non-specialist, the advantage in basing the work on Sollberger's study is that the 'Royal Inscriptions' forming the subject of his work are old (*SVIRP*, viii) and apparently fairly homogeneous, along with the fact that Sollberger's clear presentation of data and argument readily admit of critical scrutiny.

1.2 Stem Morphemes

1.2.1 The set of non-compound Sumerian verb stems may be summarised as follows :²

$$S_{\text{lems}} = \{gar, d\dot{u}, \dots, gin\} \quad \dots(1)$$

A good number of these can apparently be reduplicated, for example *gin-gin* vs *gin*, although many of

¹ E. Sollberger, *Le système verbal dans les inscriptions 'royales' présargoniques de Lagaš [SVIRP]* (1952) ; A. Falkenstein, *Grammatik der Sprache Gudeas von Lagaš² [GSGL]* (1978) ; D.O. Edzard, *Sumerian Grammar [SG]* (2003) ; A. Poebel, *Grundzüge der sumerischen Grammatik [GSG]* (1923) ; T. Jacobsen, 'About the Sumerian Verb', in H.G. Güterbock. and T. Jacobsen (eds) *Festschrift B. Landsberger* (1965).

² For the purposes of this overview Sollberger's conventions for transcribing Sumerian characters are retained without modification. The differences between the contemporary system of transcription and Sollberger's are assumed in general to have little or no consequence for Sumerian verb morphology as outlined here, nor for comparison of the Sumerian and Sigmatic verbs sets. The stems recorded by Sollberger can be found in *SVIRP*, §231 (p48).

these – but by no means all - turn out to be *marū* equivalents of simple (*kamtu*) stems.³

1.2.2 Sollberger also lists a number of ‘compound’ forms consisting of a stem (occasionally reduplicated) prefixed by what could be termed a ‘lexical augment’, usually nominal but occasionally adjectival.⁴ For example *šu...ug₆*: ‘hand (?)...kill’ = ‘massacre’. These augments are generally separated from their stems by intervening morphemes and are therefore taken to comprise a distinct set *A(ugment)* *L(lexical)* where:

$$A_L = \{\text{\textit{šu}}, \text{\textit{ki}}, \dots, \text{\textit{gù}}\} \quad \dots(2)$$

Set *A_L* seems generally to consist of words for body parts. Note however that of 41 examples of this construction listed by Sollberger only *šu* occurs with any regularity (11 examples), followed by *ki* and *gù* with three examples each.⁵

1.3 Morphemes Prefixed to the Stem

1.3.1 The majority of finite verb strings discussed by Sollberger incorporate a morpheme which typically signals, at least in part, that the string is concerned in some way with an event ; syntagmatically this morpheme may (but often does not) immediately precede the stem.⁶ The most common ‘event marker’ is *mu*, as for example *mu-ila* ‘he raised’. In paradigmatic distribution with *mu* and slightly less common in Sollberger’s data is *e*, for example *e-ila*, with the same basic sense as *mu-ila*.⁷ Falkenstein records 1110 finite verb forms in the Gudea texts, of which 561 have *mu-* and 378 prefix *i-*.⁸ Sollberger and Falkenstein clearly view *e-/i-* and *mu-* as being in paradigmatic distribution, but Jacobsen ranks morphemes *i* and *mu* differently (his Pr 27 and 23 respectively) although the two are indeed alternatives, as his extended discussion shows.⁹ Edzard takes *mu* (and its variants) to form part of what he terms ‘dimensional

³ See Edzard, *SG*, §12.2 (p73), §12.4.3/4 and §12.5 (p79). These are Akkadian grammatical terms, applied respectively to the Sumerian equivalents of the Akkadian *iprus* and *iparras* forms.

⁴ *SVIRP*, §232.

⁵ For these morphemes see also Edzard *SG*, §12.15.1. For Gudea see the lists in Falkenstein, *GSGL*, §37.

⁶ See generally *SVIRP*, §320 (p107). The morphemes discussed here are essentially those of Sollberger’s Class I (table on p108).

⁷ In later Sumerian *e-* becomes *i-*. See the paradigms in *GSGL* Vol I, 237/8; also Jacobsen, *Sumerian Verb*, 75 fn5, who notes that *i-gar* ‘he placed’ is equivalent to the Akkadian *G_{PA}* form *iskun*.

⁸ *GSGL*, §112a.

⁹ *Sumerian Verb*, 76, 79-82 (fn 11).

indicators : ventive’,¹⁰ but although he cites literature in support of his analysis (not accessed) he offers little argument and it is not obvious how he accommodates the fact that in both Sollberger’s and Falkenstein’s texts *mu-* quite commonly occurs in verb strings without a dimensional indicator.¹¹ A third morpheme in apparent paradigmatic distribution with both *e* and *mu* is *a*, which however is very much less common than the former two in Sollberger’s data and is entirely absent from the Gudea texts.¹²

1.3.2 A fourth morpheme which could be included with the above is *nu*, which in Sollberger’s texts replaces *mu* or *e* (and presumably *a*) in negative verb forms ; compare for example *e-aka* and *nu-aka* (*SVIRP* §32135a, p137). This statement, although true for the Royal Inscriptions, is not so for the Gudea texts, where *nu* is prefixed to *mu*, as for example *nu-mu-zu* ‘I could not understand’ and *nu-zu* ‘I do not understand’.¹³ Falkenstein is of the opinion that *nu-* in the latter case precedes an *i-* which has either been assimilated to *nu-* or is masked by the orthography. Edzard appears to be of the same opinion “[nu] may be spelled *nu-ù-*, probably when followed by [i]”.¹⁴

1.3.3 A second group of event markers consists of *ni*, *bi* and *ba*, ignoring orthographic variants.¹⁵ On the evidence of Sollberger’s data these morphemes are in paradigmatic distribution with *e*, *mu* and *a* but are markedly less common than the former two (see Table 4 at §2.2 below). In the Royal Inscriptions they can be distinguished formally from the set comprising *e*, *mu* and *a* in that negative morpheme *nu* does not replace the relevant morpheme but is prefixed to it, as for example *nu-ba-tumu* ; likewise in Gudea, e.g. *nu-ba-gá-gá*.¹⁶ Functionally, *ni* and *bi* appear to be locative with *ba* as middle or passive.¹⁷ In Gudea *ba-* is

¹⁰ *SG*, §12.8, (p92). See below at §1.4.1.

¹¹ Of 288 morphologically distinct verb strings listed by Sollberger (*SVIRP*, 229-246), 18 have event marker *e* immediately prefixed to the stem and 21 have *mu*. In Gudea there are 145 examples of *mu-* without a dimensional infix and 126 of *i-* (*GSGL*, §112 c1).

¹² Sollberger, *SVIRP*, §3212 (p118); Falkenstein, *GSGL*, §112. Compare Edzard, *SG*, §12.10 (p111), where the morpheme is analysed as *a(l)*.

¹³ Examples from Cyl A 4.21 and Cyl A 1.28.

¹⁴ *GSGL*, §77 1c1, (Vol I, p225); *SG*, §12.11.2, (p113).

¹⁵ Sollberger’s Class I 2, see generally *SVIRP*, §322 (p141).

¹⁶ *GSGL*, §187 b1.

¹⁷ *SVIRP*, §32211 (p141); §32212 (p155); §3222 (p158).

common and *bi-* is also attested.¹⁸ Falkenstein regards *ba* as essentially locative and views the passive function as secondary ; Edzard on the other hand recognises an intransitive/passive function but not the locative.¹⁹ Sollberger offers an extended argument in support of *ni-* but this morpheme is not attested in Gudea, although Falkenstein tentatively proposes prefix *na-*, again taken to originate in a locative.²⁰ Edzard appears to recognise neither *bi*, *na* nor *ni*.

1.3.4 A third set of event markers comprises elements *na*, *ši* and *šè*, which Sollberger analyses as ‘assertif’, i.e. ‘emphatic’, but which apparently convey no particular distinction in meaning. In Sollberger’s data this set is in paradigmatic distribution with the first two.²¹ Edzard recognises *na-* and *ša-/ši-*, as for example *na-mu(-n)-řú* and *ša-mu-e-da-ĝál*.²² Morphemes *na-* and *ša-* precede *mu* and hence Edzard classes them with the ‘modal indicators’ (set $\{AP\}$ below) and therefore not as prefixes. Falkenstein recognises *na-* as a preformative but not *ša-* or *ši-*.²³ Of the three morphemes in Sollberger’s data, *ši* and *šè* occur only once each and are presumably alternatives, with *na* occurring four times.

1.3.5 Thus on the basis of Sollberger’s data three ‘working’ sets of event marker morphemes are proposed;

$$EM_1 = \{e, mu, a, nu\} \quad \dots(3)$$

$$EM_2 = \{n(v), bi, ba\} \quad \dots(4)$$

$$EM_3 = \{na, š(v)\} \quad \dots(5)$$

The relationship between morpheme *nu* of $\{EM_1\}$ and the members of $\{EM_2\}$ requires that, in terms of syntagmatic rank the former set should precede the latter but otherwise, with the exception of *nu* all eight morphemes appear to be in paradigmatic distribution – at least in Sollberger’s data. Set $\{EM_3\}$ is postulated on the assumption that Sollberger’s texts reflect an earlier stage in the language than those utilised by Edzard.

1.3.6 Sollberger discusses further prefixed morphemes, all of which are ranked before $\{EM_1\}$ and

¹⁸ *GSGL*, §63 and §61 respectively.

¹⁹ *GSGL*, §116; *SG*, §12.7.1 (p81).

²⁰ *SVIRP*, §32211-13 (p141-154); *GSGL*, §60.

²¹ *SVIRP*, §32135b (p138).

²² *SG*, §12.11.10/11 (p119).

²³ *GSGL*, §72 and §128. But note the reference to Falkenstein, 1944, in *SG*, §12.11.11.

