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Upper Faifi as an Endangered Arabic Variety: A Philological, Descriptive, and Acoustic Study

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The Faifi variety, classified as an Arabic dialect (albeit with controversy), is chiefly spoken in southwestern Saudi Arabia by a diminishing number of autochthonous Faifi people. This dialect has been the subject of both synchronic and diachronic description and analysis in a few published studies and a small number of unpublished works. While some studies have focused on very narrow aspects of Faifi, such as the phoneme /st/, others have taken a broad scope and attempted either to address an entire linguistic level, such as syntax or phonology, or to touch upon different linguistic levels in one study. To date, however, no study has acoustically documented the dialect. Thus, the current paper intends to complement previous studies and further elaborate on the distinction between two Faifi subvarieties that existing scholarship seems to have overlooked: Upper and Lower Faifi. We detail an acoustic description of Upper Faifi consonants and vowels and their interaction and provide auditory materials to support our acoustic analysis to contribute a milestone description of this variety and to help future researchers obtain access to this minority of speakers.

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1. Introduction[1]

Faifi[2] is a language variety spoken by approximately 50,000 Faifi people (Alfaife 2018) as a native and indigenous dialect in the Faifa mountains located in southwestern Saudi Arabia (Figure 1) and as a heritage dialect in other Saudi cities (A. H. J. Alfaifi 2015). As with some other neighboring varieties, such as Rāziḥī (e.g., Watson et al. 2006), the genetic affiliation of Faifi is not without controversy. The scant previous research on Faifi lacks consensus regarding the branch of the Semitic family to which this variety belongs. Some believe that Faifi is a variety of Arabic (A. H. J. Alfaifi 2015), although mutual intelligibility between Faifi speakers and other Arabic speakers, as a frequently reported linguistic metric/measure for differentiating dialect from language (see Chambers & Trudgill 1998), is, to us, questionable and requires specific investigation.[3] Others have claimed that Faifi, as well as some other dialects spoken at the Yemen-Saudi borders, could be a descendent of Ancient South Arabian (Watson 2018) or, more specifically, a variety of Sabaic language that has experienced extensive influence from Arabic since Sabaic dialects were concentrated in the region in which Faifi is now situated (Alfaife 2018). This persistent question has repeatedly appeared in previous works and will be revisited later in this paper, although it is not our major focus in the current research.

As a language variety based in a country where Standard Arabic (SA) in formal settings and other Arabic dialects in informal ones are the overwhelmingly dominant language varieties, Faifi is endangered. The use of Faifi has been continuously declining for several reasons, as noted by the speakers of this variety and pointed out by formal research (e.g., Alfaife 2018). For instance, while historically Faifi culture revolved around agriculture, modern shifts and trends have seen more Faifi people moving to bigger cities where Faifi does not possess linguistic dominance. Faifi people, especially younger generations who more commonly migrate outside the Faifa mountains, usually accommodate their speech to that of non-Faifi speakers (M. H. Alfaifi 2014), limiting their use of Faifi to Faifi interlocutors and contingent upon the absence of non-Faifi listeners. This phenomenon substantially suppresses the use of Faifi and hinders its natural and free intergenerational transmission. Language attitudes and sociolinguistic designations of language prestige in Saudi Arabia largely limit the use of Faifi to home life. Also important is that Faifi has not only been replaced in many domains by other varieties but has also been extensively influenced by some other varieties of Arabic over time. Faifi has numerous distinct lexical items related to native/primitive domains such as food, water, plants, agriculture, and concepts of the surrounding environment, but the lexical items of some semantic domains, such as religion and science, are dominated by other Arabic varieties, especially SA. Examples include [masʒidin] 'mosque' and [haʒʒin] pilgrimage' as well as [madrasa] 'school' and [kullijja] 'college'. More examples are provided in the discussion of the sound system.

Thus, the minimal usage of Faifi outside its region, as well as sociolinguistic barriers to widespread use outside select domains, are contributing to the endangered status of this variety. Hence, diachronic documentation, which is the aim of the current paper, is severely needed before Faifi becomes a dialect/language with no speakers. In doing so, we adopt the traditional geography-based distinction between Upper and Lower Faifi documented in A. A. Alfaifi and Behnstedt (2010) and Alfaife (2018), whose work examines Lower Faifi, and devote our study exclusively to Upper Faifi. This distinction is conventional among Faifi speakers, who have intuitively perceived this linguistic disparity between the two

[1] Special thanks are due to Professor Diana Archangeli, who has provided us unstintingly with help and support in the form of feedback in a very early phase of this research. We also thank all reviewers for their constructive comments, which we found very useful and considered carefully during the revision process. Any errors are the responsibility of the authors alone

[2] The data obtained for this study were provided by a 35-year-old native informant of Upper Faifi who has an extensive background in linguistics. The informant has also been educated in and speaks SA. We admit that some minor mutual influence between the two varieties he speaks (Faifi and SA) is possible and unavoidable, although the recordings of each variety took place in different sessions with no mingling. Hence, our results are limited to the data we obtained from our informant, and more informants are needed for generalization, which we leave for future research. Recordings were made in a WhisperRoom sound-attenuated booth using an Alesis ML9600 Masterlink CD recorder at a sampling rate of 44 kHz in the Douglass Phonetics Lab at the University of Arizona. Tokens were presented on a printed randomized word list and were read three times each in isolation, one word at a time, to avoid any coarticulation effects from a carrier phrase. These recordings will be fully and freely available via an online data repository for future research. Approximately 201 words for Upper Faifi (603 repetitions) and twenty-five words for SA (seventy-five repetitions) were recorded. In addition, an SA version of the famous story called "The North Wind and The Sun" and a Faifi version thereof (translated into Faifi by the informant) were also recorded (three repetitions for each variety) and analyzed. Note that the two authors of this paper, who played a significant role in verifying the data, are native speakers of Faifi (specifically, Upper Faifi).

[3] Although no previous studies have specifically measured mutual intelligibility between Faifi speakers and other Arabic speakers, we believe, based on our informant's experience and our extensive fieldwork, that mutual intelligibility is low. M. H. Alfaifi (2014) reported that Faifi speakers usually accommodate their speech to that of non-Faifi speakers.

subvarieties, and has been utilized by Faifi researchers in recent works.[4] Upper Faifi is spoken by people who reside primarily in the eastern summits of the mountains as well as the eastern plains of the region and belong to a single main tribe, whereas Lower Faifi is spoken in the western plains of Faifa. This division of Faifi is not only geographically- and tribally- but also linguistically motivated; it is realized in the sound system, syllable structure, and some vocabularies both by native speakers of Faifi and indigenous linguists. Thus, this approach seems the most appropriate for the present study and aligns with the division advocated by A. H. Alfaifi (2022), who suggested that an accurate classification would consider Faifi based on subtribes and the mountain locations they occupy. In other words, the selection of this division is not meant to factor out, or consider erroneous, other divisions suggested by previous authors, such as the triple division (Eastern, Central, and Western), which have been minimally justified by a few phonological and syntactic features (e.g., A. H. J. Alfaifi 2016).

Several documentation studies have been conducted on Faifi, chiefly as master's theses and doctoral dissertations by Faifi linguists (A. A. Alfaifi & Behnstedt 2010; M. H. Alfaifi 2014; A. H. J. Alfaifi 2015; 2016; Alaslani 2017; Alfaife 2018, E. Alfaifi 2020; Davis & A. Alfaifi 2019; 2022; A. H. Alfaifi 2022; A. Alfaifi & Davis 2022, among others). Some of these studies provided general documentation of cultural and linguistic aspects of Faifi (M. H. Alfaifi 2014; Alaslani 2017; Alfaife 2018; E. Alfaifi 2020; A. H. Alfaifi 2022). Other studies have addressed specific aspects of the Faifi grammatical system, such as emphatic fricatives, which uniquely exhibit variation due to diachronic change (A. Alfaifi & Davis 2022); the different functions of the particle prefix /ba-/, which is used as a marker for future tense; demonstrative structure and emphasis (A. H. J. Alfaifi 2015); the historical labiodentalization of [f] in some Faifi varieties (Davis & A. Alfaifi 2019), and the unusual alternation between [st] and [sˤ] in Faifi (Davis & A. Alfaifi 2022).

These studies, however, did not focus on the Upper Faifi system, nor did they examine the acoustic characteristics of Faifi; hence, this paper aims to investigate these understudied facets of this variety. The article proceeds in five sections: a foundational section devoted to presenting and discussing the previous views (and ours) on the genetic affiliation of Faifi (§2) and four main sections documenting the consonantal and vowel systems of Faifi acoustically and the impact of their adjacency and interaction on their acoustics and Faifi prosody (§3–6). These are followed by concluding remarks (§7).

Figure 1. Map of the area in which Faifi is spoken (Source: Google Maps with illustrative modifications by the authors)

[4] This is evident in the fact that Upper Faifi versus Lower Faifi speakers can easily place a Faifi speaker from the way he or she speaks Faifi. In schools located in the middle region, pupils may be observed making fun of one another based on the subvariety (Upper or Lower Faifi) they speak. However, to the best of our knowledge, this observation has not received scholarly attention to date.

2. What is *Faifi*?

There exist two major (and conflicting) classifications of the origin of Faifi: Arabic versus non-Arabic (frequently, South Arabian). A. H. J. Alfaifi (2015) believes, as do we, that Faifi is a branch of Arabic (see Figure 2) as the two languages exhibit a high degree of similarity in phonological and morphological structure. Phonologically (see A. H. Alfaifi 2022 for an overview of Faifi phonology), Faifi and SA demonstrate similar restrictions on syllable structure, syllabification processes (such as epenthesis and syncope), and stress properties (i.e., stress-to-weight). Morphologically, Faifi and SA share a number of features, including similar verb inflections for person, number, and gender. Both languages also possess similar morphosemantic verb patterns consisting of a set of templates into which consonants and vowels are slotted to generate meanings (e.g., CvCvC 'basic verb', CvCCvC 'causative/intensive action', Cv:CvC 'making an effort to achieve x'... , see McCarthy 1979; 1981; 1993; Yip 1988; Ratcliffe 1997; Watson 2002; Holes 2004; Aldholmi 2018; Aldholmi & Pycha 2023).

