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LANGUAGE CONTACT AND COVERT PROMINENCE IN THE
ŠHERĒT-JIBBĀLI LANGUAGE OF OMAN

THESIS

A thesis submitted in partial
fulfillment of the requirements for
the degree of Master of Arts in
Linguistic Theory and Typology in
the College of Arts and Sciences at
the University of Kentucky

By
Jarred Brewster
Lexington, Kentucky

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Lexington, Kentucky
2021

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ABSTRACT OF THESIS

LANGUAGE CONTACT AND COVERT PROMINENCE IN THE ŠĤERĒT-JIBBĀLI LANGUAGE OF OMAN

This thesis reports on a phonetic production study, the results of which support the existence of a complex word-prosodic system for the ŠĤerĒt-Jibbāli language of Dhofar, Oman. In the language, stress seems to co-occur in some lexical items with a high tone. In the discussion, a mechanism for the emergence of this system is proposed as the reflex of a typological feature held in common with the related language, Soqoṭri, and as justification for an Eastern Modern South Arabian subgroup consisting of ŠĤerĒt-Jibbāli and Soqoṭri.

KEYWORDS: Modern South Arabian, sound change, dialect contact, word prosody, tone

Jarred Brewster

May 17, 2021

LANGUAGE CONTACT AND COVERT PROMINENCE IN THE
ŠHERĒT-JIBBĀLI LANGUAGE OF OMAN

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To the worm who inhabits my watermelon. Stay worm.

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I would like to thank my thesis chair, Professor Kevin McGowan, whose approach to advising was characteristic of his personality and his scholarship: attentive and scrupulous. Kevin is really cool, and I am honored to have been advised by him.

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TRANSCRIPTION AND TRANSLITERATION

Language data appears in this thesis appears in several different ways. When presenting original data where phonetic detail is important, the data is presented according to the conventions of the International Phonetic Alphabet (IPA) and enclosed by brackets []. Supposed underlying phonological representations also follow IPA convention and are enclosed in forward slashes //. Semiticist conventions are used when the lexical items rather than phonetic detail are the focus. Semiticist conventions are convenient (if annoying to some linguists) for the fact that they are widely used in literature, they better represent cognates across Semitic languages, and they help researchers who may want to refer to Arabic-language literature by corresponding to Arabic orthographic conventions without prescribing a canonical pronunciation. Words from *Šherēt-Jibbālī* and Arabic are rendered in italics. Proper names, including names of groups and tribes, geographical locations, and people are rendered with diacritics in non-italics. This convention is also used in the bibliography and in in-text citations for authors and titles which are not published in a Latin-based script. Words that have conventionalized spelling in English are written with those conventions without diacritics. These included ‘Salalah’, ‘Mecca’, ‘Dhofar’, ‘Oman’

Grapheme	Arabic	Shehret	Grapheme	Arabic	Shehret
' , ā,	/a:/, /ʔ/	/ε/, /a/	‘	/ʕ/	/ʕ/
b	/b/	/b/	f	/f/	/f/
g, j	/g/, /ǧ/	/ʒ/, /g/, /ǧ/	ḍ	/d ^ʕ /	/ʔ'/
d	/d/	/d/	q	/q/	/k'/
h	/h/	/h/	r	/r/	/r/
w, ū	/w/, /u:/	/u/, /ɔ/, /o/	s	/s/	/s/
z	/z/	/z/	t	/t/	/t/
ḥ	/ħ/	/ħ/	th	/θ/	/θ/
ṭ	/t/	/t/	kh	/x/	/x/
y, ī	/j/, /i:/	/i/, /e/	dh	/ð/	/ð/
k	/k/	/k/	ḏ	/ð ^ʕ /, /d ^ʕ /	/θ'/, /ð'/
l	/l/	/l/, /ǧ/	gh	/ɣ/	/ɣ/
m	/m/	/m/	š, sh	/ʃ/	/ʃ/
n	/n/	/n/, /Ń/	ś		/ʃ/
ṣ	/s ^ʕ /	/s'/	š		/ʃ/
š		/ʃ'/, /tʃ/	ž		/z/

Chapter 1 Introduction

In this thesis I give an account of the prosodic system of the Šherēt-Jibbāli language of Dhofar, Oman. Though Šherēt-Jibbāli and the other five Modern South Arabian languages that restricted to central South Arabia and the island of Soqatra have been acknowledged as an unprecedented boon for the study of Semitic language, they were the last to be attested to in the literature and remain the least studied. The account of Šherēt-Jibbāli prosody offered here posits a complex word-prosodic system (after Remijsen, 2014) with stress that co-occurs in some lexical items with a high tone (albeit with a very low functional load). Then, by comparing Šherēt-Jibbāli data to existing literature on other Modern South Arabian languages, I make the argument that this prosodic system—which is probably unique among the South Arabian languages—arose through a series of phonological changes that include 1) the loss of vowel quantity, 2) the shifting of stress as the result of this loss, and finally 3) the reinterpretation of the former point stress as a separate tone. In the final section, I discuss possible mechanisms for this change, arguing that the emergence of tone was facilitated by intense contact with related language varieties that maintained the vowel quantity distinction.

The data for my analysis were collected in and around the regional capital of Salalah in the summer of 2018. The immediate impetus for this project was a conversation with Professor Janet Watson about the virtual non-existence of literature on Šherēt-Jibbāli prosody. The occasion for this conversation was a course that I was taking under Professor Watson and her long-time collaborator ‘Ali al-Mahri in Dhofar, which itself was the culmination of an academic and personal interest in South Arabia that has followed me since working and travelling in Yemen in 2010.

At the time of this writing, phonologists find themselves at an interesting juncture.

On one hand, we benefit from decades of enthusiastic labor in the field. The best of this work was ingenious in its methods and its insights in their own time, and a few of their conclusions even remain convincing today. On the other hand, the borders between domains that were once treated as being neatly and logically delineated—such as the segmental and suprasegmental distinction, or the difference between phonetics and phonology—have eroded considerably, leaving many a sober phonologist wondering how much of decades of labor in the subdiscipline remain viable for the future. While many, like the acolytes of the post-Ohala (1993) laboratory phonology turn, have seized upon this as a moment to carve out a discipline less laden with generativist assumptions (or at least committed to empirically testing these assumptions), the striving toward clarity regarding the world’s sound systems—and the big question of what parts of language are particular and what can be called universal—has been frustrated by disciplinary silos and the sea of aging theories.

Apart from the linguistic division of labor, there are the ‘silos’ of areal studies. Semitics, as with Indo-European studies, Americanist linguistics, Africanists, etc. enjoy their own academic canons, intellectual genealogies, and the shadow of comparisons that, to take a phrase from Marx, “weighs like a nightmare on the brains of the living” (1963, p. 2). The gleanings from these lineages invariably crystalize into ideologies which serve to circumscribe the realms of possibility for future discovery. For example, generalized observations such as “Bantu languages are tonal”, “Semitic languages have non-concatenative morphology”, or “Australian Aboriginal languages are ergative-absolutive” inform the analytic approaches and the attention of the researcher. Much like a particular orthography might become iconic of a particular language, these analytical frames come stand in as icons for the languages themselves in the eyes of subsequent linguists.

Flanked by these various silos, I have tried my best to take what is useful, leave what is not, and unsettle the persistent biases in the fields of linguistics and Semitics

that my research has led me to believe are an impedance to the advancement of scholarship. The claims that I make here offer more diversity to the burgeoning literature on prosodic typology, by identifying an uncommon (or at least seldom reported) linguistic phenomenon in an unexpected place, and with an unexpected provenance. Above all, I hope that the claims I make here will prompt researchers of Semitic languages and phonology to be reflective about the ways that the well-worn grooves within the study of particular geographical areas and academic disciplines prime the expectations and define the possibilities for future research, and continue to shape scholarship in its own image.

1.1 Research questions

The questions in this thesis are ones that emerged in trying to balance elegance and precision in my description of *Šherēt-Jibbāli* prosody.

- *What kind of prosodic system does Šherēt-Jibbāli have?* This question is considered through a phonetic production study in light of problems already acknowledged in the literature. In what ways, if any, does *Šherēt-Jibbāli* deviate from stress-based systems attested for all other Semitic languages. If it does exhibit a system that differs from those attested for other Semitic languages, how can this system be characterized in terms of existing prosodic typology?
- *What might have accounted for the different developments between Šherēt-Jibbāli and its sister languages?* In addressing this question I consider other phonological processes present in *Šherēt-Jibbāli* that might be conspiring toward changes in the prosodic system. I will also consider diachronic and phylogenetic work that has been done on the Modern South Arabian languages and the sociolinguistic context of *Šherēt-Jibbāli* which is characterized by intense contact with closely related languages.

I make no pretense toward reaching a definitive conclusion to the second question. The data available to me support neither a robust diachronic analysis, or a thorough account of language contact. In this discussion, I strive toward the plausible and am content to open more questions than I resolve.

1.2 Fieldwork

The data which form the basis for this thesis were collected over the summer of 2018. As I had alluded to briefly above, the immediate impetus for my turn toward (Šherēt-Jibbāli was a conversation that I had with Professor Janet Watson while attending her workshop on Mehri, another Modern South Arabian language, around New Year’s that same year. The class had just sat down to enjoy *mandi*, a famous Yemeni dish, in a large seaside restaurant at the end of the old Ḥāfa souq in the city of Salalah when we were approached by a man who addressed Watson in a language that I had only read about, but had never heard spoken. After greetings were exchanged and the man departed, Watson and I discussed how much of the contemporary literature on the language was recycled from the 1970s fieldwork of Thomas Muir Johnstone. At best, this work produces some novel insights while reproducing the quirks inherent in Johnstone’s data, and at worst it elides the informative subtleties (indeed, the “quirks”) of Johnstone’s data for the sake of uniformity. In either case, these works exist quite divorced from the contemporary context of Šherēt-Jibbāli speech. Its prosody, in particular, had been particularly under-studied. It’s stress pattern, up until this point, had been described as corresponding with Mehri, and while the impressionistic comments had been made regarding some of its eccentricities—such as the lack of the length and prominence one might expect on stressed syllables (Dufour, 2016)—further efforts had been made, to my knowledge, to interrogate this further. While it is easy to hear stress (especially for an English speaker) in the same position as it uncontroversially falls in Mehri, and likewise to unhear the irregularities for the

sake of simplicity, I was intrigued by Watson’s suggestion during this exchange that the language possessed an incipient “tone”.

Soon after returning from Oman the first time, I made connections through a Kentucky university’s Omani student union with a Šherēt-Jibbāli speaker from Salalah who was living and studying in the states. We were able to meet several times in person, and I was able to consult him on the word-list and carrier phrase for my study. We also were to conveniently overlap for part of our time in Oman, and he had agreed to show me around and introduce me to friends and family whose help I could consult for my study. I returned to Salalah for six weeks in June and July. My fieldwork coincided with the monsoon season (*khareef*) and Ramadan, both of which affected fieldwork by consuming the time and attention of my prior connections, on whom I had been relying on upon entering the field. Unfortunately, the poor timing could not have been helped given constraints that my university program presented. As a result, I spent too many days of an already short trip doing seemingly nothing but walking around Salalah, reading in my hotel room, or seeking a cafe from which I could access WiFi and work.

After Eid al-Adha, the holiday that marks the end of Ramadan, my friends in the area were finally able to find some time and help in connecting me with other Šherēt-Jibbāli speakers. By that time, however, the cafes that I now frequented had unexpectedly furnished me with consultants. On several occasions, as I sat at my laptop, conspicuous in spite of my best efforts, individuals would approach me to ask what I was doing. By stroke of luck, on more than one occasion, said individual was a Šherēt-Jibbāli speaker who was more than willing to participate in my study. One of these individuals in particular proved to be extremely helpful both in connecting me with other speakers and in answering my questions about the language and the socio-political context of the Dhofar.

Elicitation sessions, with a few exceptions, had days-long preludes that typically

consisted of conversation over campfire-steeped tea while seated in fold-up lawn chairs or blankets in the gravel desert between long stretches of Salalah highway. Anyone who has visited the Middle East is no doubt acquainted with the pace and social niceties that lend themselves stupendously to ethnography and perhaps less so to somewhat mechanical phonetics elicitation. My communication with consultants was in English or Arabic, and my meagre attempts at using Šherēt-Jibbāli (which at that point was mostly phrases that I approximated from books or had collected piecemeal over the course of the trip) primarily served the functions of rapport-building and comic relief for my consultants. All of my data, except for one session recorded in Mirbat, was collected within the city of Salalah or in the mountains immediately to the north. Most of my speakers lived and were from a region identified as the “Central Jebal” by Johnstone as a byproduct of my pre-existing and emerging social networks. I made one trip by car as far east as the town of Sadaḥ, 130km to the east of Salalah, hoping that my luck would avail me but it did not. As for the west, Cyclone Mekunu had ravaged the region a couple weeks before my arrival and had destroyed the only road connecting Salalah to western Dhofar.

Though the friendliness and generosity of Dhofari people allowed me to compensate for the challenges presented by Ramadan and the *khareef*, there were other contingencies that forced me to reimagine my data collection methodologies on the fly. I had spent dozens of hours prior to entering the field designing a perception experiment. My consultant and friend in Kentucky had recorded stimuli, and I had high hopes of running this study with consultants after they had completed the elicitation task. Unfortunately, my laptop screen broke while on the field, and while I was able to tailor an ad hoc solution that at least allowed me to keep up with metadata more or less, it precluded conducting my planned perception study.

Finally, in addition to word-list elicitation and the aborted perception task, I also brought along printed maps of Dhofar which were intended to elicit from consultants

qualitative judgements about the speech of different subregions in Šherēt-Jibbāli's 300km range. Speakers did not, in general, offer any standardist language ideologies. Interestingly, they could identify isoglossic differences but most often explicitly rejected to comment on any variety of Šherēt-Jibbāli being “better”, “more beautiful”, or any other qualitative judgement that I could think to prime them with. The absence of overt metalinguistic judgements is itself interesting due to the prevalence of such ideologies but will not figure into this thesis.

1.3 Organization

The remainder of this text is organized into three parts. The following section, Section 2, deals with the historical and political context of Oman, Dhofar, and the Modern South Arabian-speaking people in the region. Section 3 gives an essential overview of the phonetics and phonology of Šherēt-Jibbāli, and a brief history of the broader linguistic study, including how to situate the language and its close relatives phylogenetically vis-a-vis one another, and within a broader Semitic and Afro-Asiatic context. The fourth section reviews the literature on suprasegmental phonology within the field, and then zooms in on these topics within Semitic and Afro-Asiatic.

Section 5 gives the details of my production study conducted on the field in and around Salalah, Oman. The recruitment and demographic profile of participants, the creation and administration of elicitation data, and my data management and analysis methods are described in detail. At the end of this section, the results of my study are reported, complete with statistical analyses and conclusions that can be supported therefrom.

The final section is devoted to discussion. In this section, I hold my results up against observations made about the prosodic systems about Modern South Arabian to offer up a concluding invitation to further investigation; a hypothesis that, if

supported, would have significant implications for the studies of prosodic typology and Semitic languages.

Chapter 2 Dhofar, Oman, and Modern South Arabian

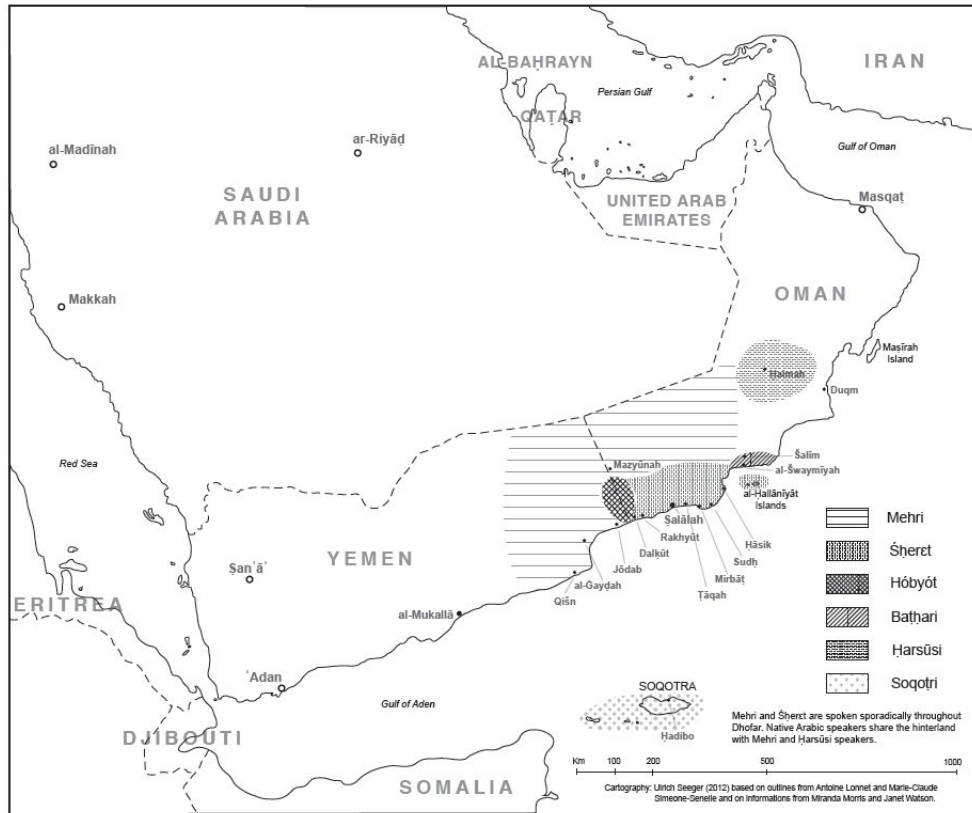
2.1 Modern South Arabian peoples

Dhofar's mountains and coastal plain run 300 kilometers from the Yemeni border near the town of Ḍalkūt in the southwest, to Ḥāsik in northeast. The south face of the mountains look out across the coastal plain to the Indian Ocean. To the north, the mountains rise to the dry plateau of the Omani Nejd, which ultimately yields to the largest sandsea in the world, the Rub 'al-Khālī, in the region's northern frontier. While the rainfall through much of the year is scant as one would expect for an otherwise exceptionally arid section of the Arabian Peninsula, the region is distinguished from the rest of the Peninsula in that, mid-June through early September, the southern Dhofari coast and the adjacent region of Yemen is visited by monsoon rains. These rains cause the southern part of the dormant brown mountains to burst into a brilliant green shrouded in a constant and impenetrable fog.