{EM₂}. Of these the only two occurring in any number in his texts are the ‘volitive’ morphemes *ga* and *ha* and the ‘suppositive’ morpheme *ù*;²⁴ the others may be neglected for present purposes.²⁵ Morpheme *ha* always precedes a member of {EM₁} or {EM₂} (*ha-e* becoming *he*) ; *ga* is preposed only to 1s and 1p forms but is otherwise as *he* ; *ù* may precede a member of {EM₁} or {EM₂} but usually does not. These morphemes are among Falkenstein’s ‘preformatives’ and Edzard’s ‘modal indicators’ and are assigned various grammatical functions taken to be of marginal relevance to the present investigation.²⁶ In general, they may be summarised as approximately ‘adverbial’ in function and on this basis a set *A(dverbial) P(refixes)* is proposed as follows:

$$AP = \{ha, ga, \grave{u}\} \quad \dots(6)$$

As noted above, Edzard’s data offers an argument for incorporating set {EM₃} into {AP}.

1.4 Infixes

1.4.1 Infixed morphemes (termed ‘dimensional indicators’ by Edzard)²⁷ precede the stem but stand after the prefixed elements outlined above. Sollberger classes these morphemes as ‘pronominal’ and ‘non-pronominal’ and on this basis, and on the basis of their syntagmatic rankings, they can be analysed as two ordered sets, which will be termed *C(ase) I(nfix) 1* and *2*, abbreviated to (*CI*₁) and (*CI*₂), where (*CI*₁) (pronominal) is ranked before (*CI*₂) (non-pronominal).²⁸ For the purposes of what follows these sets are generalised, in that certain of Sollberger’s morphemes are collapsed into a ‘super’ morpheme and one or two others, occurring only infrequently, are ignored.

1.4.2 Set (*CI*₁) includes the morphemes classed by Sollberger as ‘accusative’, ‘dative’ and ‘terminative’, although he suggests that the latter pair may be related.²⁹ Sollberger’s morphemes are

²⁴ *SVIRP*, §323/4. These are Sollberger’s Class II 1 and II 2 respectively (*SVIRP* p108).

²⁵ *SVIRP*, §3231, §325/6.

²⁶ For *ga* see *GSGL*, §74, §130 and *SG*, §12.11.3 (p115). For *ha* (*he*) see *GSGL*, §75, §131 and *SG*, §12.11.5. For *u* see *GSGL*, §76. §132, *SG*, §12.12.1 (p121).

²⁷ *SG*, §12.8.

²⁸ *SVIRP*, §3103 (p63). Although Sollberger does not discuss ranking, on the evidence of his summary of verb strings (*SVIRP*, 229-246) this division into sets (*CI*₁) and (*CI*₂) would appear to be valid, without exception. The sets are defined as ‘ordered’ on the ground that in (*CI*₁) the accusative precedes the dative and in (*CI*₂) the ablative precedes the locative, although the relatively simple strings in Sollberger’s texts do not permit further analysis.

²⁹ *SVIRP*, §3111-3. The dative infixes permit the translations ‘to him’ or ‘for him’ according to context.

summarised in Table 1, where (p) = personal and (n) = neuter. Certain alternatives, particularly those of the 3s(n) and 3p(n) forms, are taken to be allophones.³⁰

TABLE 1 MORPHEMES OF SET $\{CI_1\}$

	Accusative	Dative	Terminative
1s	-	a	-
2s	-	-	re
3s(p)	n	na, na-a	né
3s(n)	b, m, ma	ba, ma	me
3p(p)	-	ne, na ³¹	-
3p(n)	b, ma	ma	bé

1.4.3 It will be seen that all except the 1s dative morpheme incorporate a consonant phoneme marking ‘person’ (animate or inanimate/neuter) and a vocalic phoneme, or zero, marking case. Thus set $\{CI_1\}$ can be further analysed as two subsets, namely :

$$CI_1 = (CI_{1A}, CI_{1B}) \quad \dots(7)$$

where $\{CI_{1A}\}$ is an (unordered) set of pronominal phonemes and $\{CI_{1B}\}$ a set of case phonemes. These subsets can be expressed approximately as:

$$CI_{1A} = \{\emptyset, r, n, M\} \quad \dots(8)$$

$$CI_{1B} = \{\emptyset, a, e\} \quad \dots(9)$$

where M is a superordinate phoneme realised as b or m .

1.4.4 The non-pronominal infixes identified by Sollberger in the Royal Inscriptions (set $\{CI_2\}$) are

³⁰ For accusative forms Falkenstein (*GSGL*, §64) proposes infixes for the 3s(p) and 3s(n) forms but suffixes for the remainder (see Sollberger’s discussion of Falkenstein’s analysis at *SVIRP*, §3132e) ; Edzard appears not to recognise an ‘accusative’ case. Sollberger’s ‘dative’ is Falkenstein’s ‘dative-locative’ (*GSGL*, §65) and the former’s ‘terminative’ is the latter’s ‘locative-terminative of immediate proximity’ (*GSGL*, §66); see also Edzard’s ‘directive’ (*SG*, §12.8, p93). Falkenstein’s infixes other than the accusative are postulated to consist of a pronominal element (*GSGL*, §63a) followed by a ‘directional element’. Sollberger criticises Falkenstein’s proposals on the ground that the vast majority of the latter’s forms are reconstructions (see the Table at *SVIRP*, §3131a) and that there is in fact little evidence for his pronominal elements (§3132a-d). Although of interest, these differences between Sollberger’s and Falkenstein’s analyses are not relevant to the current study. Falkenstein’s analysis is accepted by Edzard (*SG*, §12.8, p93) with qualifications as expressed at §12.8.3. Whether Edzard’s view is based on evidence which has subsequently come to light is unclear.

³¹ Sollberger (*SVIRP*, §31122) regards *ne* as the normal 3p(n) form and *na* as a variant. The use of *-e* as the terminative marker suggests that this may not necessarily be the case.

analysed as ‘directive’ (movement away from the locus of the event), ‘ablative’ (‘from’, occasionally ‘by means of’), ‘locative’ and ‘comitative’. The attested morphemes can be summarised as follows:³²

TABLE 2 MORPHEMES OF SET {*CI*₂}

Directive	Ablative	Locative	Comitative
šè	ta	ni	da
ši		n	dì
		mi	

Sollberger has 16 examples of šè but only four of ši (examples 88 to 103 [p82/3] and 104 to 107 [p84] respectively), suggesting that the latter should perhaps be viewed as a variant of the former.³³ Similarly, among the locative morphemes *ni* occurs 29 times (examples 127 to 156 [p90-93]) as against two for *n* (161/162) and eight for *mi* (163 to 170 [p93]). Among comitative forms there is only one example of *dì* (195) as against 24 with *da* (171 to 191 [p97-99]) or *da*₅ (192 to 194). Set *CI*₂ is thus provisionally defined as follows;

$$CI_2 = \{šè, Ni, da, ta\} \quad \dots(10)$$

where *Ni* is a superordinate locative morpheme realised as *ni*, *n* or *mi*.

1.4.5 On Falkenstein’s proposed ranking of the relevant morphemes (*GSGL* §63c, p196) sets (*CI*₁) and (*CI*₂) could be collapsed into a single set (*CI*), which would of course give a simpler analysis.³⁴ Whether one or other of these analyses is incorrect, or both are correct but reflect different stages in the language, is a question that remains to be answered.

1.5 Markers of Aspect/Tense

1.5.1 Sumerian transitive verbs comprise apocopate forms (*kaṃṭu*) which Falkenstein regards as

³² *SVIRP*, §3121-4. Sollberger’s ‘directive’ is Falkenstein and Edzard’s ‘terminative’ (*GSGL* §67; *SG* §12.8, p93) and the former’s ‘ablative’ is Falkenstein’s ‘ablative-instrumental’ (§70); Falkenstein also identifies a separate and ‘relatively infrequent’ ablative infix (§69). Sollberger’s ‘locative’ forms part of Falkenstein’s ‘locative terminative of immediate proximity’ and is Edzard’s ‘locative 2’.

³³ Sollberger is inclined to doubt that this is so (*SVIRP*, §31212, p84). In the Gudea texts *ši* seems to occur exclusively, and is the only form recognised by Edzard.

³⁴ Falkenstein proposes an order locative (2) – dative (1) – locative terminative (1) – comitative (2) – ablative (2) – ablative instrumental (2) – terminative – (2) accusative (1), where the numbers indicate how Falkenstein’s analysis blends the morphemes of (*CI*₁) and (*CI*₂). See also the diagram in Jacobsen, ‘Sumerian Verb’, p102; Edzard does not discuss the ranking of these morphemes.

‘preterite’ in function and Jacobsen in effect as ‘transitory, non-conditioning aspect’, together with an extended (G_{PE}) form (*marū*) which Falkenstein terms ‘present-future’ and Jacobsen ‘durative’.³⁵ According to Sollberger the distinction between the two is ‘present-past’ vs ‘future’.³⁶ In fact, the way in which these forms are used suggests that the I-logical encoding underlying the relevant forms may well correspond to the <singulative> vs <non-singulative> distinction postulated for Common Semitic and Egyptian in §1.3 of *ACSE* (see also §2.6 below).

