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The derivatives of Barth's Law in the light of modern Arabic dialects[1]

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Abstract
In 1894, Jacob Barth proposed that the preformative conjugation in some of the Semitic languages goes back to a – generally bygone – inverse correlation between the thematic vowel of the stem and that of the conjugational prefix. Evidence for such a distribution is well attested in all branches of Central Semitic, yet it remains disputed whether it should be reconstructed for Proto-Semitic as well. This paper makes use of new data from a living Semitic variety, namely the Arabic dialect of Ḥugariyyah in the south of Yemen, where the pattern observed by Barth is still operative. We examine the interaction of the conjugational prefixes with the dialectal future tense marker *š(a)-*, and point to cases where the inverse correlation is violated. We outline a *sequential development*, starting with a *phonetically-driven re-distribution* of the preformative vowels, and followed by their *reanalysis* as integral to the prefix. We then propose that comparable developments may have taken place in other Semitic varieties, predominantly Akkadian, and thus view the Akkadian preformative conjugation as a derivative of a former inverse correlation, as reconstructed by Barth.
Keywords: Semitic languages, Archaic heterogeneity, Historical linguistics, Uniformity Principle, Barth's Law, Prefix conjugation, Arabic dialects, Yemen, Akkadian

1. Introduction

In 1894, Jacob Barth proposed that the preformative conjugation in some of the Semitic languages goes back to an inverse correlation between the thematic

1 The data for the present study were gathered in the framework of the first author's project "A Systematic survey of the varieties of Yemenite Arabic, as preserved by Jews in Israel and abroad", supported by the Israel Science Foundation (grant no. 1009/18). The historical analysis is part of the second author's project "The complexity of simplification processes in language change", supported by the Israel Science Foundation (grant no. 2765/21).

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vowel of the stem and that of the conjugational prefix, yielding the patterns *yaqtul, yaqtil* and *yiqtal.* Evidence for such a distribution is well attested in all branches of Central Semitic, yet it remains disputed whether it should be reconstructed for Proto-Semitic as well. The present paper revisits this debate, proposing new evidence that may corroborate such a reconstruction. We make use of data recently recorded from a living Semitic variety, namely the Arabic dialect of Ḥugariyyah in the south of Yemen, where the pattern observed by Barth is still operative. This specific variety not only provides a living demonstration of an extremely archaic feature, but also evidences productive shifts in the distribution of the preformative vowels in the transition from the bare imperfect to the future tense paradigm. By observing these shifts we apply the *uniformity principle* formulated by the Neogrammarians and propose a comparable development that may have operated in other languages.

Discussions on the reconstruction of proto-languages are speculative by nature. Any hypothesis in this context relies heavily on the methodological principles that are perceived as most suitable for the reconstruction. Our main purpose in the present article is to demonstrate how previous ideas accounting for the historical process, that were inevitably speculative in the absence of factual attestation, can now find evidence in a Semitic variety still spoken today.

The structure of this article is as follows: Section 2 surveys four configurations of the preformative conjugation that are found throughout Semitic languages. This distribution raises the comparative linguistic question of which of the four should be reconstructed for Proto-Semitic. In Section 3, we provide data from the Arabic dialect of Ḥugariyyah and point to the shift in the quality of the preformative vowels in the transition from the bare imperfect to the future tense paradigm. In Section 4, we evaluate the historical relations between the four configurations and propose an analysis, assuming the distribution reconstructed by Barth as a starting point for all other configurations.

2. The four configurations of the preformative conjugation in Semitic

The Semitic preformative conjugation consists of the following phonological components:

- a consonantal prefix that varies according to person (P)
- a preformative vowel (V_1)
- a verbal consonantal root ($C_1C_2C_3$)
- a thematic vowel (V_2)

We shall use the following scheme to discuss the arrangement and positioning of these constituents within the paradigms of the various languages and dialects examined:

$$PV_1C_1C_2V_2C_3$$

Scheme 1. The Semitic preformative conjugation

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The consonantal root ($C_1C_2C_3$) and thematic vowel (V_2) are, by and large, lexically determined.[2] Exceptions to this claim include cases in which V_2 is phonetically determined, i.e. influenced by the neighbouring root consonants (Brockelmann 1908: 546; Driver 1936: 43, 64). Predominantly, in many Semitic varieties a laryngeal C_2/C_3 yields, by default, $V_2 = a$. Several modern Arabic dialects tend to exhibit $V_2 = u$ for a back-palatal and/or labial C_2/C_3, as is the case, e.g. in Muslim Baghdadi (Blanc 1964: 99; Abu-Haidar 2011), or in North-Yemeni (Shachmon 2022: 32–3).

The consonantal prefix (P), on the other hand, is *grammatically determined*, and across the Semitic languages there is much uniformity of the consonants representing the grammatical persons. There are, however, documented cases of changes with respect to P. Among other cases, we mention the use of *l/n* for 3rd person masculine singular/plural in Late Eastern Aramaic (Nöldeke 1904/2001: 104; Bar-Asher Siegal 2016: 128–9); *n* for the 1st person singular in the Western Neo-Aramaic dialect of Maʿlūla (Fassberg 2019: 643); *n* for the 1st person singular in all Maghrebi Arabic dialects (Fischer and Jastrow 1980: 261); and *y* for the 1st person singular in spoken Modern Hebrew (personal knowledge).

The quality of the preformative vowel (V_1) stands at the heart of our discussion, as we observe several options for the behaviour of V_1 throughout Semitic languages. In this section, we review four possible configurations (A–D), basing ourselves on the available documented languages. Broadly speaking, the configurations differ with respect to what determines the quality of V_1. In the patterning schemes we give below, configurations A and B represent varieties where V_1 is part of the grammar, whereas configurations C and D refer to cases where the quality of V_1 correlates with the thematic vowel (V_2), and as such, is also determined by a lexical constituent.

(A) The invariable V_1: either *a* or *i* throughout the paradigm

Several Semitic languages exhibit an invariable preformative vowel for all roots (or for a large set of phonologically characterized roots, predominantly the sound verb). This vowel features either *a* or *i* in the various languages and dialects.

P*i*$C_1C_2V_2C_3$	P*a*$C_1C_2V_2C_3$

Scheme 2. The invariable V_1

The pattern P*i*$C_1C_2V_2C_3$ is widespread in different parts of West Semitics. In Hebrew, both classical and modern, for example, we encounter $V_1 = i$ as the default in all sound roots (Blau 2010: 204), e.g. *yilmad* "he will study" or *yišmor* "he will keep". Similarly, the Syriac (Later Eastern Aramaic) sound

2 In this general statement we overlook cases where V_2 nevertheless depends on the grammar, e.g. stative vs. active verbs; or cases in which two distinct inflections of a given root are allowed, producing a distinction between the transitive and the intransitive.