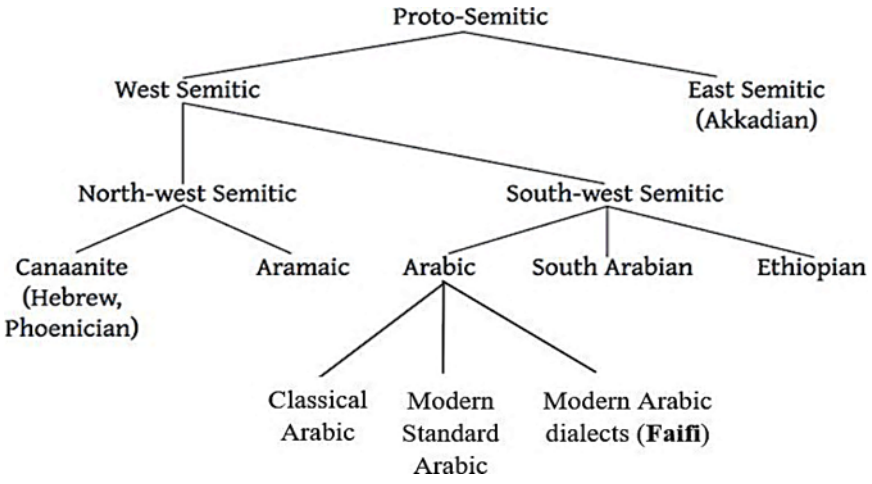

Figure 2. The traditional classification of the Semitic languages (adapted, with amendments to the Arabic branch, from Versteegh 2014). We classified and added Faifi as a descendant of Arabic

In contrast, Alaslani (2017) claimed, with no argumentation except reference to a nonscholarly work, that Faifi is a Himyaritic language, although she admitted the difficulty in deriving an accurate classification. As noted above, Alfaife (2018) provided some arguments for Faifi as a Sabaic variety, such as the unusual prefix definite article /ʔim-/ and the large number of FA lexical items that do not have SA roots. However, the definite article /ʔim-/ is not unique to Faifi and is attested in other surrounding Arabic dialects in southwestern Saudi Arabia and Yemen (Asiri 2009). Although it is possible that /ʔim-/ was historically passed down from Sabaic to these dialects, they are still linguistically treated as branches of Arabic by researchers who work on them, such as Watson (2002) and Asiri (2009), among others. The large number of lexical items in Faifi that do not have SA roots may be perceived as a result of historical contact between Faifi and other South Arabian languages rather than evidence for genetic affiliation. The Faifi morphological system is different from Sabaic[5], as well as from some other non-Arabic varieties that were historically spoken in neighboring areas, as Sabaic inflections for person, number, and gender differ from those of Faifi, while Faifi and SA are almost the same exceptfor the third person singular female (3SGF) marker (see Table 1).

[5] Although Sabaic ceased to be used around the 6th century, it is a relatively well-reconstructed language among the ancient South Arabian languages. According to Stein (2012: 1046), among the Ancient South Arabian branch "by far the most epigraphic material (more than 5500 published inscriptions) is written in Sabaic." Note that Faifi has no native orthography; any written form borrows Arabic script.

Table 1. Verbal suffix conjugation in Faifi, SA, and Sabaic (Stein 2012: 1060)

Per./Num./Gen.		Faifi	SA	Sabaic
Singular:	1.	-t	-t(u)	-k
	2M.	-ta	-ta	-k
	2F.	-ti	-ti	-k
	3M.	-Ø	-Ø	-Ø
	3F.	-an	-at	-t
Plurals:	1.	-na	-na	-n
	2M.	-tim	-tum	-kmu
	2F.	-tinna	-tunna	-kn
	3M.	-u	-u	-u
	3F.	-na	-na	(-y)

A morphological property featured in Arabic – as well as some other Semitic languages such as Hebrew (McCarthy 1981; Arad 2005), Maltese (Camilleri 2014), Tigre (Rose 2003), and other languages – is so-called *patterns* or *templates* (McCarthy 1979; 1981; 1993; Yip 1988; Ratcliffe 1997; Watson 2002; Holes 2004). Faifi and SA share the same template system, whereas Sabaic exhibits a templatic system similar to the South Arabian branch. Historical evidence and reconstruction methods have shown that Sabaic uses six types of templates (shown in Table 2). However, since the Sabaic script expresses only the consonants and omits all short vowels[6], available studies that include Sabaic templates are limited to consonants only. For this reason, in Table 2, we have included two of the living South Arabian languages, Mahri and Harsu:si (in addition to Sabaic), to compare the templates of the Arabic branch (which includes Faifi and SA) and the South Arabian branch (which includes Sabaic, Mahri and Harsu:si). The comparison demonstrates how Faifi templates are similar to those of Arabic and quite different from the template patterns of the South Arabian branch.

[6] Vowels (especially short ones) are not expressed in the alphabetical scripts used in many Semitic languages (Jensen 1970). Even in the present-day orthography of languages such as Arabic and Hebrew, short vowels are mostly omitted in the writing system. In Arabic, for example, words such as [katab] 'he writes' and [kutub] 'books' are represented orthographically the same, ك= *k*, ت= *t*, ب= *b*.

Table 2. A comparison of perfective verb templates of Faifi and SA (Arabic branch) and Mahri, Harsu:si, and Sabaic (South Arabian branch)

	Arabic branch*		**Modern South Arabian (Simeone-Senelle 2012: 1090)**		**Ancient South Arabian (Stein 2012: 1059)**
	Faifi	SA	Mahri	Harsu:si	Sabaic
a.	CaCaC	CaCaC	CəCo:C	CəCo:C	CCC
b.	CaC2C2aC	CaC2C2aC	Ce:CəC	Ce:CəC	CCC
c.	Ca:CaC	Ca:CaC	CəCe:C	CəCe:C	
d.	ʔaCCaC	ʔaCCaC	(a)Co:CəC	(a)Ce:CəC	
e.	t(i)CaC2C2aC	taCaC2C2aC	Ca:/atCəC	CatCəC	tCCC
f.	tiCa:CaC	taCa:CaC	əCtəCo:C	əCtəCo:C	tCCC
g.	ʔiCtaCaC	ʔiCtaCaC	ʃəCCo:C	ʃəCCo:C	stCCC
h.	tiCaCC3aC3	ʔiCCaC3C3	ʃəCe:CəC	ʃəCeCəC	
i.	(ʔi)staCCaC	(ʔi)staCCaC	(ə)nCe:CəC	(ə)nCe:CəC	
j.		ʔinCaCaC	(ə)nCəCCo:C	(ə)nCəCCo:C	
k.			(hə)CCo:C	(a)CCo:C	hCCC

*Note that Faifi and SA share the same templates except for two, (h and j). First, regarding the templates in (h): Although they differ in shape between Faifi and SA, they share semantic implications. The templates are closed class and limited to C-roots that denote colors in both languages. For example, the C-roots of [ʔaḥma**r**] 'red' and [ʔa**swad**] 'black' can be used in these templates to denote verbs as follows: (1) The template in Faifi is /tiCaCC3aC3/, hence [tiha**mra**r] 'turned red/blushed', [ti**sawda**d] 'turned black/burnt'; (2) the template in SA is /ʔiCCaC3C3-/, hence [ʔiḥma**rr**-] and [ʔi**swadd**-] for 'turned red/blushed' and 'turned black/burnt', respectively. Second, regarding the template in (j), it denotes the so-called middle voice in SA (action without a direct/implied causative agent) but not in Faifi. For example, in SA [ʔin***q*****a*****t*****ˤ**aʃ alḥabl] 'the rope was cut (by itself)', *[*ʔin***f*****a*****t*****ˤ**aḥ alba:b] 'the door opened'. In Faifi, the semantic of middle voice is donated by template (2g), for example, ʔiCtaCaC [ʔi***q*****ta*****t*****ˤ**aʃ ʔimḥabl] 'the rope was cut', *[*ʔi***f*****ta*****t*****ˤ**aḥ ʔimba:b] 'the door opened'.

Hence, Sabaic and Faifi do not seem to be directly related. Sabaic belongs to the South Arabian branch (Stein 2012), which consists of two major (albeit not closely related; see Huehnergard & Rubin 2012) branches: Modern South Arabian (Mahri, Soqotri, Hobyot, Harsusi, and Jibbali) and Ancient South Arabian (Sabaic, Qatabanic, Minaic, and Ḥaḍramitic). Much of the confusion about Faifi and Sabaic belonging to the same branch derives from the fact that Ancient South Arabian languages (including Sabaic) were spoken and written in southwestern Arabia, the region where Faifi speakers dwell, from at least the early 1st millennium BCE (see Stein 2012). However, the linguistic system of Faifi clearly supports Arabic ancestry and rules out the classification of Faifi with Sabaic.

3. Consonantal system of Upper Faifi

There are twenty-eight consonant phonemes in Upper Faifi (see Figure 3). Most studies have not distinguished between Lower and Upper Faifi, and those that have described the phonological inventory of Faifi *de facto* only described a subvariety of Faifi. Table 3 below illustrates examples of every consonant phoneme word-initially preceding the vowel /a/. Closed-syllable words are on the left, and open-syllable words are on the right. We elicited our phonemes in tokens between CaCV and CaCCV wherein the target consonant occurs word-initially and is followed by /a/ to situate all phonemes within the same environments, that is, /#_a.C/ and /#_aC/. Note that, unlike the case in Lower Faifi, where the 3MSG suffix has been documented as a schwa (Alfaife 2018), the suffix is a full-fledged vowel /-a/ in Upper Faifi. However, this suffix can elide in the perfective verb form, especially in isolated words or at the end of the sentence, which is a matter for future syntactic investigations. Data in the present study contain instances where that suffix is present and instances where it is dropped.

Table 3. Consonantal system of Upper Faifi

Consonant	Form	Gloss[c]	Form	Gloss
b	bad.la	sport.clothing	ba.na	1SG.will
t	tam.rim	date.PL	taː.la	that.F
d	daħ.ħa	3MSG.hit\PFV	dɑː.ra	round.house
k	kaf.la	3MSG.ensure\PFV	ka.sa.fən	3FSG.eclipse\PFV
g	gal.la	3MSG.shrink\PFV	ga.ħam	3FSG.age\PFV
ʔ	ʔax.riʒ	1SG.go.out\IMPV	ʔa.ta	3MSG.come\PFV
tˤ	tˤaf.fa	3MSG.jump\PFV	tˤa.riː.ge	road
f	far.sin	plowing.fields	fa.taħ	3MSG.open\PFV
θ	θam.ma	there	θa.ma.nin	price
ð	ðaħ.lin	rusty	ðaː.la	that.M
s	sam.ma.ma	3MSG.poison\PFV	sa.na	year
s͡t	s͡tag.din	truth	s͡ta.fa.ga	3MSG.run.into\PFV
z	zar.ra	3MSG.zip\PFV	za.ha.fa	3MSG.steal\PFV
ʃ	ʃan.tˤa	luggage	ʃa.ra	3MSG.buy\PFV
d͡ʒ	d͡ʒal.la	3MSG.trim\PFV	d͡ʒa.ra	3MSG.run\PFV
x	xal.gin	group.of.people	xa.rad͡ʒ	3MSG.go.out\PFV
ɣ	ɣaʃ.rin	distracted.M	ɣa.fa	3MSG.take.a.nap\PFV
ħ	ħaʃ.rin	heavy.rain	ħa.fa.ʃa	3MSG.fall.down\PFV
ʕ	ʕas.min	forcibly	ʕa.gar	3MSG.fight\PFV
h	har.ra	3MSG.demolish\PFV	ha.ba	3MSG.give.someone\PFV
t͡ʃ	t͡ʃah.la	old.lady	t͡ʃ a.fa	3MSG.fill.in.for\PFV
ðˤ	ðˤar.fin	envelope	ðˤa..ʕiː.fin	3MSG.poor/slim
r	rat͡ʃ.ba	3MSG.ride\PFV	ɾa.d͡ʒam	3MSG.throw\PFV
m	mas.sa	early	ma.na	1SG.will.not
n	nax.rid͡ʒ	1PL.go.out\FUT	na.ʃar	3MSG.go.out .at.night\PFV
l	laz.ma	3MSG.catch\PFV	la.na	for-us
w	waʃ.ja	3MSG.catch.on.fire\PFV	wa.na	and-I
j	jan.ʃir	3MSG.go.out.at.night/IMPV	jaː.na	where

* All words in Faifi and SA listed in Tables 3–16 can be accessed at https://doi.org/10.6084/m9.figshare.28204292.v2 (Aldholmi 2025). [7]
**Backslash "\" represents ablaut.