This region roughly delimits the domain of Šherēt-Jibbālī, the second most widely spoken of the Modern South Arabian languages, which extend beyond Dhofar into adjacent far western Yemen, the Omani region of Wusṭah, the adjacent regions in south-central Saudi Arabia, and archipelagos of Soqatra and Kuria Muria. The six languages in this group occupy a remarkable place in the study of Semitic languages: they possess phonemic contrasts for every corresponding segment in reconstructions of Proto-Semitic; their grammars and lexicons also exhibit particularities: Separate roots for 'to go' at different times of day; a unique system of time-keeping based on the distance between the sun and the horizon, and which conventionally refers to local meteorological and ethological cycles when the sun is not visible for reckoning (Morris, 2017). The languages are replete with specialized terms for the South Arabian environment and traditions, and offer insights into the history of Semitic

that has been obscured by the encroachment of Arabic and the ongoing linguistic homogenization of the region.

Figure 2.1: Map of Modern South Arabian in the Arabian Peninsula. Cartography by Ulrich Seeger (2012)



Modern South Arabian¹ is a group within the Semitic languages, which themselves constitute a subfamily of Afro-Asiatic family. As its name suggests, Afro-Asiatic is spoken in North and East Africa and in Southwest Asia. In addition to Semitic,

¹A somewhat confusing terminological point that bears mentioning is that Modern South Arabian is not a descendant of Ancient South Arabian (variously called Old South Arabian, Epigraphic South Arabian, and Sayḥadic), the group of languages which comprise most of the great kingdoms of Yemen including Saba (Sheba), Himyar, Qataban, and Ḥaḍramawt. The reason for this unfortunate naming convention may have to do with the fact of there being a surviving epigraphic corpus of the Ancient South Arabian group and a complete absence of any written record in among the Modern South Arabian, giving the false impression of the former group being *ancient* in comparison to the Modern South Arabian group. To additionally complicate the situation, despite being dubbed “ancient” and “epigraphic”, the South Arabian group has (arguably) one attested living member, the language of Rāziḥi in the northwestern corner Yemen, and has had enough influence on the language of adjacent areas like Jabal Faiḥi in the Asir region of Saudi Arabia to generate debate over whether these dialects should be counted among the Arabic varieties or in Ancient South Arabian group.

its subfamilies include Cushitic, Berber, Chadic, Omotic, and the extinct Egyptian language (Appleyard, 2011). The Semitic family is separated into West Semitic, which contains Arabic, Hebrew, and Ethiopic, among others, and extinct East Semitic, which contains Akkadian and Eblaite. The precise phylogenetic place of the so-called Modern South Arabian languages within the West Semitic branch is a matter of some debate. West Semitic has as a subgroup Central Semitic—which include all extant Semitic languages on the Asian continent except Modern South Arabian. These languages are grouped together on the basis of common innovations, most definitively the shift from glottalic realizations of the emphatic consonants to pharyngeal ones (Faber, 1997). By contrast, what Robert Hetzron identifies as the South Semitic branch—comprising the Modern South Arabian and Ethiopic Semitic languages—is principally defined by the absence of these innovations rather than any characteristic innovations of its own. More evidence is required to justify the linking of Modern South Arabian languages and Ethiopic Semitic into a unified intermediate group within Semitic.

Further division of Modern South Arabian into Eastern (Šherēt-Jibbāli and Soqoṭri) and Western (Mehri, Haršūsi, Hobyōt and Baṭḥari) is advocated by Lonnet (2008, p. 117) and Rubin (2014a). The affinity of the so-called Western group is uncontroversial, but a special relationship between Soqoṭri and Šherēt-Jibbāli is less so. While Kogan (2015, p. 470) allows that lexical and morphological evidence is suggestive of such a classification, he stops short of endorsing it. What is generally acknowledged is that Šherēt-Jibbāli and Soqoṭri share a significant number of lexical and morphological isoglosses, while Mehri and Soqoṭri have very few. One of the persistent mysteries of Modern South Arabian is how they remained almost entirely absent from the literature prior to the late nineteenth century. This is especially perplexing given that the region of south-central Arabia has been conspicuous since ancient times, owing to its location on the production side of the lucrative frankincense trade. Despite

this, the region remained practically eluded the European gaze prior to the colonial era save a handful of mentions in the *The Periplus of the Erythraean Sea* (Schoff, 1912). Tabari’s medieval *History* mentions the Mahra and a character by the name Shakhrīt “from Banu Shakhrāt” (Donner, 1993), which is tempting to read as an Arabic rendering of Šherēt were it not for the unlikely substitution of a velar fricative *khā* where we would expect a pharyngeal *ḥā*². European contact with the region was renewed in the fifteenth century, most relevant to the present work are the Portuguese missionaries who were shipwrecked on the Dhofari islands of Kuria Muria which is now, as it probably was then, a small Šherēt-Jibbāli-speaking community. One of these missionaries recounted in great detail his subsequent sojourn across Dhofar and Yemen. His account is vivid (and includes the first European mention of coffee) but it does not mention the presence of non-Arabic languages whose speakers he almost certainly encountered (De Maigret, 1996, p. 34).

The three most widely spoken languages in the region were made known to Europeans between 1836 and 1840, and over one hundred years an excerpt from a volume of *fatāwā* surfaced from the early 16th century that remains to date the oldest known mention of any South Arabian language: A short pronouncement of divorce in the Šherēt-Jibbāli language. The author, a jurist from the Ḥaḍramawt, records his interlocutor describing the language as being like ‘foreigners’³. The few words and phrases relayed in the correspondence are readily recognizable as Šherēt-Jibbāli today.

Presently, the domain of Šherēt-Jibbāli overlaps with the region’s other languages, most significantly Mehri and a Nejdī Arabic variety that exhibits affinities with Modern South Arabian and the Arabic of the Yemeni Hadhramawt (Al-Saqqaf, 2000). Locally, Mehri and Šherēt-Jibbāli are viewed as the maximally distinct poles against

²I do not mean to say that this is improbable as a sound change, only that the distinction between the two sounds is robust across all Arabic varieties except Maltese both phonetically and orthographically.

³Qadi Baā Makhramah uses the term ‘*ajam*, which Serjeant takes to mean ‘African’. Unless there is some context that he is privy to that I am not, there is nothing about this term that suggests Africans specifically.

which other languages are compared, with Ḥarsūsī often being identified as “close to Mehri”, and the languages Hobyot and Baḥari being identified by their perceived lexical and phonological mixing of the first two. In addition to Mehri having many more speakers than Šherēt-Jibbāli, it should also be noted that Mehri language is correlated with tribal membership in the Mahra tribe which spans across South Arabia. Šherēt-Jibbāli, by contrast, has physiographic associations and its use is not strictly tied to tribe or group membership. Local and European researchers have tended to group speakers into macro-categories: the *qara* those who claim tribal affiliation and orient themselves toward Mahra; and those who don’t claim tribal affiliation and for whom a common family name is Shaḥarah (Tabūkī, 1982). This distinction constitutes the most salient social division among the local people, and the choice of language name has become increasingly iconic of this division, with the latter group preferring *šherēt*, a word derived from Šherēt-Jibbāli, *šhayr* meaning ‘monsoon-affected mountains’, and the former group preferring *giblet*, which is derived from the Arabic word *jabal*, which likewise means mountain. This distinction seems non-arbitrary because of the association that is readily made between *šherēt*, which refers exclusively to the language, and Shaḥara, the previously mentioned family name. Tribal members see the use of *šherēt* as a rejection of their legitimacy as speakers (and by extent, inhabitants) of the area; non-tribal individuals have argued to me that using *giblet* erases their claims to the language and is unfaithful to historical language use.

On the other hand, a local friend in the area who is a member of the Mahra but whose mother is from among the *qara*-Jibbāli tribe, claimed that ‘*šherēt*’, until recently, was the only way to which the language was referred. He argues that the proliferation of Jibbāli and *giblet* was a response to nascent discourses of Shaḥarah ethnolinguistic primacy. Contra Rubin (2014b), this friend argues that the use of ‘Jibbāli’ is not apolitical, and ironically serves the narrative of associating the name Šherēt as cultural property of the Shaḥara. By his reasoning, both the terms *jabal* and

shayr refer to mountains, and Shaḥarah and *sherēt*, are both names with topographic references, rather than having a direct link between one and the other. The fact that Jibbāli and *giblet* are derived from Arabic, he further argues, acknowledges Arabic dominance over the language and is therefore inappropriate. He has had some success arguing this case with *qara*, owing largely to his position as a Mahra with *qara* heritage, and consequently a lack of obvious biasing interest in the debate.

2.2 Dhofar and the Omani State

Literature on Dhofar tends to brush over its complex recent history and how its relation to the greater Omani state is, and remains, a central issue that informs Oman's statebuilding policies. The exception to this lacuna is the small amount of political science literature and British memoirs from the colonial war for which issues of language and culture tend to be treated in a shallow manner, as flat sociological metrics, if at all. Any serious analysis of Dhofari society must treat the Dhofar Rebellion, the watershed moment in the formation of contemporary Oman and *causus belli* for a particularly violent British intervention. According to contemporary perspectives, the outcome of this rebellion would have almost definitely resulted in the separation of Dhofar had the British not intervened. Issues of linguistic and social differentiation were inextricable to how the uprising took shape and proceeded, and local memory continues to shape and galvanize social relations, albeit under the shadow of Oman's national project in which difference is vigorously downplayed.

The Dhofar Rebellion was centered in Oman's poorest, and most disenfranchised region. Dhofar sits across a huge span of desert far from the seat of the Ibādī power in the country's northeast. The native population is almost entirely Shafī'ī, a school of Sunni Islamic practice which predominates in neighboring Yemen. The rest of Oman, including the sultan and the ruling elite, are largely Ibādī, which is neither

Sunni nor Shīʿī but generally recognized by the majority of Muslims as orthodox. In Oman in the 1960s, there was deep dissatisfaction with the policies of the then sultan, Saʿid bin Taiymur, which had left a country the size of Italy with merely 9km of paved road before 1970, nearly no electricity, harsh restrictions on travel, legalized chattel slavery, and fewer than one thousand boys enrolled in school. As a result, many Omanis had fled to seek education and employment abroad. In Dhofar, this dissatisfaction was agitated by the neighboring People’s Democratic Republic of Yemen, which emerged as a leftist independent polity after British withdrawal in 1963, and effectively a Soviet satellite by 1970 (Jones, 2013).

Qaboos bin Saʿid Al Saʿid took power in a bloodless coup against his father in 1970. In doing so, he also inherited a rebellion in the Dhofar region which the occupying British forces had characterized as its own “mini-Vietnam” (Tuohy, 1971). The political success of the Sultanate has rested in selling the vision of a transition to a new united Omani nation from the previous condition: A feudal state where the sultan in the North lorded over a vast and diverse but sparsely-populated hinterland. Oman, like all nations, is a discursive product of modernity rather than a natural grouping of people. Nowhere is the unnaturalness of Oman’s national project more salient than in Dhofar, which from the outset has been the site of greatest resistance to the North’s sovereignty. If, in 1973, the communist agitation in Dhofar coming from neighboring P.D.R. Yemen did not impress upon the Omani state what is at stake with regard to the attenuation of its social and geographical divides, the grim example of a Yemen devastated in recent years by a contemporary cold war certainly has.

Without the intervention by the British, the Dhofar Rebellion, abetted by Soviet P.D.R. Yemen, would have almost certainly succeeded. The policy of anti-communist containment underlied British support for Qaboos. His ascension was a turning point

in quelling the uprising. His social standing had some diplomatic capital to that end owing to the fact that his mother, Mazoon al-Ma'shani, was from a Šherēt-Jibbāli-speaking Dhofari tribe. Qaboos himself had never stepped foot in the capital of Muscat, having spent his entire life in Dhofar's Southern Palace. Qaboos's establishment of the Omani welfare state, rapid exploitation of the country's oil reserves, and calling back of Omani exiles abroad formed the basis for the use of the language of *an-Nahaḍa* (Renaissance) in national propaganda. The country now is widely lauded as a success story, and though it receives due criticism for its labor practices surrounding its massive South Asian workforce, the political establishment benefits from the fact that any abuses are overshadowed by its more conspicuous Gulf neighbors. Behind the Omani success story lurks a spectre of anxiety for those close observers of regional politics: Oman plays a crucial diplomatic role in the intensifying cold war that has characterized Saudi-Iran relations since the 1980s, and uncertainty over the ailing and heirless Qaboos's successor was a cause for some hand-wringing in the years prior to his death last January. The boon of Oman's outward facing politics—its Ibādī brand of Islam which is inoffensive to both Sunni and Shī'ī orthodoxies while being divested from their sectarian debate—is also the site of its potential precarity if differences and discontents between the capital and the South are reemphasized.

Chapter 3 Šherēt-Jibbāli phonology and phonetics

The segmental phonologies of the Modern South Arabian languages exhibit a remarkable conservatism and their discovery by academics have provided material evidence for prevailing models of Proto-Semitic. Šherēt-Jibbāli is of additional interest because it has several novel phones that are typologically rare and hitherto unattested in related languages. The language also features a relatively complex harmonizing vocalic system and processes of metathesis and elision that render many of the prototypically Semitic triconsonantal patterns opaque in Šherēt-Jibbāli. I begin this section by presenting a history of study on Šherēt-Jibbāli to date, and then I will try to bring together all of this research into a coherent—albeit far from complete—picture of the language’s phonology from which my study can commence. Frequent references will be made to MSAL and Semitic more generally, so that the reader can assess claims about phonological innovation in Šherēt-Jibbāli.

3.1 History of linguistic study

Modern South Arabian existed for a long time, and conspicuously, no doubt, without garnering mention in any currently known text. The earliest unambiguous reference is in fact quotation recorded in a question posed to a sixteenth century Islamic judge (*qāḍi*) of Dhofar. In the question, the inquirer is wondering if the peculiar formula for divorce used by the Shaḥarah is permitted under the local jurisprudence. In the letter, he refers to the Shaḥarah as bedouin, and remark that they speak like the people from “barr al-‘ajami”, a pejorative phrase that refers to the Horn of Africa in the context of early modern South Arabia¹ (Agius, 2012, p. 123). The text (translated

¹The Arabic term *‘ajam* means ‘mute’, and was broadly applied to groups in early Islam who could not speak Arabic. It is especially known as a slur against Persians, but was also used to refer to Africans. For example, it is the namesake of the Ajami script of the Hausa language (Ngom &

from Arabic) is quoted below as it is given by R.B. Serjeant in his report:

A question from al-Dja‘fari, Kādī of Zūfār ... “Bedouin called al-Shahra who have a language like the Africans, but they are not Africans, and, notwithstanding, most of them can cope with Arabic. However, when they wish to (pronounce a) divorce, they only (pronounce a) divorce in their own language. When one of them wishes to divorce without compensation he says, ‘Titi mešhalót tit’. If he wishes the triple (divorce) he says, ‘Titi mešhalót tatet’. If he wishes (to pronounce) a double divorce he says, ‘tirit’. When he wishes to address her, she being present, with the sense of ‘you (f.)’, he says, ‘hit’. When he adds by way of giving something, she being absent, with the sense of ‘she’, he says, ‘se’. His saying ‘titi’, means ‘my wife’, and ‘mešhalót’ means ‘divorced’, and ‘tit’ means ‘once’, and ‘tatet’ means ‘with the triple (divorce)’, and ‘tirit’ means ‘double (divorce)’; ‘hit’ means ‘you (f.)’, and ‘se’ means ‘she’.” (Serjeant & Wagner, 1960, p. 129)

The quotation that the inquirer provides is remarkably precise. It is immediately recognizable to any contemporary student of Modern South Arabian as being Šherēt-Jibbāli, and even uses the same provisional orthographic standards still in use today when dealing with sounds not found in Arabic (e.g. representing the lateral fricative /ʃ/ with the letter corresponding to the interdental fricative). Moreover, the writer’s comment on the social situation reveals a multilingual milieu where “most of [the Shaḥara] can cope with Arabic”. Serjeant, in the same piece, mentions an allusion to the Shaḥarah and *qara* in a Ḥaḍrami chronicle dated 834 A.H. (1430 C.E.)².

Kurfi, 2017)

²This predates colonial contact with the Portuguese and, if true, contradicts Janzen’s account of the origin of the term “qara” referring to bedouin employed by Portuguese to put down resisting Dhofari tribes.

Modern South Arabian data was first brought to the attention of Europeans in 1835 by J.R. Wellsted (1935) in his Report on the Island of Socotra. Wellsted, a lieutenant in the navy of British India, did not recognize the speech he encountered as belonging to a new language. In the following year, Fulgence Fresnel reported the first Šherēt-Jibbāli data to the French government from his post as the French consul in Jeddah Fresnel (1836). From then until the very end of the 19th century, word lists, comparative lexicons, and descriptions of tribal society were published sporadically by naval officers, travelers, missionaries, and the like (Hulton, 1836; Krapf, 1846; Carter, 1845, 1848; Guillain, 1855).

The high age of imperialism coincided with a burst of academic enthusiasm and state patronage for the study of Modern South Arabian. In 1898 and 1899, the Viennese Kaiserliche Akademie der Wissenschaften carried out what is known as the Südarabische Expedition, directly producing four works devoted to MSAL: a grammar of Mehri (Jahn, 1902); a collection of elicited texts in three of the languages including Šherēt-Jibbāli (Muller, 1899); collected texts of the Mehri of Qishn and Ḥaḍrami Arabic (Muller, 1899); and a three volume collection of texts from Mehri, Soqoṭri, and Šherēt-Jibbāli (Müller, 1902, 1905, 1907). The materials from this expedition formed the basis for Bittner's work (1913-1918), which includes the most complete grammatical description of Šherēt-Jibbāli until Rubin's 2014 grammar but which, as Rubin rightly notes, reproduces the unreliable data and specious claims of Bittner while at the same time introducing errors of its own.