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verb exhibits $V_1 = e$ which is a reflex of Proto Semitic *i* (Brockelman 1908: 65): *nedḥal* "he will fear", *neqṭol* "he will kill". Both Hebrew and Syriac, however, exhibit the exception of $V_1 = a$ with C_1-pharyngeals (see further in the discussion of configuration D below).

Classical Arabic, in its standardized form that evolved during the first Islamic centuries, features an invariable $PaC_1C_2V_2C_3$ pattern, e.g. *yaftaḥu* "he opens", *yaktubu* "he writes", and *yanzilu* "he descends". According to the medieval Arab grammarians, invariable *a*-preformatives characterized the pre-Islamic dialects of the Ḥijāz and its surroundings (Rabin 1951: 61; Bloch 1967: 23).

In Modern Arabic dialects, $V_1 = i$ is prevalent mainly *outside* the Arabian Peninsula (Rosenhouse 2011a),[3] but also inside it, e.g. in the dialect of Riyadh (Ingham 1994: 194), as well as in Ṣanʿāni and several other Yemeni varieties (Watson 2011; Behnstedt 2016: map 093). $V_1 = a$ is characteristic of many dialects *inside* the Arabian Peninsula to this very day, among which are Najdi and Eastern Arabian dialects (Ingham 1994: 194); as well as of Nomadic Syro-Mesopotamian dialects, the offshoots of the same Arabian group (Rosenhouse 2011a). In Yemen, $V_1 = a$ characterizes the dialects of the Red Sea coastal plain, or *Tihāma*, and the area known as Šarʿab, north of the city of Taʿizz; examples include *yafraḥ* "rejoice", *yargum* "throw" and *yaxrig* "go out" (our corpus). $V_1 = a$ was also reported for Ḥugariyyah, south of Taʿizz (Behnstedt 2016: map 093), although, as we demonstrate below, our findings do not show this.

(B) The variable V_1: *a* and *i* distributed according to person

Under configuration B we classify cases in Semitic where V_1 varies throughout the paradigm and is determined by the person. A prominent demonstration of this configuration is Akkadian: $V_1 = a$ in the 1st person singular and all 2nd person, whereas it is *i* in the 1st person plural and the 3rd person singular (see Scheme 3).[4]

	P	V_1	
1SG	*(ʾ)*	*a*	*(ʾ)**a**C₁C₂V₂C₃*
2MSG	*t*	*a*	*t**a**C₁C₂V₂C₃*
3SG	*(y)*	*i*	*(*y)**i**C₁C₂V₂C₃*
1PL	*n*	*i*	*n**i**C₁C₂V₂C₃*

Scheme 3. The variable, person-determined scheme

Yet, in contrast to what is often described in the literature, Akkadian is not the only instance of configuration B in Semitic. In fact, comparable distribution is

3 The dialect of Tikrit in Iraq features V_1=*a*, which constitutes an exception in Mesopotamian Arabic. Yet, as convincingly shown by Jastrow (1983), this is the result of analogical formation within the dialect.

4 In Old Akkadian the 3rd feminine singular prefix was *ta-* (von Soden 1995: §75h.).

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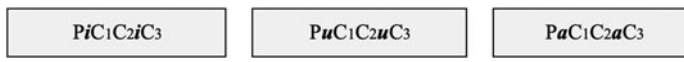
attested in a few modern Arabic dialects. For example, Nigerian Arabic exhibits *taktub* "you.MSG write" vs. *iktub* "he writes" (Owens 2015: 7). Behnstedt (2016: 223) reports a variation of *a*~*i* preformatives in a few localities in South-West Yemen, e.g. *taqtilu* "you.MPL kill" vs. *yiqtilu* "they.M kill". In all these cases, it is evident that the 2nd person, where P=*t*, constitutes the exception: *ta-* stands in opposition to *yi-*,*ni-* in the rest of the paradigm.

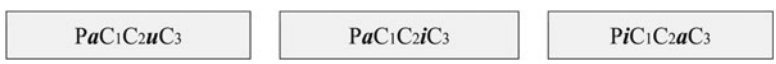
(C) The harmonic distribution: *positive* correlation between V_1 and V_2
Several modern varieties of Arabic demonstrate positive correlation between V_1 and V_2, yielding three harmonic patterns (see Scheme 4).



Scheme 4. The harmonic distribution scheme

Such a system has been reported for several groups in the Northern Sinai Littoral (the Western branch of North-West Arabian); examples include *yašṛaḍ* "he drinks", *yugʿud* "he sits" and *yimsik* "he grabs" (Palva 1991: 160–1; de Jong 2000: 190).[5] Comparable patterns are observed in North African dialects, specifically in the Bedouin dialects of Libya and Tunisia (Fischer and Jastrow 1980: 261; Rosenhouse 2011a).[6] Systems exhibiting configuration C have plausibly emerged as a result of secondary assimilation, as further discussed in Section 4.2 below.

(D) The disharmonic distribution: *negative* correlation between V_1 and V_2
Negative correlation has been noticed in several old and modern Semitic varieties, where a low V_1 precedes a high V_2, and a high V_1 precedes a low V_2 (see Scheme 5).



Scheme 5. The disharmonic distribution scheme

This disharmonic distribution was noted by Jacob Barth (1894), and evidence for it is attested in the various sub-branches of Central Semitic.[7] In various

5 Interestingly, in these dialects the imperative is also formed with a harmonized vowel in the preformative, e.g. *ašrab* "drink", *ugʿud* "sit!" and *imsik* "grab!" (de Jong 2000: 192).

6 In certain Nigerian varieties the preformative vowel may be either low or high, the alternation being determined by harmony with the stem vowel (Owens 1998: 47). Notably, in the Nigerian varieties that exhibit alternation of low and high preformative vowels, alternation is only possible where P=*t* or *n*, whereas in the 3rd person, V_1 is regularly high (Owens 1998: 47).

7 For an extensive survey of the literature regarding the manifestations of Barth's Law, see Hasselbach 2004: 26–8, and Bar-Asher 2009a: 243 n. 42. For evidence from Ugaritic, see Ginsberg 1932–33: 382; 1939: 318–22; Gordon 1947; Ullendorff 1982; and Verreet 1983. For uncertain vestiges of this phenomenon in the Amarna Tablets, see

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languages, especially North-west Semitic, this distribution can be identified only in certain weak-verb paradigms. Consider, for example, the two C_1-guttural verbs in Hebrew: *yaḥšob* "he will reckon" vs. *yeḥzaq* "he will grow strong".