[7] Had you encountered any difficulty accessing the files, please contact the corresponding auther.

	Bilabial		Labio-dental		Inter-dental		Alveolar		Post-alveolar		Palatal		Velar		Pharyngeal		Glottal	
Plain Plosives		b					t	d					k	g			ʔ	
Emphatic Plosives							tˤ											
Affricates							t͡s		d͡ʒ	t͡ʃ								
Nasals		m						n										
Tap/Flap								ɾ										
Plain Fricatives			f		θ	ð	s	z		ʃ			x	ɣ	ħ	ʕ	h	
Emphatic Fricatives					(θˤ)	ðˤ	(sˤ)											
Lateral-Approximants								l										
Central-Approximants		w										j						

Figure 3. Upper Faifi consonants. Note that types of alternation and free variation occur between [s͡t]~[sˤ], and [k]~[t͡ʃ]

3.1 Plosives

Upper Faifi has the following plosives: /b, t, d, k, g, ʔ/. Voiceless plosives are aspirated in word-initial and medial positions (see Figure 4), and voiced plosives are slightly aspirated in word-initial and medial positions (see Figure 5).

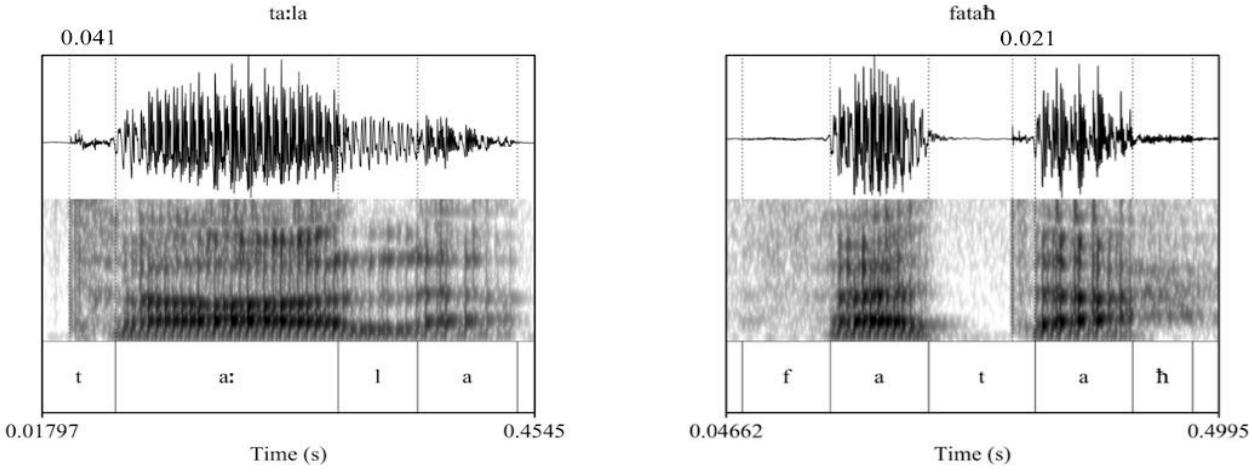

Figure 4. Spectrogram illustrating VOT of /t/ word-initially and medially. The word-initial /t/ in [ta:.la] 'that.F' with VOT of 0.041 ms (left). The word word-medial /t/ in [fa.taħ] '3MSG.open\PFV' with VOT of 0.021 ms (right)

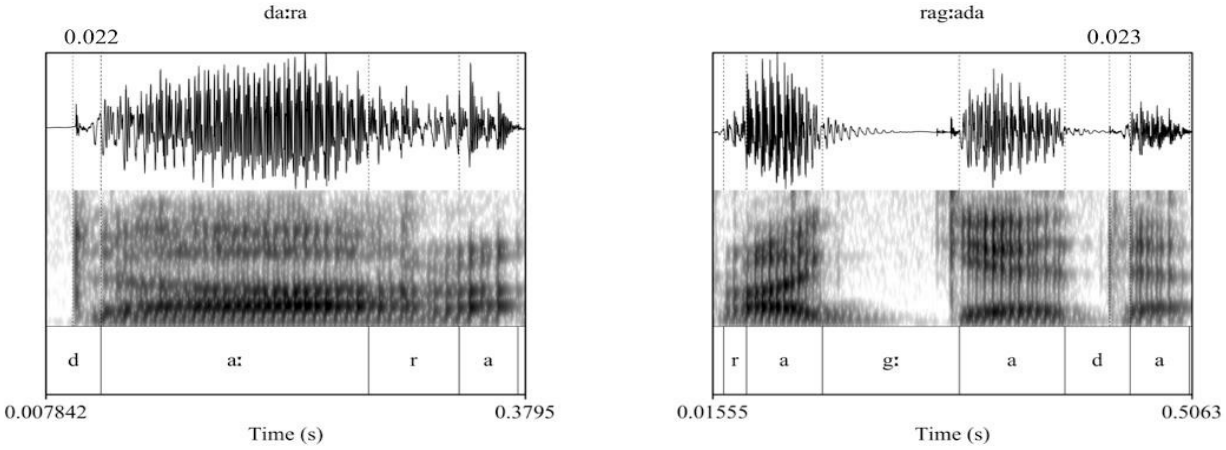

Figure 5. Spectrogram illustrating VOT of /d/ word-initially and medially. The word-initial /d/ in /da:ra/ 'round.house' with VOT of 0.022 ms (left). The word-medial /d/ in /rag:ada/ '3MSG.make.someone.sleep\PFV' with VOT of 0.023 ms (right)

In these examples, the voice onset time (VOT) of /t/ in [ta:la] 'that.F' is markedly longer than the VOT of /d/ in [da:ra] 'round.house.' The VOT /t/ in [fa.taħ] '3MSG.open\PFV' is comparable to the VOT of /d/ in /rag:ada/ '3MSG.make.someone.sleep\PFV.' This phenomenon was observed when comparing the VOT of /t/ and /d/ across other tokens. Table 4 gives the average VOT of /t/ and /d/ in word-initial and word-medial positions. As mentioned earlier, it is not unlikely that the production of a certain segment in one variety is subject to be influenced by the production in the other variety since the speaker of both is the same.

Table 4. Comparison of average VOT of /T/ and /D/ in word-initial and word-medial positions

	/t/	/d/
Word-initial	0.035ms (n = 9)	0.020ms (n = 5)
Word-medial	0.029ms (n = 7)	0.014ms (n = 7)

A similar pattern has been observed in SA (Alotaibi & AlDahri 2012). In SA, however, the VOT of /t/ and /d/ were found to be 0.064 ms and 0.023 ms on average, respectively. Moreover, in Lebanese Arabic, another variety of Arabic, voiceless plosives are unaspirated (Yeni-Komshian et al. 1997; Khattab 2000; Al-Tamimi & Khattab 2018).

3.2 Affricates

There are three affricates in Upper Faifi: the voiceless alveolar reverse affricate /s͡t/ (cf. Davis & A. Alfaifi 2022 for alternative discussion about the classification and properties of this sound; see E. Alfaifi 2020 for ultrasound images of this sound), the voiced post-alveolar affricate /d͡ʒ/, and the voiceless post-alveolar affricate /t͡ʃ/. In general, affricates may occur anywhere in the word. The affricates require special commentary since they exhibit a wide range of free variation with other sounds, especially regarding words with SA cognates. The remainder of this section expands on this variation.

The Upper Faifi phoneme /s͡t/ is a complex segment composed of a plain (nonemphatic) voiceless alveolar fricative [s] and a voiceless alveolar stop [t]. The sound starts by channeling airflow along the body of the tongue, funneling the air from the back to the alveolar ridge, with the airflow being entirely obstructed at the point where the tip of the tongue touches the alveolar ridge. This phoneme often corresponds to the emphatic /sˤ/ in SA. However, the emphatic

/sˤ/ occurs in some SA loan words in Upper Faifi, for example, [fasˤil] 'classroom' and [maba:sˤir] 'glasses'. Sometimes a Faifi word containing /s͡t/ coexists with a cognate SA loan in which /sˤ/ replaces /s͡t/, as in [basˤal/bas͡tal] 'onions' and [gasˤi:r/gas͡ti:r] 'short'. In these cases, the choice between /s͡t/ and /sˤ/ is free[8]. Table 5 provides further examples of words that can only be pronounced with /s͡t/ and /sˤ/ and words that can be pronounced with either.

Table 5. /s͡t/ and /sˤ/ in Upper Faifi

/s͡t/ only		**/sˤ/ only**		**Free variation***		
Faifi word	Gloss	SA loan word	Gloss	Faifi word	SA loan word	Gloss
a) s͡tir.fa	rack	d) sˤu:.ra	picture	g) s͡tal.la:	sˤal.la:	prayer
b) s͡ta.war	noise	e) sˤa.da.ga	charity	h) s͡ta.wm	sˤa.wm	fasting
c) s͡taf.ga	hit	f) sˤa:.ru:x	missile	i) s͡ta.bir	sˤa.bir	patience

*In the sound files, SA variants are included. SA variants are indicated with a capital A at the end of the file name. For example, a sound file named (#-prayer_A.wav) indicates that this is the SA pronunciation, while a sound file named (#-prayer.wav) indicates that this is the Upper Faifi pronunciation of the word.

