

Subgrouping of West Semitic Revisited

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In this paper I show the invalidity of the arguments set by the advocates of subgrouping Classical Arabic with Southeast Semitic. Specifically, I argue that the development of the L-stem has taken place independently in Classical Arabic and other South Semitic languages. Building on the theory of Prosodic Circumscription and Sturtevant's Paradox I contend that the development of the internal (broken) plural paradigms in Southeast Semitic and in Classical Arabic took place independently. I maintain that the development of internal plural in South Semitic took place via a process of borrowing over a number of historical stages after these languages underwent regular sound changes separating them from other Semitic languages. The analysis entertained in this paper yields the desired consequence of determining the affiliation of Classical Arabic and, hence, solves what seems, otherwise, to be an impenetrable comparative dilemma.

Introduction

Classical Arabic shares linguistic features with both Northwest Semitic languages, i.e. Canaanite, Ugaritic, Aramaic ([1]; [2]), and with Southeast Semitic languages, i.e. Ethiopic (Ge'ez), Old South Arabian, Modern South Arabian ([3]; [4]). Consequently, two subgrouping models of Semitic languages have been proposed. The primary difference between them is the affiliation of Classical Arabic. Is it a South Semitic sibling of Southeast Semitic, or is it a Central Semitic sibling of Northwest Semitic?

I contend in this study that the arguments set by the advocates of subgrouping Classical Arabic with Southeast Semitic are unfounded. Specifically, I claim that the development of the L-stem has taken place independently in Classical Arabic and other South Semitic languages. Furthermore, I argue, adopting McCarthy & Prince's [5] theory of Prosodic Circumscription and assuming Sturtevant's Paradox [6] (cf. [7]), that the prime facie innovative status of the broken (internal) plural in Southeast Semitic languages is deceptive. I maintain that the development of the broken plural paradigms in Southeast Semitic took place independently only after these languages underwent regular sound changes separating them from other Semitic languages. This explains why these regular sound changes didn't create irregularity in the broken plural paradigms in these languages. The analysis entertained in this paper provides independent evidence of Sturtevant's Paradox, i.e. the destructive effect of regular sound changes on morphological paradigms.

The paper is organized as follows. In section 2, I explore the affiliation of Classical Arabic, focusing mainly on its classification as Central Semitic. In section 3, I discuss the features that are argued to be evidence that Classical Arabic is South Semitic. In section 4, the Prosodic Morphology theory is briefly sketched. In section 5, I analyze the broken plural systems in Semitic languages in light of the Prosodic Circumscription hypothesis and Sturtevant's Paradox. Section 6 will be the conclusion.

The affiliation of Classical Arabic

There are basically two approaches in the literature regarding the subgrouping of Semitic languages: a traditional approach and a modified approach (cf. [8]). According to the traditional approach, Classical Arabic is a sibling of Southeast Semitic. One of the major representatives of this hypothesis is Carl Brockelmann (cf. [9], for discussion). Another major advocate of this hypothesis is [10]. Although [11] adopts the hypothesis that Classical Arabic is South Semitic, he proposes in the alternative that Classical Arabic occupies an intermediate position or that it constitutes by itself a subgroup. A

similar line of argument is suggested by [12], who argues that West Semitic languages constitute a dialect continuum in which the Arabic dialect group has an intermediate position between the North West Semitic and South Arabian.

On the other hand, doubts have been raised about the grouping of Classical Arabic together with South Arabian and Ethiopic in the South Semitic branch. These doubts have been raised as a reaction to Brockelmann's claim that Classical Arabic is to be subgrouped as South Semitic. The first and most elaborate advocate of the new trend is Viktor Christian [13] (cf. [14] for discussion). Christian's work is considered to be a turning point in the classification of Semitic languages. He seeks to resubgroup Semitic on the basis of the structure and inflexion of the verb in the Semitic languages and the way in which this structure and inflexion develop in each one of these languages. He argues that by starting from a system such as Akkadian, that exhibits more than one prefix conjugation, the languages with only one prefix conjugation, Canaanite, Aramaic, and Arabic, appear as representative of a later development. On the other hand, Modern South Arabian and Ethiopic with their two prefix conjugations represent an older stage of development. This analysis is adopted by [15] and modified into branching rather than linear style. In founding his observations on Christian and Rössler, [16] gives a more explicit picture of the development by his appeal to shared innovations rather than the common retention of archaic features or the spread of innovations.

The efforts of this group of Semitic linguists who adopt the innovation-oriented approach resulted in a modified model according to which Classical Arabic is grouped with Northwest Semitic under the Central Semitic branch.

Classical Arabic as Central Semitic

Advocates of this proposal justify grouping Classical Arabic with Northwest Semitic with five linguistic similarities (cf. [17]; [18]) which they argue are shared innovations. These similarities are: (i) Pharyngealization of a series of emphatic consonants in Arabic, Neo-Aramaic and Hebrew while these consonants are ejectives in Akkadian and glottalized in Ethiopic Semitic and Modern South Arabian (cf. [19] for discussion); (ii) Non-geminate prefix conjugation for non-past; (iii) Within-paradigm generalization of vowels in prefix conjugation; (iv) Generalization of *-t-* in suffix conjugation verbs; (v) Development of compound negative marker **bal*.