The negative correlation may also be traced in Arabic, as was noted by Barth himself (1894: 5). According to the Arab grammarians, while pre-Islamic western dialects exhibited invariable *a*-imperfects (see configuration A above),[8] the eastern varieties exhibited both *a* and *i* as preformative vowels, with the high V_1 preceding a low V_2 (Rabin 1951: 61; Bloch 1967: 23). This alternation, known in Arabic as *taltala*,[9] is supported by inscriptions of Old Arabic written in Greek letters, as recently shown by Al-Jallad and al-Manaser (2015: 56; 2017: 178; 2020: 100). Vestiges of that older stage are also attested by some *qirāʾāt* (Qurʾānic readings), exhibiting *ni-/ti-* prefixes before $V_2 = a$ instead of the expected Classical *na-/ta-* (Rabin 1951: 61; Al-Qabāqibī 2003: 91–2).[10] Yet, as with other linguistic features that existed in the pre-standardized language, these dialectal variants have been eliminated from the texts in the course of standardization (Fischer 2011), resulting in an invariable $V_1 = a$.

In modern varieties, a "dissimilation pattern", or "rule of vowel dissimilation", was reported for the dialect of Sudayr in the central area of Najd (Ingham 1994: 28, 194), and is also "a noticeable feature of speech in most areas of the Gulf" (Holes 2010: 156), yielding the patterns *yafʿil* or *yifʿal*, occasionally also *yafʿul* (Johnstone 1967: 43).[11] Van Putten has recently (2020: 84) argued that C_1-guttural verbs in Maltese and Tunis Arabic also retain the inverse alternation of the imperfect prefix. We observe that the disharmonic distribution is fully productive in the Yemeni dialect of Ḥugariyyah, as will be discussed in detail in the next section.[12]

Rainey 1978. Hayes 1994 gathers doubtful traces of this phenomenon in Epigraphic South Arabian. Finally, Kossmann and Suchard have recently (2018) proposed that Barth's Law should in fact be reconstructed to Proto-Berbero-Semitic.

8 Note that by "*a*-imperfect" Rabin (1951: 61) refers to verbs with V_2=*a*, whereas Bloch (1967: 23) uses the same term to refer to the Classical Arabic pattern where V_1=*a*. The core description, however, remains the same.

9 The feature of *taltala* was attributed to the dialect of Tamīm, with examples like *niʿlamu* "we know" as opposed to *naʿlamu* in the Ḥijāzi dialect (Bloch 1967; Grand'Henry 2011). The Huḏayl tribe of pre-Islamic Arabia was also claimed to have used both *a* and *i*-preformatives, with variance being attributed to contact with east-Arabian tribes (Rabin 1951: 193).

10 The reading *niʿbudu* for *naʿbudu* (Q1: 5), where V_1=*i* precedes V_1=*u,* was explained by Bloch (1967: 25) as an indication for the beginning of the standardization towards the *i*-imperfect. Rabin (1951: 61) gives the form *ʾixālu* "I imagine" (as opposed, e.g. to *ʾaxāfu* "I fear" in Classical Arabic) as one *taltala* form that survived in Classical Arabic. Al-Jallad (2020: 100), however, states that *ʔiḫālu* may be a loan expression since vowel alternation does not usually show in the 1st person singular prefix.

11 For Qaṭar, Johnstone (1967: 110) reports that verbs with the "characteristic" vowel *a* in the imperfect may have preformatives with the vowel *a,* e.g. *yašrab~yišrab; yaksar~yiksar.* In Baḥrain (Johnstone 1967: 93) there is "a considerable fluctuation in the vocalization of the imperfect forms", with *yadxil~yidxal/yidxil*. Johnstone proposes that each of these forms must be the standard one for one of the input dialects of Manāma, with *yadxil* as of the ʿAnazi type.

12 The resemblance between our findings in Yemen and those reported for the Arabian Gulf may be accounted for by the lines of population movements, as described in Holes 2006; Holes 2011: 86; Holes 2018: 129.

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Thus, evidence for a disharmonic distribution is convincingly attested in Central Semitic. It remains disputed, however, whether this configuration should be reconstructed for Proto-Semitic as a whole. While some argue that a negative correlation between V_1 and V_2 indeed reflects the distribution of Proto-Semitic, others adhere to the concept that a configuration of type B is more likely to reflect that hypothetical proto-stage. In the following sections, we present recent data from a modern Arabic dialect, and show that certain phonological changes that occur in it may be viewed as a transitional stage linking configuration B with configuration D.

3. Data from Ḥugariyyah: living evidence for configuration D

The data examined below was gathered in the years 2019–20, as part of the first author's continuous efforts to document the speech of Jewish immigrants from Yemen. For this part of the project, we analysed sample texts from twelve informants (four men and eight women), who hail from Ḥugariyyah, a district South of Taʿizz in the south of Yemen. They all left Ḥugariyyah for Israel around 1950 in the "Operation on the Wings of Eagles".[13] They came from six different villages in the area discussed, namely (abbreviation of the informant's name is given in brackets): Banḗ Yūsef (ĠŠ), Ḥarf alHaygāh (WḌ), aḍḌammāgī (BY, BA), alGabziyyah (MY, SṢ, RṢ, RzṢ), alGwīrah (ẎR, ṠhX, ASh) and Sínwān (ḤA). Interviews with the informants took place in their homes in various localities around Israel, through open-ended conversations. They were encouraged to speak on topics of their choice. Later on, in order to expand our database and evaluate our observations, we added several elicitation sessions with six of the informants. In addition to our own materials we also consulted recorded materials from the archives of Ephrayim Yaakov in Jerusalem, that include, inter alia, interviews conducted in the 1980s with Jewish immigrants from Ḥugariyyah, in a mixture of Hebrew and Arabic.[14]

3.1. The distribution of V_1 in Ḥugariyyah

As already noted by Diem (1973: 124) and Behnstedt (2016: 223), certain dialects in the area of Ḥugariyyah exhibit both *a* and *i* as V_1.[15] Our observations confirm some of these findings, but at the same time complete the existing

13 The term "Operation on the Wings of Eagles", also known as "Operation Magic Carpet", indicates the emigration of about 50,000 Yemeni Jews to the new State of Israel between December 1948 and the end of 1951.