Comparative data (see Table 6) shows that the proto-Semitic emphatic /sˤ/ (Kogan 2012) has developed differently in Upper Faifi to become the nonemphatic singleton consonant /s͡t/. As illustrated in Table 6, Hebrew exhibits a similar development of the proto-Semitic emphatic /sˤ/. The voiceless alveolar affricate in Hebrew, represented by the letter tzadik צ, further resembles the nonemphatic /s͡t/ in Upper Faifi in that the proto-Semitic /*sˤ/ has developed historically to be a sequence of /t/ and /s/ in Hebrew (hence, Hebrew /t͡s/), which also acts like a single segment (Laufer & Baer 1988; Kreitman 2008; Schwarzwald 2012). A. A. Alfaifi and Behnstedt (2010) have further mentioned that /s͡t/ in Faifi is a single phoneme rather than two sounds in sequence and explained its connection both to Classical Arabic /sˤ/ and as a metathesized version of the proto-Semitic glottalized affricate *cˀ ([ts]). However, they did not offer clear arguments regarding the monophonemic status of /s͡t/ and merely listed examples of words that contain this sound in Faifi and other dialects of Arabic. Davis and A. Alfaifi (2022) argued against this view, proposing instead that /s͡t/ in Faifi has a bisegmental character based on evidence from how this sound behaves in the language. They offered evidence of different environments in which the sound /s͡t/ behaves as a bisegmental phoneme, including its occurrence in word-initial CC clusters, its occurrence in intervocalic position (where it syllabifies as heterosyllabic), its resistance to gemination, and its alternation with /sˤ/ within a paradigm. They proposed origins as a South Arabian ejective or glottalized fricative. We favor the view that /s͡t/ is monophonic mainly because actual sequences of adjacent /s/ and /t/ (i.e., two underlying phonemes) do not appear in clusters in Upper Faifi. In the word's initial environment, the sequence /ʔi-/ is regularly epenthesized before initial clusters so that adjacent /s/ and /t/ can correctly syllabify, for example, /s.ta.ga:.ma/ becomes [ʔis.ta.ga:.ma] 'he stood'. In the medial environment, clusters of actual sequences of adjacent /s/ and /t/ do not occur, for example, [mis.tag.ba.lin] 'future'. In the final environment, the two phonemes /st/ can be in the word's final position only when the '1SG' suffix /-t/ follows a verb ending in /s/, for example, [la.bis-t] 'I wore'. The singleton /s͡t/, in contrast, appears in all environments without morphological restrictions, as in [s͡ta.la:h] 'prayer', [gab.s͡ti.ya] 'pinch', [ru.fas͡t] 'stairs'. However, further investigation is required regarding this sound across Faifi varieties.

[8] Note that in Upper Faifi, the indefinite marker suffix /-in/ is attached to masculine nouns and adjectives. In free variation cases, the free variation is predictably blocked by the suffix /-in/, and only the variant with /s͡t/ is allowed. This complex phenomenon is detailed in E. Alfaifi's (2020) work.

Table 6. Correspondences of SA /sˤ/, Faifi /s͡t/ and Hebrew /t͡s/

Gloss	SA	Faifi	Hebrew
fasting	sˤawm	s͡tawm	t͡saum
a finger	ʔisˤbaʕ	ʔis͡tbaʕ-in	ʔit͡sba
right/truth	sˤidq	s͡tagd-in	t͡sidik
paint	sˤabɣ	s͡tabɣ-in	t͡saba
a hunt	sˤajd	s͡tajda	t͡siid

The so-called "reverse/metathesized affricates" (also referred to as suffricates; Iverson & Salmons 1999) are found in some languages, such as German (Wiese 2000), and are usually labeled as pre-aspirates. However, Silverman (2003) argued that reverse affricates are different from pre-aspirates since languages such as Fox (an Algonquian language) possess a series of reverse affricates (e.g., /f͡p/, /s͡t/, and /ç͡c/), which are not pre-aspirates as is often thought. A similar phenomenon to /s͡t/ and /sˤ/ variation occurs with /t͡ʃ/. Faifi words containing /t͡ʃ/ sometimes coexist with cognate SA loan words in which /k/ occurs instead of /t͡ʃ/, for example, [t͡ʃahla/kahl] 'elderly', [ra:t͡ʃib/ra:kib] 'rider.3SGM', and [t͡ʃa:n/ka:n] 'was.3SGM'. In this case, the two phonemes exist in free variation. Other times, Faifi words containing /t͡ʃ/ have no cognate SA loan words, or SA loan words containing /k/ exist in Faifi without a Faifi cognate. Table 7 provides additional examples of words that can only be pronounced with /t͡ʃ/ or /k/ and words that can be pronounced with either.

Table 7. /t͡ʃ/ and /k/ in Upper Faifi

/t͡ʃ/ only		/K/ only		Free variation		
Faifi word	Gloss	SA loan word	Gloss	Faifi word	SA loan word	Gloss
t͡ʃiħ.ba	chest	ki.ta:b	book	t͡ʃalb	kalb	dog
t͡ʃa.na.nin	cover.from.rain	ka.ram	generosity	rut͡ʃ.ba	ruk.ba	knee
t͡ʃa.da.rin	coarse	mak.tab	desk	ra.t͡ʃib	ra.kib	Ride

The post-alveolar voiced /d͡ʒ/ has the allophones [dz] and [ts] (see examples in Table 8). [d͡ʒ] and [t͡s] occur in onsets and codas, respectively, when/dʒ/ assimilates to [dz] after /z/.

Table 8. Allophones of /d͡ʒ/

Position	Broad	Narrow	Gloss
Onset	/d͡ʒara/	['d͡ʒa.ra]	3MSG.zip
Coda	/ʔaxrid͡ʒ/	['ʔax.rɪt͡s]	I got out
Before /z/	/ʕad͡ʒz-an/	['ʕædz-ɛn]	3FSG.give.up\PFV

3.3 Fricatives

Upper Faifi has twelve fricatives which, in terms of articulatory space, span most places of articulation in the vocal tract, starting from the lips and ending at the glottis. These fricatives show a seven-way contrast in places of articulation: labiodental /f/, interdental /θ, ð, ðˤ/, alveolar /s, z/, postalveolar /ʃ/, velar /x, ɣ/, pharyngeal /ħ, ʕ/, and glottal /h/ (see A. H. Alfaifi 2022). The fricatives /ð, z, ɣ, ʕ, ðˤ/ are voiced, while the remaining fricatives are voiceless. Upper Faifi has two emphatic consonant phonemes /tˤ/ and /ðˤ/. The phoneme /sˤ/ also occurs in the dialect, but only in recent SA loan words such as [sˤu:ra] 'picture', [fasˤil] 'classroom' and [sˤa:ru:x] 'missile' (see the discussion of /s͡t/ in §3.2). Acoustically, emphatics are distinguished from plains by the former's markedly lower VOT (see the example of /t-tˤ/ in Figure 6). A similar distinction based on VOT is also found in SA (Alotaibi & AlDahri 2012) and in Tashlhiyt Berber, an Afro-Asiatic language of North Africa (Ridouane 2014). Additionally, the emphatic voiceless fricative /θˤ/ is found in a few words, such as [θˤul.ma] 'dark', [θˤa.ma:.jin] 'thirst', [ʕan.θˤa.ba] 'swelled', and [faθˤ.θˤa] '3MSG.snatch\PFV'. Although more data collection is needed, the emphatic /θˤ/ does not seem to be a separate phoneme in Upper Faifi; a preliminary analysis indicates that /ðˤ/ has undergone a devoicing process, yielding a voiceless allophone [θˤ].

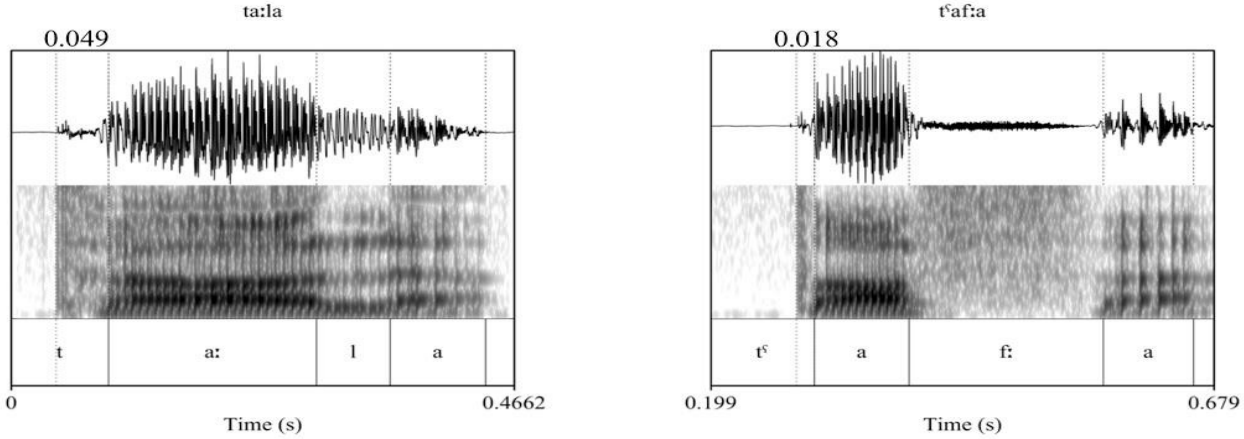

Figure 6. Spectrogram illustrating VOT of /t/ and /tˤ/. The nonemphatic /t/ in /ta:la/ with VOT of 0.049 ms (left). The emphatic /tˤ/ in /tˤaffa/ with VOT of 0.018 ms (right)

3.4 Nasals

The two nasal phonemes in Upper Faifi are the bilabial /m/ and alveolar /n/. The preposition-final /n/ in [min] 'from' always assimilates in place to word-initial /m/ when the two words are constructed as a single phonological word. This assimilation occurs only in the preposition [min] because it is the only prefix in Upper Faifi that ends with /n/ and forms a phonological word with the following lexical item. For example, assimilation occurs when [min] is prefixed to words such as [ma.ta] 'when', [mu:.tˤa] 'below' and [mux.ra] 'other', which become [mim.ma.ta] 'from when', [mim.mu:.tˤa] 'from below' and [mim.mux.ra] 'from other', respectively. This phenomenon is not restricted to Faifi and has been observed and documented in numerous languages worldwide (see, e.g., Anderson 1976).

3.5 Approximants

There are four approximants in Upper Faifi: lateral /l/, central /w j/, and trill /r/. The latter can be distinguished by their primary place of articulation: bilabial /w/ and palatal /j/. The lateral /l/ in Upper Faifi has an allophonic emphatic /lˤ/, which is found in a few words, such as [ʔalˤ:a] 'God' and [halˤa] 'over there' or wherever /l/ occurs concurrently with an emphatic, such as [xallˤatˤ] 'screw up" and [θˤulma] 'darkness'. The trill /r/ is a alvelolar trill sound that is similar to other dialects of Arabic.

3.6 Contrastive length of consonants (geminacy)

Geminates occur in Upper Faifi for all consonants except for the glottal stop. Figure 7 illustrates single /g/ and geminate /g:/ in the words /ra.ga.da/ '3MSG.sleep\PFV' and /rag.ga.da/ '3MSG.make.someone.sleep\PFV.'