[20], [21], [22], [23], [24], [25], [26], among others, argue very persuasively that these linguistic traits (2.1. i-v, above) are shared innovations. Hetzron's work, in particular, is very influential in this respect. Its premises are adopted in [27] and [28]. Furthermore, it constitutes the basic assumption

from which [29] Rodgers proceeds in his subgrouping of South Semitic languages. Following Hetzron, [30] excludes Classical Arabic from the South-east Semitic branch (cf. [31] for a list of others who adopt the same line of argument). Another piece of evidence that supports Hetzron's and his followers' conclusions is a lexicostatistical/glottochronological survey of five Semitic languages: Hebrew, Ugaritic, Syriac, Akkadian, Arabic and Ethiopic done by [32]. [33] concludes that the divergence between Classical Arabic and Syriac took place *ca.*, 1650 BC, whereas that between Classical Arabic and Ethiopic goes back to *ca.*, 2275 BC. His conclusion is very consistent with the idea that around 2000 BC Northwest Semitic languages were still one single language. He [34] notes, furthermore, that the very high percentage of the agreements between Classical Arabic and Ethiopic concerns cases where all of the languages investigated agree (cf. [35] for a discussion of Rabin's findings). Hence, Rabin's conclusion speaks against the inclusion of Classical Arabic within the Southeast Semitic branch.

Needless to say, the linguistic features discussed above in (2.1. i-v) are not the only ones that are originally suggested by advocates of a Central Semitic affiliation of Classical Arabic, most importantly by Hetzron. But they are the only ones that prove to be shared innovations under examination by other Semitic linguists. [36], for example, takes the feminine plural ending *-na(a)* of prefix conjugation in Arabic and Hebrew as an innovation that constitutes the Arabic-Canaanite group (cf. also [37]). But [38] challenges this notion, arguing that this innovation is an earlier development that had taken place before those languages underwent changes separating them from other Semitic languages. Therefore, [39] maintains that the feminine plural ending cannot be used for the purpose of classification. Therefore, the feminine plural ending *-na(a)* is excluded as a possible shared innovation [40].

On the other hand, doubts that are raised about the shared-innovative-status of the linguistic features (2.1. i-v, above) are based on weak arguments or mere stipulations. [41] and [42] are no exceptions in this respect. The objections they raise are addressed in the following section. Since [43] follows the lines of [44], I shall be concerned in the following subsection with Blau's arguments referring to Zaborski's as needed.

The drift hypothesis

[45] appeals to the notion of drift or parallel development [46] in his discussion of two of the linguistic traits discussed in the previous subsection, viz. the generalization of *-t-* in suffix conjugation verbs and the leveling of prefix vowels in all prefix conjugations.

With regards to the generalization of *-t-* in suffix conjugation verbs, and

as I mentioned in (2.1. iv), Central Semitic has innovated *t*-suffixes in the perfect, replacing an original *k*-, in a homogeneous way, South Semitic has innovated *k*-suffixes, whereas Akkadian has preserved heterogeneous *k* and *t*. Blau argues that there are only two ways in which the heterogeneous system of Akkadian could be made homogeneous in all the other Semitic languages: by the preponderance of either *t* or *k*. So, since the chances in each direction were fifty percent, the chances of independent development are extraordinarily high.

With regards to the leveling of prefix vowels in all prefix conjugations, Blau proposes two possible scenarios. In the first, he maintains that the opposition *yiqtal*: *yaqti/ul* may be a general West Semitic phenomenon, characteristic not only of Central Semitic, but of South Semitic as well. Its total absence from South Semitic may well be due to later development just as it totally disappeared in Modern Arabic dialects. In the second scenario, he argues that the opposition *yiqtal*: *yaqti/ul* might have emerged independently in different dialects.

The deficiency of Blau's arguments lies in the aforementioned stipulations that are to be made in order for his argument to maintain. In addition, he gives a more complicated picture of the phenomena studied, and may contradict basic assumptions in the history of Semitic languages, i.e. his notion that the opposition *yiqtal*: *yaqti/ul* is characteristic of Central Semitic as well as of South Semitic. In particular, his appeal to the notion of drift is totally unmotivated. Contra Blau, I argue that the correlation between form and function in these alternations speaks against a parallel development scenario. Indeed, [47] proposes an alternative to the drift scenario arguing that (Proto-) Arabic may have replaced original *k*-suffixes with *t*-suffixes due to contact with Northwest Semitic. Even [48], who adopts some of Blau's ideas, rejects his proposal of drift.

Since no subsequent research has uncovered counterexamples jeopardizing the premises of the arguments that are provided in support of taking the linguistic traits (2.1. i-v, above) as shared innovations, no further argument in this direction is needed. My intention, instead, is to show that the linguistic features suggested as shared innovations by advocates of subgrouping Classical Arabic with Southeast Semitic are invalid. This task is taken over in sections 3 and 4.