14 The recordings are available at the National Sound Archive at the National Library of Israel in Jerusalem. We are grateful to our colleague Dr Tom Fogel for his invaluable assistance in coordinating and conducting interviews, and for editing the materials from the Yaakov archives. Were it not for his personal acquaintance with many of the informants, and for his remarkable patience and pleasantness, we would not have been able to set up the full and accurate paradigms.

15 Note, however, that Diem's data do not necessarily indicate inverse correlation: he reports a V_1=*a* for sound *u*-bases, e.g. *taktub* "you.MSG write", and for second-weak verbs (C_2=y/w), e.g. *taqūl* "you.MSG say" and *tasīr* "you.MSG go"; yet for all other forms he gives V_1=*i*, e.g. *tišrab* "you.MSG drink" and *tiglis* "you MSG sit", the latter featuring positive correlation between the two vowels.

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Table 1. Inverse correlation in G-stem verbs in Ḥugariyyah

	P***i***C_1C_2***a***C_3	P***a***C_1C_2***i***C_3	P***a***C_1C_2***u***C_3
1SG	*ašrab*	*agles*	*argom*
2MSG	*tišrab*	*tagles*	*targom*
2FSG	*tišrabī*	*taglisī*	*targumī*
3MSG	*yišrab*	*yagles*	*yargom*
3FSG	*tišrab*	*tagles*	*targom*
1PL	*nišrab*	*nagles*	*nargom*
2MPL	*tišrabū*	*taglisū*	*targumū*
2FPL	*tišrabayn~tišrabēn*	*taglisayn~taglisēn*	*targumayn~targumēn*
3MPL	*yišrabū*	*yaglisū*	*yargumū*
3FPL	*yišrabayn~yišrabēn*	*yaglisayn~yaglisēn*	*yargumayn~yargumēn*

descriptions and add essential details to them. We observe that *all* G-stem verbs in Ḥugariyyah exhibit the disharmonic distribution classified above under configuration D: V_1 consistently surfaces as *i* before a low theme vowel, and as *a* when V_2 is high.

Table 1 contains representative paradigms of the three imperfect patterns in Ḥugariyyah, using the roots *š.r.b* "to drink" (pattern P***i***C_1C_2***a***C_3); *g.l.s* "to sit" (pattern P***a***C_1C_2***i***C_3);[16] and *r.g.m* "to throw" (pattern P***a***C_1C_2***u***C_3). An exception to the rule of inverse correlation is the 1st person singular, that uniformly exhibits *a.* Also note that the high vowels *i* and *u* are lowered in this variety to *e* and *o* respectively in final closed syllables.[17]

Apart from the sound verb, second- and third-weak roots exhibit comparable patterns. When V_2 is either *i* or *u,* the preformative vowel surfaces as *a*. With $V_2 = a$ we observe $V_1 = i$, as shown in Table 2.

Table 2. Inverse correlation in second- and third-weak verbs in Ḥugariyyah

$C_2 = w$	P***a***C_1***ū***C_3	*yaqūl* "he says"
	P***i***C_1***ā***C_3	*yixāf* "he is afraid"
$C_2 = y$	P***a***C_1***ī***C_3	*yasīr* "he walks"
$C_3 = y$	P***a***C_1C_2***ī***	*yarmī* "he throws"
	P***i***C_1C_2***ā***	*yiqrā* "he studies"

The asymmetric distribution of V_1 and V_2 is thus maintained in sound verbs as well as in second- and third-weak roots. It may, however, be violated in certain *phonetic* environments: the occurrence of gutturals and back palatals in the root may, yet does not necessarily, involve a positive *a-a* correlation, e.g. *yaqaʿ* "it happens" (root *w.q.ʿ*) and *yaxāf* "he is afraid" (root *x.w.f*).

Following are extracts from our corpus, demonstrating the disharmonic patterns discussed hitherto in a more natural context:

16 Some speakers in this area use *gass-yigiss* to denote "sitting".

17 The high vowels are retrieved before conjugational suffixes as well as other clitics, e.g. *yaqber+hā* ⇒ *yaqbirhā* "he buries her" or *yargom+bo* ⇒ *yargum-bo* "he throws it.M".

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i. *qāl-lo: ismaʿnī yā-yihūdī. anā ḥabbētak, w-min maḥibbatī lak maqṣūdī minnak inn* ***taslím*** *min-šān* ***tadxol*** *algannah. qāl-lo alyihūdī: ṣaḥīḥ* ***niʿlam*** *inn annabī gālis fi-bāb algannah, lākin mā* ***yiʿlam*** *annabī inno fī ṭāqah qafāw w-minn*^{a}*hā* ***yadxulū*** *alyihūd algannah* (YR)
He said to him: "Listen to me, Oh Jew. I like you, and because I like you, I wish that you convert to Islam so that you enter Paradise." The Jew said to him: "True, we know that the Prophet sits at the gate of Heaven, but the Prophet does not know that there is a window above it/him, and through it the Jews enter Paradise."

ii. ***yakūn yaxrog*** *min alḥagar, min ʿarḍ alhar*^{IHb} *… kān* ***yaxrog*** *almā min ʿarḍ aḏḏāḥah,* ***yarūḥū*** *yikḥu*^{IHb} *garrah* ***yiṭraḥūhā*** (MY)
[The water] would run out from the mountain … the water used to run out from within the steep mountain, and they would go and take a jar and put it [in it].

iii. *hū* ***yiṭlaʿ*** *b-algibāl w-almagnūn baʿdo.* ***yaštī yinhabo*** *… mágnūn mágnūn! mašugaʿ* ^{IHb}*.* ***yaštī yinhabo****,* ***yagrī*** *baʿdo* ***yaštī yinhabo*** (WḌ)
He was going up the mountains and the madman after him, aiming to rob him … a real madman! A lunatic. He wanted to rob him and was running after him, wanting to rob him.

iv. *kān boh wāḥid* ***yigzáʿ*** *kull yōm* ***yaṭlúḇ****. boh wāḥidah gālis bi-ṭaráf alqaryah,* ***yaqūl****-le: yā maráh, indī-lī luqmah.* ***taqūl****-lo: boh mā boh, yā ibnī … māni-š fāriġ aqūm* (ĠŠ)
There was a man who used to pass by every day and beg. There was a woman who was sitting on the outskirts of the village, and he would say to her: "Oh woman, give me some bread." She would say to him: "I may or may not have it, my son, but I have no time to get up [and serve you]."

v. *lak ʿuqmah lā* ***taqdir tiblaʿ*** *luqmah* (ĠŠ)
May you become paralysed, and not [even] be able to swallow some bread.