After the Südarabische Expedition, the study of Modern South Arabian again entered a lull. The diplomat and skull doctor Bertram Thomas (1937), renowned for his crossing of Arabia's harrowing Empty Quarter, published a sketch grammar entitled "Four Strange Tongues from South Arabia" in 1937. In addition to Šherēt-Jibbāli, Thomas's work covered Mehri, and was the first mention of Ḥarsūsī, and Baḥari. It remained practically the only study concerning Baḥari until Fabio Gasparini com-

pleted his dissertation, a sketch grammar, in 2018 after extended fieldwork with the handful of remaining speakers.

Around the same time, Wolf Leslau contributed several works to the field. Of the most lasting importance is his lexicon of Soqoṭri, which remains, after 80 years, the only lexicon published for the language. Of relevance to the study of Šherēt-Jibbāli are his articles “Four Modern South Arabic languages” (Leslau, 1947a), brief grammatical sketches using data from the Südarabische Expedition; and his “Position of the dialect of Curia Muria in Modern South Arabic”, which uses then already 100-year-old word list data from Hulton to reiterate that the language of the island al-Hallaniyya is a variety of Šherēt-Jibbāli (Leslau, 1947b).

Following Thomas, there was yet another long lull until the publication of Wagner’s 1953 syntactic study of Modern South Arabian, which, while important, is entirely gleaned from the Viennese team’s data a half-century prior. Charles D. Matthews provided some important insights to the study of MSAL, being the first to recognize the presence of a definite article in the languages, and to describe the process of intervocalic elision of bilabials in Šherēt-Jibbāli (Matthews, 1969). It is worth noting that these features (especially bilabial elision, which is extremely common and productive in the language) took over 130 years since the beginning of European study of the language to be recognized and described.

Modern South Arabian’s single most valued and industrious scholar before the 21st century was Thomas Muir Johnstone. Under the auspices of SOAS, University of London, Johnstone produced lexicons for Šherēt-Jibbāli, Ḥarsūsī, and Mehri. He also collected numerous recordings of Ḥarsūsī, Mehri, Šherēt-Jibbāli. Some of these have been published as texts, most recently in Rubin 2014b. Around the same time, Aki’o Nakano, based primarily in Yemen, produced a comparative lexicon of Soqoṭri, Šherēt-Jibbāli, and Mehri. Nakano’s Hobyot data was published posthumously in 2013.

Taking inspiration from statements about the problematics of vowels found in Johnstone’s *Lexicon* (henceforth *JL*), Hayward, Hayward, & Tabūkī (1988) present the first attempt at explaining the effect of preceding segments on the realization of vowels in Šherēt-Jibbāli. Although a short article, it is significant because it is the first attempt at systematically describing what is one of the most interesting and difficult aspects of Šherēt-Jibbāli phonology. Their findings regarding gutturals anticipate important later discoveries, in particular those of Benjaballah and Segéral (2016). The third author, Sālim Bakhīt Tabūkī, has the distinction of being a Šherēt-Jibbāli speaker and one of Johnstone’s primary consultants.

In the early 1990s, Marie-Claude Simeone-Senelle and Antoine Lonnet published new data on Soqoṭri, Mehri, and Hobyot from their fieldwork in the 1980s. Their work is of general interest to researchers of MSAL because of its comparative insights, and in many ways this work heralded the more rigorous linguistic turn in the field in the late 2000s. Both scholars have been intermittently present in the field, and Lonnet’s later identification of Šherēt-Jibbāli and Soqoṭri as constituting a subgroup within the MSAL is an important premise for the discussion at the end of this thesis (Lonnet, 2008).

In 2012, Khalsa al-Aghbari completed a PhD dissertation at the University of Florida on patterns of noun plurality in Šherēt-Jibbāli. Al-Aghbari is herself an Omani, but not a Šherēt-Jibbāli speaker. Her work is based on her own fieldwork in Dhofar and is largely addressed to issues of comparison between Arabic and Šherēt-Jibbāli and the productivity of internal plurals for loan words. The dissertation has not been published in its entirety, but she published a short article on the same topic in 2015.

Bendjaballah & Ségéral’s ‘idle glottis’ theory (2014) addresses issues of phonological patterning in Modern South Arabian. The authors look at how the a priori voiced-voiceless distinctions assumed in structuralist phonology are not adequate for

explaining patterns of gemination in Mehri, but their findings have proven to be more generally applicable to MSAL. Their findings are important and have had a lasting influence in the way that MSAL consonants are analyzed, though the authors neglect to cite or engage with rigorously documented observations in previous years that contradict some of their dialectological claims.

Janet Watson, following her already distinguished career in Arabic linguistics, has been a nucleus for much of the present energy around Modern South Arabian through her encouragement of interdisciplinary engagement around topics of language endangerment and ecology. Watson came to work on MSAL after the untimely passing of her colleague, Alexander Sima, in a car accident in Yemen. Watson's work has tended toward comparative perspectives, lending very useful insights into areal features that characterize both the MSALs as well as neighboring Arabic dialects. Among the work that she has contributed to that has been particularly useful for the study of Šherēt-Jibbāli is her discussion of a novel sibilant phoneme, coauthored with Alex Bellem & Watson (2017), and her phonetic analysis of Mehri and Šherēt-Jibbāli emphatics coauthored with Barry Heselwood and which is, to date, the only instrumental phonetics work on Šherēt-Jibbāli that has been published and which concludes with an important revision to the previously cited work by Bendjaballah and Segeral (Watson & Heselwood, 2016a). For comparative purposes, this thesis also makes frequent reference to her *Structure of Mehri* (2012).

Aaron Rubin has published a number of works on Modern South Arabian. His grammar of Šherēt-Jibbāli (2014b), which is based on Johnstone's texts, and supplemented by his own consultants in the United States, remains the most complete work on the language to date. In addition to grammatical description, Rubin's grammar also includes numerous previously unpublished texts of Johnstone's. Rubin's grammar, written as it is from the perspective of a comparative Semiticist, includes ample in terms of description and little in the way of linguistic theory or the kind

of fine-grained analysis that might appeal to a more traditional linguistics audience. Nevertheless, Rubin’s work has been valuable in promoting and lending accessibility to data on MSAL.

In 2014, Richard Gravina gave an important account of the vowel system of Šḥerēt-Jibbāli. Also basing his study on Johnstone’s text, this short article was the most systematic treatment of any part of the phonological system until that point. Gravina is, to my knowledge, the first researcher to identify and describe Šḥerēt-Jibbāli vowel harmony and conditioned raising and lowering. Julien Dufour (2016), in expanding and revising problems of Gravina’s rather elegant account, spins out an extremely complicated explanation of Šḥerēt-Jibbāli’s vowels, all in the midst of a rather colossal overview of several MSALs. Dufour’s work stands as the most intensive phonological analysis of Šḥerēt-Jibbāli, and this work is indebted to it. But it is actually his insights into Soqoṭri which were most helpful, and which figure centrally in the discussion.

Fabio Gasparini is among the younger cohort of South Arabia scholars doing fieldwork. He completed his dissertation, a sketch grammar of the Baḥari language, which at the time had around eleven speakers, in 2018. Gasparini’s work is the first to present original data since 1937. The following year, Guliano Castagna (2018), a close colleague of Gasparini, completed a grammar of the Šḥerēt-Jibbāli variety spoken on the islands of al-Ḥallaniya, for his Ph.D. at the University of Leeds under Janet Watson’s supervision. Castagna’s work is notable, in addition to being the most extensive treatment of a dialect of Šḥerēt-Jibbāli after Rubin’s grammar, for positing an Austronesian substrate for several core MSAL lexical items. This is a relatively minor aspect of the dissertation, and the examples lended are scanty, but it is nonetheless welcome for opening the conversation about MSAL contact.

The recently completed dissertation by Kamala Russell (2020) is the first long-term ethnographic work by a linguistic anthropologist in Dhofar. In this work, Russell looks at the home as the site of moral and religious education, and in doing

so problematizes ideas of translatability of religious and affective concepts between Šherēt-Jibbāli, Arabic, and English. In addition to providing viable, original data, this work is also important to linguistic study in that the author gives attention to pragmatic, non-referential function of language and the force that discourse exerts on the structure of language.

The most recent original data to be published on Šherēt-Jibbāli comes Al-Kathiri in collaboration with Julien Dufour (Al Kathiri & Dufour, 2020). In this paper, the authors describe the basic verb morphology of Šherēt-Jibbāli with Al-Kathiri contributing his knowledge as a native speaker. In this piece, the authors reiterate Dufour’s 2016 analysis of Šherēt-Jibbāli vowels and prosody, which remains the best and most thoroughgoing analysis on the topic to date. The authors also reference the commonalities between the vocalic and prosodic systems of Šherēt-Jibbāli and Soqoṭri, an issue that will be spotlighted in the discussion section at the end of this thesis.

In addition to the aforementioned scholars, there have been numerous scholars who have contributed to issues in Semitic and MSAL historical linguistics that are of direct importance to this study. Testen (1998), Kogan (2011c,a), Suchard (2017), and Yushmanov (1934) have all contributed important diachronic analysis that help explain some of the more difficult problems of MSAL in its Semitic context. There are many others who have produced work that are of general importance to the study of MSAL that warrants mention but do not directly pertain to Šherēt-Jibbāli, or otherwise to the present study. These cover topics of oral art in Soqoṭri (Naumkin et al., 2014b), Mehri (Liebhaber, 2010), and Soqoṭri (Morris, 2013, 2011); various treatises on ethnobotany (Miller & Morris, 1988; Miller et al., 2004); phonetics and phonology (Ridouane & Gendrot, 2017); morphology (Eades, 2014); linguistic genealogical analysis (Appleyard, 2011; Edzard, 1998; Kogan, 2015; Huehnergard & Rubin, 2011); and ethnographic work in Gebel Ḥarāsīs by Dawn Chatty (Chatty et al., 1996; Chatty,

2009, 2013a,b).

Finally, there are a few works that have been published by Šherēt-Jibbāli-speaking researchers. Aḥmad bin Maḥād al-Ma‘shani produced a modern dictionary entitled *Mu‘gam lisān Zufār* (‘A Dictionary of Dhofar’s Tongue’) in 2014. ‘Ali Aḥmad Maḥāsh al-Shaḥri, a consultant for this project and well-known advocate of the Shaḥara, has also produced several large volumes of histories, genealogies, and local proverbs under the patronage of the Emirati government. The most widely available of these is entitled the *Language of Aad* (2000), but most other texts by al-Shaḥri and al-Ma‘shani are currently only to be found in Dhofar. He is also responsible for a valuable catalog of the yet-undeciphered script that he and the late paleographer Burnadette King transcribed from the caves scattered throughout the Dhofari mountains (Al-Shaḥrī & King).

A nearly complete literature review of Modern South Arabian up through 2018 can be found in the introduction of Castagna (2018).

3.2 Consonants

The consonant inventory in Šherēt-Jibbāli is the largest attested for any Semitic language, but is largely familiar to those familiar with other languages in the family such as Arabic or Amharic. There are some significant differences, however, most notably in the sibilant inventory and in the realization of the so-called emphatic consonants. There are also a number of processes that specifically target bilabials and glides. I have singled out these classes for further discussion in the following subsections.

Table 3.1: The consonant inventory

	Bilabial	Labiodental	Interdental	Alveolar	Aveolar Lateral	Post-alveolar	Palatal	Velar	Pharyngeal	Glottal
Plosive	b			t d			ʃ	k (g)		(ʔ)
<i>emphatic</i>				t'				k'		
Fricative		f	θ ð	s, ʂ z, (ʒ)	ɬ (ʕ)	ʃ	x	ɣ	ħ ʕ	h
<i>emphatic</i>			θ'	s', ʂ'	ɬ'					
Nasal	m			n						
Trill				r						
Approximate	w				l		j			

Inventory

Sibilants

The Modern South Arabian languages in general preserve reflexes for every consonant phoneme in Proto-Semitic (Bomhard, 1988; Kogan, 2011c; Lipiński, 1997; Faber, 1997). Most importantly, the “discovery” of Modern South Arabian by linguists of Semitic provided the only support from living languages for theories about historical phoneme inventories that had previously only been inferred through the writings of Medieval grammarians, patterns of phonotactic constraints, and the orthography of borrowings. Sibilants have been one of the aspects of Semitic phonology that historical linguists have taken the most interest in, and Semiticists are nearly unanimous in the opinion that Proto-Semitic contained three plain sibilants, referred to by the shorthand *s1, *s2, and *s3, and confusing also as š, ś, and s. The realizations of these phonemes in earlier times is debates, with hypotheses ranging from a palatal [ç] for *s1 and a hissing-hushing [ʃ] or affricate [tʃ] *s3, to plain sibilants [ʃ] and [s] for *s1 and *s3, respectively (Steiner, 1982; Kogan, 2011b). Interestingly, the point of least controversy is the realization of *s2, widely accepted to be lateral /ɬ/, in spite of the fact that this phoneme has completely merged with *s1 or *s3 in every

other Semitic language outside of Modern South Arabian³ such that the most widely-spoken Semitic languages have a two-way sibilant distinction rather than the original three-way distinction. This merger occurred at different times, and in different ways across Semitic which has led to the non-correspondence of, for example, Arabic and Hebrew words for ‘ten’.

Table 3.2: ‘ten’, from Proto-Semitic root *ʕ- s2 - r

ʕafara(t)	Arabic
ʕasara(t)	Hebrew
ʕəʔeret	Šherēt-Jibbāli

In Table 3.2 above, we see that Hebrew, Arabic, and Šherēt-Jibbāli all exhibit different sibilants. Within Semitic linguistics, these are considered to be reflexed of the hypothetical phoneme in Proto-Semitic usually referred to as *s2. Except for the Modern South Arabian languages, every other extant Semitic language has merged *s2 into one of the two other plain sibilants (predictably referred to as *s1 and *s3). This merger is something that developed independently in each of the affected languages, and for that reason the end result and timing of the merger is variable across languages. In the Canaanite languages, for example, this merger occurred quite late—perhaps in the fourteenth century B.C.E.—with the orthography of Hebrew still bearing evidence of the three-way distinction (Beeston, 1962). Arabic, by contrast, betrays no evidence of this distinction in its earliest written forms.

In addition to preserving the consonant inventory of Proto-Semitic, Šherēt also exhibits three phonemes that do not have an easily discernible historical basis. These are a voiced lateral fricative [ʕ], which appears only as an allophone of /g/ and /l/, and a plain-emphatic pair of labialized voiceless alveolar fricatives ʕ̣. Of these, ʕ̣ has generated the highest degree of scholarly interest because of its highly perplexing

³With the exception of a few South Arabian dialects of Arabic, the “emphatic” counterpart of *s2, /tʕ̣~tʕ̣/, has also merged with /sʕ̣~sʕ̣/ (Watson & Al-Azraqi, 2011).

distribution. This phone is rendered in the literature as \tilde{s} and represented in phonetic transcription as $[\text{ɕ}]$ ⁴ appears in the language data emerging from three apparent sources:

1. As one of two reflexes of Proto-Semitic $*\tilde{s}/s1$, with the other being $/ʃ/$.
2. As a phoneme that emerged through a historical process of $/k/$ palatalization made opaque by interceding sound change.
3. As a synchronic allophone of $/k/$ in morphophonemic alternation with $/k/$.

With regard to (1), the split between $[ʃ]$ and $[\text{ɕ}]$ in $*\tilde{s}/s1$ roots is mirrored in Mehri by $[ʃ]$ and $[h]$. The appearance of $[\text{ɕ}]$ is particularly interesting because of its curious secondary labial articulation, but also because it seems to have appeared at two distinct times in the language history: Some time in the past after the hypothetical break-up of an ancestral Modern South Arabian language, and contemporarily as a productive allophone of $/k/$.

A brief description of its distribution is given by Kogan (2011a), in acknowledging the difficult undertaking of a positional analysis, defers the task to future investigators. Bellem & Watson (2017) offer the first phonetic analysis of the phoneme, dispelling erroneous assumptions about both the segment's place of articulation and the geographic distribution of the segment that have been promulgated but never interrogated since the earliest attestation by Johnstone (1984). In presenting the historical context of \tilde{s} , Bellem and Watson postulate that “the logical conclusion is that at some historical point, early Šherēt or an ancestor language variety would have developed a process of contextual palatalisation, perhaps of $*k$, such that this historical phoneme (perhaps $*k$) would have had (at least) two allophones: $[k]$ and (something similar to) \tilde{s} .”

⁴In this article, I will use both: The tilde \tilde{s} when dealing with the historical basis of the phoneme, and the double-arch $[\text{ɕ}]$ when treating the phonetic reality as fully described in Bellem & Watson (2017). The use of this symbol, though long considered obsolete in IPA, was given a revival in Ladefoged & Maddieson (1996) for their description of Shona whistled sibilants.

Most instances of *s1 in Modern South Arabian are realized as [h]. This is similar to a sound change that occurred in West Semitic and affected Arabic and Hebrew. There are, however, places where this change seems to have not occurred and the environment that blocked the change is presently phonologically opaque. These ‘survivals’ have been taxonomized by Kogan into three problems which stand between the linguist and a relatively straight-forward historical account of Modern South Arabian’s phonemic inheritance (such as the one provided by Beeston. The granularity of these issues could perhaps go without saying if the goal here is merely to provide a sketch of relevant phonemic inventory, but I have included them for the conversations they open about listener-driven sound change and language contact. The problems identified in Kogan are as follows:

1. The *third-person pronoun problem* reflects the need to explain why there is synchronically a non-correspondence between the first consonant in feminine and masculine third-person independent pronouns (/s/ and /h/, respectively, when in every other extant Semitic language, both begin with reflexes of Proto-Semitic *s1.
2. The ‘*nine*’ *problem* refers to the absence of initial /t/ in words for nine across Modern South Arabian languages. The etymologically medial root consonant, /s/ (*s1), is initial in all of the corresponding Modern South Arabian lexemes (Proto-Semitic *t-s1-ʕ > Shr. sʕʕ but Ar. tisaʕ, Hbr. tēʕaʕ, Akk. tife, Ugr. tʕʕ)
3. The final problem I call the *shibboleth problem*. It is, simply put, the fact that there are many (low-frequency) lexical items that do not exhibit the [h] reflex of *s1 but rather begin with [s], the expected reflex of *s3.