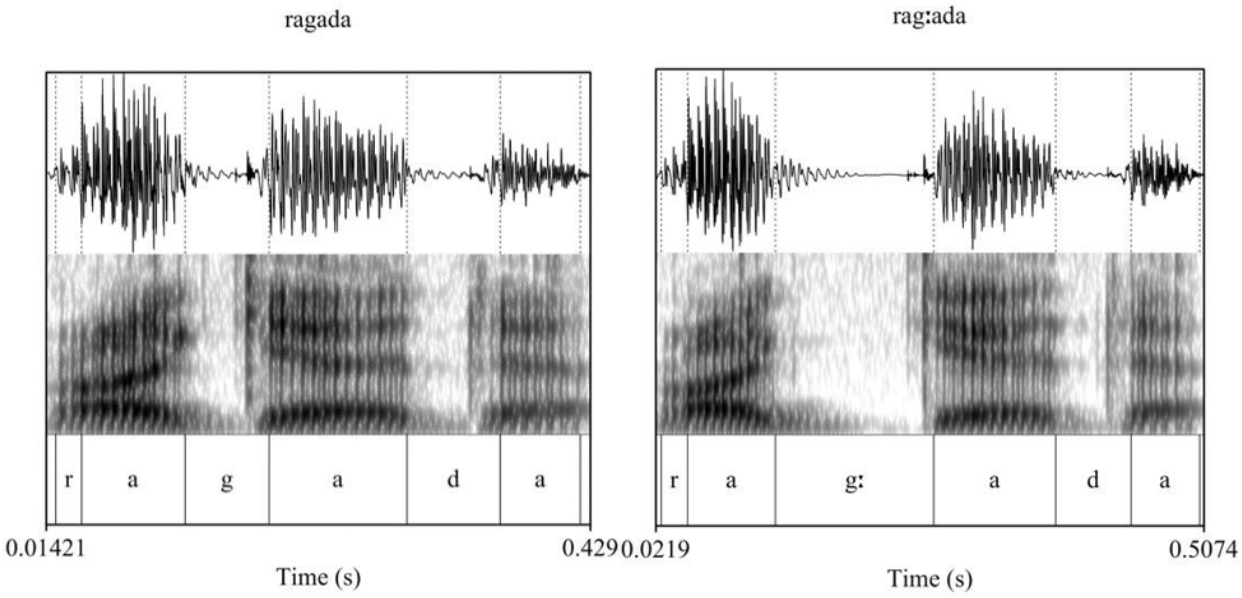

Figure 7. Spectrogram illustrating singleton nongeminate /g/ and geminate /g:/. The non- geminate /g/ (left) in (/ragada/ '3MSG.sleep\PFV') shows length of /g/: 0.064 ms. The geminate /g:/ (right) in (rag.ga.da '3MSG.make.someone.sleep\PFV shows length of /g:/:0.140 ms.

According to Alfaife (2018), gemination in Lower Faifi predictably occurs in biliteral and triliteral roots, and it occurs in both the causative and the reflexive of the causative, as in [ðahhana] 'caused to awake', [tiʕatˤtˤafa] 'it got mashed', respectively. This is true in Upper Faifi as well. In Upper Faifi, the second consonant of biliteral C-root words must always be geminated, as shown in Table 9. In triliteral C-root words, gemination occurs word medially, as shown in Table 10, but the semantic meaning of geminates differs from verbs to nouns. In verbs, medial gemination denotes causative meaning (10 a–c) and sometimes intensification of the action (10 d–f). In nouns, it often denotes an instrument (10 g–i).

Table 9. Upper Faifi geminates in biliteral C-roots

Biliteral C-root	Gloss	Biliteral C-root	Gloss
ʕab.ba	3MSG.fill\PFV	laf.fa	3MSG.turn\PFV
matˤ.tˤa	3MSG.stretch\PFV	fat.ta	3MSG.press\PFV

In Upper Faifi, biliteral C-roots can also be nominalized to denote instruments, but it is a less productive morphological process than that for triliteral C-roots. However, nominalized biliteral C-roots involve duplication of the second geminate consonant /C1VC2C2-/ □ [C1VC2C2V:C2-]. Compare, for example, [ʕadda] '3MSG.count\PFV' to [ʕadda:din] 'electric meter (lit. counting tool)'; and [hazza] '3MSG.shake\PFV' [hazza:zin] 'electric digger (lit. shaking tool)' and [matˤtˤa] '3MSG.stretch\PFV' [matˤtˤa:tˤin] 'rubber band'.

Table 10. Upper Faifi geminates in triliteral roots

	Non-geminate	Gloss	Geminate	Gloss
a.	ga.ʕa.da	3MSG.sit\PFV	gaʕ.ʕa.da	3MSG.cause.to.sit\PFV
b.	ra.ga.da	3MSG.sleep\PFV	rag.ga.da	3MSG.cause.to.sleep\PFV
c.	na.fa.ra	3MSG.fly\PFV	naf.fa.ra	3MSG.cause.to.fly\PFV
d.	gatˁafa	3MSG.harvest\PFV	gatˁtˁafa	3MSG.intensely.harvest\PFV
e.	ʕagara	3MSG.beat\PFV	ʕaggara	3MSG.intensely.beat\PFV
f.	fataħa	3MSG.open\PFV	fattaħa	3MSG.intensely.open\PFV
g.	ɣasala	3MSG.wash\PFV	ɣassaːla	washing machine
h.	ʕasˁara	3MSG.blend\PFV	ʕasˁsˁaːra	blender
i.	gatˁaʕa	3MSG.cut\PFV	gatˁtˁaːʕa	cutting board

4. Vowel system of Upper Faifi

There are seven phonemic vowels (monophthongs) in Upper Faifi: /i-iː, u-uː, a-aː, æ/ (see Figure 8a). The F1/F2 distribution of these vowels is illustrated in Figure 8b, which includes measurements for the 197 vowels in our recordings of the token word list.

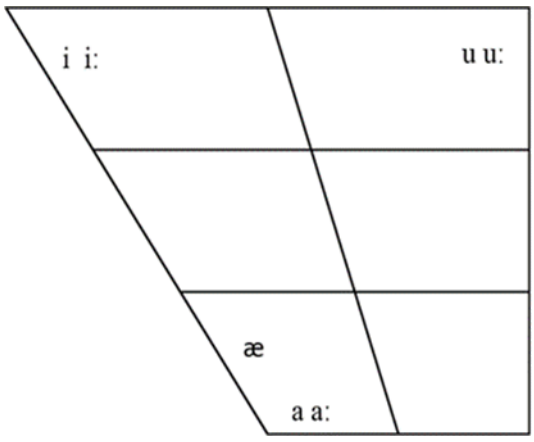

Figure 8a. Upper Faifi vowels

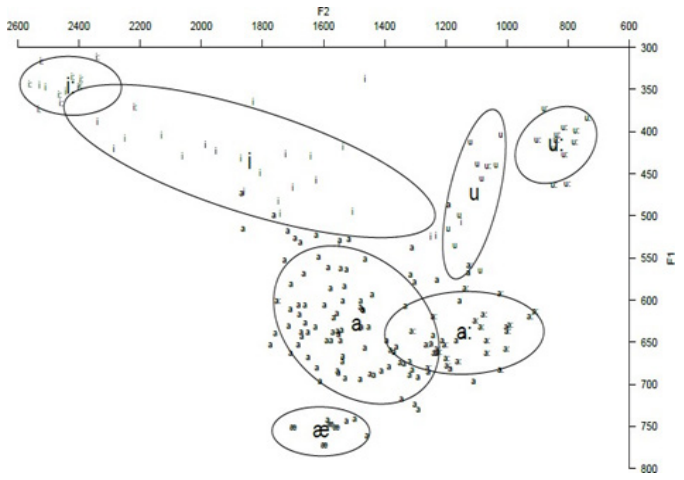

Figure 8b. Bark chart of Upper Faifi vowels. Measurements reflect average F1 and F2 across the second and third portions of each vowel token. The mean F1/F2 for each vowel appears in a larger font. Ellipses represent 68% confidence intervals

Upper Faifi has four high vowels /i-iː, u-uː/ and three low vowels /a-aː, æ/. Three of those vowels are front /i-iː, æ/, and four are back /u-uː, a-aː/. The two high back vowels /u-uː/ are rounded. At the surface level, both long and short vowels are observed. All words in Upper Faifi are consonant-initial, and there are no restrictions on the distribution of vowels within words, except in the case of certain syllables with the vowel /u/ (see the syllable structure in §6). Notably, Alfaife (2018) reported that the vowel /æ/ only occurs in five Upper Faifi words (see Table 11).

Table 11. Upper Faifi words with /æ/

Form	Gloss	Form	Gloss
bæ.ʕa	3MSG.sell\PVF	ʕæ.la	3MSG.disappear\PFV
ba.hæ	Indeed, she	ʔa.hæ	her
gæ.la	3MSG.return.in.the.morning\PFV		

Special commentary is required in the case of /i/ due to its wide-ranging variability, as observed in Figure 8b. The vowel /i/ exhibits considerable variability in F2 frequency, which we attribute to two factors. First, based on comparative evidence from SA (Table 12), there appears to have been a major historical shift from /u/ to /i/ in Upper Faifi, in which short /u/ is restricted to environments in which it follows the consonants /l, r, m, n/. The long vowel /uː/, however, has not undergone this shift and can occur following any consonant. A second factor contributing to the variable F2 distribution of /i/ is the frequency with which this vowel occurs in Upper Faifi due to its multiple functions in the variety. In addition to being an underlying vowel phoneme, /i/ is the default epenthetic vowel in this variety, and it also expresses the passive voice. Our tokens of the vowel /i/ include lexical /i/, epenthesized /i/, and historical shift /i/. Upon initial investigation, the factors described above do not appear to account for the variable F2 frequency observed in Figure 8b (see Figure 9). Given our limited data set, however, the variable F2 frequency of the Upper Faifi vowel /i/ warrants future investigation.