Intriguingly, while the disharmonic distribution is by and large stable and consistent in spontaneous speech, in direct elicitation the scene appears to be more complex. In translating forms out of context, we encountered certain fluctuation in the use of *a* and *i* as V_1, e.g. *yagles* and *yigles, niḏbaḥ* and *naḏbaḥ.* When asked for their grammatical judgments regarding the two options, the informants tended to approve both. This is most likely related to the fact that the language is not in daily use, and in addition the speakers are continuously and for many years exposed to forms and patterns from other varieties, not rarely even within the same family unit. One should also consider "biased" replies in elicitation based on translation from Hebrew, e.g. when an informant suggested *tiqbor* as a translation for Hebrew *tikbor* "she will bury", as opposed to the expected dialectal *taqber* (indeed heard on other occasions). Further to the point of instability, see Section 4.3 below.

We find it noteworthy, that when confronted with the two forms alongside each other, e.g. *yagles* and *yigles,* and when directly asked about the difference between them, two of the informants (RṢ and MY) intuitively explained that the form with $V_1 = a$ indicates an action in the present, whereas the one with *i* bears the meaning of a future action. In the next paragraph, we account for this intuitive reasoning of the informants and show that it actually accords with the shift of $a > i$ that occurs in the interaction of the preformative with the future prefix *š(a)-*.

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3.2. The shift in the interaction of V_1 with the future tense marker

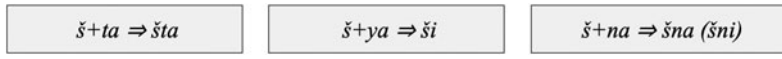
As noted, in the dialects of Ḥugariyyah, V_1 surfaces as *a* in two of the three imperfect patterns, namely P***a***C_1C_2***i***C_3 and P***a***C_1C_2***u***C_3. This systematic patterning may, however, be violated under defined circumstances, i.e. in the interaction with the future tense marker *š(a)-*.

The future tense marker *š(a)-* probably has its origins in the Old Arabic verb *šāʾa* "want" (Behnstedt 2016: 235), and thus belongs with other future particles in Arabic that are derived from verbs and nouns indicating desire, a common phenomenon cross-linguistically (Bybee et al. 1994: 254–7; Zack 2011). Distinct from Ṣanʿāni Arabic, where *ša-* only occurs before the 1st person singular (Watson 1993: 79), in Ḥugariyyah (as well as in other southern varieties) this future marker is used for all persons. Indeed, the interaction of *ša* – in Ḥugariyyah regularly *š* – with the various persons is what concerns us here, since its prefixation to $V_1 = a$ may yield a shift in the quality of the vowel: while in the interaction of *š* with P = *t* the preformative vowel invariably remains *a*, with P = *y* we observe that $V_1 = a$ shifts to *i*.[18] A similar shift was noted in a few cases with P = *n,* and instability was observed with the 1st person singular (see Table 3).[19]

Table 3. The shift of *a* > *i* in the interaction with the future marker

Verb in isolation	Verb with a prefixed future marker
agles	*š-agles* ~ ***š-igles***
tagles	*š-tagles*
yagles	***š-igles***
nagles	*š-nagles*~ ***š-nigles***
taglisū	*š-taglisū*
taglisēn~*ayn*	*š-taglisēn*~*ayn*
yaglisū	***š-iglisū***
yaglisēn~*ayn*	***š-iglisēn*~*ayn***

Similar alternation has been documented with other verbal patterns and stems, as may be exemplified by *yargom* vs. *š-irgom* (ḤA, ASh) "he will throw" or *yašūf* vs. *š-išūf* (ShX) "he will see". We also noted examples in certain verbal measures other than the G-stem, e.g. *yaštaġilū* vs. *š-ištaġilū* "they.M work" (RṢ). These shifts are summarized in Scheme 6.



Scheme 6. Interaction of P with the future marker in Ḥugariyyah

18 This was noted in Behnstedt 2016: 223–4, who explains the occurrence of *i* in these forms as "due to */y/*" and concludes that "more examples would be needed in order for us to determine a rule for this point". Also compare Owens 1998: 47, who offers similar phonetic reasoning for the disharmonic distribution in a Nigerian variety, albeit without the interaction with the future prefix.

19 Diem (1973: 98) mentions *ša+a* (1st person singular) ⇒ *ši* in the 1st person singular in Lower Yemen, but the same is not reported in his data from Ḥugariyyah (Diem 1973: 126).

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Even more intriguing is the fact that following *š* we note that $V_1 = i$ is retained for all but $P = t$. With the latter, V_1 shifts to *a*. Consider the examples in Table 4, using the root *ṭ.l.ʿ* "go up":

Table 4. The shift of $i > a$ in the interaction with the future marker

Verb in isolation	Verb with a prefixed future marker
tiṭlaʿ	***š-taṭlaʿ***
yiṭlaʿ	*š-iṭlaʿ*
niṭlaʿ	*š-niṭlaʿ*

It thus becomes apparent that in this variety the quality of V_1 is sensitive to the presence of the future tense particle. While the development of *š(a)+ya* ⇒ *ši* is expected phonetically, it does not take place in other Yemeni varieties: the future particle *ša-* is used throughout the western strip of Yemen, including the Tihāma and Lower Yemen (Behnstedt 2016: map 097), yet it is only in Ḥugariyyah that we observe the decisive effect of its interaction with $V_1 = a$. Consider, for example, the form *š-yarawwiḥū* "they will return" that we recorded in Šarʿab. The fact that *n* may bring about a similar development is also not surprising, given that in other Semitic languages we also observe cases where *n* triggers $a > i$ (see Step 2, Section 4.3). What is more crucial to our discussion is the shift of *š+ti* ⇒ *šta*, which does not seem to be phonetically motivated and, therefore, may be better explained in terms of *morphological reanalysis*. This hypothesis will be discussed in Section 4.3 below.