1.5.2 Falkenstein documents an ‘extremely rare’ suffix *ed* which can occur immediately after the stem in the *marū* forms of transitive verbs, although Edzard observes that *-ed* can also be applied to intransitive verbs. In Sollberger’s texts this morpheme occurs only in nominalised forms. There seems to be general agreement that this suffix signals a future (prospective) sense³⁷ and therefore a set *F(uture)* *M(arker)* is proposed:

$$FM = \{0, ed\} \quad \dots(11)$$

1.5.3 The paradigms proposed by Falkenstein for transitive Old Sumerian ‘preterite’ and ‘present-future’ verb forms on *CvC* stem *sar* ‘write’ are set out in the following table and, as will be seen, most of his forms are reconstructions.³⁸

TABLE 3 TRANSITIVE VERB PARADIGMS

Preterite (<i>kamtu</i>) (G_{PA})		Present-Future (<i>marū</i>) (G_{PE})	
Proposed	Analysed	Proposed	Analysed
1s *esar	e-sar	1s *esare(n)	e-sar-e(n)
2s esar	e-sar	2s *esare(n)	e-sar-e(n)
3s esar	e-sar	3s esare	e-sar-e
1p *emesar	e-me-sar	1p *esaredè(n)	e-sar-e-dè-(n)
2p *esarane	e-sar-ane	2p *esarezé(n)	e-sar-e-zé-(n)
3p *esaréš	e-sar-éš	3p esarene	e-sar-e-ne

It will be seen that singular G_{PE} forms have suffixed morpheme *e* whereas the equivalent G_{PA} forms are

³⁵ On the G_{PA} forms see *GSGL*, §50 and ‘Sumerian Verb’, p76, and for the G_{PE} forms *GSGL*, §49 and ‘Sumerian Verb’, p98 (Su2).

³⁶ *SVIRP*, §303 (p57).

³⁷ *GSGL*, §52 ; *SG*, §12.7.1 (p82) ; *SVIRP*, §333 - compare Edzard §12.2 (p74). See also Jacobsen, ‘Sumerian Verb’, p98, rank Su1.

³⁸ *GSGL*, Vol. I p237/8. Sollberger does not give formal paradigms.

unmarked, i.e. aspect in the latter is expressed by *0*.³⁹ A further element, *n*, may apparently be suffixed to *e* (except in the 3s form), but this seems to be a conjecture by Falkenstein, for *n* appears not to occur in Sollberger's texts.⁴⁰ Poebel (*GSG*, §450) and Jacobsen (p99) consider the *n* to form part of, or to be, the subject morpheme ; Jacobsen as ever assigns to it a locative sense. The assignment of *n* to the <non-singulative> aspect morpheme rather than to the pronominal morpheme is discussed at §2.6 below.⁴¹ The plural forms are more complex in that different pronominal morphemes are used for the G_{PA} and G_{PE} forms, and therefore in effect also serve as additional markers of aspect.

1.5.4 The relatively simple aspectual contrast displayed by transitive verbs is not matched by verbs termed 'intransitive/passive' by Falkenstein and Edzard and 'permansive' by Poebel.⁴² The paradigm for verbs of this type seems to be an amalgam of those of the transitive G_{PA} and G_{PE} forms, such that in the first and second persons (singular and plural) the intransitive paradigm matches that of the transitive G_{PE} form, whereas the 3s and 3p forms match those of the transitive G_{PA} form. This suggests either that the intransitive verb has been incorrectly analysed, or that the paradigm results from the collapse of previously distinct G_{PA} and G_{PE} forms.⁴³ Edzard prefixes *ba-* to the stem in these forms, which appears to

³⁹ When the stem ends in a vowel the *e* is assimilated to the preceding stem vowel (*GSGL*, Vol I, 237). Poebel regards *e* as forming part of the subject morphemes (*GSG* §449).

⁴⁰ But see Jacobsen's fn 19 ('Sumerian Verb', p99, top of second column). In Falkenstein's paradigms the *n* is enclosed in brackets when affixed to Old Sumerian and Gudea forms. In Gudea the *n* appears only when followed by a suffix beginning with a vowel, as for example substantivising suffix *-a* and 3s enclitic copula *-am* (*GSGL*, §49 A1a2, p152).

⁴¹ Edzard's paradigm for the *marū* form (*SG*, §12.7.2) generally matches that of Table 3 except that his 1p and 2p forms are equivalent to *e-sar-en-de-n* and *e-sar-en-ze-n*. His *kamtu* paradigm however (§12.7.3 p87) has the equivalent of *n-sar* for 3s(p) and *b-sar* for 3s(n), together with *n-sar* for 3p(p) (for these abbreviations see §1.4.2). Falkenstein (*GSGL*, Vol. I p238) classes these forms as Late Sumerian and, in Gudea, as alternatives.

⁴² *GSGL*, §53, paradigms at Vol. I p239 ; *SG*, §12.7.1 ; *GSG*, §448.

⁴³ Sollberger (*SVIRP*, §14) is of the opinion that distinct transitive and intransitive forms cannot be identified in his texts, and is therefore inclined to doubt the validity of the distinction. Jacobsen ('Sumerian Verb, p99 fn 19 2nd column) asserts that the use of *éš* (3p) 'is restricted to use in 'punctive' (i.e. <singulative>) contexts, which would appear to amount to a claim that no intransitive 3p form can be 'durative', i.e. <non-singulative>, and therefore again casts doubt on the distinction 'transitive' vs 'intransitive'. In Falkenstein's data (*GSGL*, §53) the vast majority

be identical to prefix *ba-* of set $\{EM_2\}$ – see §1.3 above.

1.5.5 In addition to the foregoing, a further method of marking a *marū* form is reduplication of the stem.⁴⁴ (*SG* §12.4.3/4). In *ACSE* Section 3 and *MPSVS* §8.6 it is suggested that the Akkadian form *iparras* could originate in a Sigmatic reduplicating stem and that this also was a marker of <non-singulative> aspect. Applying the same notation *SS* to the Sumerian reduplicating *marū* forms, on the basis of the foregoing, and ignoring the aspectual implications of the plural pronouns, the following three-term set *A(spect) M(arker)* is provisionally proposed for transitive forms:

$$AM = \{0, e(n), [SS]\} \quad \dots(12)$$

1.6 Subject Pronominal Elements

1.6.1 If phoneme *n* is assigned to the <non-singulative> aspect morpheme (Table 3) it follows that subject pronominal elements in Sumerian transitive verbs are relatively undeveloped, being confined in effect to plural forms. As noted above, different morphemes are used depending on whether the form is G_{PA} or G_{PE} . Of the former the 2p and 3p are marked respectively with suffixed morphemes *ane* and *éš*, and according to Falkenstein the latter only when the subject of the verb is ‘personal’.⁴⁵ The 1p form differs in that it incorporates infix pronoun *-me-*.⁴⁶ The following set of subject pronoun morphemes is therefore tentatively proposed for transitive G_{PA} forms:

$$P_{SA} = \{ane, éš, 0, -me-\} \quad \dots(13)$$

1.6.2 Then for transitive G_{PE} forms the following set is proposed:

of his examples are 3s, which formally appear to be indistinguishable from the equivalent transitive 3s preterite (G_{PA}) forms. See also the note at Edzard, *SG*, §5.4.2.2 (p36), which also appears to cast doubt on the distinction.

⁴⁴ For an overview of attested *kamtu-marū* patterns see *SG* §12.4. Note that reduplicating forms do not appear to take the *marū* suffixes, as neither Edzard, Falkenstein nor Sollberger cite any such example.

⁴⁵ *GSGL*, §50 (p159). According to Falkenstein (*GSGL*, Vol. I p238, fn2,3) the 3p form appears generally to be replaced by the 3s(n) form in Old Sumerian and occasionally also in Gudea, although in fact only one 3p form is cited for Gudea (§50 b7, p172).

⁴⁶ Compare the *kamtu* paradigm at Edzard, *SG*, §12.7.3 (p87), which proposes different subject morphemes for the 1p and 2p forms. Edzard suggests (p88) that 1p morpheme *me* ‘has not yet been demonstrated’; also *GSGL*, Vol. I p238, fn1. On the 2p morpheme in Gudea see *GSGL*, §50, 2a6 (Vol I p160). There are insufficient examples in Sollberger’s data to form a judgement on either form (*SVIRP*, §334 (p187)), although it would seem to be the case that, in general, even those forms which can take a subject pronoun do not necessarily do so (§3342 [p189]).

$$P_{SE} = \{dè, zé, ene\} \quad \dots(14)$$

With $-dè$ (1p) and $-zé$ (2p) compare the 1p and 2p independent pronouns $*me-dè$ and $*me-zé$; morpheme $-ene$ (3p) is identical to the plural morpheme used with nouns of the person class.⁴⁷ Whether the aspect morpheme is assimilated to the pronoun in the latter case or simply does not occur, is difficult to ascertain. As noted at §1.5.4, ‘intransitive’ verbs utilise $dè$ and $zé$ from set $\{P_{SE}\}$ for the 1p and 2p forms and $éš$ from set $\{P_{SA}\}$ for the 3p form.

2 Comparison of Sigmatic and Sumerian Verb Strings

2.1 Introduction

2.1.1 Based on the foregoing analysis, the set of Sumerian prefixing verb forms can be summarised as follows, where braces and brackets indicate unordered and ordered sets respectively.

$$V_{PSU} = (\{AP\}, \{EM_1\}, \{EM_2\}, \{EM_3\}, \{CI_1\}, \{CI_2\}, \{S\}, \{FM\}, \{AM\}, \{P_{SA/E}\}) \dots(15)$$

Similarly, and based on the discussion in Section 6 of *MPSVS* (expression 10), the set summarising the morphemes of Sigmatic prefixing G-form verb strings and their syntagmatic relationships can be expressed:

$$G_{P\Sigma} = (\{P_{P2}\}, \{A_P\}, \{S\}, \{A_S\}, \{P_S\}, \{AM\}) \quad \dots(16)$$

where:

$\{P_{P2}\}$ is the set of event marker morphemes.

$\{A_P\}$ and $\{A_S\}$ are respectively the sets of prefixed and suffixed augments.

$\{S\}$ is the set of stems.

$\{P_S\}$ is the set of suffixed number/gender elements.

$\{AM\}$ is the set of aspect morphemes.