Classical Arabic as South Semitic

Advocates of grouping Classical Arabic with South Semitic depend in their proposal basically on two main features that are attested in both Classical Arabic and Southeast Semitic. These two features are: (i) The

existence of verb stems with a long first vowel; (ii) The internal or broken plural, that is, plurals formed by prefixation and/or internal change rather than by suffixation [49]. I show in the following paragraphs that these two traits are best understood as not being shared innovations.

Stem with lengthened first vowel

This so-called L-stem along with the broken plural are argued by many Semitists, among them [50], [51], [52], [53], as the main morphological proof for the affinity of Classical Arabic and South Semitic (cf. also [54]). [55], for instance, concludes that verbs with a long first vowel are typical of South Semitic. He argues that it is very doubtful that traces of such a stem can be found in Northwest Semitic languages. Similarly, [56] asserts that the L-stem is found in Classical Arabic, Ethiopic and Jibbāi and absent in Akkadian, Canaanite, and Aramaic. He claims that it is probably a recent innovation in South Semitic. Furthermore, [57] maintains that the development of the L-stem in quite a similar manner in Arabic and Ethiopic has, in all probability, to be interpreted as an additional proof for the inclusion of Arabic in the South Semitic group.

I agree with [58] and [59] that it is difficult, even impossible, to find traces of the L-stem in Semitic languages other than South Semitic. But, contra [60], I argue that the L-stem in Ethiopic and other South Semitic languages has resulted from an independent development in these languages. The motivation for this proposal is the difference between the L-stem in Classical Arabic on one hand, and in Ethiopic, on the other hand. [61], for example, argues that one of the most important distinctions to be made in Semitic morphology is that between phonemic and morphophonemic or morphological alternations. He maintains that whereas in Classical Arabic the opposition *qatala* “he killed”: *qātala* “he fought” implies a morphological function of *ā* expressing the conative value of the derivative, the short vowel of a form like *taqulna* “you speak” (fem.) versus *taqūlūna* (masc.) represents a predictable shortening of the length *ū* in a closed syllable and does not play a role on the plane of content.

In order to show that the L-stem is not a shared innovation, it is necessary to show how independent innovations are not only possible but more than likely. I shall start by examining the L-stem in Ethiopic and then in Classical Arabic. Consider the examples of this type of stem and of the corresponding D-stem in Ethiopic given in table (1) below (cf. [62]; [63]; [64]).

Table (1) L-stem in Ethiopic

L-stem	Gloss	D-stem	Gloss
<i>bābbala</i>	“to be confused”	--	
<i>bāhana</i>	“to evaporate”	<i>bahana</i>	“to rise in the air”
<i>bā</i>	“be startled”	--	
<i>bāl(ə)ḥa</i>	“to rescue”	<i>balḥa</i>	“to be sharp”
<i>bāraka</i>	“to bless”	--	
<i>dānaya</i>	“to be a judge”	<i>danaya</i>	“to be a judge”
<i>gāhrata</i>	“to be in a hurry”	--	
<i>ḥābara</i>	“to clean, decorate”	<i>hobara</i>	“to clean, decorate”
<i>kāḥkəḥa</i>	“to mix”	<i>kaḥkəḥa</i>	“to mix”
<i>lāḥləḥa</i>	“to be humid”	--	
<i>lāxləxa</i>	“to become weak”	--	
<i>lāḥawa</i>	“to mourn”	--	
<i>māhraka</i>	“to plunder”	--	
<i>māhtata</i>	“to testify”	--	
<i>mā’zana</i>	“to hide”	--	
<i>māsana</i>	“to perish”	--	
<i>mā’rata</i>	“to cover”	--	
<i>mā’saba</i>	“be a widow”	--	
<i>māhməḥa</i>	“to push”	--	
<i>māḥtata</i>	“to testify”	--	
<i>nāzaza</i>	“to console”	--	
<i>*sātafa</i>	“to associate”	--	
<i>dārara</i>	“to establish”	--	
<i>sāmawa</i>	“to labor”	--	

As can be seen from table (1), the L-stem in Ethiopic either doesn’t have a corresponding D-stem, or the D-stem has the same meaning, or a very

distant meaning suggesting that the two words might not be related at all. This fact is noticed by many Semiticists. [65], for example, argues that the L-stem, or the Influencing Stem as he calls it, is no longer very common in Ethiopic, but in a number of verbs it is replaced by another stem. He maintains that the first and second stems of the verbs which have coined this third stem, are either no longer used at all, or only with the same meaning as the third. But he argues that various traces, particularly in isolated Nominal formations show that the L-stem was once used more extensively. Similarly, [66] notes that D-stem and L-stem verbs in Ethiopic are lexical variants, constituting neither morphological nor semantic categories of a distinct value. On the basis of [67] and [68], I maintain here that the formation of the L-stem took place in Ethiopic before the formation of the L-stem in Classical Arabic to which I turn next.

In Classical Arabic, as [69] points out, there is a contrast between L-stem and D-stem (CaC:aCa). Examples of the L-stem and the D-stem in Classical Arabic are given in table (2).