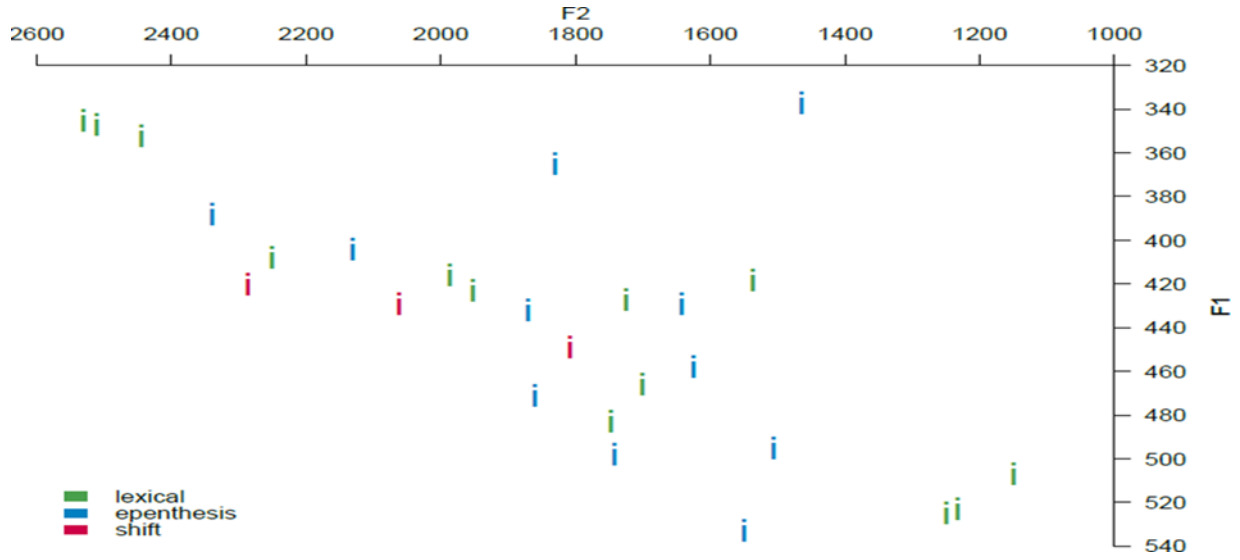

Figure 9. F2 frequency of different types of the vowel /i/. The green color indicates lexical /i/, as in [sita:ra] 'curtain'; the blue color indicates epenthetic /i/, as in [farsin] 'plowing fields'; and the red color indicates historical shift /i/, as in [mitna] '1PL.dying'

The vowel inventories of Upper and Lower Faifi differ in several respects. For the lower dialect, Alfaife (2018) proposed a six-vowel inventory comprising the phonemes /i, i:, u, e, a, a:/. Compared to that of Upper Faifi, the Lower Faifi inventory includes the vowel /e/ and excludes both the vowel /æ/ and a length distinction for the high back vowel /u/. In Upper Faifi, the minimal pair [ruħ] and [ru:ħ] (see Table 12 below) provide evidence for including both the short and long high-back vowels in the phoneme inventory of this dialect.

Table 12. Comparative list of /u/ versus /i/ in SA and Upper Faifi

	Gloss	SA	Upper Faifi
a. /u/	books	kutub	kitbin
	poison	summ	simmin
	here	huna	hini:
	mother	ʔumm	ʔimmin
b. /u:/	a stick	ʕu:d	ʕu:din
	worm	du:dah	du:da
	thunders	ruʕu:d	ruʕu:din
	backs	ðˤuhu:r	θihu:rin

4.1 Contrastive length of vowels

Similar to most Arabic varieties (Watson 2002; Aldholmi 2022, 2024), Upper Faifi vowels contrast in length. Cross-linguistically, almost all languages with contrastive vowel length are treated as having two degrees of length: short and long. Catford (1977) reports that in languages in which length is contrastive, long vowels are 1.5 to 4 times longer than

their corresponding short vowels. Acoustically, the Upper Faifi vowel length contrast is exhibited by differences in duration. Based on our 197 vowel tokens, long vowels in Upper Faifi have significantly longer durations than short vowels, with the average long vowel duration being approximately 2.1 times that of short vowels ($t[138.8] = 9.27$, $p < 0.05$)[9]. Short /a/ vowels are longer than short /i/ and /u/ vowels, but not significantly so (see Figure 10).

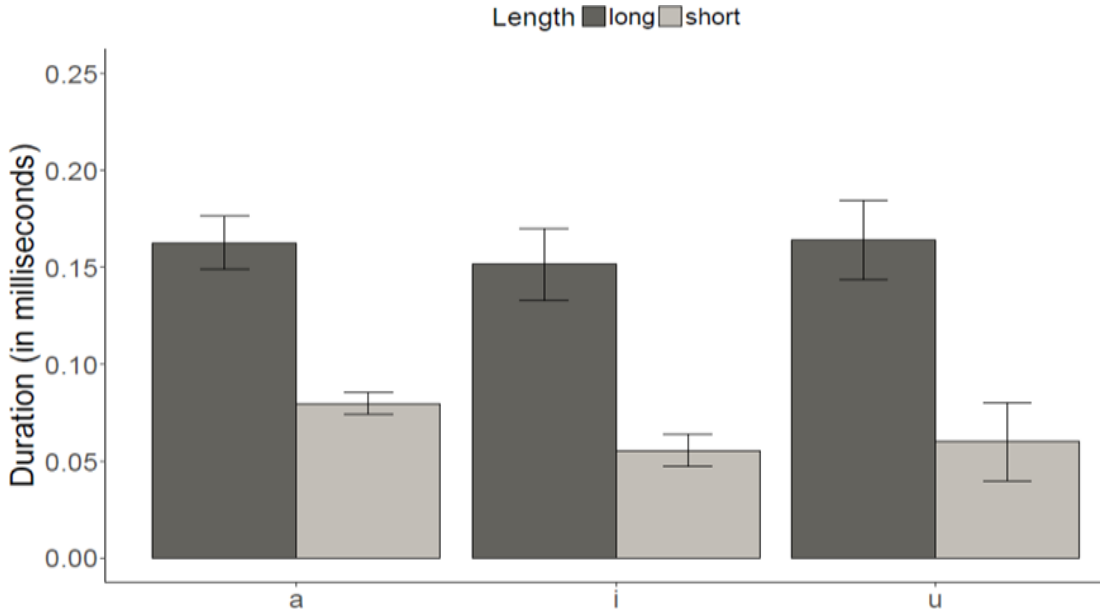

Figure 10. Upper Faifi vowel duration. Error bars represent 95% confidence intervals

As is common in some Semitic languages (McCarthy 1981), vowel length in Upper Faifi can be either lexical or morphological, as length sometimes denotes morphological derivation (see Table 13).

Table 13. Examples of lexical and morphological vowel length in Upper Faifi

Lexical vowel length		**Morphological vowel length**	
Form	Gloss	Form	Gloss
dara	3MSG.know\PFV	fa.ra.ʕa	3SGM.arbitrate\PVF
da:ra	round house	fa:.ra.ʕa	3SGM.involve.in.arbitration\PVF
ruħ	2MSG.ruturn/IPFV	radʒama	3SGM.throw\PVF
ru:ħ	companions	ra:.dʒa.ma	3SGM.involve.in.throwing\PFV

5. Consonant-vowel interaction

As in any other language, the acoustic characteristics of both consonants and vowels in Upper Faifi are influenced by consonant-vowel adjacency and interaction. We document the main facets thereof in this section.

[9] Since the utterances were produced by the same speaker, we chose to perform a dependent t-test to examine the difference between the means of each pair (e.g., short vs. long vowels).

The influence of emphatic consonants on adjacent vowels is common in other Semitic languages, including Arabic dialects (Jongman et al. 2011). For our 197 Upper Faifi vowel tokens, the /a, a:, i, u:/ vowels following emphatic consonants have lower F2 measurements than vowels following nonemphatic consonants (see Figure 11). This effect is significant for /a/ (t[10.58] = -8.63, $p < 0.05$) and /a:/ (t[21.12] = -4.08, $p < 0.05$) but is not significant for /i/ or /u:/. The F2 of Upper Faifi vowels is also influenced by a following coda consonant (i.e., in closed syllables). For our 197 vowel tokens, the /a, a:, i/ vowels in closed syllables have lower F2 measurements than vowels in open syllables (see Figure 12), though the effect is not significant for any of these vowels. It could be that the effects of both emphatic and neighboring vowel environments would be more profound, given a larger vowel sample size.

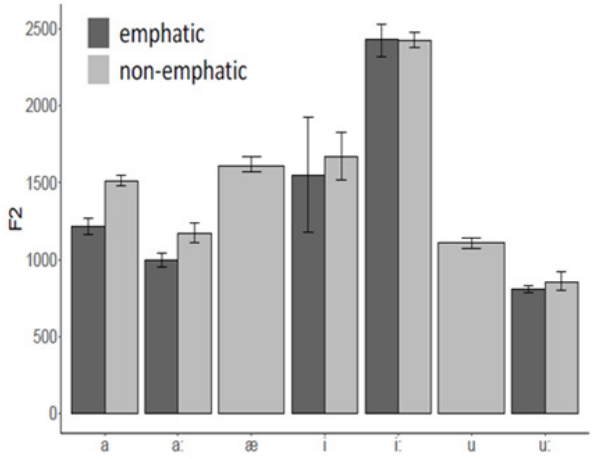

Figure 11. Mean F2 measurements of vowels in post-emphatic-consonant and post-nonemphatic-consonant environments (error bars represent 95% confidence intervals)

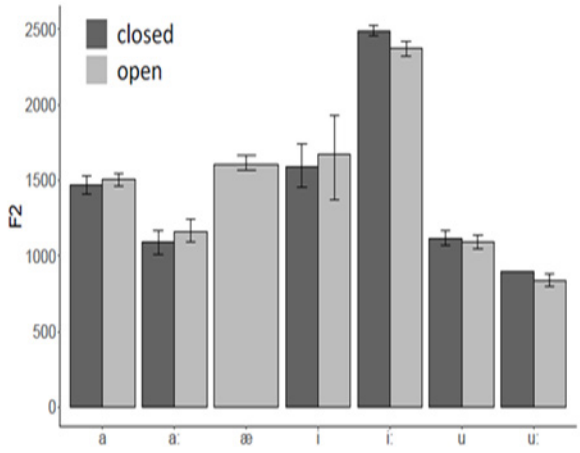

Figure 12. Mean F2 measurements of vowels in open and closed syllables (error bars represent 95% confidence intervals)

An epenthetic vowel /i/ is inserted when a consonant does not fit into a well-formed syllable. For example, the word /t͡ʃillma/ 'every.time' is pronounced [t͡ʃil:.i.ma] (see Figure 13 below).[10] This is because the syllabification of a geminate in the underlying form would produce *[t͡ʃil.lma] or *[t͡ʃill.ma], with the syllable types CCV and CVCC, the former of which is not allowed in Upper Faifi due to the complex onset and the latter due to the word-medial complex coda (§6.1 includes further details on the syllable structure). To prevent this structure and produce permissible syllable types, an epenthetic vowel is inserted. The list in Table 14 offers additional examples of the epenthetic vowel /i/ in Upper Faifi.