2.1.2 If the members of these two sets are aligned on the basis of their syntagmatic relationships and approximate functional correspondences, the following pattern emerges:

	1	2		3		4	5	6	7	8
$G_{P\Sigma}$		$\{P_{P2}\}$		$\{A_P\}$		$\{S\}$	$\{A_S\}$	$\{P_S\}$	$\{AM\}$	
V_{PSU}	$\{AP\}$	$\{EM_1\}$	$\{EM_2\}$	(CI_1)	(CI_2)	$\{S\}$	$\{FM\}$		$\{AM\}$	$\{P_{SA/E}\}$

Note that no paradigmatic equivalence is suggested by the ranking of the sets in column 5. The following discussion is based on the Sumerian sets, which are considered in the order taken above.⁴⁸

⁴⁷ *GSGL*, §12a and §21 b3.

⁴⁸ The Sumerian set of adverbial prefixes $\{AP\}$ cannot be reconciled even superficially with any set proposed for SSVF

2.2 Stem Morphemes

2.2.1 The texts discussed by Sollberger utilise 93 different stem morphemes comprising the following morphological types (with totals), where *C* represents a consonant and *v* a vowel:⁴⁹

CvC (46)	CvCv (10)	CvCvC (3)	Cv (15)
vCv (4)	vC (6)	v (2)	

As will be seen, *CvC* is the most common type (approximately 52% of the total), followed by *Cv* (17%) and *CvCv* (12%) ; it is possible that some *Cv* stems were originally *CvC*. Of *CvC* stems, 33% are of pattern *CuC*, 28% of *CiC*, 37% of *CaC*, and there is one example with *CeC*. These totals can be compared with the data for Arabic geminate roots in *MPSVS* §2.1.2 (Table 1), where 68% were found to be of pattern *CuC*, 27% of *CiC* and 5% of *CaC*.⁵⁰ But although there would appear at first sight to be similarities between the morphological patterning of Sumerian and Sigmatic *CvC* stems, the similarities are not such as to yield a convincing statistical correlation. As for stems on other patterns, non-Semitic African languages coventionally included in the ‘Afroasiatic’ family generally display a richer range of stems than those currently postulated for Sigmatic so that, even allowing for subsequent evolution in the relevant African languages, it is probable that Sigmatic originally displayed a richer range of stem patterns, for example *CvCv* and *CVC*, than those so far identified by network analysis (see §7.7.1 and §8.3 in *BOSTRS*).

2.2.2 As to meaning, no systematic correlation is claimed between the Sumerian and Sigmatic versions of this set. Only about four of the stems listed by Sollberger can be impressionistically related to biradicals identified for Sigmatic, although a rather larger number of examples (still modest) has been gathered from Halloran’s lexicon. These are detailed in Table 4, where items recorded by Sollberger are marked by an asterisk.

TABLE 4 SUMERIAN AND SIGMATIC STEMS COMPARED

Sumerian	Sigmatic	Sumerian	Sigmatic
bun ₍₂₎ : blow	{nf : blow}	<u>k</u> uz ; guz : cut ; castrate <u>k</u> az : cut branches	{gz : cut}
tab : join	{sb : join}	gaz ₍₂₎ : kill *gaz ₍₂₎ : crush	{ks : crush}
gagig : lament ; wail	{*q : cry out}	sig ₍₁₀₎ : subdue	
ur : tremble	{rq : shake [vi]}	zig : tear out bad : open	{qš : take off} {bt : spread}

Sigmatic, and is not discussed further. Given its somewhat ambiguous status (see §1.3.4) set {*EM*₃} is also omitted.

⁴⁹ *SVIRP*, §231, (p44).

⁵⁰ For Hebrew and Syriac roots see *MPSVS* §2.2.3 (Table 5).

Sumerian	Sigmatic	Sumerian	Sigmatic
gur ₄ : roll over kur ₄ : run gir ₈ : gallop *gura : return	{rq : move [vi]}	biz : trickle ; drip	{bš : pour out}
mug : carve muk : engrave mu : hollow out	{nq : pierce}	kud : cut off	{qt : cut}
sañ _{2/3} : scatter ; b scattered šu ₉ : grieve ša ₄ : mourn	{š' : scatter} {šq : b unhappy}	ten : trample èd : drain nañ : irrigate	{rř : crush} {nř : b moist}
sukur : scratch bur ₁₂ : cut off bu _{3,6} : pull ; uproot bara ₄ : b separated	{šh : scrape} {pr : separate}	kúm : heat pad ; pa <u>d</u> : break off bad : b open	{hm : b hot} {pđ : force open}
lum : b full ; b sated mu ₇ : shout ; scream galam : ascend an : b high ili ₅ : rise *ila : raise	{ml : b complete} {hm : lament} {ár : rise} {ár : rise}	dár : bind gur _{10,14} : gather together Kab ₂ : stink ; rot zum : overflow	{rt : bind} {gm : gather} {Km : decay} {tb : overflow}
ara ₄ : shine ; blaze gur _{10,34} ; ur ₄ : pluck *kar : take away ; steal	{'r : bc evident} {qr : pull}	šeñ ₆ : b hot ša-ra(g) : wither	{sr : burn [vt]} {šn : b dry}
taga ; tak/g ; tà : push ; strike	{dk : crush}	dib ₂ : bind dár : bind	{đm : bind}
kur : kindle	{hr : b hot}	šaň ₅ : cut ; harvest ša ₅ : cut	{š' : cut}
la <u>k</u> _{4,5} : take away ; drive off rag/ <u>k</u> : haul away gam : bend gilim : twist ; bend gurum : b bent	{hr : move away}	mud ₆ : sprout	{bš : bud}
zé-er ; zi-re : slip zar ; zur ₄ ; sur ₈ : pour ; flow šur ; sur : flow ; drip ; spray zal : flow	{hn : bend}	tin : bm healthy peš : b thick	{šm : b fat}
kaš : cut branches ša <u>g</u> ₅ : slaughter *haš : massacre	{sl : slide} {zr : flow}	*zala <u>g</u> ₂ : purify za <u>k</u> _{2,3} : flee kaš ₄ : run fast	{šh : b pure} { <u>kš</u> : run}
	{hš : cut}	ħaza : grasp	{áh : catch}

2.3 Event Markers

2.3.1 In §1.3 above it is proposed that the Sumerian verbal system displays three sets comprising various markers of events ($\{EM_1\}$ to $\{EM_3\}$). The following table details the approximate frequencies with which these morphemes occur in Sollberger's texts, excluding the special case of negative morpheme *nu*.⁵¹

TABLE 5 INCIDENCE OF EVENT MARKER MORPHEMES

EM_1		EM_2		EM_3	
Morpheme	%	Morpheme	%	Morpheme	%
e	26.0	ni	12.9	na	3.6
mu	35.7	bi	7.1	š(v)	0.7

⁵¹ These percentages are derived from Sollberger's 'Inventory of Verbal Strings' (*SVIRP* p229ff). Each string is counted only once, irrespective of the number of times it is attested in the texts.

2.3.2 It will be seen that *e* and *mu* of $\{EM_1\}$ are by far the most common event marker morphemes and it will be noted that both morphologically and syntagmatically, *e* is reminiscent of the proposed event marker morphemes of Sigmatic set $\{P_{p2}\}$ (refer to expression 7 in §4.1.2 of *MPSVS*). The difference in meaning - if any - between *e* and *mu* is a major problem in Sumerian linguistics and is considered in Section 3 below. Morpheme *a* of set EM_1 and the morphemes of sets $\{EM_2\}$ and $\{EM_3\}$ probably have no parallel in Sigmatic - although note that the combined morphemes of the latter two sets parallel phonologically, albeit not syntagmatically, those of Sigmatic set A_p of prefixed augments (*MSVPS* §3.2.8).

2.4 Infixes

2.4.1 Sets (CI_1) and (CI_2) of Sumerian case infixes identified in §1.4 (expressions 7-9 and 10 respectively), are to some extent in syntagmatic distribution with each other. But although Sumerian permits the generation of rather complex verb strings on the basis of these sets, in Sollberger's data such strings are very much the exception. For of 289 examples cited by Sollberger, 139 (approximately 48%) have no infix, 124 (43%) have only one infix - from either of the above sets, 22 (7.5%) have two infixes and only 4 (1.5%) have three.⁵² Thus 91% of Sollberger's examples display only one or no infix.

2.4.2 For triradicalisation to have taken place in Sigmatic it is suggested (*MPSVS* §3.1.2) that a typically biconsonantal Sigmatic stem and its associated augment must have come to be perceived as a single unit ; in other words Sigmatic augments must have more or less lost their grammatical function and have become essentially lexical in nature. Clearly, a precondition for such a development must have been the regular association of an augment, functioning grammatically, with a particular stem. Such forms certainly occur in Sumerian where, for example, the verb form corresponding to 'he built (for him)' is almost always *mu-na-dù*, where *dù* is the stem and *na* is an infix from set (CI_1) marking a dative animate 'object'.

2.4.3 Taking sets (CI_1) and (CI_2) together, the percentage incidence of the consonantal component of infixes in Sumerian strings having only one infix is as follows:

<i>n</i> = 50%	<i>t</i> = 7%
<i>m</i> = 16%	<i>r</i> = 2%
<i>d</i> = 14%	<i>b</i> = 2%

⁵² An example of a complex string is *é-b-ta-ni-ed* 'he caused it to be raised up', where *b* is a member of (CI_1) and *ta*, *ni* are members of (CI_2) . See examples 18 (p66), 108 (p86) and 159 (p93) in *SVIRP*.

$$\xi = 9\%$$

Thus in the case of phoneme *n*, the total of 50 per cent represents the sum of the occurrences of dative/terminative morphemes *na*, *n*, *ne* and *né* from set (*CI*₁) plus those of locative morphemes *ni* and *n* from (*CI*₂). Suppose then a hypothetical situation where the original grammatical function of these infixes had tended to become forgotten or lost. In such circumstances it would not be surprising to find the consonantal component of an infix morpheme becoming closely, even indivisibly, associated with certain stems. Then, in those cases where the stem was biconsonantal, this would result in a tendency to form stems with three consonants. It will of course be objected that collapsing the pronominal consonants of set (*CI*₁) with the locative consonants of (*CI*₂) implies a diachronic relationship between the two sets which has not been demonstrated.⁵³

2.4.4 Based on the discussion in §3.2 of *MPSVS* the set of Sigmatic prefixed augments $\{A_p\}$ is argued to comprise (expression 2 of *MPSVS*, §3.2.8):

$$A_p = \{Ba, Na, Sa\}$$

where the vowel values are arbitrary and the capital letters indicate that the consonant phonemes are superordinate. The percentages of the above morphemes identified in Arabic, Hebrew and Egyptian are given in Table 6.