Table (2) L-stem in Classical Arabic

D-stem		L-stem	
<i>xalafa</i>	"came afterwards"	<i>xālafa</i>	"objected"
<i>nazala</i>	"came down"	<i>nāzala</i>	"fought"
<i>jalasa</i>	"sat down"	<i>jālasa</i>	"befriend"
<i>'amala</i>	"worked"	<i>āmala</i>	"treated"
<i>hajara</i>	"abandoned"	<i>hājara</i>	"immigrated"
<i>jahara</i>	"spoke up"	<i>jāhara</i>	"was explicit"
<i>faraqa</i>	"separated"	<i>fāraqa</i>	"was away from"
<i>baraza</i>	"became prominent"	<i>bāraza</i>	"fought with"
<i>rahana</i>	"mortgaged"	<i>rāhana</i>	"bet"

One thing to be highlighted about the L-stem in Classical Arabic is that the majority of L-stems have corresponding D-stems with close or different meaning. Building on [70] and [71], I argue that the vowel lengthening in Classical Arabic L-stem encodes a morphological rather than a phonetic function. It follows that the derivation of L-stem in Classical Arabic is morphologically motivated.

Consequently, I maintain that the loss vs. continuation of the contrast

between L-stems and D-stems in Classical Arabic and in Ethiopic is evidence that the formation of the L-stem in Ethiopic took place long time before that of the L-stem in Classical Arabic. Furthermore, lengthening of vowels in some initial syllables is no kind of shared innovation. Hence, this linguistic feature is to be ruled out as a proof of affinity between Classical Arabic and Ethiopic.

Broken plural

The difficulty of pursuing traces of the broken (internal) plural in North-West Semitic languages has led a number of Semiticists, among them [72], [73], [74], [75], [76], [77], to conclude that it is a particular development of South Semitic. Nevertheless, I argue that the insights that the recent developments in Prosodic Morphology allow us to have into the formation of the broken plural are crucial. Despite the non-concatenative nature of the broken plural systems, they have morphological templates that can be prosodically isolated. But before I set forth my analysis, I would like to discuss in the following subsection (3.1.) some of the arguments provided in the literature in favor of the broken plural being a shared innovation in Classical Arabic and South Semitic languages.

The broken plural as a shared innovation

[78] argues that the broken plural is a shared innovation common to Classical Arabic and Ethiopic. He rejects the idea that the broken plural is a common retention. He argues that even if the notion of broken plurals should turn out to be an ancient Hamito-Semitic feature, it is not the existence of broken plurals as such that proves the close affinity of Classical Arabic, South Arabic and Ethiopic, but rather their widespread formal identity. He maintains that the occurrence of some scattered parallels to these broken plurals in other Semitic languages must not be considered remnants, but rather the primary elements from which the South Semitic languages, including Classical Arabic, built their broken plurals. The comparatively late age of the broken plurals is proven by their invariable tri-radical form, whereas the sound plural, which is formed by suffixation, has sometimes preserved its bi-literal form: cf. Classical Arabic *banūn* “sons,” formed from the bi-radical basis *ban*, as against the tri-radical broken plural *ʿabnā*. The same line of argument is expressed in [79] and [80]. [81], who examines the distribution of the internal and external plurals in all Semitic languages, concludes (p. 119) that most of the plural patterns attested in Classical Arabic and South Semitic languages can only plausibly be explained as the result of shared innovations.

In the following sections I present an analysis of the internal plural systems in Semitic languages in light of the Prosodic Circumscription Hypoth-

esis proposed in [82]. This step will have the advantage of gaining insight into the way in which internal plurals are formed. It will be decided, accordingly, whether or not the internal plural is a shared innovation among the Semitic languages that make use of it.

Prosodic Circumscription Theory

The original impetus for prosodic morphology is to offer an apt and satisfactory method to deal with nonconcatenative word-formation processes such as reduplication, metathesis, infixing and the internal modification of the root, some of which are predominant in Semitic languages (cf. [83]).

[84] devise an approach in which morphological templates are prosodically defined. This approach comprises three theses given in (1) (cf. [85]):

- (1) (i) Prosodic Morphology Hypothesis
Templates are defined in terms of authentic units of prosody: mora (), syllable (ó) foot (F), prosodic word (W).
- (ii) Template Satisfaction Condition
Satisfaction of template constraints is obligatory. Every part of the morphological template must be associated with some prosodic unit. The association follows both universal and language-specific principles.
- (iii) Prosodic Circumscription Domain
The domain in which morphological processes take place may be circumscribed not only by morphosyntactic factors, but also by prosodic criteria. In particular, the domain that morphological operations target is defined in terms of the minimal word rather than the whole domain.