The first one, the “most disturbing” according to Kogan, has—at least in my view—been given a more-or-less satisfactory solution in a recent paper by Suchard

(2017). Ironically, Kogan himself had already arrived at Suchard’s basic conclusion in addressing the initial segment in Modern South Arabian languages ‘nine’ as resulting from perceptual reinterpretation of [tʰs] as being a reflex of *s3⁵. Suchard uses the same logic of listener reinterpretation that is supposed to have happened with the word ‘nine’ and applies it to the problem of 3p pronouns. In Suchard’s account, the irregular correspondence in personal pronouns. Where in Arabic we have *hiya*, *huwa*, *humma*, *hunna*, etc, in Akkadian we find, by contrast *fi*, *fu*, *funu*, *fina* (Huehnergard, 2018). Arabic [h] corresponding to *š/s1 is mirrored in Hebrew, Ugaritic, and Aramaic, reflecting a sound change said to have occurred in the Western branch of the Semitic languages. This assumption is problematized by the MSAL personal pronouns, where we have a predictable *heh* for 3ms but *seh* for 3fs in Mehri. In order to posit that the change in MSAL was one in which Proto-Semitic *š > *h (as in West Semitic) in some environments, but to *s in others. The obvious problems being that, apart from obvious Arabic loanwords in MSAL, there are no other instances in the lexicon in which [s] appears as a reflex of *PS *š. In order to explain this, Suchard posits a perceptual reinterpretation of the 3fs *š as *^ts due to its frequent occurrence following the feminine case ending *-t*. This account hinges upon two well-supported hypotheses:

1. That the reflex of Proto-Semitic *s was, in fact, an affricate⁶ in Proto-MSAL, or otherwise *[c] Kogan (2011c) and Testen (1998).
2. That the ancestor of MSAL had lost its case endings at the time this change occurred so that feminine nouns ended with *-t* rather than a vocalic case marker.

Suchard additionally notes that the *s1/š -> *s3/s shift has a close parallel in Akkadian where a similar reinterpretation is probably the simplest account of [-s] in 3fs

⁵As Kogan notes, it is widely held in Semitic linguistics that *s3 was, at an earlier time, an alveolar or palatal affricate in Proto-Modern South Arabian (Testen, 1998), but he did not extend this to an analysis of the pronouns (Kogan, 2011c, 68).

⁶This is a much discussed topic in the historical phonetics and phonology of Semitic languages and the current evidence seems to make this the most plausible scenario. See section 1.3 of Kogan (2011a) and Steiner (1982) for good discussions on the “affricate hypothesis”.

bound affixes. It finds further support in the MSAL words for ‘nine’ (Proto-Semitic $*tiš\dot{y}$, which are $s\bar{e}$ and $s\dot{o}y$ in Mehri and Šherēt, respectively. Barring Suchard’s explanation, we have two occurrences that are quite difficult to explain: First, that the $*t$ has been elided; and second, that the MSAL reflex of PS $*š/s1$ is unexpectedly $[s]$, where we would expect $[s̥]$ or $[ʃ]$ in Šherēt and $[f]$ or $[h]$ in Mehri. With Suchard’s account, we can easily conjecture that Proto-MSAL exhibited a form $*[tsa\dot{y}]$ or $*[tfa\dot{y}]$ ⁷, where $[ts]$ or $[tʃ]$ was reinterpreted as voiceless palatal obstruent⁸ $[c̥] < *[ts]$, and thereby ‘rescued’ from the conditioned sound change that made it so that clitic pronoun $*-š$ gets realized as $-h$ (Al-Jallad, 2014).

Reconstructing Proto-MSAL $*s/s3$ as something close to $[ts\sim c̥]$ is complemented by other evidence in addition to the convenient account it yields for the above problem. Ruling out $*s$ as a “plain” sibilant, the only reconstruction of $*š$ that appears sound on typological grounds is something like $[s]$, or more likely as “an intermediate hissing-hushing alveolar phone” (Kogan, 2011c, 69). From this, I will offer the following as the possible sibilants in a hypothetical Proto-Modern South Arabian and the extant daughter languages in Table 3.2 below.

Table 3.3: Non-emphatic sibilants in Proto-MSAL and its daughters

Proto-Semitic	$*š/s1$	$*ś/s2$	$*s/s3$
Proto-MSAL	$*[s\sim c̥]$	$*[ʃ]$	$*[ts\sim c̥]$
Mehri	$[f], [h]$	$[ʃ]$	$[s]$
Šherēt	$[s̥], [ʃ]$	$[ʃ]$	$[s]$
Soqotri	$[f]$	$[ʃ]$	$[s]$

⁷For contrary opinions on reconstruction, see Steiner (1982, 1-5)

⁸Kogan (2011c) lists $[c]$, citing early Semitic loanwords in Armenian, but does not elaborate further why the ubiquitous process of de-palatalization occurred. While the reflex of $*s$ being a palatal sound is well supported, it is unclear if he (and Yushmanov (1934) who he cites) actually envision it as a palatal stop. Given the compelling evidence that Kogan cites from loan words from Arabic, I find the hypothesis that it was an affricate in PS and earlier Arabic and was eventually realized as a sibilant in both Arabic and MSAL provincially satisfactory, if strange. I opted for the likely compromise between Kogan’s preference and Suchard’s: A voiceless palatal affricate.

Emphatics

Emphatics are a vaguely-defined class of phonemes that appear across the Semitic languages. The word ‘emphatic’ does not hold any generalizable meaning for the field of linguistics, but instead can be taken to mean a sort of markedness that differentiates these phonemes from ‘plain’ consonants, if one takes a dyadic view of them. The former view is typical of linguists and teachers that focus exclusively on modern varieties Arabic, and would tend to present, for example, /d^ɛ/ (represented by the Arabic letter *ḍād*) as the emphatic counterpart of /d/ (*dāl*) and represent voiced-voiceless opposition on a separate axis. Increasingly, though, a triadic model has become more popular. The triadic model, takes emphatic-voiceless-voiced relationships to be based on their diachronic patterning⁹.

The emphatics in Modern South Arabian languages are, in the great majority of cases, realized as glottalic. This means that a secondary articulation in the form of a post-release (in the case of stops) glottal closure is the primary way that an emphatic segment is differentiated from its plain counterpart. This mirrors the situation in Ethiopic Semitic and contrasts with the pharyngealized or velarized realizations found in Central Semitic languages like Arabic and Hebrew. MSALs maintain the distinction—lost in all spoken Arabic dialects but preserved in Classical Arabic—between the two coronal emphatics represented by the Arabic letters *ḍād* and *ẓā*. In contrast to Arabic, where this distinction is represented by a stop-continuant contrast at the alveolar or pre-dental place of articulation, MSALs preserve a lateral-central distinction. The lateral, which is the emphatic counterpart to /ɬ/ discussed in the subsection above, has become iconic of the Modern South Arabian languages, owing to its relative rarity in the world’s languages (Maddieson, 2003) and the well-supported hypothesis of a lateral emphatic existing in Quranic Arabic from the 7th

⁹This is based on Jeff Mielke’s *The Emergence of Distinctive Features*, was introduced in Watson (2002) and latter supported by the same author in a phonetics studies (Watson & Heselwood, 2016b)

century, and only recently becoming obsolete (Watson & Al-Azraqi, 2011).

Bilabials and glides

In the vast majority of cases, phonologically underlying bilabials [b, m, w] and glides [w, j] get elided intervocalically and result in long vowels. Additionally, glides are deleted in word-initial position (*waḵt > εḵt), realized as [b]¹⁰ before consonants (*da‘wah ‘invocation’ > da‘bah), and are raised to vowels word-finally. Interestingly, as Gravina (2014) notes, it seems that the seldom-surfacing /w/ phoneme in fact behaves identically to underlying /j/ in that it causes /əw/ sequences to be realized as [i] and /ɔw/ to be raised to [u]. Finally, there is nasal harmony within syllables that changes etymological /b/ into [m]. All syllables in the shape *bVn are realized as mVn such that we get *məstún* ‘plantation’ where in Arabic we have *bustān* (Rubin, 2014b, p. 33).

Exceptions

Rarely, intervocalic bilabials do emerge due to what Kiparsky (1968) termed the *feeding order* of a set of phonological rules. When rule ordering produces surface forms that would otherwise be prohibited by a language’s phonological rules, it is called phonological *opacity*. By looking to the places of exceptions of otherwise categorical rules with an eye to other rules in the language, we can tease out the order in which rules are applied in a language. Given the robustness of intervocalic elision in Šherēt-Jibbāli, the rare emergence of bilabials intervocalically in surface realizations can, with some degree of certainty, attributed to one of two facts: either the bilabial segment is not intervocalic in the underlying form, and some other phonological process or combination of processes (metathesis, /w/->[b] fortition, etc.) created an intervocalic bilabial in the surface form *after* the point in the phonological process

¹⁰A preliminary analysis on Praat shows considerable spirantization for this segment, suggesting that it may be more like the Spanish realization of *v* as [β]

when the bilabial elision rule was applied; or else there is an underlying geminate that blocks elision that gets degeminated in the surface form. Possessive suffixes (especially 3rd person possessives, but also sometimes 2nd and 1st person) in words with final stress in their unaffixed form seem to preserve intervocalic bilabials. Rubin gives the example of *εslóbέś* ‘his arms’, *kəlóbέś* ‘his dogs’, *axśómέś* ‘his enemies’ from Johnstone’s texts (Johnstone, 1981, p. 30-32). It additionally occurs where there is metathesis to address phonotactic and syllabic constraints. These constraints are generally answered by metathesis or epenthesis, yielding surface forms with intervocalic bilabials (*həmərún* < **həmrrún*). Additionally, if we posit epenthetic vowels for the possessive suffixes, then we have to account for very few exceptions to a general rule. Rubin, as a final point, mentions that intervocalic bilabials surface where one of the vowels is long. All of the examples he provides here suggest that it is probably not the fact of the vowels being long which block elision, but rather the fact that the bilabials are not underlying intervocalic or else are (de)geminated, but it that the surface form is the result of metathesis or lengthening discussed in Gravina (2014) and Dufour (2016). One can also wonder if the variation he notes in forms like *k̄i* ~ *k̄bi* < **k̄ɛlb+i* have to do with the status of /l/ vocalization for a particular speaker. Following this line of speculation, for speakers where /l/ vocalization is lexicalized (i.e. the representation in the lexicon is /kɔb/, not /kɔlb/ or /kɛlb/) /b/ becomes phonologically intervocalic and is elided. In others, the /l/ is vocalized productively but not before it blocks bilabial elision.

Finally, if the VbV sequence is immediately preceded by a geminate, the result is a glide-consonant sequence rather than a long vowel. For example, */yəkkeber/ is realized as [yəkk.yer] but never *[yək.ke:r].

The affrication of *ghayn*

An interesting, and perhaps unique, aspect of the Arabic of coastal Dhofar is the merger of /ɣ/ and /q/ such that a word like /qamar/ ‘moon’ tends to be pronounced [ɣamar] (Davey, 2016). It is safe to say that this merger arises from a South Arabian substrate, but it is not sufficient to say that this phenomenon is the merely result of interference of MSAL on the local Arabic phonology. The MSALs, after all, maintain a clear distinction between the two cognate phonemes of *qaf* and *ghayn* in cognate words. The solution, I believe, rests in the manner of articulation of MSAL uvulars and particularly the proximity of the cognate of *ghayn* in MSAL to the Arabic *qaf*. In word-initial position, /ɣ/ words are not pronounced as voiced pharyngeal or velar fricatives as they are in Arabic, but rather as uvular affricate like [qχ], or and sometimes as an ejective [χʼ]. I propose that the presence of this sound, and the absence of the plain uvular stop /q/ among MSAL speakers, led to the merger of /ɣ/ and /q/ in the early days of Arabicization¹¹.

This merger was apparent not only in the phonetic analysis, but also when Šherēt-Jibbāli speakers would use the Arabic alphabet to write Šherēt-Jibbāli words. For example, the word /k'o:r/ (from Arabic, /qab(a)r/) was spelled *ghayn-wāw-rā* and *qāf-wāw-rā* by the same speaker. If the Šherēt-Jibbāli cognate of /ɣ/ was a voiced velar fricative as it is often said to be, this variation would be difficult to explain. If we instead consider the Šherēt-Jibbāli reflex to be almost exactly between Arabic's /q/ and /ɣ/ in terms of voicing and place of articulation, then it becomes easier.

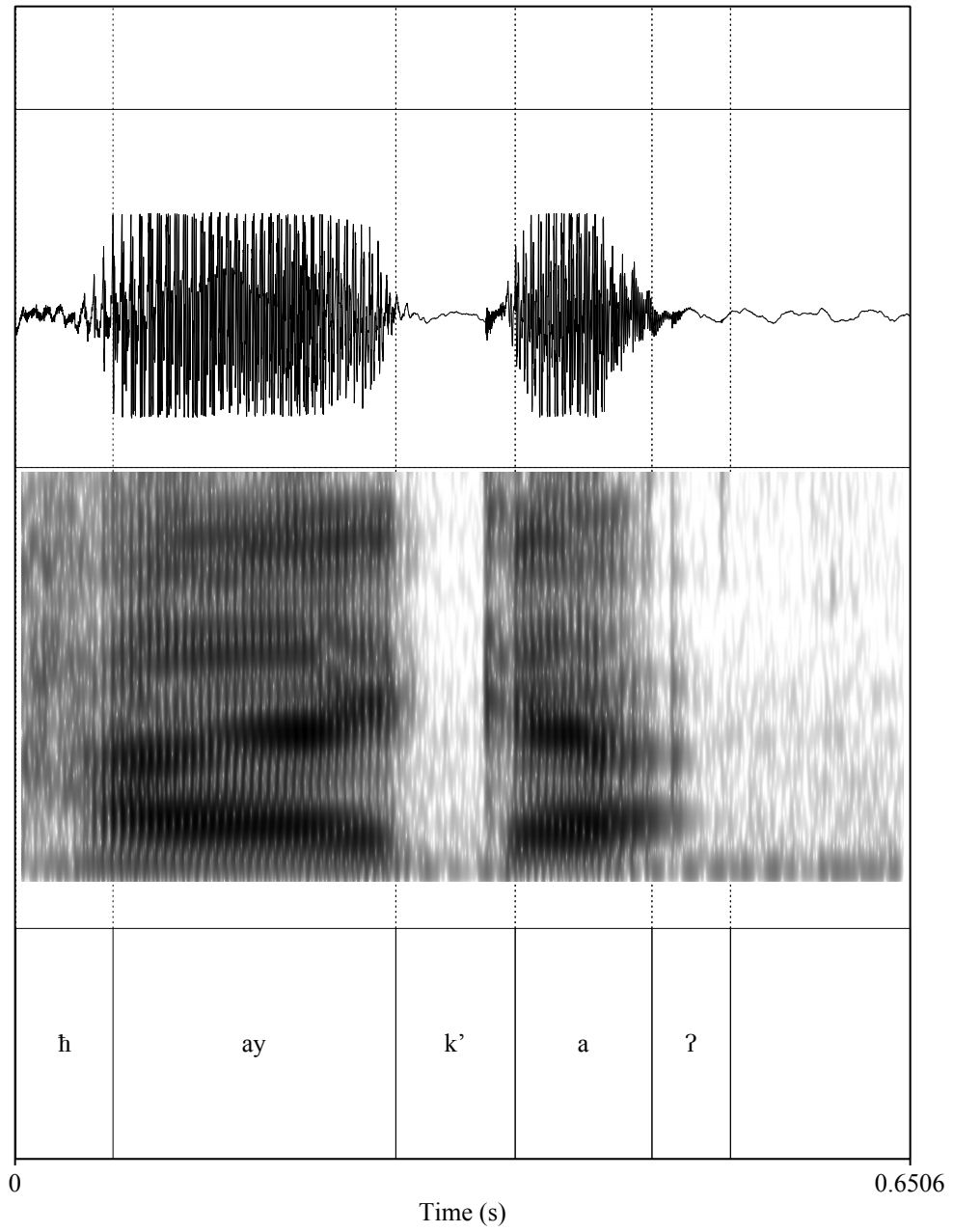
Word-final voiced consonants

Watson & Heselwood (2016a) give a great overview of the processes of anticipatory

¹¹Davey (2016, p. 19) devotes space to this discussion, and notes that Müller's primary consultant for his Šherēt-Jibbāli data, Mḥammed bin Sēlim al-Ktīrī, recorded his place of origin as *ʕabjet* < **ʕawjet* < Ar. *ʕuqad* (Auqad, a community just west of Salalah). The alternation between Arabic /q/ and Šherēt-Jibbāli /ɣ/ (*ǰ*) suggested by Müller's transcription underscores that Arabic's /q/ and its Šherēt-Jibbāli cognate /k'/ are perceptually dissimilar for Šherēt-Jibbāli speakers.

glottalization of pre-pausal voiced consonants and emphatics. This entails an extremely audible glottal closure that often results in the total attenuation of [l, r, m, n] word finally and the neutralization of voiced-emphatic distinctions in the same position (e.g. /g~ʃ#/ and /k'#/). Where the attenuated segment is a nasal, the preceding vowel often retains nasalization. Figure 3.1 below show a spectrogram of the word *hāḳal*, ‘camel’, where the glottalization can be clearly seen both in the absence of the final lateral in the spectrogram and in the spike in fundamental formant frequency (f0).