TABLE 6 PREFIXED AUGMENT PERCENTAGES

	Arabic	Hebrew	Egyptian
<i>n</i>	60	51	40
<i>b</i>	10	15	35
<i>s/š</i>	30	35	20

The Sigmatic set is obviously much smaller than the clustered Sumerian phonemes of §2.4.3 and is of limited value for statistical purposes. Nonetheless, the fact that *n* is the most common phoneme in both the Sigmatic and Sumerian sets suggests that (in the context of the present study) a diachronic link between the prefixed augment reflexes of Sigmatic and the infixes of Sumerian cannot be entirely dismissed. This becomes the more so if it be accepted on the one hand that the attested Sumerian system may result from the elaboration of an originally simpler system, and on the other that the set of prefixed augments in Sigmatic was quite likely richer than the rather preliminary characterisation currently permitted by the analysis in *BOSTRS*.

⁵³ However, recall that Falkenstein (*GSGL*, §66) collapses Sollberger's 'locative' and 'terminative'. See §1.4 above.

2.5 Suffixed Augments in Sigmatic

2.5.1 The set of suffixed augments in Sigmatic is currently taken simply to be $A_S = \{aQ\}$.⁵⁴ Sollberger's data gives no clear indication of any comparable morpheme in Sumerian, although he lists a group of compound stems among which are two whose second element is *aga*, meaning approximately 'make' or 'do', which could perhaps hint at a possible origin for set $\{A_S\}$.⁵⁵ Halloran's lexicon lists rather more such forms (with various spellings). In grammatical terms morpheme *aga* has the effect of rendering the resulting verb transitive, and it is interesting that Semitic roots incorporating a reflex of augment *aQ* also tend strongly to transitivity (see Table 7.3 in *BOSTRS*). That said, the reflexes of *aQ* in Semitic are in general considerably more common than Sumerian forms with *aga* and its equivalents, so once again it is more likely that the resemblance is fortuitous. But a more fundamental problem is that, in Sigmatic, suffixed augments are generally much more common than prefixed augments, more or less the reverse of the situation in Sumerian, with its common use of infix morphemes prefixed to the stem.

2.6 Aspect Morphemes

2.6.1 The sets of aspect morphemes in Sigmatic ($\{AM_S\}$) and Sumerian ($\{AM_{Su}\}$), are taken to be:

$$AM_S = \{\emptyset, -un, [SS]\} \quad \dots (17)$$

$$AM_{Su} = \{\emptyset, e(n), [SS]\} \quad \dots (18)$$

where $\{AM_S\}$ reproduces expression 9 from Section 5 of *MPSVS* and $\{AM_{Su}\}$ repeats expression 12 of §1.5.5 above. In both cases the apocopate form, realised by \emptyset , expresses or appears to express a singulative event, and the extended form with $-e(n)$ or $-un$ a non-singulative event. In addition, reduplication, proposed as a marker of aspect in Sigmatic (denoted $[SS]$), is matched by Sumerian verbs whose *marū* forms display reduplication.⁵⁶ The morphological and syntagmatic correspondences between these sets are thus quite encouraging, as far as they go. However the absence of phoneme *n* from Sollberger's and Fallkenstein's data must remain something of a problem (§1.5 above). It is also noted at §1.5.3 that Sumerian *n* has been considered to express or to form part of the subject pronoun, depending on the person/number. As ever, this cannot be disproved, but in the context of a possible relationship between the verbal systems of Sigmatic and Sumerian, the proposal that *n* should be considered as part of

⁵⁴ See §3.3 in *MPSVS*.

⁵⁵ *SVIRP*, §232 (p49).

⁵⁶ See Edzard, *SG*, §12.4.2 to §12.4.4.

the <non-singulative> aspect morpheme rather than part of the subject-pronoun morpheme merits consideration.

2.6.2 From the Sumerian perspective two further objections can be made to this hypothesis. Firstly, *n* is always absent from the 3s and 3p forms, as for example *e-sar-re* (3s) and *e-sar-ene* (3p),⁵⁷ although it is not impossible that the 3s form, being the most commonly occurring, may have lost an original final *n*.⁵⁸ The second problem relates to Sumerian intransitive verb forms (see §1.5 and §1.6) which, if correctly analysed, appear not to express aspectual contrast.

2.6.3 Morpheme *ed* is the sole member of Sumerian set (*FM*) (§1.5), which is proposed to aspect morpheme *e(n)* in certain environments, but has no Sigmatic correlate.

2.7 Suffixed Subject Pronominal Elements

2.7.1 In §1.6 above, two sets of suffixed pronominal elements are identified for Sumerian, the first (expression 13) being utilised in conjunction with transitive G_{PA} forms and the second (expression 14) with G_{PE} forms. In both cases these morphemes are confined to plural forms and are not obligatory. In contrast, of the three suffixed ‘pronominal’ elements postulated for Sigmatic in §4.2.3 of *MPSVS* only \bar{i} is strictly pronominal, the other two (\bar{u} and \bar{a}) being used merely to signal plural and dual number.

2.7.2 Thus although both Sumerian and Sigmatic pronominal suffixes are ranked towards the end of their respective verb strings there is no morphological evidence for a diachronic link between the two sets. In fact the relatively undeveloped state of the Sumerian subject pronominal systems, together with the anomalies in Sigmatic suffixed subject pronominal morphemes noted in *MPSVS*, and the markedly different Egyptian system, to a certain extent support the conjecture made in §4.1.8 of *MPSVS*, and made explicit in expression 16 of §2.1.1 above, that there was perhaps a time in the evolution of the Semitic and Egyptian languages when their verb forms did not incorporate subject pronouns, but merely displayed a prefixed event marker, *i-* or *e*.

2.8 Summary and Discussion

2.8.1 The generalised strings proposed for Sumerian and for Sigmatic G_P verb forms are repeated

⁵⁷ *GSGL*, Vol. I p237. Note also that the 3p morpheme *-ene* is identical to the plural morpheme applied to nouns of the person class (*GSGL*, §21.3).

⁵⁸ A not dissimilar phenomenon occurs in Biblical Hebrew, where *n* as a marker of non-singularity occurs in pausal forms and in conjunction with a direct-object pronoun, but is otherwise absent (§2.2.3 in *ACSE*).

below, highlighting those sets in the two languages which are conjectured to have a common origin.

$G_{P\Sigma}$		{P _{P2} }		{A _P }	{S}	{A _S }	{P _S }	{AM}	
V_{PSU}	{AP}	{EM ₁ }	{EM ₂ }	(CI ₁)	(CI ₂)	{S}	{FM}	{AM}	{P _{SA/E} }

2.8.2 Notwithstanding the numerous assumptions made during the foregoing discussion, the morphological, syntagmatic and functional correspondences between the two strings are encouraging, particularly as, with the possible exception of passive morpheme *ba*, the members of Sumerian set $\{EM_2\}$ appear to be locative in origin (see §1.3.3) and may therefore have originally been infixes. But in effectively collapsing sets $\{EM_2\}$, (CI_1) and (CI_2) it will be objected that the Sumerian string has become too generalised and that, at a sufficient level of generalisation, it becomes possible to propose correspondences between almost any two sets of data. But from the discussion in §1.4 it will be apparent that these sets and their membership are ranked differently by different investigators, albeit not to the extent that they could be viewed as a single set.⁵⁹

2.8.3 Furthermore, the attested Sumerian verb forms must be the result of evolution from earlier structures and it is thus possible - although far from inevitable - that the synchronically complex Sumerian verbal system was originally simpler, a conjecture supported by the infrequent occurrence of complex verb strings in Sollberger's data (see §2.4). Moreover, verb string ($G_{P\Sigma}$) proposed for Sigmatic reflects what has inevitably been an initial scan of the data and is almost certainly a rather crude reflection of the original, not only in that the Sigmatic system would in all probability have been richer in morpheme sets, but also in that the sets postulated may well have had a more extensive membership than investigation has so far yielded.

2.8.4 This is not to suggest that Sumerian and Sigmatic descend directly from a common ancestor, although it is not impossible that Sumerian, like Sigmatic, was in part at least a J-series (Asian) language.⁶⁰ But to take only two examples, the lack of congruity between the pronominal morphemes in the two languages, together with the relative paucity of lexical correspondences between the two sets of stems, suggest that any relationship between them, if genuine, is rather distant.⁶¹ On the other hand, given the great length of time since the languages are postulated to have separated, the lack of lexical

⁵⁹ See in particular Falkenstein, *GSGL*, §64.

⁶⁰ For this term see section 4 of *TAF*.

⁶¹ Some reasonably clear lexical correspondences may result from borrowing into Sumerian from one or more

correspondences is not necessarily an insuperable problem for, as the example of Egyptian and Semitic shows, the lexical systems of clearly related languages can diverge very substantially over time.