One of the important concepts in prosodic morphology is the *mora*. While the skeleton in previous theories was analyzed from the perspective of the segments, the moraic model develops a prosodic conception of the skeleton: phonological positions are certain terminal points where prosody intersects with segments or melodies. According to [86] prosodic rules and constraints categorize syllables as light monopositional versus heavy bipositional. These prosodic positions or moras are the *genuine* or *authentic* units of prosody. For example, long vowels are distinguished from short as two versus one mora. The three theses of Prosodic Morphology given in (1) and the terminology they accommodate will be much clearer when they are applied to the problem in question. A detailed discussion of the Prosodic Morphology theory and its extensions are, though, beyond the scope of this paper. Therefore, I shall be

concerned here solely with the application of the Prosodic Circumscription Hypothesis to the problem of analyzing the Semitic broken plural.

[87] propose Prosodic Circumscription as a mechanism to analyze morphological operations that take account of the phonology of the base such as reduplication and infixation. According to them, phonological representations can be cut into two pieces: rules of affixation, and phonological change apply to one of the pieces before they are sewn together. "More specifically, McCarthy & Prince argue that the base may factor into a prosodic constituent (mora, syllable, foot) plus residue. Negative Circumscription operates on the residue, while Positive Circumscription isolates the prosodic constituent for phonological scrutiny" [88].

Morphological templates of the broken plural

McCarthy & Prince apply their Prosodic morphology approach to the Classical Arabic broken plural. Arab grammarians recognize twenty-seven templates for the broken plural [89]. The Classical Arabic broken plural system is given in table (3) (cf. [90]).

Table (3) The Classical Arabic Broken Plural System

Singular	Plural
a) Ci/uCC	→ 'aCCāC, CuCūC
CaCC	→ CuCūC, 'aCCāC, CiCāC, ('aCCuC)
CaCaC	→ 'aCCāC
b) Ci/uCCat	→ Ci/uCaC
CaCCat	→ CaCaCāt, CiCāC, Ci/uCaC
CVCVCa	→ CaCaCāt, CiCāC
c) CVCCV(V)C	→ CaCāCi(i)C
d) CVVCVC(at)	→ CawāCiC
CVCVVC(at)	→ CaCā'iC
e) CāCiC	→ CuC _i C _i āC, CaCaCat, CuC _i C _i aC
f) CVCāC	→ 'aCCiCat, CuCuC
CaCūC	→ CuCuC, 'aCCiCat
CaCīC (n.)	→ CuCaCā', 'aCCiCā', CuCuC

CaCīC (adj.)

→ CiCāC

The difficulty of analyzing the broken plural in classical Arabic stems from the fact that the patterns are so numerous and so diverse. Nevertheless, some generalizations emerge when these patterns are arranged prosodically. For instance, when the initial syllable of the singular noun *tālib* “student” is analyzed as consisting of two moras, the broken plural *tullāb* “students” can be treated as gemination of the middle consonant through backward spreading to the second mora of the initial syllable. With regards to the patterns of the broken plural, Classical Arabic has at least three patterns: the iambic, the trochaic and the monosyllabic (cf. [91], for discussion). The monosyllabic pattern is very rare, e.g. *ḥumr* (CuCC) plural of *ʾaḥmar* “red.” The trochaic pattern is of some importance, e.g. *ʾumud* (CuCuC) plural of *ʾamūd* “pillar.” But the iambic is the truly productive pattern, ranging over the widest class of singulars and extending to loanwords. Examples of this pattern are given in table (3) and reproduced in table (4) with other examples.

Table (4) Examples of the iambic pattern

Singular pattern	Singular	Plural	Gloss
CVCC	<i>qird</i>	<i>qurūd</i>	“monkey”
	<i>kalb</i>	<i>kilāb</i>	“dog”
	<i>ʾayn</i>	<i>ʾuyūn</i>	“eye”
	<i>wazn</i>	<i>ʾawzān</i>	“measure”
	<i>faras</i>	<i>ʾafrās</i>	“horse”
CVCVC	<i>ʾasad</i>	<i>ʾusūd</i>	“lion”
	<i>rajul</i>	<i>rijāl</i>	“man”
CVCVVC	<i>jazīr-at</i>	<i>jazāʾir</i>	“island”
CVVCVC	<i>ʾānis</i>	<i>ʾawānis</i>	“cheerful”
CVVCVVC	<i>jāmūs</i>	<i>jawāmīs</i>	“buffalo”
CVCCV(V)C	<i>sultān</i>	<i>salātīn</i>	“sultan”

The plural pattern CVCCVVC, exemplified by *ʾawzān* “measures” and *ʾafrās* “horses,” is argued by [92] to be derived via metathesis from the pattern CaCāC (see also [93], for discussion). So, a plural like *ʾafrās*, for example, is derived from **farās*. The onset of the derivation is the prefixation of the glottal stop ʾ, a process that feeds a metathesis rule that re-orders the first V and C

elements to become *af* instead of *fa* (cf. [94] for a different analysis of the metathesis process).