Figure 3.1: Elicitation of the word *hākāl* with strong pre-pausal glottalization



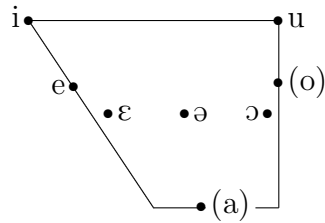
3.3 Vowels

Vowels often take a backseat to consonants in linguistic studies of Semitic. This is due to the fact that Semitic languages tend to have relatively small vowel inventories, and comparatively rich consonant inventories which combine prototypically into tripartite roots which circumscribe the semantic possibilities of the word; the function of vowels becomes almost exclusively morphological. Though on the latter point Šherēt-Jibbāli is no exception, it has the distinction of having considerably more vowels than is typical of Semitic languages. Additionally these vowels are at the center of a wide range of morphophonological processes that render consonantal roots and morphological patterns—two remarkably straightforward aspects of Arabic and even other MSALs—extremely opaque on both a historical and synchronic level. Moreover, many of these processes are typologically uncommon and should be of general interest to linguists. Except where I note otherwise, all the analysis here is a reorganization of what is found in Gravina (2014) and Dufour (2016), and supplemented with phonetic analysis from my own fieldwork. The vowel inventory I provide rests on a thorough description of the phonological processes in the language. Without regard to these various processes and their ordering, the morphology of Šherēt-Jibbāli can only be seen as dizzyingly complex, if not downright chaotic. Once appropriately explained, Šherēt-Jibbāli reveals itself to have a relatively constrained set of morphological templates that lend themselves readily to comparison with other Semitic languages. The important rules for understanding surface vowel quality and duration, as well as most other aspects of the language’s segmental phonology, are ordered as follows:

schwa deletion » nasal raising » harmony » bilabial elision » guttural
conditioning » ungliding » liquid metathesis » sVh metathesis.

The final justification for this rule ordering can be found at the end of this Phonology in a subsection entitled “Metathesis, deletion, and opacity”. Below is a provi-

sional chart showing the phonemic vowel inventory of Šherēt-Jibbāli. Data that challenges this analysis will be discussed in the following section.



The system can be best analyzed as having six full phonemic vowel qualities / ϵ , e, i, ɔ, u, ə/ with two additional qualities that are affected by adjacent consonantal segments /a, o/. There is also an underspecified vowel whose quality is affected by other vowels in the word, and that is easily recognizable in part because it is much shorter than the full vowels.

Quantity, duration, and stress

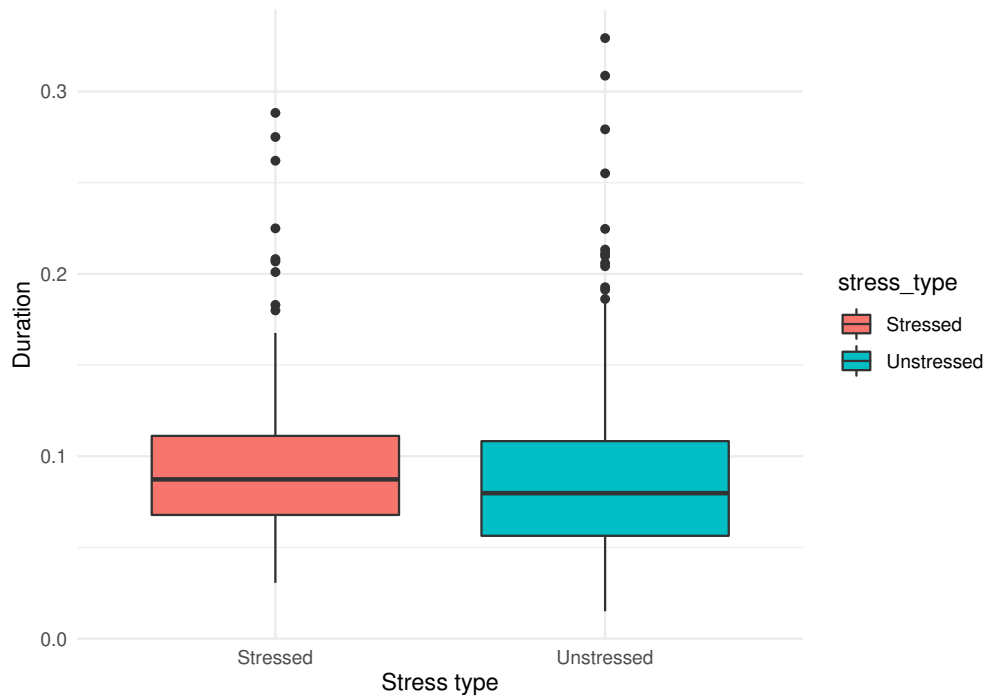
All of the original vowel length distinctions that were inherited by Modern South Arabian from Semitic have been lost in Šherēt-Jibbāli and Soqotri. There are, however, ‘new’ long vowel counterparts for each item in the vowel inventory. These can, with some degree of caution, be deemed non-phonemic due to their clear interaction with other phonological processes and the morphological paradigms in which they surface. These vowels emerge due to one of three processes:

1. The elision of bilabial segments intervocalically
2. The vocalization of prevocalic glides
3. The metathesis of liquid-vowel sequences.

All of these processes have essentially a single outcome: Adjacent vowel segments which are then fused into a single segment, retaining the quality of its most prosodically prominent constituent. Plain short vowels in Šherēt-Jibbāli seem to have little

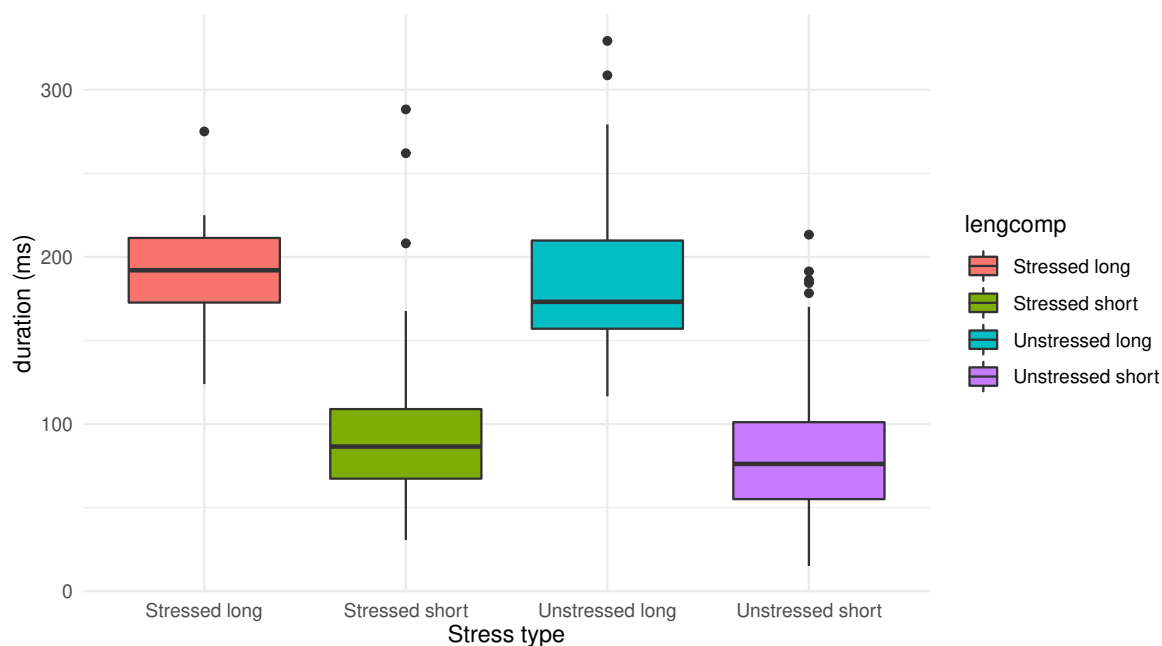
inter-speaker variation. Similarly, long vowels retain the full timing slots of the original segments, and often surface as fully double the length of the original vowels. Long vowels, due to the unrestricted distribution of bilabials, can occur in any prosodic position relative to the point of primary stress. Figure 3.2 below shows the average length of vowels in my data irrespective of prosodic position.

Figure 3.2: All vowel durations averaged, in seconds



Dufour and Rubin agree with Johnstone that the difference in vowel length between stressed and unstressed vowels is relatively small. Dufour, agreeing with *JL* (p. 28), claims that tonic lengthening is virtually non-existent. My research (Figure 3.3) shows that this is largely true. The average length of non-stressed short vowels ($n = 166$) is 88 ms, compared to 91 ms for all stressed vowels ($n = 216$). The difference in mean+SD for duration between stressed and unstressed short vowels differ by approximately 6.8 ms. The difference in mean-SD for the same set is approximately 8.4 ms. The average length of long vowels ($n = 32$) in the data is 195 ms.

Figure 3.3: Vowel duration as a function of syllable type, in ms.



Quality

Quality and long vowels

In cases where the elision of intervocalic bilabial segments yields a long vowel, there is a hierarchy which determines the quality of the resulting long vowel. This hierarchy can be summarized simply: If the two vowels are identical in quality, the resulting long vowel will be of the same quality. Otherwise, if the vowel with primary stress matches or exceeds the other in terms of height or tenseness, or if the other vowel is a schwa, then the result is a long vowel of the quality of the stressed vowel.

In cases where the stressed vowel does not match or exceed the other in terms of height and/or tenseness, the result will be a vowel-glide-vowel sequence rather than a long vowel. For example, /eβε/ yields [ə.'yε], /eβə/ > [ə.'yə] and /emə/ > [ə.'yu] /yəħebór/ > [yəħ(ə)yór]; /t'əhemót/ > [t'əhyūt]¹².

¹²See 'nasal raising' below for /Nə/ > [Nu]

Local phonological effects of vowel quality

Vowel quality is also affected by phonological processes, including adjacent nasal and guttural consonant. There is also regressive vowel harmony, where vowels later in the word can trigger a leftward (in terms of Latin orthography) raising of preceding vowels. The outcomes of these processes are described below, and will be summarized in the final section of the phonology chapter regarding how they interact with other processes. The following rules apply to both short and long vowels:

Nasal raising

Whenever one of the vowels listed below occurs before a nasals [m, n]:

- /e/ raises to [i]
- /o/ raises to [u]
- /ɔ/ raises to [u]

Vowel harmony

A ‘rightmost’ [i~əj] in the underlying or surface form triggers regressive harmony for vowels preceding it.

- /e/ raises to [i]
- /ɔ/ raises to [u]
- /o/ raises to [u]

Guttural lowering

A guttural [h, ħ, x, ɣ, ʕ] preceding a /u/ or /e/ triggers lowering:

/ɛ/ > a /u/ lowers to [o] /e/ lowers to [a, ɛ]

3.4 Deletion, metathesis, epenthesis, and opacity

This final section deals with the remaining interactions between segments which affect the segmental and prosodic environment of Šherēt-Jibbāli words.

Schwa deletion

Gravina and Dufour note that schwa gets deleted between two identical consonants, so that *sebəb* ‘he insulted’ > *sebb*

Metathesis

Liquid metathesis

The other source of long vowels in Šherēt-Jibbāli is through the metathesis of liquids /r, l/ in syllable onsets. In VIV contexts, metathesize occurs that yields VVI on the surface: CV.IV.CVC > CVVL.CVC.

- */dɔləfət/ > [dɔ:l'fət]
- */derəgət/ > [der'gət]

Liquid metathesis occurs after the elision of bilabials. This is clear by comparing the following example to the two above:

- */derəmət/ > [de'rũ:t] (*der'mut)

SVH > SHV metathesis

In initial CVC syllables where C1 is a sibilant and C2 is a guttural, C2 undergoes metathesis with the vowel to create an onset cluster. In the process, the nuclear schwa is promoted to an epsilon. This can be clearly seen in the name for the language.

- [ʃherɛt] < */ʃəhrɛyɛt/ cf. [məhrɛyyɛt] (Mhr. ‘Mehri’)

Ungliding

Final vowel-glide sequences generated by a glide-final radical within a given morphological template are always realized as final vowels. Etymological /w/ behaves identically to /j/.

final /əj/ /i/ final /aj/ /a/

Epenthetic vowel

Epenthetic schwas repair deficient syllables. These syllables emerge from local phonotactics within assigned morphological patterns, or are created by other processes where phonotactically sound solutions were blocked by other constraints within the grammar. Schwa epenthesis tends to occur between voiceless stop consonants and glides, and between guttural consonants and glides or sonorants.

3.5 Ordering of rules

schwa deletion » nasal raising : vowel harmony : bilabial elision : SVH metathesis » guttural lowering » ungliding » liquid metathesis. This ordering of rules represents a modified version of what appears in Gravina. The addition of liquid metathesis and SVH metathesis is according to Dufour, who is not explicit about how these two processes order with the remaining ones.

SVH metathesis » guttural lowering

[ʃhɛrɛt] < *[ʃhɛrɛt]

Ungliding » liquid metathesis

/ʔəhɾɛyɛt/ > [ʃhɛrɛt] *not* *[ʃharɛt] *[ʃhɛryɛt]

3.6 Suprasegmentals

Suprasegmentals are those features that have been considered to exist on a tier above vowels and consonants, those features of language which have traditionally been analyzed as segments. These include prosody (stress, tone, and intonation), and also types of coarticulation like nasalization, voice quality, and duration. One needs only to begin to probe the boundary between the so-called segment and this extra information before problems with this approach to language present themselves. Nevertheless, the segmental-suprasegmental dichotomy has been the starting point for phonological analysis.

Stress

One of the interesting effects that the phonology of Šherēt-Jibbāli has resulted in, particularly the bilabial elision, is a remarkably opaque system of stress assignment. Despite the fact that the eccentricities of Šherēt-Jibbāli prosody have garnered numerous remarks, no systematic attempt has been made to describe the prosody of Šherēt-Jibbāli. The earliest notice of the problems that this study seeks to tease out came from Johnstone's *Jibbāli Lexicon*, where often marks two or even points of *primary* stress within a single lexical item. Understandably, this has raised not a few eyebrows from linguists who hold to the sacrosanct principle of *culminativity*, which holds that there must be exactly one point of highest prominence in every word (Hyman, 2006). The response has been to try to conform the Šherēt-Jibbāli data to a more linguistically-correct model without actually revisiting the reasons for which Johnstone made this controversial claim. This varies between Rubin, who dismisses the extra accents in Johnstone's transcriptions as extraneous, and Dufour who perceives that Johnstone was attending to subtleties in vowel quality, and uses his 'extra' points of stress to distinguish between "full" vowels and underlying schwa (Dufour, 2016, p. 45).

The Modern South Arabian languages have been universally characterized as existing in one of two systems: A predictable, algorithmic stress system like that of Mehri, and a fixed stress system represented by Soqoṭri alone. Beginning with the similarities, all three systems through a system of (mostly tri-)consonantal roots, which are stored in the lexicon, and assigned set morphological patterns based on the noun or verb class in question. Šherēt-Jibbāli is most often likened to Soqoṭri with regards to other aspects of its grammar, but regarding stress it has been said to correspond with Mehri (Al Kathiri & Dufour, 2020). This becomes problematic when one considers that Mehri’s stress assignment is bound up with syllable weight, and particularly with vowel quantity. It is important to point out some important differences between more-or-less predictable systems like Mehri and Arabic, and the Šherēt-Jibbāli system. Changes in the segmental phonology of Šherēt-Jibbāli would seem to necessarily contradict claims that the systems of Mehri and Šherēt-Jibbāli are essential, unless one is to believe that there was a very neatly corresponding change in the stress algorithm, which seems improbable. Below are the rules for Mehri stress as described by Watson (2012); Watson & al Mahri (2018). Note that in Mehri, syllable weight determines placement of prosodic stress:

- Final CVVC or CVCC syllables get stress,
- If not, non-final CVVC or CVCC,
- If not, ‘rightmost’ CVV or CVC.

Though it is true that Šherēt-Jibbāli aligns in the majority of cases with Mehri in most cases (Al Kathiri & Dufour, 2020), Šherēt-Jibbāli, like Soqoṭri, and unlike Mehri, has lost all of the original vowel length distinctions that were present in Proto-MSAL. Because of this, the connection between stress placement and syllabic structure, which is transparent in Mehri, has been rendered opaque in Šherēt-Jibbāli. This opacity has been amplified by the emergence of new long vowel qualities from

processes of intervocalic elision and metathesis. In several cases this has resulted in super-heavy syllables in unstressed positions. This is no more clear than in diminutives. Compare the diminutives in Mehri and Šherēt-Jibbāli :

Gloss	Mehreyyet	Šherēt-Jibbāli
'heart'	ḵəwēlēb	ḵēlēb
'girl'	ɣəgənēwōt	ɣēbɟót
'kid'	ḥəwāṭār	šēṭár
'boy'	ḥəmbəráwtən	(a)mbēŕé

It's important to note that the *ḥa-* in the last two Mehri forms are frozen forms of the definite article. It's tempting to reconstruct an earlier form of the Šherēt-Jibbāli item *ḵēlēb* as having precisely the same template as it's Mehri equivalent, with the process of $VwV > \bar{V}$ creating the current form. If, by analogy, one can accept that the earlier diminutive of the word 'girl' had the same template, then you can **ɣəwēgōt*, with predictable stress on a final CVVC syllable, yielding the current form *ɣēbɟót* where a heavy CVC syllable is preferred over a superheavy CVVC. Perhaps even more interesting is (a)mbēŕé, where a light CV syllable receives primary stress over a heavy CVV syllable. Here we can suspect the processes of liquid metathesis and the prohibition on word-final glides as conspiring to create opacity in the prosodic system.

It is also the case that nearly all Arabic varieties, with the possible exception of Sudanese (Dickins, 2007), pattern more like Mehri than like Šherēt-Jibbāli : Vowel length is phonemic, and different prosodic patterns from the morphology have phonologically predictable stress assignment that can be explained via algorithm.

If Šherēt-Jibbāli and Soqoṭri constitute, as Lonnet (2008) has suggested, special genealogical subgrouping of MSAL, then it is likely that the loss vowel length distinction is a characteristic of this group. Like Mehri and unlike Šherēt-Jibbāli, however, Soqoṭri stress is assigned by the morphology and surfaces in predictable patterns.