2.8.5 Another factor to consider is that, apart from prefixed augments *Na* and *Sa* of Sigmatic set A_p (*MPSVS* §3.2.8) - which in part may conceivably originate in the deriving morphemes of the E-series languages (*TAF* §6.1) - a striking feature of Sigmatic prefixed augment *Ba* and suffixed *aQ* (*MPSVS* §3.2.8 and §3.3.4 respectively) is that they have no obvious phonological or grammatical correlate in the Semitic languages or Egyptian. But in which case where do they originate? Edzard speaks of a Sumerian-Akkadian linguistic area, but this might be better understood as a Sumerian-Sigmatic area,⁶² such that a useful test would be to identify Sumerian verb strings with augments which have a phonological and semantic correlate in Sigmatic - ignoring Akkadian loans into Sumerian and vice versa.

2.8.6 Finally, it might be possible to support a conjecture that the two strings are related by considering the statistical probability that the four pairs of sets highlighted above occur in the order they do. The relevant sets in the Sumerian string could in principle be ordered in 24 different ways (i.e. the possible number of permutations is $4 \times 3 \times 2$), corresponding to a probability of 0.042 for the actual sequence:

(EM₁, CI, S, AM)

Then, if the matching sets in Sigmatic are indeed related to those highlighted for Sumerian, not only is the probability of the Sigmatic sequence :

(PP₂, A_p, S, AM)

also 0.042, but the probability that both pairs of sets should occur in the given order is 0.002 (0.042 x 0.042), which is not likely to be due to chance.

3 Event Marker *mu-* in Sumerian and Sigmatic

3.1 Introduction

3.1.1 In §1.3 it is proposed that among the morphemes prefixed to the Sumerian verb is set $EM_1 = \{e, mu, a, nu\}$ comprising event markers (expression 3). From Table 5 in section §2.3 it will be seen that of this set and the associated $\{EM_2\}$ and $\{EM_3\}$, morphemes *e* and *mu* of (EM_1) are by far the most common event markers in the data investigated by Sollberger and Falkenstein. It is then suggested that both

Semitic languages, or indeed vice versa. See Table 4 above.

⁶² *SG* §1.3 (p4).

morphologically and functionally *e-* resembles morpheme *i-*, the proposed event marker in Sigmatic, but no proposal was made for the slightly more common *mu-*. Morphologically and syntagmatically, this morpheme of course parallels morpheme *mu* occurring in the participles of Akkadian and Arabic derived verb forms.⁶³ Given the postulated relationship between Sumerian *e-* and Sigmatic *i-*, this section explores the possibility that the two morphemes *mu-* could also be related - albeit that at first sight there would appear to be no functional similarity between the two, not least because Semitic *mu* does not occur with G-form verbs, which form the basis for the analysis in *MPSVS* and the resulting generalised Sigmatic string G_{PE}

3.1.2 But morpheme *m(v)* as a participial marker is entirely absent from Egyptian.⁶⁴ Assuming that a natural language will almost always preserve remnants of earlier structures, typically fossilised and synchronically non-productive, this absence could imply that *mu-* was not a morpheme in Sigmatic but was, rather, a Semitic innovation. Fossil forms will of course eventually diminish to the point where they become unrecognisable or disappear entirely, and this could have happened in Egyptian. But if participial forms in *m(v)-* were originally present in Egyptian it has to be doubted that they would have disappeared completely by the time of the Pyramid Texts, although admittedly the substantial differences between the Semitic and Egyptian verbal systems suggest either a very early date for their separation or very rapid evolution after separation.

3.1.3 Problems with the history of the Semitic S-form have led some investigators to conclude that (to summarise) morpheme *mu-* is not original, at least not in N.W. Semitic. For example Retsö argues that S-forms in N.W. Semitic derive from G-forms and that S-form participles originate in verbal nouns of form *maqtil*.⁶⁵ But although his analysis makes clear the problems of understanding the history of Semitic S-

⁶³ Derived verbs in the other Semitic languages also have, or originally had, participial morphemes with initial *m(v)* but no language where the vocalisation is known has preserved vowel *u*. See for example Moscati et al *Introduction*, §16.96 ff.

⁶⁴ The only derived verb common in Egyptian is the S-form ; the N-form occurs almost only with reduplicated stems and the T-form is entirely absent. Examples of Egyptian S-form participles are given in A. Gardiner, *Egyptian Grammar*³ (1988).§357 (*sgm*) and §361 (*sknty*).

⁶⁵ J. Retsö, *Diathesis in the Semitic Languages: A Comparative Morphological Study* (1989), p66/8. Retsö's argument in effect reduces to a claim that all nominal or pseudo-nominal forms with initial *m(v)-* are diachronically related. It cannot be shown that this is not so, but the claim as it stands is scarcely more than conjecture.

form participles it is weakened by the fact that he regards the N.W. Semitic S-form as a separate development, and has nothing to say on the Akkadian forms, which of course offer the most ancient data for the vocalisation of Semitic participles.⁶⁶

3.1.4 On the other hand, however doubtful Retsö's proposal that Semitic G-form verbal nouns were the source of what subsequently became N.W. Semitic participial forms on the S-stem, such an argument could account for the absence from Egyptian of participial forms with initial *m(v)-*, namely that the use of such forms with Egyptian G-forms, which are relatively common, was never extended to the S-form. But should it turn out that participial markers of this type were an innovation in Semitic rather than Sigmatic, and supposing Retsö's hypothesis to be incorrect, is it possible that Semitic *mu-* is related to Sumerian *mu-*, and by what mechanism could the Semitic morpheme have been introduced into an already 'working' Semitic verbal system? Furthermore, could the restriction of *mu-* to the Semitic languages support Edzard's hypothesis of a wider, and earlier, Sumerian-common Semitic language area?

3.2 Syntax of Sumerian *mu-*

3.2.1 Although there is no difficulty in proposing a formal and functional similarity between *e* of Sumerian set $\{EM_i\}$ and *i* of Sigmatic set $\{PP_2\}$, and no difficulty either in seeing Sumerian *mu* functionally as an event marker, the precise functions of the Sumerian form have remained a subject for debate. Poebel, for example, considers *mu* in essence to be aorist in nature and *e* to have perfective implication. Sollberger concludes that in general, *mu* is employed where the object (usually dative) is animate and *e* when the object is inanimate.⁶⁷ Jacobsen regards verb forms with *e* as being commonly equivalent to the Akkadian *iprus* form and *mu* to have essentially locative function together with 'emotional involvement of the speaker'.⁶⁸ Falkenstein discusses the distribution of *mu-* and *i-* in detail,

⁶⁶ For a summary of the derived forms see Moscati et al, *Introduction*, p148 ff. Lipiński, (*Outline*, §42.15/16) evades the question of the differing S-form participles in E. and N.W. Semitic, but the situation in Epigraphic South Arabian, where some dialects have an *s*-based deriving morpheme and others do not, supports the conjecture that the latter type evolved from the former. Compare also the Cushitic languages Saho and 'Afar whose V_1 verb sets include prefixing S-forms with and without an *s*-based morpheme.

⁶⁷ Poebel, *GSG*, §550; Sollberger, *SVIRP*, §32131 (p122).

⁶⁸ 'Sumerian Verb', p76/9. As noted at §1.3 Jacobsen assigns different syntagmatic rankings to the two morphemes.

and draws a conclusion similar to that of Sollberger (see below).⁶⁹

3.2.2 Each of these hypotheses has its merits, although in every case there are numerous exceptions to the rules proposed. Poebel, for example, concludes that the selection of *mu-* or *i-* is in certain environments phonologically conditioned, whereas Sollberger is of the opinion that at least some occurrences are stylistically inspired, or provide evidence for an apparently conventional association of certain stems with one or other prefix.⁷⁰ Jakobsen on the other hand appears to recognise no exceptions. For him, *mu-* would seem to be either purely locative ('here'), locative with reference to a first or second person object ('here with me/you'), or locative with reference to personal involvement ('here of emotional closeness').⁷¹ There are two major problems in evaluating Jakobsen's analysis; first his almost mechanical and therefore ultimately implausible belief in a localistic basis for the Sumerian verbal system ; second (for the non-specialist) his failure to distinguish in his examples between the different synchronic stages of the language. For it is clear from Poebel's analysis that there are occasionally quite substantial differences between the stages, although it must be accepted that they do not seem much to impinge on Poebel's discussion of *mu-*.⁷²

3.2.3 Falkenstein observes that the incidence of morphemes *mu-* and *i-* (the latter including *ba-* and *bi-*) in Cylinder A of the Gudea texts is approximately equal, 561 against 548 (*GSG*, §112.a1). Of verb strings with *i-* about 38 per cent also incorporate a preformative (set {*AP*} of §1.3.6), compared with about 6 per cent of strings with *mu-* (§112.a2). Prefix *mu-* is almost obligatory (§112c) when followed by a 2s or 3s 'personal' dative infix, of which there are 283 examples with *mu-* and only 14 with *i-*, 13 of the latter also displaying a preformative. In addition, *mu-* is obligatory when followed by an infix incorporating a first-person pronominal element (§112.b2) and *i-* is obligatory when followed immediately by an infix incorporating the 3s 'neuter' pronoun (§112.b1). Falkenstein therefore concludes (§112.d1) that, in general, *mu-* is used when the following infix is animate and *i-* when the infix is inanimate. However there are many environments where either morpheme can occur (§112c), in particular when there is no infix

⁶⁹ *GSG*, §112-114 (Vol.II p162/3). Edzard, in contrast, seems to imply that there is no relationship between the two (*SG* §12.8, p92 and §12.9, p109).

⁷⁰ Poebel, *GSG* §546/61 ; Sollberger, *SVIRP*, §321336 (p135), §32134 (p137).

⁷¹ 'Sumerian Verb', p79-81.

⁷² See also Falkenstein, *GSG* §112, fn. 1 (Vol. II p159).