Table 14. Epenthetic vowel examples in Upper Faifi

Underlying	Surface	Gloss
/t͡ʃillna/	[t͡ʃillina]	all of us
/ħillma/	[ħillima]	while
/ʕizzna/	[ʕizzina]	underneath us
/biddna/	[biddina]	we hope
/masˁr/	[ma.sˁir]	Egypt
/ʕitˁr/	[ʕi.tˁir]	perfume
/xbu:.tin/	[xi.bu:.tin]	Deserts

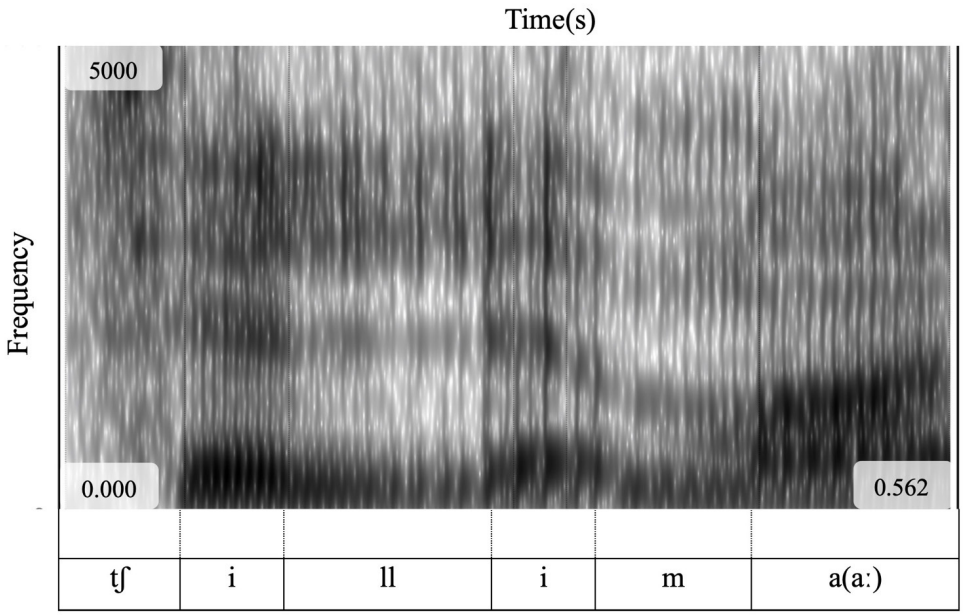

Figure 13. Spectrogram of the epenthetic vowel in Faifi /t͡ʃillma/ [t͡ʃil:.i.ma] 'every.time.' The rectangle highlights the darker formant bands indicating an epenthetic vowel

[10] We treat the surface epenthetic form [t͡ʃil:.i.ma] 'every.time' as being underlyingly /t͡ʃillma/ for two reasons. First, /t͡ʃillma/ consists of two bound morphemes /t͡ʃill/ 'all' + /ma/ 'particle for time'. The particle /ma/ occurs with other morphemes, such as [ħilli**ma**] 'at.that.time', [wagti**ma**] 'at.the.time'. The second reason is that when the bound morpheme /t͡ʃill/ is defined, it occurs without the following vowel [i], for example, [ʔim.t͡ʃill] 'the.all.of X'.

The existence of the epenthetic vowel is further evidenced by the fact that C-final forms will surface without the epenthetic vowel when a V-initial suffix is attached to them. For example, when the suffix /-iː/ '1SG.possessive' follows these C-final forms, they surface without epenthesis, such as [ʕi.tˤir] 'perfume' versus [ʕitˤ.riː] 'my perfume' [ʕa.sˤir], 'afternoon' versus [ʕasˤ.riː] 'my afternoon', and [ʕa.gil] 'mind' versus [ʕag.liː] 'my mind'. For more information about this type of epenthesis in other Arabic dialects, see Farwaneh (2009).

6. Prosody

This section discusses syllable structure and stress in Upper Faifi.

6.1 Syllable structure

Upper Faifi allows five syllable types: CV, CVː, CVC, CVːC, and CVCC. The syllable type CVCC is restricted to word-final position when the suffix /-t/ (*1SG*) is attached to a coda. Table 15 gives examples of each.

Table 15. Upper Faifi syllable types

Syllable type	Example (word-initial)	Example (word-final)
CV	/fa.ta.ħa/ 3MSG.open\PFV	/mas.na/ a harvest
CVː	/guː.lu/ you say	/bɪd.diː/ I want
CVC	/fat.ta/ 3MSG.press\PFV	/ʕa.gar/ 3MSG.fight\PFV
CVːC	/baːr.rin/ compassionate.3MSG	/faːt.ħiːn/ we open
CVCC		/da.xalt/ I entered

No complex onsets are allowed in Upper Faifi. Based on his personal experience, Alfaife (2018) asserts that CC onsets are allowed freely in the lower mountain's dialect, though he neither attests to this nor includes complex onsets in his grammar of that dialect. In Upper Faifi, all consonants are allowed in the onset position, and all consonants are allowed in coda positions except for /ʔ/.

Complex codas are allowed but are restricted to the case explained above. Alfaife (2018) argues that in Lower Faifi, complex codas can occur word medially with the sequence /st/ (e.g., [bastal] 'onions') and with any consonant cluster word finally. In Upper Faifi, however, there are no attested cases of complex codas except when the suffix /-t/ is added to a coda.

6.2 Stress

Upper Faifi is a stress-to-weight language where the general rule is that the heaviest syllable in the word will be stressed (cf. A. H. Alfaifi 2022, discussed below). Moraic weight is determined by vowel length and coda assignment (see McCarthy & Prince 1996). A short vowel is assigned one mora; a long vowel is assigned two morae. Furthermore, a coda will be assigned an extra mora. The minimal word in Upper Faifi is two morae. A word must comprise at minimum either a single bimoraic syllable or a sequence of two monomoraic syllables. Syllables are classified by weight as light, heavy, and superheavy, with no more than one superheavy syllable occurring in each word. Examples are given in Table 16 below, with corresponding syllable types stressed (e.g., bolded "taː" in [taː.la] (that [fem]) for the syllable type CVː).

Table 16. Upper Faifi syllable weight

Weight classification	Syllable type(s)	Example
Light	CV	[ba.na] 1SG.will
Heavy	CV:, CVC	[ta:.la] F.that; [tˢaf.fa] 3MSG.jump\PFV
Superheavy	CV:C, CVCC	[fa:r.ra] 3FSG.run.away\PFV
		[da.xalt] 1SG.enter\PFV

Stress is assigned to the heaviest syllable in the word. If a superheavy syllable appears in a word, it is stressed. However, there are some important points to note in the determination of syllable weight.

Most importantly, word-final codas do not count for weight, and thus, a word-final syllablewith a coda is not classified as heavy unless the nucleus is a long vowel. For instance, in a word like ['ʔig.bil] 'return', the first syllable is stressed, because while the second syllable has a coda, that coda is word-final and does not count for weight. However, note that the word [ta.'fu:z] 'win' will stress the second syllable because while the coda does not count for weight, the vowel is long and thus makes the second syllable heavier than the first. This treatment of peripheral feet in Upper Faifi is similar to what Watson (2002) reported regarding stress in San'ani Arabic, in which the stress is assigned to the rightmost nonextrametrical foot, for example, ['mad.ra.sih] 'school'. Watson (2002) stated that eastern dialects of Arabic, including Saudi Arabian dialects, reflect this stress pattern.

Additionally, if there is more than one heavy syllable in the word, then stress is assignedto the leftmost heavy syllable, as in [ma.'fa:.ti:.ħin] 'keys'. If no heavy syllables appear in a word, then the penultimate syllable is stressed, as in [ka.'sa.fan] 'eclipsed'. A. H. Alfaifi (2022) reported different stress patterns regarding Central Faifi. In this variety, stress falls on the first syllable from the left edge of the word, irrespective of the weight of any other syllable after the initial one, as in ['ja.guu.muun] 'they stand up' and ['śi.lii.hu] 'eat.$_{FSG}$ it'. This type of stress is highly unusual in Arabic, and it is remarkably different from the stress pattern of Upper Faifi described above. Certainly, the topic of stress across FA varieties needs further investigation.

7. Concluding remarks

Besides presenting a comprehensive documentation of Upper Faifi genetic affiliations, the vast range of sound variation in the language, and the sociolinguistic factors that condition this variation, this paper focused on key areas of Upper Faifi acoustic properties that have not been adequately investigated in previous work. We first tracked some philological aspects of the variety (i.e., genetic affiliation) and then offered a comprehensive description of the consonants in Upper Faifi and their variation, supported by measurements and spectrograms. The major contributions of this paper can be summarized as follows. First, we illustrated the acoustic differences between the emphatics and nonemphatics, in which emphatics have markedly lower VOT than their nonemphatic counterparts. We also highlighted two types of alternation that occur in this language: one, between the reverse affricate /s͡t/ and the emphatic /sˢ/, and two, between /t͡ʃ/ and /k/. This alternation is due to the influence of SA loan words. The variants /s͡t/ and /t͡ʃ/ mark Upper Faifi words, whereas /sˢ/ and /k/ mark SA loan words. Second, we described the properties of the seven phonemic vowels in Upper Faifi with measurements and spectrograms and detailed the acoustics and function of vowel length in Upper Faifi. Acoustically, the duration of long vowels is, on average, 2.1 times that of short vowels. Functionally, vowel length is contrastive and denotes morphological derivation. Notably, the measurements of the vowel /i/ stand out, since this vowel exhibits considerable variability in F2 frequency. We explain this variability by distinguishing three types of functions of the vowel /i/ in this language: lexical, epenthesis, and historical shift. However, the variability of the vowel /i/ in Upper Faifi warrants future investigation. Third, we emphasized the correlates and functions of geminates in Upper Faifi. Acoustically, geminates exhibit approximately double the duration of their singleton nongeminate counterparts. Functionally, geminates predictably occur in verbs to denote the causative and the reflexive of the causative and in

nouns to denote instruments. Finally, we described the syllable structure and the stress-to-weight properties of Upper Faifi.

The overarching conclusion of the current work is that there exist remarkable consistencies between Upper Faifi and SA and that Faifi exhibits a wealth of acoustic commonalities with SA, such as consonantal and vocalic contrastive length. These findings, in turn, enhance the view that Faifi is a variety of Arabic, which has been argued for and supported in previous studies from the perspective of theoretical (both phonological and syntactic) linguistics. Moreover, these findings counter other accounts that have classified Faifi as a non-Arabic (mainly South Arabian) variety. The proofs brought forward in support of this view have not been entirely convincing. As discussed in §2, the researchers who support this view mainly point to the unusual prefix of the definite article /ʔim-/ in Faifi and the large number of FA lexical items that do not have SA roots. However, the definite article /ʔim-/ is not unique to Faifi and is attested in other surrounding Arabic dialects in southwestern Saudi Arabia and Yemen (Asiri 2009). The large number of lexical items in Faifi that do not have SA roots may be perceived as a result of historical contact between Faifi and other South Arabian languages rather than evidence for genetic affiliation.

It is worth noting that there remains a great opportunity for research to investigate further the reality of the unusual reflex /s͡t/ from a multifaceted perspective – morphologically, phonologically, and acoustically – to pinpoint its status. Such examination will provide additional evidence about the genetic affiliation of Faifi and support some accounts over others, especially since the auditory materials utilized in this study are available online for further research. More research also needs to be conducted regarding the features of FA and dialect division for that the current paper highlights only some features dstinquitioning Upper Faifi from Lower Faifi and sheds light on the different patterns between the two dialects of Faifi.