Though stressed vowels in Soqoṭri can, and often do, undergo compensatory lengthening, there is a different feature of Soqoṭri, known as *parasitic h* ((Simeone-Senelle, 2011), that only this member exhibits. Both processes, in any case, yield a heavy CVV or CVC syllable. Below are cognates between Šherēt-Jibbāli and Soqoṭri demonstrating this contrast:

	Soqoṭri	Šherēt-Jibbāli
black (f. pl)	ḥawrhétən	ḥerətə
girl (dim.)	‘ougéno	ḡēbgót
boy (dim.)	mábrəhe	mbéré

The fact of opaque prominence becomes even more interesting when the correlates of prosodic prominence in the language are closely examined. As has already been noted in Dufour (2016, p. 29) there is practically no difference between vowel length in stressed and prestressed position. This is not categorically true, however, as my data shows that there are contexts when duration is privileged as a correlate to stress. The goal of this thesis is to measure and describe Šherēt-Jibbāli prosody phonetically in terms of various cues—duration, pitch, voice quality, and intensity. At the end of this thesis, the typological nature and origin of Šherēt-Jibbāli prosody is discussed, albeit without a definite conclusion. I leave with a hypothesis, based on the data presented in the thesis, that this variance is systematic; that it is in fact co-variance with other cues and that the privileging of duration for cueing stress is due primarily to the fact of f0 correlating to another prosodic process altogether. I use the purported relationship between Soqoṭri and Šherēt-Jibbāli as a starting point for this discussion, with a special interest in comments that have been made by Dufour in his work on Soqoṭri.

Chapter 4 Theoretical background

4.1 Prosodic systems

Prosody in linguistics refers to a subset of phonology that concerns the melody and rhythm of a language. If languages are taken to consist of *segments*—that is, consonants and vowels—then prosody encompasses both the phenomenon of prominence (stress) and the additional sites of meaning-making (intonation and tone) which operate above the level of the segment. Prosody is therefore *suprasegmental*. The way that languages treat prosody at the level of the word is traditionally viewed on continuum. On one end of the continuum there are languages where prominence, the part of a word that is perceived by some arbitrary metric to be most salient, is cued by a constellation of variables often including intensity, duration, and pitch. These are called ‘*stress accent languages*’, or ‘simply stress languages’. In languages of this type such as Spanish, stress can be a predictable epiphenomenon of a word’s phonological shape, determined by some combination of the ‘weight’ of the accent-bearing units (syllables or moras) and the position of these units within the larger word. Or else, in languages like English and Russian, the stress for every word (or some subset of words) inheres in the lexicon, and is unpredictable. The other end of the continuum are languages where information about pitch is stored along with the segmental information in units known as tones. In order to be considered a ‘tone’, this unit must be something beyond an epiphenomenon of other phonological processes. Tone can vary in its functional load, from marginally tonal languages where tone is never used to distinguish between lexical items to languages where tonal contrast can be a major locus of meaning. Just as exchanging the /b/ in the word ‘bat’ for a /p/ would fundamentally change the meaning in English, switching the level tone in the Mandarin Chinese word [mā] for a falling tone [mà] changes the meaning from ‘mother’

to ‘scold’. In tone languages, it can be obligatory for every accent-bearing unit to be marked with a tone or a tone contour, as in the Chinese languages. Alternatively, there can be one or more obligatory tones per lexical item, or tones in some but not all items.

In these last two subtypes of tone languages include languages with privative tone (where units can have either high tone or no tone), binary tone (high and low), or complex (e.g. high, low, mid, etc.). Languages can have level or contour tones. Languages such as Japanese and Swedish with a restricted tone that occurs at the point of maximum prominence have been traditionally called *pitch-accent languages*, a term eschewed by Larry Hyman for reasons I will return to. Finally, it is possible for tone to co-occur with, while still functioning independently of, metrical prominence stress. These languages which have independent stress and tone are said to have *complex systems*. Remijsen (2014) and Hyslop (2009) both give great overviews of the phonetic and phonological profiles of languages that fall into the category of complex system.

World Atlas of Language Structures (WALS) maintained by Ian Maddieson is a large database of the world’s languages coded for phonological, lexical, and morphosyntactic features. Of the 527 languages surveyed on the World Atlas of Language Structures (WALS), 307 of them exhibit no tone, 132 have a private or binary tone system, and 88 have more than two tones (Maddieson, 2003). In terms of stress, 193 out of 501 total have stress that is predictable based on syllable weight and position within the word, and the remaining 307 have unpredictable stress.

Larry Hyman, who is unparalleled in his commitment to advancing our understanding of word-level prosody, has identified a fundamentally misguided approach to phonological typology which is eager to *label* languages rather than furnish useful descriptions of how different languages make meaningful use of phonetic material. He singles out the so-called pitch accent as emblematic of this approach. Hyman argues

that the so-called pitch accent language is a typologically incoherent category for the reason that it has historically been applied to languages that are strictly tonal, languages with predictable stress that is cued by f_0 , and languages with a combination of stress and tone (Hyman, 2009). Recognizing that rigor is often the friend to simplicity, Hyman suggests that we ask the follow basic questions when studying word prosody: *what are the prosodic properties of the language that we are studying? Does it have stress? Does it have tone? How do each of these properties function in the context of the larger phonological system?* In my discussion, when I make reference to tone and issues of prosodic typology, I do so in light of Hyman’s entreaty for a property-driven approach.

Change in prosodic systems

Changes in prosodic systems can affect the tiers of stress, tone, or intonation. Changes in stress can be conditioned, for example, by the way that consonant codas are interpreted with regard to syllable weight. It can also be conditioned by the gain or loss of vowel quantity distinctions; the loss of particular phonological or morphological features by position; or through borrowing from another language with a different stress pattern. The response to these changes and introductions can result in changes in the stress algorithm which predicts stress, the collapse of predictable stress altogether (as in Soqotri), or something in the middle of the two. English is often interpreted as having only semi-predictable stress that interacts with different etymologically segregated levels of affixation (Burzio & Luigi, 1994). The degree of productivity of these processes, as is usually the case in phonology, is a matter of some debate. Chomsky & Halle (1968, p. 150), for example, first addressed the apparent irregularity in the English stress assignment by positing underlying geminates in words like *giraffe*, claiming that the “underlying” pronunciation upon which stress is assigned includes a geminate-vowel final sequence / dʒi.ræf.fe /. Their account is perhaps the quintessen-

tial example of the potential for a gulf between a linguistic explanation that is elegant and one that is satisfying.

Haudricourt (1954) offered the first phonetically-motivated account of the emergence of tone in his account of Vietnamese. This process is now known by the term coined by Matisoff, *tonogenesis* (Matisoff, 1970). Languages can also lose their tones in a process that, by analogy, has been called *tonoexodus*. Since Haudricourt's seminal work, the typology of tonogenesis has blossomed into a rich and variegated field. Listener-driven approaches have helped to address the actuation problem: How do mental representations change across a population? Additionally, non-phonetic sociolinguistic accounts have been posited for tonogenesis (Gussenhoven, 2000) which have massively broadened our understanding of the possibility origins of tonogenesis. Here I will overview the major developments in the study of tone since the 1950s.

Languages can also undergo the loss of tone. Li (1986) explains the tone loss in the Sino-Tibetan language of Wutun as having to do with contact and, here specifically, creolization. The author compares this to the tonal Krio language of Sierra Leone which resulted from the contact between English and one or more Bantu languages. Clements & Goldsmith (1984) propose language-internal reasons for Bantu, saying that areal contact-driven tone loss is improbable given that all of the surrounding languages are tonal. In an article published a few years later, Goldsmith clarifies that reinterpretation of high tone might be one such language-internal factor. Lien (1986) argues that phonetic realizations and phonological representations conspired to neutralize tonal distinctiveness in some environments in Northern Chinese dialects. Salmons (1992) rejects the characterization of a tone-to-stress shift as a process of simplification, and additionally proposes changes in the role of obligatory intonational contour and sociolinguistic factors such as intonational variation linked to politeness and prestige as motivating factors in prosodic shift away from tone.

Phonation, pitch, and phonologization

There has been much discussion of the effects of consonant class on adjacent (particularly following) vowels. *Class* here has been generally understood to refer to voice quality, and while the effects of airflow in the vocal tract certainly have physiological effects on adjacent segments, there are other concurrent physiological and phonological considerations that make the classing of consonants into voiced/voiceless binaries not appropriate when taken as a priori categories that are generalizable cross-linguistically. It would be more precise to analyze the phenomenon of phonetic pitch variation in reference to laryngeal setting rather than voice quality. This is discussed with regard to Modern South Arabian in Section 3 of this thesis. The research on phonation type and pitch will be discussed here, concluding with a discussion of prototypical tonogenesis in which physiologically-motivated variance in pitch can become phonologized as tone.

Kirby & Ladd (2016) refer to the physiological effect of laryngeal setting on following vowels as the onset voicing effect. Research on the effect of voiced and voiceless consonants on adjacent vowels in English began with House & Fairbanks (1953). Despite methodological concerns—namely that the authors combined the results real and nonce words in their study—their findings that f_0 tends to be higher at vowel onsets following voiceless vowels than those following voiced ones has been reproduced in numerous studies. Most important among these is Lehiste & Peterson (1961) which supports the existence of onset voicing effect, and additionally notes the frequent occurrence of high falling pitch contour on vowels following voiceless consonants as opposed to a rising-falling one following voiced consonants.

Aspiration has also been studied for its effects on VOT but these have been generally inconclusive (Hanson, 2009; Hombert et al., 1979). Additionally, Hanson reports on Korean which exhibits, like Semitic, a three-way consonant distinction. In Korean, none of the three classes are categorically voiced; similarly, in Semitic

voiced consonants pair with emphatics which can themselves be voiced or voiceless. The effect of consonant onsets on the f_0 of Korean vowels, rather than diminishing across the duration of the vowel as it does in English, persists throughout the vowel. These data suggest that in Korean, the effects of f_0 are phonological rather than physiological.

Haudricourt’s classic account of tonogenesis in Vietnamese, which has become the prototypical example of the process, focused on consonantal segments as the origin of tonal contrast. He did so without explicitly linking the development of tone to physiological effects of consonant articulation—which, in any case, was poorly understood in the mid-1950s—though his paper did clear the way to the recognition that consonant voicing contrasts seemed to correlate to tone contrasts (as noted in Hombert 1978) and later to the revision in Thurgood (2002) that this type of tonogenesis should be viewed not in terms of segmental contrasts, *per se*, but rather in terms of the phonologization of the physiological effects of the segments inherent features. Specifically, Thurgood looks to laryngeal setting as the driver of inherent phonetic variation of f_0 on the following vowels. In his account, rather than looking merely to the onset consonants—originally voiceless onset consonants yield rising tones, and originally voiced yield falling—Thurgood considers the register (voice qualities as a phenomenon linked to the tension of the speaker’s larynx). In this account, both onset and coda consonants contribute to perturbations in f_0 . These perturbations are taken to be epiphenomenal¹, but once the original voicing distinctions of onset consonants were collapsed, these pitch contour became estranged from their physiological source and phonologized as sites of contrast in themselves.

Thurgood’s revision to the phonetic account of tonogenesis is part of a long shift away from a long-standing bias toward a segment-centric approach to phonology.

¹Though, as Beddor (2009) argues, more often perceptually helpful cues to the source “segment” and often more important than information that occurs in the timing slot of the segment itself. For Beddor, coarticulation is not noise, *contra* Ohala (1981).

This bias is ossified in international phonetic alphabet, a tool intended as a system to transcribe fine phonetic detail that, while valuable, has the effect of obscuring important differences between the phonetic realization of “similar” segments in a language. Mielke (2008) went further, arguing that the prevailing logic of phonological “natural classes” flies in the face of phonetic reality where exceptions outnumber the rule. Mielke advocates for an approach that regards both the synchronic phonetic realization (as is standard practice when determining which consonants pattern together as a “class”) and the historical categories that act as the plate tectonics of a language upon which phonological processes operate, but which very often elude a priori classification like *voiced* and *voiceless*. Mielke refers to this interplay between genealogical and synchronic patterning as Emergent Feature Theory. His work, through its uptake by Watson & Heselwood (2016a), has been instrumental in describing the phonological patterning of Semitic consonants.

Listener-driven sound change

Already by the early 20th century, linguists Paul (1888) and Baudouin de Courtenay (1895 [1972]) had speculated on the possibility of listener interpretation driving sound change. This hypothesis largely dormant in the field, with historical linguists dominating the study with a philological, monadic, speaker-centered account. Ohala (1993, p. 261) proposed that it was possible to empirically ground theories of historical sound change by recreating the supposed conditions of a change in a laboratory setting. Ohala posited coarticulation as generating noise which “distorts” the signal and leads to listener reinterpretation. Reanalysis of phonetic cues, in Ohala’s account, were importantly *mis*interpretations. The assumption being that there is an ideal primary cue that is accompanied by noise, and that *correct* interpretation involved listener compensation for noise. Beddor (2009) made an important revision to Ohala’s model, asserting that coarticulation is not noise but rather important per-

ceptual information. In Beddor's model, the salience and potential reordering of a given phonetic cue involve the listener-turned-speaker's privileging those cues which most efficiently facilitate perception.

Listener-driven models are true to the dyadic nature of speech. By showing how the listener is indispensable to sound change, proponents of these models have provided an explanation for how physiologically-motivated adjustments in articulation could lead to changes in phonological representations, and more importantly, how changes in phonological representation could precede any changes in articulation altogether. Moreover, these models have helped to break down the rigid divide between synchronic and diachronic linguistics that have existed since De Saussure (2011 [1916]), and have signaled the advent of laboratory phonology.

Diachronic contact-driven tone

Gussenhoven (2000) gave a fascinating, albeit controversial, account of tonogenesis in Central Franconian. Gussenhoven's argument hinges upon two closely related varieties of German coming into contact with one another after having experienced divergent patterns of sound change. Gussenhoven's account stands out because it is not phonetic in the sense that it does not hinge on coarticulation and the reordering of perceptual cues (as in the revised prototypical model of tonogenesis discussed above) but rather in a sociolinguistic milieu characterized by large differences in prestige between two closely-related dialects in a situation of intense contact. In Gussenhoven's analysis, tone emerged as a result of the competing interests of prestige and maintenance of phonological contrast.

One variety was the high-prestige variety of Cologne. The other variety or group of varieties was a low prestige variety of immigrants, possibly that of migrant laborers who arrived in the 13th century. A combination of Open Syllable Lengthening (CV\$ > CV:), apocope (CVCə > CVC), and analogical lengthening (a long vowel triggers

the lengthening of a corresponding vowel in a phonetically- or morphologically-related word) which affected both of these varieties, but in different ways, threatened pernicious syncretism in the nominal number paradigm² for the low-prestige migrant dialect if it were to accommodate the other.

Speakers of the former variety, feeling the social pressure to accommodate the phonetic realizations of their high-prestige neighbors, but possessing a language that couldn't afford to accept the latter's vowel quantity distinctions without consequently taking on a massive amount of homophony, "faked" vowel lengths by adopting the intonational contours of long vowels *without* the adopting the expected changes in duration. These contours became phonologized as tone.

This account has had a few detractors and has provoked a running debate with Boersma (2017), who offered a purely phonetic account in response. Gussenhoven has since dedicated an article to addressing these contentions (Gussenhoven et al., 2018), and his account remains the only one that seems to satisfactorily address all of the problems and geographical contingencies of Central Franconian tone.

The similarities between the context of Central Franconian tonogenesis described in Gussenhoven and the case of Šherēt-Jibbāli described in this paper are remarkably similar. Šherēt-Jibbāli and Mehri are closely related languages, and Šherēt-Jibbāli (like Central Franconian) has lost its original vowel quantity distinctions and gained new ones, making for many cases of cognates shared between the two languages where the same rules of stress placement that govern Mehri cannot be applied in Šherēt-Jibbāli. In the final part of this thesis I discuss the probability of a similar kind of "faking" prominence in Šherēt-Jibbāli leading to changes in the phonological representations of words so that they can have more than one point of prominence.

²Singular and plural would have become homophones for every item affected by this change.

4.2 Acoustic correlates of stress

The correlates to lexical stress vary across languages, and may surface as increased intensity, longer duration, raised fundamental frequency, and changes in vowel quality (Gordon et al., 2002). The research on stress has resoundingly established it as a rooted in perception; rather than being tied to discrete cues produced by speakers, it is the result of attention to a constellation of cues that show some consistent patterns across languages in spite of being highly variable and ultimately language-specific. Moreover, the phonetic realization of stress is affected by other aspects of the language's phonology, especially phrasal intonation.

The pioneering investigation into acoustic correlates of stress was Fry (1958) in his work on English. He found f_0 to be the primary correlate, but all of the tokens that he examined were in the position of phrase-level pitch accents which are carried by the stressed syllable. Since f_0 correlates to phrase-level pitch accents, these variables were conflated. Subsequent studies have found that, cross-linguistically, duration is usually primary, and quality and intensity secondary Hyslop (2009); Okobi (2006) Kurtop, Okobi 2006 Beckman and Edwards (1994) English; (Sluijter & Van Heuven, 1996a) Dutch; (De Jong & Zawaydeh, 1999) Arabic; (Sluijter & Van Heuven, 1996b) Papamientu; (Ortega-Llebaria & Prieto, 2011) Spanish but also wide range of exceptions ranging from the fairly common correlation of f_0 (Howe, 2017; Eriksson et al., 2013) to the typologically uncommon lengthening of following consonants.

Gordon & Roettger (2017) conducted a corpus survey on the acoustic correlates of stress. In this piece, they survey 110 studies on 75 language varieties. They note that in 90% of the studies surveyed, duration cued stress. In a subset of these languages, stress was not correlated with an increase in vowel duration but rather by consonant duration either in onset or coda position. Included in the subset of languages with duration as a primary cue to stress are all varieties of Arabic surveyed with the exception of the remarkably divergent, Tamazight-influenced Tunisian. Though no

systematic study has yet been conducted on the acoustic correlates to stress in any Modern South Arabian language, Johnstone’s *JL* (p. xv) notes that vowels with primary stress are slightly longer. While this seems to be true, so does Dufour’s (p. 29) assertion that, in comparison to European languages, tonic lengthening in Šherēt-Jibbāli is weak. Intensity and pitch, the latter argues, is what cues stress.