(145 with *mu-* and 126 with *i-*), or when accompanied by a 3s neuter locative-terminative infix (in Falkenstein's terminology), 58 times with *mu-* and 92 with *i-*.⁷³

3.2.4 Statistical analysis of Sollberger's examples supports Falkenstein's conclusion that *mu-* tends to be used where a dative animate infix also occurs.⁷⁴ Particularly interesting however is that whereas Sollberger's texts display a small number of examples where *e-* (for *i-*) occurs with dative infix *na*, as for example *e-na-sumu* '(she) has given (to her)', the cylinder texts contain almost no such forms (excluding those with preformatives). It can probably be assumed that the situation was similar in the case of the 2sp (personal) infix *-ra-*, which does not occur in Sollberger's texts, but in the cylinder texts always occurs in conjunction with *mu*, as for example *mu-ra-ta-ed₃-de₃* '(from the south) I will bring for you' (Cyl A 12.4).

3.2.5 Sollberger also agrees with Falkenstein in arguing that when the object of the verb (principally dative) is inanimate (Falkenstein's 'neuter') the *e*-form is almost always used, as for example *e-ma-ús* 'he approached (his x)'.⁷⁵ The problem here is that it is difficult to determine whether this undoubted correlation arises as a result of semantic criteria, as Sollberger argues, or out of a desire to avoid bilabial phonemes in adjacent syllables, as Poebel proposes.⁷⁶

3.2.6 Potentially crucial in formulating an answer to this question are the texts of Urnanše, whose verbs apparently tend not to incorporate infixes.⁷⁷ Should the animate/inanimate dichotomy be sustained by the *mu-* and *e-* forms occurring in these texts (which Sollberger either does not always cite or does not cite in full), then the hypothesis would be supported ; if not, then Poebel's phonological hypothesis would appear more plausible. Sollberger explains the *mu*-forms in the Urnanše texts as indicating 'important acts, the significance of which must not be overlooked'. Since the *e*-forms from these texts are not cited⁷⁸ and the *mu*-forms are cited out of context, it is not possible to determine to what extent this is a subjective judgement.

⁷³ For other environments, but with considerably fewer examples, see *GSGL*, §112.c2a, Vol II p162.

⁷⁴ *SVIRP*, §32130/1 (p120). Falkenstein's 'personal' = Sollberger's 'animate' ; Falkenstein's 'neuter' = Sollberger's 'inanimate'.

⁷⁵ *SVIRP*, §32131 and example 60 (p74).

⁷⁶ *GSG*, §562. Falkenstein argues (*GSGL*, §112b, Vol II p160) that *mu-* is not in all cases incompatible with an originally bilabial infix.

⁷⁷ Accessed only via Sollbrger's citations. *SVIRP*, §321331, fn3 (p123).

⁷⁸ With one exception, example 434, *SVIRP* p190.

3.2.7 As might be expected, verb forms without infixes in the Gudea texts tend to have inanimate objects, although a certain number are intransitive. Aside from the possible tendency of *i*-forms towards intransitivity, there appears to be no grammatical or semantic basis for the selection of *mu* against *i* in these particular forms.⁷⁹ A particularly interesting contrasting pair in cylinder A are:

ñiš-šu mu-du_g (A12.24) 'he opened manacles'

u₃-sa-an bar-us₂-sa eme i-du_g (A13.1) 'he undid the tongue of the goad and the whip'

Although in different columns, both forms have Gudea as subject and both have inanimate objects.⁸⁰ There may be a non-subjective explanation for the difference between the two but it is difficult to see what form it might take.

3.2.8 A further consideration, applicable both to the Royal Inscriptions and Gudea, is the extent to which a particular verb form appears to be assigned its prefix by convention. For example in Cylinder A the following phrase occurs at least twice, and appears to be formulaic:

ninda ñiš bi₂-tag a ced₁₂ i₃-de₂ (A 2.8, A 2.25) 'he offered bread, poured cold water'

There would seem to be no obvious reason for the differing prefixes, although the first form might better be translated 'bread was offered', but the fact that the phrase is repeated suggests that the prefixes may be conventional and not grammatically or contextually conditioned.

3.2.9 The examples in the Royal Inscriptions of *e*-forms occurring with dative infix *na*, compared with the almost total absence of such forms in the cylinder texts, could be taken to suggest that in the 300 years or so between the composition of the two sets of texts *mu*- tended to gain ground at the expense of *e/i*-. Although the differing content of the two sets of texts may tend to weaken a direct statistical comparison, this conjecture would seem to be supported by the differing ratios of *mu*-forms to *e/i*-forms. In Sollberger's texts the ratio of *mu* to *e* forms is 1.17 : 1 (ignoring 'repeat' forms), but in the Gudea texts the ratio of *mu* to *i* is nearer to 2.5 : 1 (including *ma* and *mi* as variant forms of *mu*).⁸¹ Further evidence for the encroachment of *mu* on *e/i* is provided by the forms incorporating morpheme *ha*-, termed

⁷⁹ Note that the ratio of *mu*-forms to *e/i*-forms without infixes seems to be similar in the Royal Inscriptions and the cylinder texts (1.4 : 1 as against 1.8 : 1).

⁸⁰ Cited from the *ETCSL* version.

⁸¹ The Gudea ratio is based on an analysis of lines 1-264 of Cylinder A. Falkenstein's totals of 561 and 371 (*GSGL*, §112a) give a ratio of 1.52 : 1, but it is not clear whether his totals include repeat forms.

‘volitive’ by Sollberger, which becomes *hé-* when prefixed to a stem which would otherwise begin in *e-*. In the Royal Inscription texts *ha-* occurs only four times prefixed to *mu-* compared to fifteen times with *e-*. In the Gudea texts by contrast, *mu-* forms preceded by *ha-* appear to outnumber *i-* forms by an approximate ratio of 2 : 1.⁸² Thus if these arguments are valid it may be that, diachronically, *e-* forms are earlier than *mu-* forms.⁸³

3.2.10 Even in the Royal Inscriptions the blurring of the distinction has progressed to the point where a difference in meaning between the two morphemes can sometimes no longer be identified. However a particularly interesting text makes plain that in some environments *mu-* and *e-* were used contrastively:⁸⁴

1 ^{SAL} *ama-anšu-.... Nin-izkim-ti,-dam-isag-Adaba^{ki}-k-ak,-e Bara-nam-tarr-a,-dam-Lugalanda,-isag-Lagaš^{ki}-k,-a(k),-ra 2-kammak-a šu-mu-na-tag₃; Anedanumea,-lú-ni,-Malga.,-Suda(-d)-mu-da-ginn-a, mu-túmu; 1-tü-.... Ninizkimti-e Malga(-r) mu-na-sumu. 2-mana-A.EN.NA.DA Barnamtarra,-dam-isag-Lagaš^{ki}-k-ak,-e 2-kammak-a Ninizkimti-dam-isag-Adaba^{ki}-k-a(k),-ra šu-e-na-tag₃; Malga(-d) e-da-túmu; 1-tü-.... Barnamtarra(-e) Anedanumea(-r) e-na-sumu*

‘1 she-ass etc had (before) Ninizkimti, the spouse of the prince of Adab, sent (*šu-mu-na-tag₃*) for a second time (i.e. as a second gift) to Barnamtarra, the spouse of Lugalanda, the prince of Lagaš; its porter Anedanumea, having travelled (*mu-da-ginn-a*) with Malga and Suda, had brought (*mu-túmu*) it; 1..... -dress had Ninizkimti given (*mu-na-sumu*) to Malga. 2 mines.... - metal (?) has (now) Barnamtarra, the spouse of the prince of Lagaš, sent (*šu-e-na-tag₃*) for a second time to Ninizkimti, the spouse of the prince of Adab; with Malga has travelled (*e-da-túmu*) (Anedanumea); 1 dress.... Barnamtarra has given (*e-na-sumu*) Anedanumea.

3.2.11 It will be seen that the actions relating to the giving of gifts by Ninizkimti are all marked by *mu-* forms, and the actions of Barnamtarra, essentially similar to those of Ninizkimti, are marked by *e-* forms. This is taken by some investigators (Jakobsen for example) as evidence that the distinction between

⁸² Based on Cylinder A lines 1-264. These numbers again cannot be reconciled with Falkenstein’s data.

⁸³ However, if this was the case the whole argument might become unstable, for if *mu-* were an innovation both in Sumerian and Semitic, it would seem impossible to tell which came first.

⁸⁴ Text (RTC19) is generally as cited by Poebel (*GSG*, §556) except that the verbs are in the forms given by Sollberger (*SVIRP*, §321335). See also Jakobsen ‘Sumerian Verb’, p82 fn 11.

mu and *e* has a ‘directional’ basis. But Sollberger argues that a wider investigation does not support this hypothesis, so that both he and Poebel conclude in effect that the morphemes are used contrastively, and that the physical directionality is secondary.

3.2.12 Jakobsen’s examples are almost always cited out of context but an interesting (although apparently rather late) exception is the passage:⁸⁵

‘May the Tigris and Euphrates bring to you (*hu-mu-ra-ab-tûm*) [N] the abundance of the carp flood and may the canals [which they feed] reach far [into the desert] (for you) (*ha-ra-sud-e*) [D]. May their banks grow grass and herbs for you (*hu-mu-ra-an-mú*) [N] and may joy stretch out for you (*ha-ra-ab-lî*) [D]. May your orchards [yield both] honey and wine (*ki hu-mu-ra-ni-ib-ús*) [N] and may those good fields grow mottled barley for you (*ha-ra-ab-mú*) [D]. May they heap up their grain piles for you (*ha-ra-dub-dub*) [D], may cattle pens be built for you (*ha-ra-dû-dû*) [D] and may your sheep folds [become extended] (*ha-ra-daGal-daGal*) [D]’.