As noted by [95], the only invariant that underlies the plural patterns given in table (4) is that they begin with a CVCVV, indicating the presence of a (LH) iamb [$\sigma_\mu\sigma_{\mu\mu}$]. But to say that these plurals are formed by replacing the singular template with an iamb will not be satisfactory, because the plural exhibits various transfer effects that depend on the prosodic structure of the singular. The solution that McCarthy & Prince provide for this problem is that only the initial portion of the string changes into an iamb, whereas the prosodic structure of the final syllable of the singular is preserved in the plural. Specifically, they argue that the broken plurals are formed by first circumscribing the phonemes that lie within a bimoraic trochee at the left edge of the word. It is this segmental material that is mapped to the iambic template. The residue is then added back and finally the vocalic melody is changed. This prosodic circumscription process is shown in table (5).

Table (5) Prosodic Circumscription process

[<i>kalb</i>]	[<i>raju</i> l]	[<i>jāmūs</i>]	[<i>sulān</i>]	
<i>kal</i>	<i>raju</i>	<i>ja</i>	<i>sul</i>	Circumscribe trochee at left edge
<i>kalā</i>	<i>rajū</i>	<i>jawā</i>	<i>sulū</i>	Map to iambic template
<i>kilāb</i>	<i>rijāl</i>	<i>jawāmīs</i>	<i>salāīn</i>	Restore residue and change melody

Because of their intricate, specific and productive nature, I argue that the prosodic circumscribed broken plural patterns in Classical Arabic are the innovative ones. As noted by [96], all things being equal, the more productive form is newer, while an older allomorph which is non-productive or lexically restricted is likely to be older. Hence, I assume in what follows the prosodic circumscription process indicated in table (5) as the way of determining whether a certain broken plural pattern is an innovation or a result of parallel development among the Semitic languages that exhibit it. In light of this prosodic circumscription process I examine in the following sections the broken plural system in South Semitic languages.

Ethiopic broken plural

The broken plural system in Ethiopic, as given in [97], is given in table (6) (see also [98]).

Table (6) The Ethiopic broken plural system

Singular	Plural
a) CəCC	→ 'aCCāC, CəCaC
CaCC	→ 'aCCāC, 'aCC('aCC'aCCûC)
CaCaC	→ 'aCCāC, 'aCCûC
b) CVCVCt	→ Sound feminine plural [= CVCVCtāt, CVCVCāt]
c) CVCCVC	→ CaCāCəCt, CaCāCəC
CVCCVCt	→ CaCāCəC
d) CVCVVC	→ CawāwCt, CaCāwC, CaCāy
e) CəCāCīC	→ CaCaCt
f) CaCīC, CaCāC	→ CaCaCt
CVCāC(n)	→ Sound feminine plural

By examining the broken plural patterns in Ethiopic, we can see that the majority of them is formed by the same prosodic circumscription process outlined in table (5). The Ethiopic broken plurals that are formed as such are: 'aCCāC, 'aCCûC, CaCāCəC, CaCāCəCt, CaCāwəC, CawāwəCt, CaCāyəC. The first two patterns are derived through metathesis from CaCāC and CaCûC respectively. To see how the prosodic circumscription indicated in table (5) works in Ethiopic broken plurals, consider table (7) (examples are drawn from [99]).

Table (7) Prosodic Circumscription applied to Ethiopic

"shirt"	"talent"	"moon"	
[lawh̥]	[maklit]	[warax]	
law	maka	wara	Circumscribe trochee at left edge
lawā	makā	warā	Map to iambic template
lawāh̥	makālīt	warāx	Restore residue and change melody
'lawāh̥	---	'warāx	Prefixation of glottal stop
'alwāh̥	---	'awrāx	Metathesis

As the examples in table (7) show, the iambic is the productive plural pattern in Ethiopic, whereas the other patterns, e.g. CaCaCt, 'aCCəC are marginal. A very important regular sound change in Ethiopic, though, is to be highlighted, viz. the regular reduction of short high vowels /i/ and /u/ to /ə/. Thus the Ethiopic short central vowel /ə/ corresponds regularly with the Arabic short high vowels /i/ and /u/ (cf. [100]). The importance of this regular sound change stems from the fact that it is surmised that it took place only after Ethiopic and other South Semitic languages separated from other West Semitic languages. The relevance of this information will emerge as I proceed in this paper.

I examine below the formation of the broken plural in another South Semitic language, i.e. Tigré which is a sibling of Ethiopic.

Tigré broken plural

The broken plural system in Tigré is given in table (8) (cf. [101]; [102]; [103]).

Table (8) Tigré broken plural system

Singular	Plural
a) CəCəC	→ 'aCCəC, 'aCCuC, (CəCaC)
CaCəC	→ 'aCaCCəC(at), 'aCCəC(t), 'aCCəC, 'aCCuC
CaCaC	→ 'aCCuC, 'aCaCCəC (at), 'aCCəC
b) CəCCat	→ CəCaC
CaCCat	→ CəCaC, CəCəC
CaCaCat	→ CəCəC
c) CVCCVC	→ CaCəCəC, CaCaCCəC
CVCCVVC	→ CaCəCiC, CaCəCuC
d) CVVCVC	→ CawaCCəC, CawəCəC
CVCVVC	→ CaCəyəC
e) CəCəC	→ Sound feminine plural.
CəCCay	→ CəCCat
f) CəCəC	→ 'aCəCCat, (CəCəC)

By examining the plural patterns in table (8) we can discern seven that respect the prosodic circumscription hypothesis: 'aCCāC, CāCāC, CaCāCāC, CaCāCiC, CaCāCuC, CawāCāC, CaCāyāC. The first pattern is derived through prefixation of the glottal stop and metathesis. Examples of the derivation of such patterns from the singular are given in table (9).