We acknowledge that the scope of this study is confined to data from a single speaker and our fieldwork and experience, which may limit the generalizability of the findings. We encourage future research on any or all varieties of Faifi to increase the sample size and offer a diverse sample of recordings according to age, gender, and subvarieties of the language.

References

Al-Tamimi, Jalal & Ghada Khattab. 2018. Acoustic correlates of the voicing contrast in Lebanese Arabic singleton and geminate stops. Journal of Phonetics 71. 306–325. doi:10.1016/j.wocn.2018.09.010

Alaslani, Khadeejah. 2017. A descriptive grammar of Fifi. Chicago: Northeastern Illinois University. (Master's thesis.)

Aldholmi, Yahya & Anne Pycha. 2023. Segmental contributions to word recognition in Arabic sentences. Poznan Studies in Contemporary Linguistics 59(2). 257–287. doi:10.1515/psicl-2022-2010

Aldholmi, Yahya. 2018. Segmental contributions to speech intelligibility in nonconcatenative vs. concatenative languages. Milwaukee: The University of Wisconsin-Milwaukee. (Doctoral dissertation.) (https://dc.uwm.edu/etd/1967/)

Aldholmi, Yahya. 2022. Medial vowel temporal acoustics in Arabic and Japanese polysyllabic words. Archives of Acoustics 47(3). 319–329.

Aldholmi, Yahya. 2024. Statistical metrics for the temporal acoustics of durationally contrastive vocalics: A proposal tested with data from Arabic and Japanese. Archives of Acoustics 49(2). 179–188.

Aldholmi, Yahya. 2025. Data for Upper Faifi as an Endangered Arabic variety. Figshare: Dataset. https://doi.org/10.6084/m9.figshare.28204292.v2

Alfaife, Saleem Mohammed. 2018. A grammar of Faifi. Long Beach: California State University, Long Beach. (Master's thesis.)

Alfaifi, Abdullah & Stuart Davis. 2022. Some grammatical features of Faifi Arabic with a focus on emphatic fricatives. In Ali, Abdel-Khalig & Atiqa Hachimi (eds.), Perspectives on Arabic Linguistics XXXIII: Papers selected from the Annual Symposium on Arabic Linguistics, Toronto, Canada, 2019 (Studies in Arabic Linguistics 11), 99–118. Amsterdam: John Benjamins Publishing Company.

Alfaifi, Abdullah Ahmad & Peter Behnstedt. 2010. First notes on the dialect of Ǧabal Fayfā' (Jazan province/Saudi Arabia). Zeitschrift für arabische Linguistik 52. 53–67.

Alfaifi, Abdullah H. 2022. Aspects of the phonology of a Faifi Arabic dialect. Bloomington: Indiana University. (Doctoral dissertation.)

Alfaifi, Ali H. J. 2015. A descriptive study of Ba in Faifa dialect. In Alford, Neil & Jean Fréchet (eds.), Proceedings of the Eighth Saudi Students Conference in the UK, 649–660. London: KAUST. https://doi.org/10.1142/97817832691500053

Alfaifi, Ali H. J. 2016. Aspects of the morphosyntax of the Faifa dialect of Saudi Arabic: a descriptive study. Ulster: Ulster University. (Doctoral dissertation.)

Alfaifi, Essa. 2020. An emergent grammar model for the linguistic notion of diglossia in Arabic and Faifi. Tucson: The University of Arizona. (Doctoral dissertation.)

Alfaifi, Mohammed H. 2014. The study of Faifi speakers' linguistic accommodation. Carbondale: Southern Illinois University Carbondale. (Master's thesis.)

Alotaibi, Yousef Ajami & Sulaiman S. AlDahri. 2012. Effect of Arabic emphaticness on voice onset time (VOT). In Proceedings from the 2012 International Conference on Audio, Language and Image Processing, 297–302. Shanghai: IEEE. doi:10.1109/ICALIP.2012.6376629

Anderson, Stephen R. 1976. Nasal consonants and the internal structure of segments. Language 52(2). 326–344. doi:10.2307/412563

Arad, Maya. 2005. Roots and patterns: Hebrew morpho-syntax. Berlin: Springer Dordrecht.

Asiri, Yahya M. 2009. Remarks on the dialect of Rijal Alma' (South-west Saudi Arabia). Wiener Zeitschrift für die Kunde des Morgenlandes 99. 9–21.

Camilleri, Maris. 2014. The stem in inflectional verbal paradigms in Maltese. Surrey: University of Surrey. (Doctoral dissertation.)

Catford, John Cunnison. 1977. Fundamental problems in phonetics. Edinburgh: Edinburgh University Press.

Chambers, J. K., & Peter Trudgill. 1998. Dialectology. Cambridge: Cambridge University Press.

Davis, Stuart & Abdullah Alfaifi. 2019. A different path to [f]: Labiodentalization in Faifi Arabic. Papers in Historical Phonology 4. 45–61.

Davis, Stuart & Abdullah Alfaifi. 2022. The Faifi Arabic [st] reflex of Ṣād: Proto-Semitic or substrate? Journal of Semitic Studies 67. 289–303. doi:10.1093/jss/fgab031

Farwaneh, Samira. 2009. Toward a typology of Arabic dialects: The role of final consonantality. Journal of Arabic and Islamic Studies 9. 82–109. doi:10.5617/jais.4597

Holes, Clive. 2004. Modern Arabic: Structures, functions, and varieties. Rev. edn. Georgetown: Georgetown University Press.

Huehnergard, John & Aaron D. Rubin. 2012. Phyla and waves: Models of classification of the Semitic languages. In Weninger, Stefan (ed.), The Semitic languages: An international handbook, 259–278. Berlin: De Gruyter Mouton.

Iverson, Gregory K. & Joseph C. Salmons. 1999. Glottal spreading bias in Germanic. Linguistische Berichte 178. 135–151.

Jensen, Hans. 1970. Sign, symbol, and script: An account of man's efforts to write. Translated by George Unwin. 3rd edn. New York: Putnam.

Jongman, Allard, Wendy Herd, Mohammad Al-Masri, Joan Sereno, & Sonja Combest. 2011. Acoustics and perception of emphasis in Urban Jordanian Arabic. Journal of Phonetics 39(1). 85–95. doi:10.1016/j.wocn.2010.11.007

Khattab, Ghada. 2000. VOT production in English and Arabic bilingual and monolingual children. In Parkinson, Dilworth B. & Elabbas Benmamoun (eds.), Perspectives on Arabic Linguistics: Papers from the Annual Symposium on Arabic Linguistics XIII–XIV (Current Issues in Linguistic Theory 230), 1–37. Amsterdam: John Benjamins Publishing Company. doi:10.1075/cilt.230.03kha

Kogan, Leonid. 2012. Proto-Semitic phonetics and phonology. In Weninger, Stefan (ed.), The Semitic languages: An international handbook, 55–150. Berlin: De Gruyter Mouton.

Kreitman, Rina. 2008. The phonetics and phonology of onset clusters: The case of Modern Hebrew. Ithaca: Cornell University. (Doctoral dissertation.)

Laufer, Asher & Thomas Baer. 1988. The emphatic and pharyngeal sounds in Hebrew and in Arabic. Language and Speech 31(2). 181–205. doi:10.1177/002383098803100205

McCarthy, John J. 1981. A prosodic theory of nonconcatentive morphology. Linguistic Inquiry 12. 373–418.

McCarthy, John J. 1993. Template form in prosodic morphology. In Stvan, Laurel Smith et al. (eds.), Papers from the Third Annual Meeting of the Formal Linguistics Society of Midamerica, 82–110. Bloomington: Indiana University Linguistics Club.

McCarthy, John Joseph, Jr. 1979. Formal problems in Semitic phonology and morphology. Cambridge: Massachusetts Institute of Technology. (Doctoral dissertation.)

McCarthy, John J. & Alan Prince. 1996. Prosodic morphology- 1986. (Revised version of McCarthy & Prince 1986.). University of Massachusetts, Amherst & Brandeis University. (http://ruccs.rutgers.edu/pub/papers/pm86all.pdf)

Ratcliffe, Robert R. 1997. Prosodic templates in a word-based morphological analysis of Arabic. In Eid, Mushira & Robert R. Ratcliffe (eds.), Perspectives on Arabic Linguistics X: Papers from the Annual Symposium on Arabic Linguistics (Current Issues in Linguistic Theory 153), 157–171. Amsterdam: John Benjamins Publishing Company.

Ridouane, Rachid. 2014. Tashlhiyt Berber. Journal of the International Phonetic Association 44. 207–221. doi:10.1017/S0025100313000388

Rose, Sharon. 2003. The formation of Ethiopian Semitic internal reduplication. In Shimron, Joseph (ed.), Language processing and acquisition in languages of Semitic, root-based, morphology, 79–97. Amsterdam: John Benjamins Publishing Company.

Schwarzwald, Ora Rodrigue. 2012. Modern Hebrew. In Weninger, Stefan (ed.), The Semitic languages: An international handbook, 523–536. Berlin: De Gruyter Mouton.

Silverman, Daniel. 2003. On the rarity of pre-aspirated stops. Journal of Linguistics 39. 575–598. doi:10.1017/S002222670300210X

Simeone-Senelle, Marie-Claude. 2012. Modern South Arabian. In Weninger, Stefan (ed.), The Semitic languages: An international handbook, 1073–1113. Berlin: De Gruyter Mouton.

Stein, Peter. 2012. Ancient South Arabian. In Weninger, Stefan (ed.), The Semitic languages: An international handbook, 1042–1072. Berlin: De Gruyter Mouton.

Versteegh, Kees. 2014. The Arabic language. Edinburgh: Edinburgh University Press.

Watson, Janet C. E. 2002. The phonology and morphology of Arabic. Oxford: Oxford University Press.

Watson, Janet C. E., Bonnie Glover Stalls, Khalid Al-razihi, & Shelagh Weir. 2006. The language of Jabal Rāziḥ: Arabic or something else? Proceedings of the Seminar for Arabian Studies 36. 35–41.

Watson, Janet. 2018. South Arabian and Arabic dialects. In Holes, Clive (ed.), Arabic historical dialectology: Linguistic and sociolinguistic approaches, 316–334. Oxford: Oxford University Press.

Wiese, Richard. 2000. The phonology of German. Oxford: Oxford University Press.

Yeni-Komshian, Grace H., Alfonso Caramazza, & Malcolm S. Preston. 1977. A study of voicing in Lebanese Arabic. Journal of Phonetics 5. 35–48. doi:10.1016/S0095-4470(19)31112-X

Yip, Moira. 1988. Template morphology and the direction of association. Natural Language & Linguistic Theory 6. 551–577. doi:10.1007/BF00134493

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