Before moving on, it seems noteworthy that the examined corpus offers only a few examples of the future tense marker in natural unaffected speech. As mentioned above, our corpus mainly consists of first-hand accounts of experiences, which typically take the form of *past* tense tellings. The future marker nevertheless occurs in the corpus in indirect speech, either when the narrator reports on verbal communication referring to a relative future, i.e. to a time located after the reference point of his/her account, or when referring to the future intentions of a character in the narrative. Consider the following additional extracts:

vi. *qāl: ḏāḥīn, qūmī ya-rāziqah anā* ***š-abīʿik****. qāla: tabīʿ[a]nī yā-Muḥammad? nisīta samnī? qāl: anā qa-biʿtik w-astawfayt aṯṯamán* (ĠŠ)
He said [to the cow]: "Now, get up, Oh Rāziqah [personal name], I am going to sell you." She said: "Will you sell me, Oh Muḥammad? Have you forgotten the ghee butter [which you make from my milk]? He said: 'I shall sell you and have my full share of the profit."

vii. *gissū tiḥt alʿēṣ*^{IHb} *w-hū qadam. w-anī ʿād-[a]nī* ***š-axrug****, anī w-bintī Ḥannō*^{HbC}*,* ***š-asīr*** (BA)
They sat under the tree, and he arrived. I was just about to leave, me and my daughter Hannah, to go.

viii. *hī haraba qa-kāna bi-ḥublā. wulidá ʿind[u]hon . . . harrabunne la-ʿind addawlah, harrabunne la-ṯamm šallunne la-ṯamm* ***š-išammidunne***^{HbC} (BA)

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She escaped while she was pregnant and gave birth at [a Muslim village] … then they smuggled her there, they took her there in order to convert her to Islam.

ix. *qāl: … ríddunne la-lqabr, w-xallunne ʿala alqabr w-anton israḥū. qālu: inta magnūn? mā* ***š-taʿmal*** *inta? qāl: mā yaxuss*^{a}*kon?* (ĠŠ)
He said: "Take her back to the grave, leave her on the grave, then go." They said: "Are you mad? What are you going to do?" He said: "It is none of your business."

By now we have demonstrated that in certain phonological circumstances $V_1 = a$ may feature *i*. Scheme 7 gives V_1 as it surfaces in the future-tense paradigm:

		P	V_1
1SG	***š(a)***	*(ʾ)*	*a (~i)*
2MSG		*t*	*a*
3MSG		*(y)*	*i*
1PL		*n*	*a (~i)*

Scheme 7. The paradigm of the prefixed future marker

Thus, while the basic imperfect paradigm of Ḥugariyyah accords with Barth's Law and demonstrates a configuration of type D, the future paradigm of the same dialect partially resembles configuration B, where the quality of the vowels is said to be determined by the person. In light of this resemblance, we now turn to consider the interrelations between the four configurations A–D and to examine possible motivations for a historical change that may have resulted in the emergence of configuration B as a secondary development.

4. The interrelations between configurations A–D

In Section 1 above we surveyed the four configurations of the preformative conjugation found throughout the Semitic languages. This distribution evokes the comparative linguistic question of which of the four should be reconstructed to Proto-Semitic. Such discussions are, of course, speculative in their nature, and answering this kind of question relies to a large extent on methodological principles as to what is considered a better hypothesis for reconstruction. Although one cannot rule out the possibility that more than one configuration existed in the proto-language, it is still very unlikely. It seems more reasonable that some of these configurations should be accounted for as secondary. Discussions of this sort should therefore remain at the methodological level, and to focus on what is ultimately a valid argument in reconstructing the verbal

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system of a non-documented proto-language. In the case at hand, we would like to challenge the use of the principle of *archaic heterogeneity* in the context of the prefix conjugation, and to demonstrate how data from a living variety may shed light on the discussion of language antiquity. In doing this, we are following the *uniformity principle* formulated by the Neogrammarians, according to which all languages operate according to the same principles and forces, and we propose a possible consistent development. Notably, all steps of the proposed development are attested by data from present-day Yemen.

According to the principle of *archaic heterogeneity* (Hetzron 1976: 93), "when cognate systems in related languages are compared … the relatively most heterogeneous system might be considered the most archaic". In the case under consideration, it may be claimed that configuration B exhibits the most inner heterogeneity, and it has therefore been argued that it should be reconstructed to Proto-Semitic (Hetzron 1976: 95; Hasselbach 2004). However, this guiding principle is only applicable where there is no obvious cause for the observed heterogeneity. In fact, it has already been speculated that configuration B, as attested in Akkadian, is secondary, and that it is the result of phonological interactions between the specific prefix (P) and the following vowel (V_1).[20] While this proposal was, so far, rather speculative, the data from Ḥugariyyah allow us to actually witness the ongoing evolution of a person-determined distribution, i.e. configuration B, out of the inverse correlation of configuration D. The proposed development is represented in Scheme 8.

D (negative correlation V_1:V_2) ⇒ **B** (variable V_1 determined by person)

Scheme 8. Evolution of configuration B

Applying the ideas of the *uniformity principle* in the context of historical linguistics, we argue that a diachronic process that is established in a living language may be suggestive of similar processes in another ancient language. Therefore, we propose to consider that the development D ⇒ B that we observe in Ḥugariyyah may have taken place in Akkadian as well. Since the distribution of prefixes and vowels is similar in Akkadian (in the prefix-conjugation) and in Ḥugariyyah (in the future prefix), and since we can follow the evolution of the latter from a D-type distribution, we propose that the distribution observed in Akkadian may be the result of a similar historical change D ⇒ B. Moreover, since in the case of Ḥugariyyah the shift from D to B is motivated by the interaction with the future marker, the assumption that configuration B is unmotivated, and that it must be genuine and ancient, is no longer unequivocal.

We therefore contend that configuration D is the most probable to reflect the situation in Proto-Semitic. While independent motivations for this claim were

20 Testen (1992: 132f.; 1994: 429) has indeed argued that vestiges of the distribution attested in D can be identified in Akkadian as well. For a review of that discussion, see Bar-Asher 2009a, n. 43. For phonetic reasoning in Arabic see fn. 18 above.

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proposed elsewhere (see, e.g. Bar-Asher 2009a), in what follows we demonstrate how each of the three configurations A, C and B may be derived from D.

4.1. The evolution of configuration A

As mentioned, many Semitic varieties exhibit an invariable V_1, namely either *a* or *i* throughout the paradigm, for all/most roots. It has been suggested in various places that in these varieties one of the two preformative vowels has been levelled throughout the sound verb (see, e.g. Hetzron 1976: 95). By means of analogy, these varieties shifted from a disharmonic distribution consisting of both *a* and *i* in negative correlation with V_2, i.e. configuration D, to an invariable configuration with only one possible V_1.[21] The proposed development is represented in Scheme 9.

D (negative correlation V_1:V_2) ⇒ **A** (invariable V_1)

Scheme 9. Evolution of configuration A

As a result of analogical processes all *Pi*C_1C_2***a***C_3 and *Pa*C_1C_2***i***C_3 / *Pa*C_1C_2***u***C_3 have become either *Pa*$C_1C_2V_2C_3$ or *Pi*$C_1C_2V_2C_3$ (with the exception of C_1-gutturals that have hindered the change in several languages; see Section 2 under configurations A and D). Interestingly, in Arabian dialects that maintain internal (apophonic) passive as a productive morphological category, the generalized *a*-prefix allows a "slot in the paradigm" for marking the passive with *i*, at least in the case of transitive verbs, e.g. *yasrig* "he robs" vs. *yisrag* "he is robbed" (Al-Sweel 1990: 72; Palva 1991: 161; Ingham 1994: 27).