4.3 Both stress and tone

In languages with complex word prosodic systems that feature both tone and stress, different strategies are employed to maintain the distinction between both events. Given that f_0 is figured among the cues to stress, it stands to reason that the accommodation of both stress and tone means that we should expect f_0 to be “traded”—in other words, attenuated—as a cue to stress to maximize the perceptibility of tone. This is exactly what Hyslop (2009) found for the Kürtop language, where duration cued stress and no f_0 difference was observed between stressed and unstressed syllables following tones. Penelope Howe, in her study of Malagasy, notes a similar phenomenon, where the tonal Central variety utilizes f_0 less to cue stress than the non-tonal peripheral varieties. In Basque, where tone does not occur on every lexical item, f_0 can function as a primary correlate to stress in items where there is no tone, but must be attenuated in favor of other cues like duration in order to maintain the perceptibility of stress (Hualde et al., 2008).

Chapter 5 Production study

5.1 Introduction and Participants

The purpose of the production study was to elicit speech in quasi-natural contexts and to cast a wide net over Šherēt-Jibbāli’s phonotactic area. I entered the field with only a suggestion of what I was looking for, and a set of working hypotheses, none of which I wanted to foreclose. The data was collected in June and July of 2018, over approximately six weeks on the field. As mentioned in the introduction, weather and religious events, as well as the small size of my fledgling social network in Salalah, frustrated my ambitious designs to collect enough data to make claims about dialect variation. Though my friends and connection did eventually prove fruitful, a surprising number of participants found me with no additional effort on my part whatsoever. I mentioned in the introduction that as I was reading or working in a cafe, I was occasionally approached by Šherēt-Jibbāli speakers who turned out to be eager participants and excellent connections to the larger community of speakers. This recruitment “strategy” also lended itself to a relatively diverse participant pool in terms of social and tribal affiliation. Since my primary connection in Salalah prior to entering the field was a member of the Shaḥara, it is unlikely that he would have had the means to connect me with individuals of other affiliations, given the remarkably closed nature of social networks in the Central Jebal.

All of my participants identified as male. The social norms in the area made finding female participants for my study all but prohibitive. A total of 25 participants were recorded; 19 were included in the final analysis. The remaining six were discarded due to various recording issues. As an example to illustrate these issues, two sessions were recorded back-to-back on top of the mountain one afternoon. The first was unusable due to noise of the wind, and I was unaware of the extent of the

issue until listening back on it later. On the next session, the recorder was protected from the wind inside of a cardboard box which had previously contained a kettle full of sweet tea. Instead of wind, this session was largely unusable due to flies landing on the microphone. Other reasons for exclusion were the propensity of participants to shout, which resulted in clipping or data that was otherwise difficult to analyze in Praat.

After completing the elicitations, participants were asked to provide demographic data including age, place of origin, and place. I hope, in a future study, to give demographic concerns their due. However, with the overwhelming majority of my small participant pool being young men from the Central Jebal, this aspect of my data would not bear the weight of analysis. A list of my participants with their ages and places of origin can be found in Appendix 6.5.

5.2 Elicitation data

The original word list for the elicitation study was created by the author with material mostly drawn from Johnstone's *JL* and from Johnstone's texts transcribed in Rubin's grammar. At the time of creation, the goal was to maximize the number of different consonant classes in each prosodic position in both the word and the syllable. In determining consonant classes, I followed Watson and Hesselwood's group A and group B consonants, posited on the basis of Mielke's (2009) Emergent Feature Theory. My word lists were checked over by a friend, Abdullah Alshahri, while still in the planning phase in Kentucky, and once again by Ali al-Mahri. A few of the words were identified as archaic or as Mehri. Of these, one or two retained their basic phonological shape, and others had to be omitted entirely. The final word list consisted of 38 words.

A carrier phrase was used to mitigate the effects of 'list intonation', and to attempt to record the target word at a consistent phrasal environment. The phrase was essentially a translation of the common phonetics elicitation carrier 'Please say _____

quickly’. The translation and the orthography was checked with Abdullah Alshahri.

- (1) ʔamɛʔ(r) _____ fɪːsaʔ
say.IMP [word] quickly
‘Say [word] quickly’

These elicitations were supplemented by Facebook and Whatsapp voice note exchanges. Over the course of analyzing the data for this thesis. I occasionally would pose questions to Šherēt-Jibbāli speaking friends for clarification, to which they would often return recorded voice notes with the word or phrase in question. I sent around a PDF with another word list of 38 words. This second list was similar, but not identical, to the one used on the field. Here cognates with Mehri were emphasized, especially those with affixation (such as diminutives, augmentatives, and plurals) as well as those exhibiting phonological processes which yielded surface forms with long vowels in a variety of prosodic environments that would be impossible in other MSALs and Arabic. This new list featured translations of the words into Arabic and English, and multiple Latin and Arabic alphabet transcriptions meant to represent all possible placements of stress. In these transcriptions, each syllable was capitalized and bolded in the Latin, and bolded in the Arabic. The word lists for these elicitations can be found in Appendices 6.5 and 6.5.

Speaker intuitions were noted, and are referred to in my analysis but the data from recordings that these exchanges furnished were not included in my statistical analysis due to the fidelity of audio recordings sent over messenger apps, and the lack of experimental controls. A sample image of a complete survey can be found in the appendix.

5.3 Methods and procedures

Recording

All recordings were made with a Zoom H4n field recorder at 44.1kHz sampling rate. Some recordings featured a thin headworn microphone, though not all participants were amenable to wearing this device, or else the largely extemporaneous nature of recording sessions described in the introduction made using the microphone impractical. Most recordings were also done with a portable soundbooth—a collapsible cloth box lined with egg crate foam typical of treated recording studios. This was something of a necessity, since home recording was typical and homes in Salalah tend to be constructed of concrete, which lends to poor acoustics laden with echo, and makes any acoustic analysis—but especially prosodic analysis—difficult. Recording sessions also occurred in campsite environments at a distance from permanent structures. When possible in these cases, my rental car was converted into a makeshift soundbooth, with consultants seated in the driver seat and the portable soundbooth placed in front of them on the dash. The least desirable environment was the one described above, on a windy peak in the early evening. All recordings were saved as WAV files.

Participants were given a paper copy of the word list. Words were written in Arabic script. As I previously noted, there is no standardized orthography that is widely accepted for Šherēt-Jibbāli, but there are local conventions used in SMS, social media, and the few print publications that are more-or-less consistent. Each word was accompanied by a stock photo that was intended to represent the word in question, and an approximate Arabic translation. On a few occasions—as is typical of Modern South Arabian—the semantic field of a particular word was considerably narrower than its closest Arabic equivalent. This led to situations where the photo did not correspond to the lexeme, but it was still usually close enough to serve as a visual

aid. In these cases, I took notes on the non-correspondence and reprinted the word list with a more accurate picture.

Data Preparation

Audio files were transferred from the SD card of the field recorder onto the hard drive of my MacBook Pro. TextGrids were created in Praat with multiple tiers entitled “phrase”, “syllable”, “consonant”, “vowel”, and “underlying vowel”. After each elicitation had been bounded on the phrase tier for the approximate beginning and end of the carrier phrase, and labelled with the target vowel, the labelled tiers were saved as individual WAV files, along with corresponding TextGrids. A bash script was used to append the speaker ID to the beginning of each WAV and TextGrid. These newly created WAV-TextGrid pairs were used to begin segmental analysis. All judgements of segment onset and offset employed the Praat functions “Move start of selection to nearest zero crossing” and “Move end of selection to nearest zero crossing”.

Labeling fricatives

Fricative onsets were judged impressionistically as the earliest period in which the shape of the waveform changed either from silence to sound, in the case of word-initial fricatives; from modal voicing to quieter aperiodicity in transitions from vowel to voiceless fricative; where drops in intensity and formant strength in the spectrogram corresponded with change in shape of the waveform, in the case of vowel to voiced fricative transitions; and where changes in the frequency of spectral energy signalled obstruent-fricative transitions. In all other cases, the fricative was deemed to have begun at the offset of the previous segment. Offsets were viewed as the final zero crossing before either: change of periodicity in the waveform; or transition in the formant frequencies of the spectrogram.

Labeling oral stops

The onset, burst, aspiration, and/or glottalization (where applicable) of oral stops were labelled as signal segments within the “consonant” tier. Closures, in the cases where there was a preceding segment, were judged as the point of near-silence represented in the waveform and spectrogram. In cases of pre-voiced stops where no segment preceded, stop closure was considered to begin at the point of voicing onset. Stop closure for voiceless stops was measured from the beginning of the release burst. The offset of all stops followed by other segments was judged as occurring at the zero crossing just prior to the earliest onset of a period waveform that resembled in shape the following segment at its approximate midpoint. This was especially easy for vowels, where the earliest appearance of a regular and persistent period was used to judge transitions. These judgments were checked against the formant transitions in the spectrogram. If the formants provided a clearer picture of transition, this point was given preference over the picture presented by the waveform. In other cases, silence was considered the end of the segment.

Labeling affricates

Affricate segments were measured with a combination of the techniques used for stops and fricatives. Closures, in the cases where there was a preceding segment, were judged as the point of near-silence represented in the waveform and spectrogram, or otherwise the attenuation of sound due (near-)closure. Offsets were judged by a change in periodicity or in formant energy.

Labeling word-final sonorants and emphatics

Word-final sonorants and emphatics most often trigger intense glottalization that often results in the complete lack of an acoustic signal where the ‘segment’ would otherwise be expected. In these cases, the segment is judged to have an onset be-

ginning with glottalization. Glottalization is, in turn, taken to be represented by a dramatic spike in f_0 and a corresponding drop in periodicity and intensity.

Labeling syllables

Syllables were assumed to conform to a (v)(C)Cv(C)(C) template, with syllabification occurring from the end of the word to the beginning. Syllable boundaries were aligned with the corresponding segment boundaries by selecting the relevant segments and using the “Intervals” pull-down menu to add an interval to the syllable tier. In some cases, a consonant was geminated across a syllable boundary, in which case the approximate midpoint of the consonant was used to provincially mark the syllable. Syllables were labeled either “Tonic”, meaning it was believed to contain the stressed syllable, “Post-tonic”, or “Pre-tonic” in addition to either “Open” if the syllable contained a coda, or “Closed” if it did not.

Attention to underlying segments

Though there is a great deal of intra- and inter-speaker variation in articulation of any hypothetical segment, several tokens differed in the study so significantly from the canonical form that they seemed to outrun the classes through which they were to be judged. Additionally, Šherēt-Jibbāli vowels exhibit a rather complex system of vowel harmonies. In these cases, the suspected “underlying form” was marked in an additional tier. This tier did not figure directly into the data but provided a reference should the token be complicit in otherwise aberrant data.

Cleaning and compiling data

A Praat script was used to analyze in the data. Thanks to the iterative ability of Praat scripting, I was able to compile several different measurements into a single comma-separated value (CSV) file. The script appended information about the position of a

segment relative to adjacent segments, the containing syllable, and with regard to the position of the segment with respect to the supposed location of primary stress. Each vowel was analyzed for f_0 , intensity, and harmonics-to-noise ratio (HNR) at every 10% interval, at their maximum, minimum, and average. Additionally, the average length of vowels was calculated for the same measurements before and after voiceless segments and before and after voiced, emphatic (glottalic) and sonorant segments. Finally, it calculated the length of every labeled vowel segment.

Segregating “holdout” data

As this project developed, the locus of my investigation began to consolidate around a subset of lexical items. The items of interest were ones that seemed to not conform to prosodic expectations regarding stress, and were selected based on early impressions that were corroborated by my small survey of native speaker intuitions represented in Appendix 3 (Section 6.5). In preparing my data for analysis, I segregated these items from the rest of the data to be treated as “holdouts” on which a model fitted to the rest of the data could be verified. From the coded data, seven words were segregated as holdouts, but only one (“hermiti”) was ultimately used to test the model. The reason for this had to do with the number of viable tokens that I was able to obtain across speakers, and the fact that this lexical item has warranted remark in the literature such that I could form theoretically well-grounded hypotheses about its phonological properties and phonetic realization.

Test coding and null coding of holdout data

One of my principle hypotheses was that lexical items such as ‘hermiti’ have presented a challenge for linguists with regard to stress assignment because of the presence of a high tone that has been historically misperceived as stress by non-native listeners. In order to test the likelihood of such a scenario, I created two datasets that were

identical save that the first was coded for stress in accordance with the received wisdom following Rubin: an unstressed closed initial syllable [hɛr] and a media stressed open syllable [mi]. The second, the assignment of unstressed-stressed was reversed so that the initial closed syllable was coded for primary stress. The motivation, as I will discuss in the next section, was so that the generalized linear mixed effects model that was trained on the majority of the data could then be fit to each of these data sets in order to determine which coding was more likely to represent the phonological reality of stress in the lexical item based on the acoustic term measurements of fundamental frequency and duration.

Analysis

Analysis was conducted with the data software R (R Core Team, 2013). Models were created the glmer vignette of the lme4 package (Bates et al., 2015). Glmer is implemented for building models from data with response variables that have an error distribution rather than a normal distribution, and which additionally allow for varied slopes and intercepts based on so-called random effects. These generalized linear mixed effects models are useful for data such as mine which have a categorical response variable that is dependent on continuous variables. Additionally, the model can be designed to accommodate interaction between independent variables, and the random effects to catch some of the unpredictable and non-uniform differences between subsets of the data.

Two generalized linear models were created to observe the fixed effects of f0 and duration (and the interaction of these two variables) on a binary stress category ('stressed' or 'unstressed'), with varied slopes and intercepts (i.e. 'random effects') included in the models for participants, token, and syllable type. The first GLM was modelled from the all of the coded data excluding tokens with long surface vowels and the holdout token 'hermiti' described in the subsection above. The second addition-

ally excluded tokens with voiced sonorants in the coda of the syllable with primary stress. This was done to avoid the pre-pausal glottalization described in (3, which (for physiological reasons) creates peaks in the fundamental formant frequency and makes accurate measurement of vowel duration virtually impossible. These models were then fitted to the two alternatively-coded holdout data, and the absolute difference of the observed and predicted data was used to estimate (rather than model fit) which assumptions in the coding of ‘hermiti’ best matches with the bulk of the data.

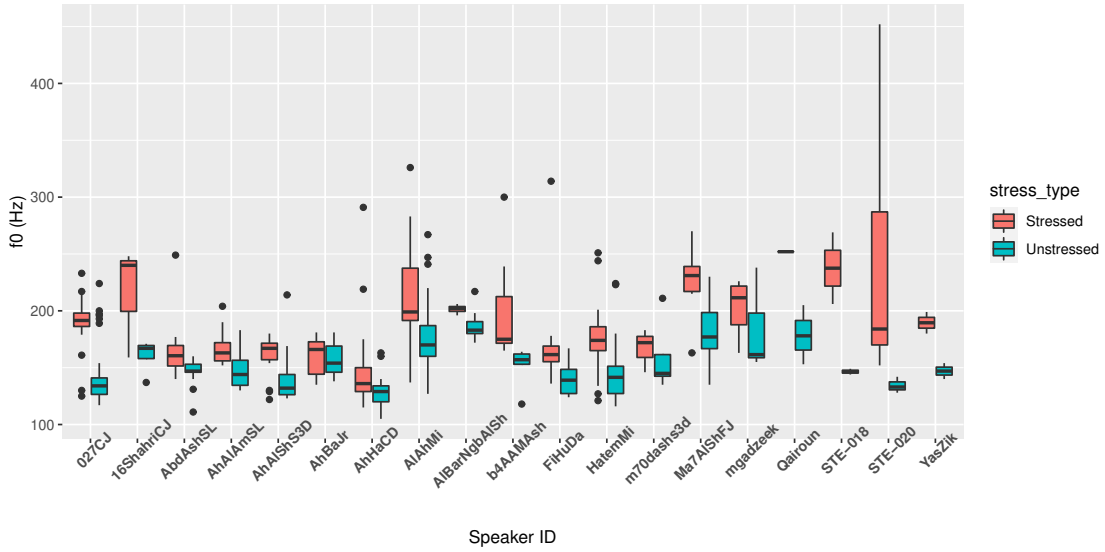
5.4 Results

Acoustic correlates to stress

Of the variables tested, f0 appears to be the most significant correlate to stress irrespective of the position of stress within the word. A generalized linear model was fit over all the data excluding long vowels ($n = 506$). This model looked at stress (represented as a binary response variable: *stressed* or *unstressed*) as a function of f0 and duration, with varying slopes and intercepts for f0 conditioned on participant, and varying slopes for lexical items and syllables structure. When modelled on all of the data, the output consisting probabilities based on Wald testing revealed significance for only f0 ($\Pr(> |z|) = 0.0000000109$). No strong effects were revealed for duration across the data at large ($\Pr(> |z|) = 0.325$). Figure 5.1 shows boxplots for f0 by speaker.