Table (9) Prosodic Circumscription applied to Tigré

"land"	"water skin"	"chain"	
[madar]	[□ arab-at]	[janjar]	
---	□ arb	janjər	Reduction
mad	□ ər	jan	Circumscribe trochee at left edge
madā	□ ərā	janā	Map to iambic template
madār	□ ərāb	janājər	Restore residue and change melody
'madār	---	---	Prefixation of glottal stop
'amdār	---	---	Metathesis

As in the case of Ethiopic, the iambic here is clearly the productive pattern, whereas the other patterns are marginal. Furthermore, Tigré short high vowels /i/ and /u/ are affected by the same reduction process to /ə/ as those of Ethiopic as indicated in section 5.1. above.

Old South Arabian broken plural

As [104] points out, we cannot draw any direct information about Old South Arabian vowels because the South Arabian phonological system of writing is purely consonantal. Thus, the formation of the broken plural cannot be analyzed properly in it.

Instead, I turn in the following section to the broken plural in another group of South Semitic language, i.e. *Jibbāli*.

Jibbāli broken plural

The broken plural system in Jibbāli is given in table (10) (cf. [105]).

Table (10) Jibbāli broken plural system

Singular	Plural
a) CVCC	→ vCCò/ë/uC, CVCò/ë/uC
CaCC	→ ëCCeCt
b) CVCCet	→ CVCòCtə
CVCCVt	→ CVCVC
c) CVCCiC	→ CVCCuC, (CVCëbCəC)
CVCCeC	→ CVCCòC, (CVCëbCəC, CoCoCuC)
CVCCVC	→ CVCëbCəC
CVCCVC(V)t	→ CoCoCuC
d) ø	
e) CoCVC	→ CVCëCt
f) CVCāC	→ ëCCeCVt, CVCòC, CVCCəCə
CVCīC	→ CVCëCt
CVCiC	→ CVCiCëh

To start with, there is no trace of the Prosodic Circumscription process in forming the broken plural in Jibbāli. This can be discerned by examining the broken plural patterns in table (10). It is legitimate at this point to ask why none of the broken plural patterns in Jibbāli respect the prosodic circumscription process outlined in table (5) above. The answer to this question lies in the diachronic changes that Jibbāli has undergone. Distinctive vowel length, as noted by [106], is lost in Jibbāli. Long /ā/ appears to be generally reflected as /ò/, /o/, or /ë/. I argue that these regular sound changes in vowel quality and quantity that Jibbāli has undergone, after its divergence from other South Semitic languages, have destroyed the Prosodic Circumscription process of the broken plural formation in it. Indeed, [107] reconstructs a broken plural pattern as *CaCāCiC for quadrilateral singulars in Jibbāli. He argues that the long /ā/ of the second syllable reflected as /ò/, /o/, /u/ or very rarely /ë/. I maintain that broken plural patterns formed by the prosodic circumscription process outlined in table (5) above were once predominant in Jibbāli and that the regular vowel changes have contributed to the elimination of these patterns. Consequently, I contend that this situation is a vindication on a large scale of one of two basic premises underlying Sturtevant's paradox to which I turn in the following section.

Sturtevant's paradox

Linguists have observed that there is an interplay between sound change and analogy (cf. [108]). Edgar Sturtevant (cf. [109], for discussion) expressed this interplay as a paradox. This paradox is based on both the regularity of sound change and the irregularity of analogy. Sturtevant observes that although sound change is regular, it causes irregularity; analogy, on the other hand, which is generally irregular, results in greater regularity in morphology. What concerns me here is the effect of regular sound changes on morphological paradigms. As noted by [110], the mainly regular sound change can pull regular paradigms apart. Although Sturtevant's paradox is not absolute, it is, as Anttila notes, accurate. An example of Sturtevant's paradox is the Pre-Latin paradigm (nom. sg.) **deiws* (gen. sg.) **deiwī* "celestial" which has a constant stem *deiw-*, and the case endings *-os* and *-ī*. According to Anttila, regular sound changes in Latin have produced an irregular paradigm: (nom. sg.) *deus* and (gen. sg.) *dīvi* in which the alternation is between *de-* and *dī-*. But the regularity was restored by analogy. Analogy eliminated the alternations by building complete paradigms to both alternants. So, *deus* got a genitive *deī*, and *dīvi* got a nominative *dīvus*.

But how is this related to the problem under discussion? I answer this question in the following section.