4.2. The evolution of configuration C

Positive correlation between V_1 and V_2 is plausibly the result of a secondary assimilation of V_1 to V_2. It may be assumed that these harmonic patterns followed from the evolution of a generalized V_1, i.e. configuration A. The incidence of such harmonic patterns in geographically remote areas as North-West Arabia and the Maghreb, implies that these developments are not altogether recent (Palva 1991: 261). The proposed three-step process is presented in Scheme 10.

D (negative correlation V_1:V_2) ⇒ **A** (invariable V_1) ⇒ **C** (positive correlation V_1 = V_2)

Scheme 10. Evolution of configuration A

For Arabic varieties that exhibit harmonic distribution, it may be assumed that V_1 = *a* in *Pa*$C_1C_2V_2C_3$ has assimilated to any dissimilar V_2, yielding *Pa*C_1C_2***i***C_3

21 Alternatively, the shift of *a*>*i* in the Hebrew *qal* imperfect has been attributed to the general tendency towards attenuation of unstressed *a*, or, otherwise, as a result of a phonetic change (Suchard 2019: 180).

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⇒ *Pi*C_1C_2***i***C_3 and *Pa*C_1C_2***u***C_3 ⇒ *Pu*C_1C_2***u***C_3, in addition to *Pa*C_1C_2***a***C_3. Such a neatly arranged system, while existing in the aforementioned varieties (see Section 2 above), is not particularly widespread. An intermediate stage may be observed in dialects with a basic $V_1 = i$ that is subject to vowel harmony wherever $V_2 = u$. A case in point is Jerusalem Arabic, which features the patterns *Pi*C_1C_2***a***C_3, *Pi*C_1C_2***i***C_3, and *Pi*C_1C_2***u***C_3 ⇒ *Pu*C_1C_2***u***C_3 (Bauer 1913: 21; Rosenhouse 2011b).[22]

4.3. The evolution of configuration B

In light of all the above, we propose to account for the heterogeneous vocalization of configuration B, where V_1 varies within the paradigm according to the person, as the *endpoint* of a four-step diachronic process:

Step 1: Inverse correlation

In this initial stage, the conjugational prefix structurally consists of the consonant alone, whereas the quality of V_1 is determined by inverse correlation with V_2. This state of affairs is represented by configuration D, characterizing the bare imperfect paradigm of Ḥugariyyah (see Scheme 11).

$PV_1C_1C_2V_2C_3$ ($V_1 \neq V_2$)	3MSG	*yif'al yaf'il yaf'ul*	= Ḥugariyyah, bare paradigm
	2MSG	*tif'al taf'il taf'ul*	
	1PL	*nif'al naf'il naf'ul*	

Scheme 11. Configuration D as first stage

Step 2: Phonetic shift

In the interaction with a preceding particle (hereafter: F), $V_1 = a$ shifts to *i* when P = *y*, namely F + ***ya***$C_1C_2V_2C_3$ ⇒ F***yi***$C_1C_2V_2C_3$. This shift may also occur when P = *n*: F + ***na***$C_1C_2V_2C_3$ ⇒ F***ni***$C_1C_2V_2C_3$, but it never takes place with P = *t* (assuming that at this stage both F + ***ta***$C_1C_2V_2C_3$ F + ***ti***$C_1C_2V_2C_3$ were available). Previous studies pointed to the phonetic motivation for the *ya* ⇒ *yi* shift (see Bar-Asher 2009a for Akkadian, and Behnstedt 2016: 223 for Yemeni Arabic).[23] The shift of *na* ⇒ *ni* may be seen against the background of other Semitic languages where *n* tends to trigger *i* in certain cases (Hasselbach 2004: 33; Bar-Asher 2009b: 60–1, n.50.) We argue, however, that the shift of P*a* ⇒ P*i* cannot be viewed as purely phonetic, given that in Ḥugariyyah it evidently takes place only in the interaction of P with a preceding F.

22 It may be noteworthy that the Classical Arabic imperative demonstrates comparable vowel harmony in two of its three patterns: *(ʾ)****i***C_1C_2***i***C_3 and *(ʾ)****u***C_1C_2***u***C_3, but not in *(ʾ)****i***C_1C_2***a***C_3. One may also consider the fully harmonic imperative patterns of Akkadian, viz. *qutul, qatal* and *qitil* (see Bar-Asher 2009a for a discussion of their evolution, including references).

23 In the Nigerian Arabic varieties that exhibit alternation of low and high preformative vowels, alternation is only possible where P=*t* or *n*, whereas in the 3rd person, V_1 is regularly high (Owens 1998: 47).

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Morphological considerations must therefore also be involved, as portrayed in what follows.

Step 3: Morphological reanalysis

The data from Ḥugariyyah reveal further, that in the interaction of F+P+V_1 not only may P*a* shift to P*i,* but that the opposite also takes place, namely F + ***ti***$C_1C_2V_2C_3$ yields F***ta***$C_1C_2V_2C_3$. Consider the distribution in Scheme 12, where the shaded areas correspond with Ḥugariyyah's future paradigm:

F+*ya*$C_1C_2V_2C_3$ ⇒ F*yi*$C_1C_2V_2C_3$	3MSG	*yaf'il yaf'ul*	= Ḥugariyyah, future paradigm
		F-(y)if'il F-(y)if'ul	
F+*ta*$C_1C_2V_2C_3$ ⇒ F*ta*$C_1C_2V_2C_3$	2MSG	*taf'il taf'ul*	
		F-taf'il F-taf'ul	
F+*yi*$C_1C_2V_2C_3$ ⇒ F*yi*$C_1C_2V_2C_3$	3MSG	*yif'al*	
		F-(y)if'al	
F+*ti*$C_1C_2V_2C_3$ ⇒ F*ta*$C_1C_2V_2C_3$	2MSG	*tif'al*	
		F-taf'al	

Scheme 12. Vowel shifts in the interaction of F + P+V_1

While the shifts of *ya* > *yi* and *na* > *ni* could be justified phonetically, the same cannot hold up in the case of *ti* > *ta*. Rather, it is better accounted for morphologically, i.e. resulting from a process of reanalysis: in the interaction with the future prefix, V_1 of the 3rd person has become invariably *i*, namely *š-(y)i*; then the prefix – structurally speaking – was reanalysed, and rebracketed as a combination of a consonant and a vowel (see Scheme 13).