3.2.13 Jakobsen views the *mu*-forms in the above as containing an implication of nearness to the person addressed (marked by [N]) with the *e*-forms similarly implying distance from this person (marked by [D]). Although superficially attractive this interpretation weakens under examination. For instance the second and third verbs (*ha-ra-sud-e*) and (*hu-mu-ra-an-mú*) have ‘canals’ and ‘(canal) banks’ as their respective subjects. Both are ‘in the desert’ ; therefore on Jakobson’s analysis both should be ‘distant’, so to ascribe distance to one and nearness to the other seems arbitrary. It also seems arbitrary to ascribe nearness and distance to the successive forms *ki hu-mu-ra-ni-ib-ús* and *ha-ra-ab-mú.*, for what is the evidence for the orchards being ‘here’ and the fields being ‘there’?⁸⁶

3.2.14 The sequencing of (*i*)- and *mu*-forms in this passage can be summarised as follows:

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9
 mu - (i) - mu - (i) - mu - (i) - (i) - (i) - (i)

The first six verbs each have a different subject, which could be consistent with a contrastive hypothesis and dispenses with any judgement about nearness and distance. The subject of the seventh form (*ha-ra-dub-dub*) is the same as the sixth (i.e. ‘fields’) and it could be argued that in consequence of the previous

⁸⁵ Cited in fn 11 at the foot of p79 (PBS X 2, No. 14 - translation clarified).

⁸⁶ It would also be instructive to establish whether the ‘those’ of ‘those good fields’ is warranted by the Sumerian text.

alternation of *mu-* and (*i*)-forms the identical subject is marked by a further (*i*)-form. This then leaves the eighth and ninth verbs of which, in fact, only the eighth form is anomalous in the context of the hypothesis explored here, for if this were a *mu*-form the contrastive pattern would be preserved.⁸⁷

3.2.15 The position of Edzard is singular in that he dismisses all the foregoing and analyses *mu-* as forming part of a ventive morpheme (*SG*, §12.8/9). Without access to the relevant literature it is difficult to assess the quality of this argument, as Edzard offers little more than an assertion. However if this is the correct explanation of the function of *mu-* it is astonishing that it has not been identified earlier, especially when to a considerable extent Sumerian and Akkadian have been studied side by side, and the latter exhibits a clearly ventive morpheme.

3.2.16 The conclusion of this brief review must therefore be that the evidence for a synchronic difference in function between *mu-* and *e/i-* in the texts examined is mixed and that their use, when not arbitrary, is not infrequently determined by grammatical and stylistic criteria. But on the other hand the persistence of the notion of human involvement, however defined, as central to the function of *mu*-forms suggests that if there was originally a difference in sense between the two morphemes it should be sought in this area, so that the grammatical and stylistic phenomena that appear synchronically to predominate may result from the loss of this original difference.

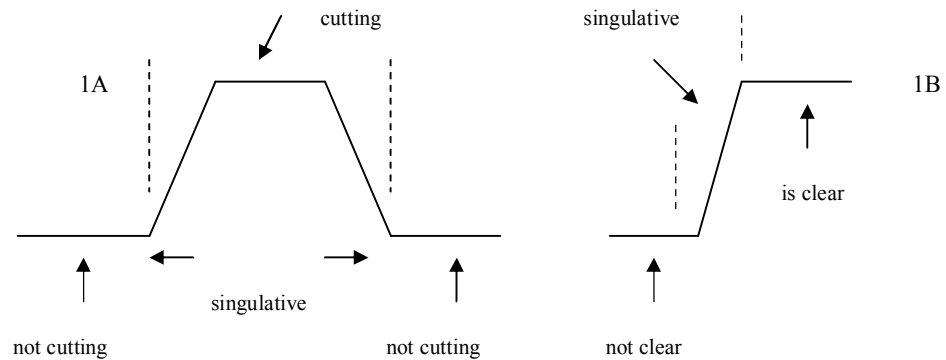
3.2.17 In *ACSE* the discussion of aspect in Common Semitic was largely restricted to the elements <singulative> and <non-singulative> and to the forms through which they might have been expressed. The definition of these elements was assisted by the diagram reproduced as Figure 1 below, within which framework the active participles of Semitic, including those with initial *mu-*, can be defined as expressing that phase of the event in Figure 1A identified by ‘cutting’.⁸⁸ Diagrammatically, this phase is central to its event and could non-rigorously be interpreted as ‘closely involving’ its subject. Is it then too great a leap to propose that this ‘close involvement’ (typically human) implied by Semitic *mu-* is not too distant from the ‘emotional closeness’ (Jakobsen) postulated as a possible original function of Sumerian *mu-*? In what follows an attempt is made to support this conjecture by showing how, from original Sigmatic strings with prefix *mu-*, not entirely dissimilar to those of Sumerian, the descendent Semitic participial forms might be

⁸⁷ It may be significant that, to judge from the translation, this is the only passive form in the sequence.

⁸⁸ This is obviously a much simplified characterisation of the function of the Semitic participles, but is adequate for present purposes.

derived.

FIGURE 1 SCHEMATIC REPRESENTATION OF SINGULATIVE ASPECT



3.3 Triradicalisation of Sigmatic S_P Forms

3.3.1 Derived verb forms with postposed deriving morpheme being widespread in the African E-series languages, it is suggested in *TAF* §6.1 that such morphemes were introduced into the J-series languages as prefixes and thus were probably present in Sigmatic.⁸⁹ Suppose then, as the evidence from Common Semitic and Egyptian would suggest, that Sigmatic was a language where the deriving morpheme either immediately preceded its stem or preceded any prefixed augment where present. Then, for example, prior to triradicalisation, Sigmatic S_{PA} and S_{PE} strings with event marker *i* and, say, suffixed augment *aq* (*MPSVS* §3.3.4), may have taken the general form:⁹⁰

$$*i.s(v).pur.uq (S_{PA}) \quad \dots(17)$$

$$*i.s(v).pur.uq.un (S_{PE}) \quad \dots(18)$$

Then, by analogy, equivalent forms with putative event marker *mu* can be conjectured to have been of the form:

$$*mu.s(v).pur.uq (S_{P2A}) \quad \dots(19)$$

$$*mu.s(v).pur.uq.un (S_{P2E}) \quad \dots(20)$$

Omitting intermediate stages, triradicalisation of these four strings would have yielded something like the following 3ms forms:

⁸⁹ The argument in this paper implies that Sumerian was also, at least in part, a J-series language (For this term see Section 5 of *TAF*). But there is no evidence for deriving morphemes in Sumerian unless morpheme *š**u* of set A_L (expression 2 of §1.2 above) is taken to be related to the *s*/*š*-based deriving morpheme.

⁹⁰ Assuming the consonantal component of the deriving morpheme to have been *s*, and that *aq* > *uq* by vowel harmony.

**isapruq* (S_{PA} - from 17) ... (21)

**isapruqun* (S_{PE} - from 18) ... (22)

**musapruq* (S_{P2A} - from 19) ... (23)

**musapruqun* (S_{P2E} - from 20) ... (24)

3.3.2 It will be seen that the syllable structure of form 21 corresponds exactly to that of the Akkadian 3s S_{PA} form *ušapris*, although with vowels *i* and *u* reversed. But as vowel value *-u-* of augment *-uq* is taken to reflect the original stem vowel, so a biconsonantal stem with vowel *i* would have yielded **isapriq*, a closer match with the Akkadian S_{PA} form. Vowel *u* of the Akkadian subject pronoun would then remain unexplained but could have originated by analogy with the *u* of prefix *mu*. With similar reservations as to vocalisation, the syllable structure of form 24 similarly resembles the Akkadian S-form active participle *mušapris^{um}*. However, Akkadian prefixing derived forms are always differentiated by apophony, such that *ušapris* (S_{PA}) is paralleled by *ušapras* (≡S_{PE}), which latter neither matches form 22 nor reflects a development parallel to that of the Akkadian G_{PR} form.⁹¹ Note also that ending *-un* of expression 24 is taken only fortuitously to match case ending *-un* of Akkadian *mušapris^{um}*.

3.4 Conclusion

3.4.1 The foregoing exploration of the consequences of postulating an event marker *mu* in Sigmatic has of necessity been entirely hypothetical. Conspicuous among its many difficulties is that it considers only the case in Sigmatic where *mu-* was prefixed to derived verbs. But if *mu-* was an event marker in Sigmatic it presumably would also have been prefixed to G-forms, perhaps to yield such forms as **mupruq* and **mupruqun*. The conjectures explored offer no explanation for this absence, which must cast (further) doubt on the history here proposed for the Semitic derived verbs. In mitigation, much the same difficulty arises if *mu-* is taken to be an innovation in Semitic, for in this case it would have to be

⁹¹ See §8.6 in *MPSVS*. The differentiation of <singulative> and <non-singulative> derived forms by apophony appears to be a common Semitic feature. In addition, and ignoring details of vocalisation, the same is true at least of Berber and of the prefixing verb forms in Beḡawiē. On the other hand, Ugaritic S-forms may display S_{PA} and S_{PE} forms and the Egyptian S-forms are conjugated like the *šdm.f* and *šdm.n.f* forms. Although in general it is not possible to determine whether Epigraphic South Semitic dialects displaying S-forms differentiate their <singulative> and <non-singulative> forms by apophony, Sabaic (with *h-* as the deriving morpheme) appears to distinguish S_{PA} and S_{PE} forms.

assumed that, for example, the S-form participles originally resembled those of Egyptian, insofar the morphology of the latter can be inferred, and were then replaced, in circumstances unknown, by participles with prefixed *mu-*.

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Bibliographical Abbreviations

ACSE	Aspect in Common Semitic and Egyptian
BOSTRS	On the Biradical Origins of the Semitic Triradical Root System
GSG	POEBEL, A., Grundzüge der sumerischen Grammatik
GSGL	FALKENSTEIN, A., Grammatik der Sprache Gudeas von Lagaš
MPSVS	Towards a Morphology of the pre-Semitic Verbal System
SG	EDZARD, D. O., Sumerian Grammar
SVIRP	SOLLBERGER, E., Le système verbal dans les inscriptions ‘royales’ présargoniques de Lagaš
TAF	The Afroasiatic Fallacy