Parallel development

A plausible scenario for the development of the prosodic circumscribed broken plurals in West Semitic languages is that it took place independently in Classical Arabic on the one hand, and in South Semitic languages on the other. The motivation of this proposal is that although some South Semitic languages, e.g. Ethiopic and Tigré have undergone regular vowel changes, the broken plural patterns that are formed by prosodic circumscription are left intact. On the other hand, in other South Semitic languages, e.g. Jibbāli, which have undergone other vowel changes, we don't find any traces of broken plural patterns formed by prosodic circumscription. Thus, we are led to postulate that the development of the prosodic circumscribed plural patterns in Ethiopic and Tigré has taken place only after they have undergone these vowel changes. Otherwise, we will expect these broken plural patterns to be destroyed by these sound changes and, consequently, we will not find any traces of prosodic circumscribed broken plural patterns in these languages. Jibbāli, on the other hand, has undergone further changes in its vowel system that destroyed the broken plural patterns which Jibbāli developed before its divergence from Ethiopic and Tigré. It will not be surprising to find that Jibbāli shows some patterns of plural formation which are much closer to Ethiopian Semitic than to Arabic. Indeed, [111] argues that Jibbāli shows a pattern of

broken plural for masculine base nouns which is closer to Ethiopian Semitic than to Arabic. But how can we know for sure that the prosodic circumscribed plural patterns were once predominant in Jibbâli. Interestingly, Hòarsûsi, a South Semitic language spoken in a geographically very close region to the region where Jibbâli is spoken, shows extensive use of the prosodic circumscription process given in table (5). This can clearly be seen by examining the Hòarsûsi broken plural patterns given in table (11) (cf. [112]).

Table (11) Hòarsûsi broken plural system

Singular	Plural
a) ʾCVCC	→ CeCēC, CeCōC, CeCewweC, eCCōC
b) CVCCe(e)t	→ CeCeCten, CeCaCten
CVCCāt, -ōt	→ CeCēC, CeCaC, CeCōC
CVCeCe(e)t	→ CeCēC
c) CVCCV(V)C	→ CeCōCeC, CeCōCeCet
CVCCīC	→ CVCCōC
d) CVVCVC	→ CewVVCeC, CewVCCeC
CVCVVC	→ CeCāyeC, CeCayyeC, CeCawweC
e) CēCeC	→ CeCeCet (m), Sound feminine plural.
f) CeCīC	→ CeCōC
CeCīC, CeCeCet	→ CeCēC
CeCeC, CeCeCet	→ CeCēC

As noted by [113], Hòarsûsi has preserved length in vowels and it was not affected by the vowel changes that Jibbâli underwent.

On the basis of the analysis outlined above it can be argued that the development of the prosodic circumscribed broken plural patterns has taken place independently in South Semitic languages, and, thus, the broken plural cannot be considered evidence of the affinity of Classical Arabic and South Semitic languages.

A dilemma

The observation that the Ethiopic and Tigré broken plural patterns, which are formed by prosodic circumscription, are left intact despite the fact that these two languages have undergone regular vowel changes has led us to argue that these broken plural patterns did not exist prior to the regular sound changes. On the other hand, we have argued that there aren't any traces of

prosodic circumscribed broken plural patterns in Jibbâli because it has undergone further changes in its vowel system that destroyed the broken plural patterns which Jibbâli developed before its divergence from Ethiopic and Tigré. This situation leads us to propose that the development of the broken plural in South Semitic has taken place over several historical periods. Therefore, the most plausible scenario for the development of broken plural in South Semitic is that it has taken place via a process of borrowing in which geographical location has played a crucial role. The possibility that the development of the broken plural is a shared innovation between Classical Arabic, on the one hand, and South Semitic, on the other, is ruled out.

Conclusion

I have argued that the similarities that are attested in Classical Arabic on one hand and in South Semitic languages on the other are not to be considered shared innovations in these languages. Specifically, I have argued that the development of the L-stem has taken place independently in Classical Arabic and other South Semitic languages. Moreover, I have maintained, adopting McCarthy & Prince's [114] theory of Prosodic Circumscription and assuming Sturtevant's Paradox [115], that the development of prosodic circumscribed broken plural paradigms in South Semitic languages took place independently only after these languages underwent regular sound changes separating them from other Semitic languages. I have shown that the prosodic circumscribed broken plural paradigms in Jibbâli were destroyed because of regular vowel changes. Based on the assumption that the development of prosodic circumscribed broken plural paradigms in South Semitic has occurred over several historical periods, I have concluded that a process of borrowing is responsible for these paradigms. Thus, I conclude that Classical Arabic must be subgrouped as a sibling of Northwest Semitic under the Central Semitic branch.

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- (*) I would like to thank two anonymous reviewers for their helpful suggestions, most of which are incorporated in this paper.
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that broken plurals, which are formed by modification of the template, pervade the system, and readily apply to borrowings. A reviewer, nevertheless, has directed my attention to the statistical study of Boudelaa and Gaskell (2002) [Boudelaa, Sami and M. Gaskell. 2002. A re-examination of the default system for Arabic Plurals. *Language and Cognitive Processes* 17: 321-343]. On the basis of the pieces of evidence provided by them, I adopt their proposal that the broken plural is not the default plural in Arabic. Whether the default plural in Arabic is the sound plural or the broken plural doesn't have any bearing on the issue under investigation.

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