F—P—$V_1C_1C_2V_2C_3$ ⇒ F—PV_1—$C_1C_2V_2C_3$ (dash = morphological boundary)

Scheme 13. Rebracketing of the morphological boundary

Through *morphological reanalysis,* the quality of V_1 in certain paradigms has become person-determined, disregarding the quality of V_2: while the bare imperfect (i.e. without the future prefix) in Ḥugariyyah follows the old inverse correlation, featuring both *ya* and *yi* in the 3rd person and both *ta* and *ti* in the 2nd person, the future paradigm features a person-determined distribution with only *š-(y)i* and *š-ta* respectively.

As already mentioned in Section 3.1 above, however, we also observe certain hesitation in the quality of the preformative vowels in the bare imperfect. This is especially noticed in direct elicitation (as opposed to free speech), where informants may hesitate between *tišrab* and *tašrab* (MY), or *yargom* and *yirgom* (ḤA). As proposed above, this may reflect the continuous contact with both

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Israeli Hebrew and other Yemeni dialects, or the fact that the language is not in daily use. Moreover, in the present context it may also be taken to reflect a *transitional phase* between the systematic inverse correlation and a fully person-determined distribution, which is inherently characterized by instability.

Step 4: Generalization to the bare prefix conjugation
Following Step 3, where the quality of V_1 has become person-determined in certain paradigms, we propose that the same distribution has been generalized to the "bare" paradigm, i.e. in the absence of F as well (see Scheme 14).

3MSG	*š-(y)i*$C_1C_2V_2C_3$	Generalization	*(y)i*$C_1C_2V_2C_3$	= B
1PL	*š-ni*$C_1C_2V_2C_3$		*ni*$C_1C_2V_2C_3$	
2MSG	*š-ta*$C_1C_2V_2C_3$		*ta*$C_1C_2V_2C_3$	

Scheme 14. The "bare" imperfect as the endpoint of a multi-stage process

In fact, the direction of the proposed development does not comply with Kuryłowicz's (1949) second law, maintaining that "analogy proceeds from a base to a derived form".[24] Notwithstanding, cases of *back-formation* (or reversion), in which the reanalysis of a derived form generates reinterpretation of the base, are well attested in historical changes (Lehmann 1992: 231; Hock 1991: 213–14).

The resulting person-determined distribution is indeed attested in a few Arabic dialects, as mentioned in Section 2 under configuration B. It plausibly accounts for the data from alMudawwar in Southern Ḥugariyyah (Behnstedt 2016: 223), reflecting a similar state of affairs, namely *yiqtul* vs. *taqtul* in the bare imperfect.

Finally, the person-determined distribution that characterizes the Akkadian paradigm may be viewed as the *endpoint* of a similar sequential development, starting from a distribution of inverse correlation that was followed by a morpho-phomenic shift in the interaction with F, yielding a new distribution. Then follows a reanalysis of the preformative vowels as integral to the prefix, and finally – the generalization of the new distribution to the bare paradigm. Akkadian indeed makes use of prefixes in the prefix conjugation, i.e. the vetitive and the precative, and also demonstrates phonological shifts in the interaction between F and V_1 (Buccellati 1996: 183).[25] The proposed analysis, deriving configuration B from D, implies a direct line connecting the Akkadian preformative conjugation with a former system, whose essential characteristic is $V_1 \neq V_2$.[26]

24 We thank the anonymous reviewer for raising this issue.
25 In Akkadian, the generalization applied to all prefix conjugations, both the preterite *i-prus* and the durative *i-parras*.
26 The assertion that configuration D goes back to Proto-Semitic is further supported by other – independent – reasons: Bar-Asher (2009a) argued that the distribution in D is a derivative of the basic form of the verb as displayed in the Semitic imperative, i.e.

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Notably, while the shift we observe in Ḥugariyyah involves the interaction with the future prefix, the process of phonetic change (Step 2) followed by reanalysis of V_1 (Step 3) could have well been generated in the bare form itself, i.e. even without additional prefixation. The case of Ḥugariyyah allows us to trace the motivations for a sequential change, supporting the claim that heterogeneity may in fact be the *endpoint* of a diachronic shift. The heterogeneous distribution in Akkadian may follow from a comparable process, either in the interaction with prefixes or without it. In all probability, heterogeneity in this case does not indicate archaism.

5. Concluding remarks

In this paper we examined data in the Arabic dialect of Ḥugariyyah, where the basic imperfect conjugation complies with the disharmonic vowel distribution known as Barth's Law. The data from Ḥugariyyah not only provides a living demonstration of an extremely archaic feature, but also offers an opportunity to examine the behaviour of the verbal forms in natural context. In accordance with our findings in Ḥugariyyah, we trace the *motivation* for vowel shifts within the paradigm. We propose that similar motivation may account for a more general historical change that had eventually led to a person-determined distribution (configuration B), similar to that attested in Akkadian. By this we hope to have contributed to the longstanding debate in the literature over the nature of Barth's Law, as we demonstrate how one can consider the Akkadian preformative conjugation to be a *derivative* of the reconstructed Proto-Semitic distribution, and we challenge the use of the principle of *archaic heterogeneity* in this context.[27]

The evidence for the historical development from configurations D to B was recorded in Yemen. We find it fascinating that all four configurations A–D are indeed represented in Yemen to this very day, as may be observed in Behnstedt-2016 (map 093). Thus, the analysis of the preformative conjugation in Yemeni Arabic may be seen as a case of dialectal "apparent past" (Owens 2018), where the various historical stages are all still apparent, co-exist synchronically, and may each be demonstrated in present-day living varieties.

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$C_1aC_2uC_3$, $C_1aC_2iC_3$ and $C_1iC_2aC_3$. This distribution is in fact attested, inter alia, in the Akkadian C_1=ʾ imperatives, e.g. *aḫuz* "seize!" *alik* "go!", as well as in vestiges of the strong verbs, e.g. *rikab* "ride!". It is therefore reasonable to assume that a similar distribution existed as part of the prefix conjugation, even after the addition of the personal prefixes, i.e. $P+V_1+C_1C_2V_2C_3$ (cf. Bjøru 2021).

27 Adherents of the hypothesis that configuration D indeed reflects the state-of-affairs in Proto-Semitic do not necessarily claim that the three disharmonic patterns were the only available ones. Rather, it is possible that configurations A and C were also available already in Proto-Semitic. Alternatively, A and C can be explained as secondary, as discussed in Sections 4.1–4.2 above.

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