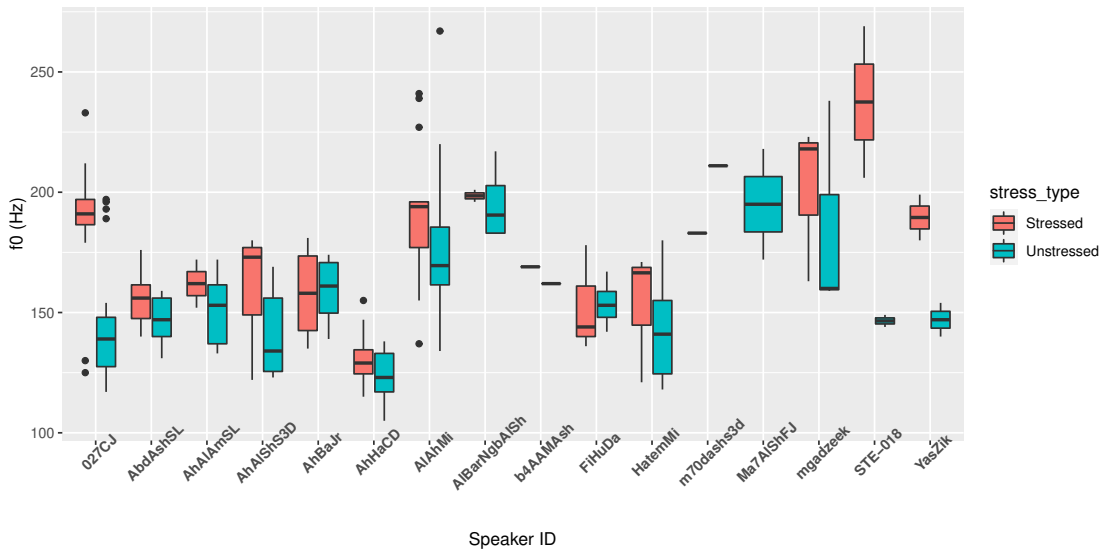
I then modeled the same fixed and random effects on the data, except this time I excluded tokens which contained word-final sonorants in addition to excluding the long vowels ($n = 193$). The hypothesis that the effects of f0 caused by glottalization might get conflated with the effects of stress on f0 was supported by the output of this model, which returned a much weaker significance for f0 ($\Pr(> |z|) = 0.04641$) and significant effects for duration ($\Pr(> |z|) = 0.00341$). No significance was found for the interaction between f0 and duration in either model. Figures 5.2 and 5.3 show

Figure 5.1: f0 for stressed and unstressed vowels by speaker



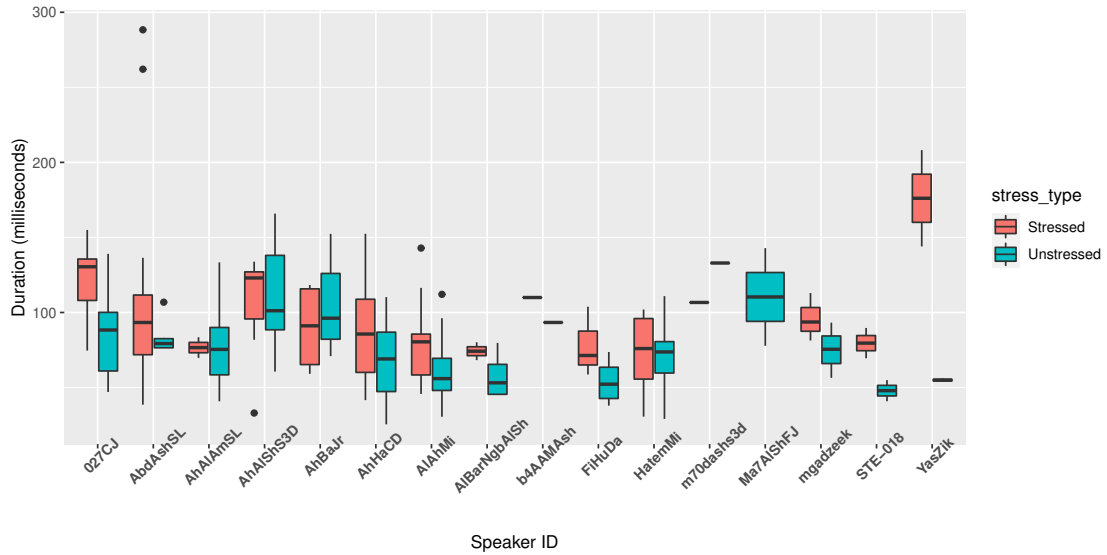
f0 and duration in this subset of the data by speaker.

Figure 5.2: f0 for stressed and unstressed vowels by speaker, excluding tokens with coda sonorants in stressed syllable



Two analyses of variance (ANOVA) were performed on the the latter model and two null models which excluded one of the two fixed effects, f0 and duration. For the first ANOVA, which tested the model with the f0 effect against the model without the f0 effect revealed a significant difference between models (chi-squared = 16.142,

Figure 5.3: Duration of stressed and unstressed vowels by speaker, excluding tokens with coda sonorants in stressed syllable



$p = 0.001061$). A likelihood ratio test of the model with the duration effect against the model without the duration effect revealed a significant difference between models (chi-squared = 8.7975, $p = 0.01229$). The p-values are very small (0.001061 for f_0 null and 0.01229 for duration null), which means the following: under the null hypothesis that the test model is the same as the null models, the actually observed differences in likelihood between the two null models and their counterparts is unexpected. In other words, there is sufficient evidence against the null hypotheses of model equivalence.

Conclusion

My analysis supports longer duration and higher f_0 as correlates to stress, with evidence to suggest that duration is a stronger correlate that is often occluded by the common co-occurrence of glottalization in stressed syllables related to sonorants in pre-pausal stressed position. My analysis does not support any conclusions about covariance of f_0 and duration.

Aberrant tokens

A principle motivation of this thesis was Johnstone’s decision to denote multiple points of putative primary stress on a significant percentage of lexical items, and the subsequent (somewhat unsatisfactory) attempts to conform Johnstone’s data to linguistic orthodoxy vis-a-vis the principle of culminativity (Hyman, 2006). Though there are many items that warrant attention in this regard, the only one which I was able to elicit as viable, unproblematic¹ tokens from all my participants was *hermiti* (‘trees’). After setting a baseline for the correlates to the stress with the models described above, I then tested the fit of these general models on tokens of *hermiti*. I hypothesized that f0 and duration for syllables in the position of assumed primary stress would not conform with the model for stress across all tokens. This hypothesis was supported by the data.

To test this hypothesis, I created two separate dataframes measurements for all tokens of *hermiti* from my fieldwork. These two that were identical except that the first was coded for stress according to Rubin (2014b, p. 43) and Dufour (2016, p. 29) prescription of selecting the rightmost accent from Johnstone’s transcription as corresponding to primary stress”. This first dataframe represents the orthodox “received wisdom” position on stress, with the penultimate syllable [mi] coded for stress. The second data set is coded according to the only serious alternative possibility: that the first syllable, [her], receives primary stress and the penultimate syllable is unstressed. The implication is that this historic misapprehension by non-native listeners can attributed either to sufficiently different correlates to stress between Šherēt-Jibbāli speakers and English- or French-speaker researchers *or* that there is something going on prosodically that is independent of stress which has distracted researchers. I dis-

¹Other tokens I deemed non-viable either because of recording quality, expressed inter-speaker disagreement over the lexical item, or in the case of *erun* (‘goats’), a problem with a difficult-to-detect definite article in some of the elicitations which rendered a long initial [e:] vowel, and thus made assessment of duration fraught.

cuss the latter hypothesis at the end of this thesis. The codings were done as binary factors ('1' for 'stressed, and '0' for 'unstressed').

The predict function for the lmer package in R was used to generate predictions of stress using the model fit to all the data, excluding tokens with sonorants in the coda. The predictions were generated on both of the two *hermiti* holdout data sets described above. To assess which coding scheme (primary stress vs. penultimate stress) was better predicted by the model (thus which coding scheme was more likely to reflect the phonological reality), the mean absolute difference between the predictions and the coding was calculated for each data set. The mean absolute difference for the primary-stress coded data set was lower (1.2368, SD = 0.8789) than the mean absolute difference for the penultimate stress data set (1.5361, SD = 1.1314). These results suggest that primary for *hermiti* is more likely on the basis how f0 and duration correlate with stress in the rest of the data, than the penultimate stress in the rest of the data.

In Figures 5.4 and 5.5 I have compared the mean f0, vowel length, harmonics-to-noise ratio, and intensity for the first and second syllables of all the tokens of *hermiti* and the word of similar morphological pattern and phonological shape, *qerşeti* (pl. 'mosquito-like insect'), to the same measurements for syllables of potentially the same type across the rest of the data.

All of the measurements (with the exception of f0) lend obvious visual support to the hypothesis that primary stress for these items falls on the first closed syllable and not on the second one. Note, however, that f0 for these items is rather high, perhaps explaining why these syllables are most often heard by non-native speakers as the locus of stress. We're left then to account for why there is this high f0 peak adjacent to the stressed syllable. In Figures 5.6 and 5.7 I have represented duration and f0 for the first and second syllables of the aforementioned lexical items averaged across tokens, and again compared them with the averages for syllables of the same

Figure 5.4: f0, duration, HNR, and intensity as a % of maximum for all tokens

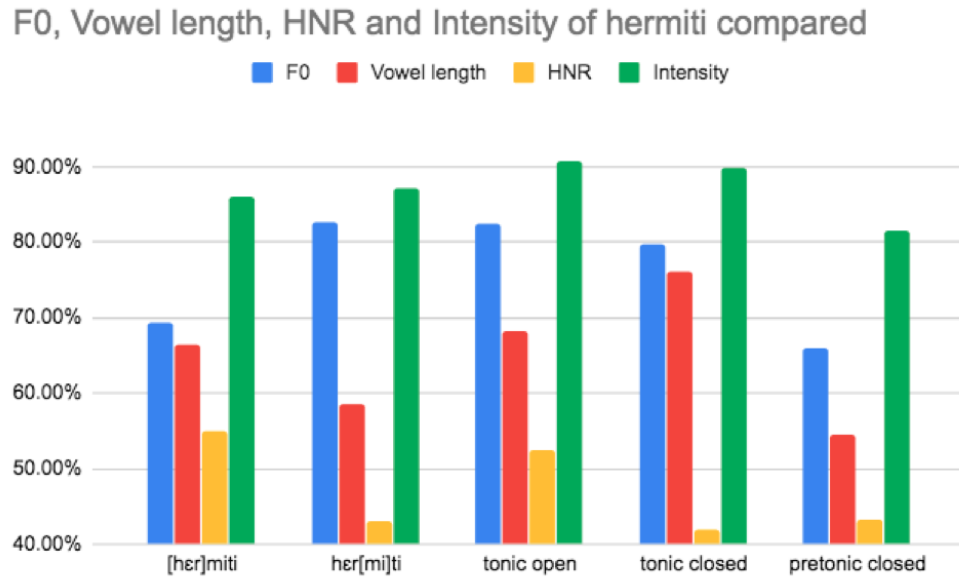
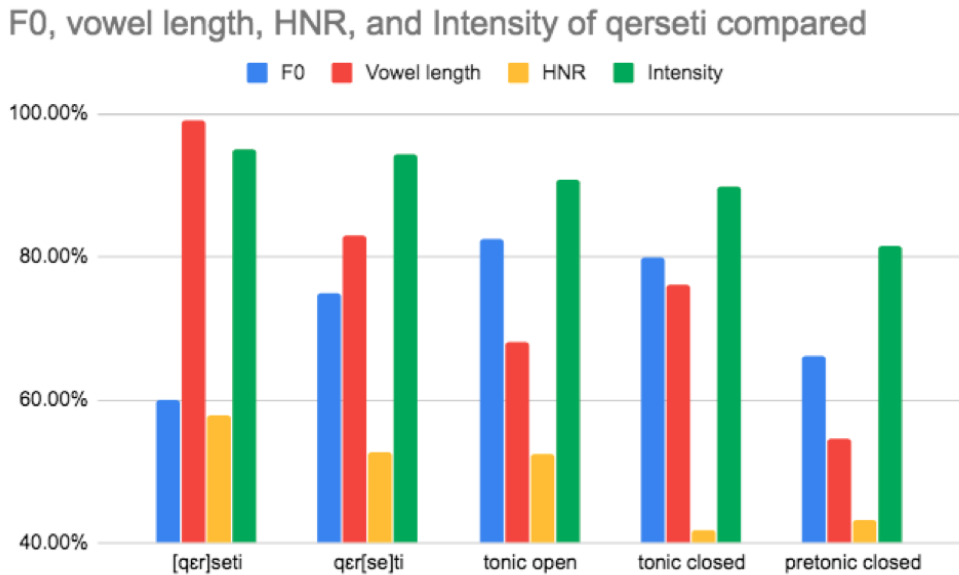


Figure 5.5: f0, duration, HNR, and intensity as a % of maximum for all tokens



possible syllabic and prosodic type across all the data. Again we see that while the duration of the two syllables is not especially aberrant under either assumption of initial or penultimate stress, the average f0 the primary and medial syllables, taken alone, would strongly suggest penultimate stress: The range for the initial syllables [her] and [qer] has a considerably lower f0 than any other token of its weight and type

in the data, and conversely, the penultimate syllable [mi] and [se] fall well within the expected range of primary stress.

Figure 5.6: Avg duration of initial and medial syllables of /hermiti/ compared

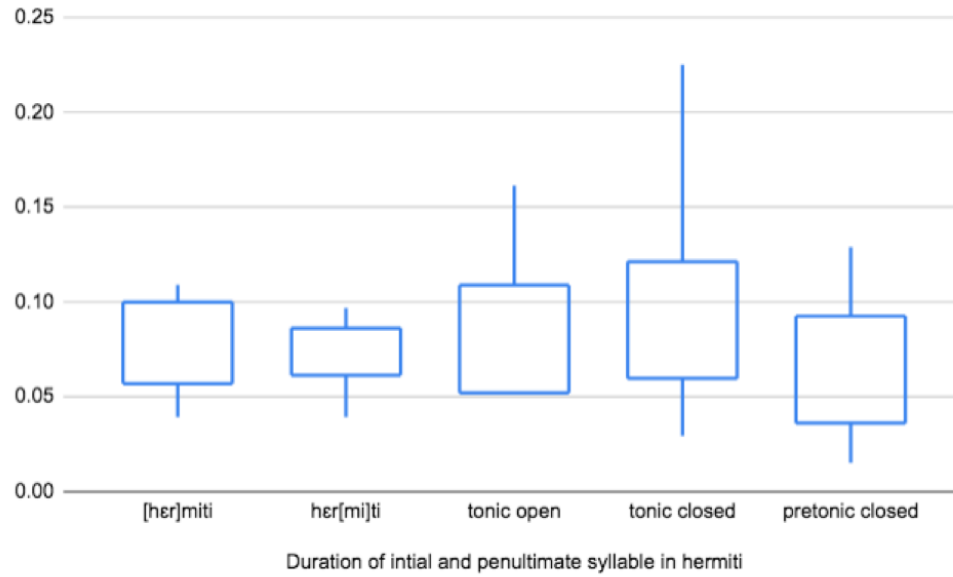
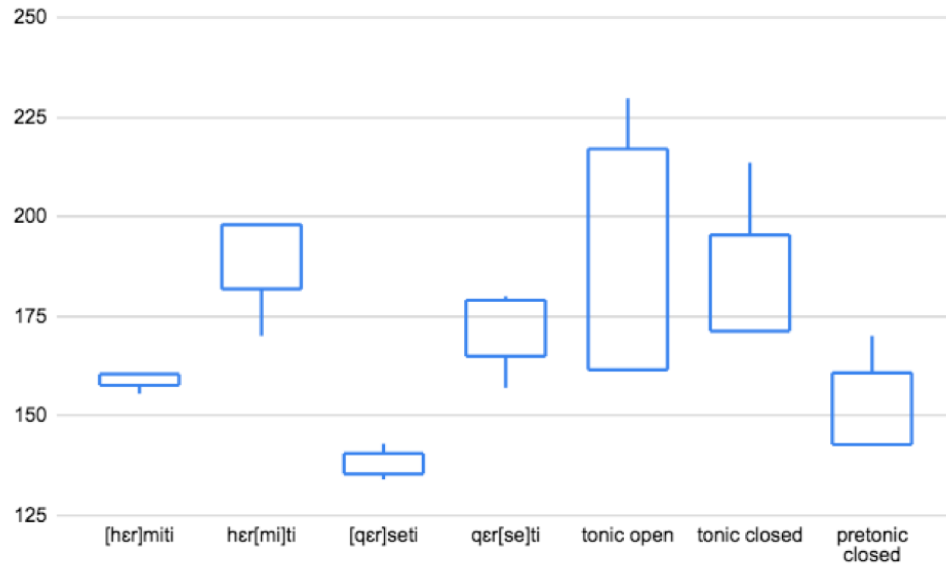
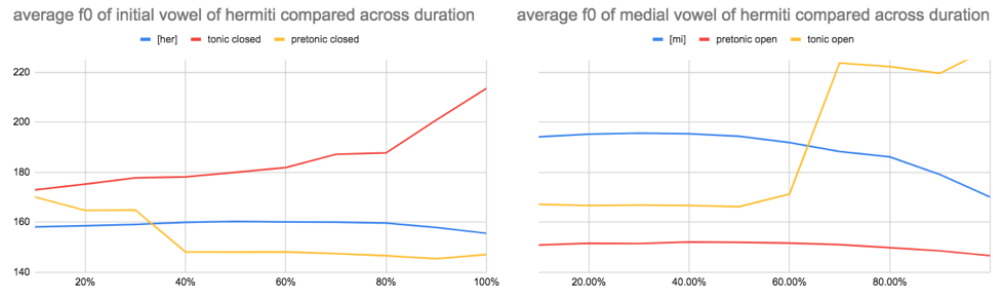


Figure 5.7: f0 of initial and medial syllables of /hermiti/ and /qɛrseti/ compared



Given these data, we can cautiously support the hypothesis that primary stress in fact falls on the initial syllables of the lexical items discussed above. We are left then

Figure 5.8: Avg f0 of initial and medial syllables of /hermiti/ compared



with the task of accounting for the high f0 peak on the following syllable. What is its nature? Does it have a phonological or phonetic explanation? In the final section I will conclude by clarifying some of the murky waters surrounding the assignment of stress in the language, and then conclude by proposing an account for this high f0 peak in the diachronic and sociolinguistic context of Šherēt-Jibbāli. The latter account leans on some interesting insights recently made about “covert prominence” in Soqotri Dufour (2016, p. 139), and the proposal by Lonnet (2008) of Šherēt-Jibbāli and Soqotri constituting an Eastern Modern South Arabian subgrouping. Under this open hypothesis, vowel quantity loss and covert prominence would be phonological isoglosses of this subfamily.

Chapter 6 Discussion

6.1 Predictable stress in Šherēt-Jibbāli?

By teasing out the acoustic correlates to stress in Šherēt-Jibbāli, we can start to give a systematic account of stress assignment in the language. It is not enough to say, as Dufour (2014) does, that stress in Šherēt-Jibbāli corresponds neatly “as a rule” with stress in Mehri and ostensibly proto-MSAL without also addressing how this accentual system has continued to sustain itself in the face of significant changes elsewhere in the prosodic system (namely, the loss of original vowel length distinctions and the innovation of new long vowels). Is the system a productive, algorithmic one such as has been described for Mehri (Watson, 2012) or is it a fixed one such as Soqotri (Naumkin et al., 2014a; Dufour, 2016)?

Let’s consider what has been said so far about stress in Modern South Arabian. Dufour (2014) gives a single rule, and a synchronous preference scale for stress in Modern South Arabian:

- Stress cannot occur on a final CV
- There is a preference for rightmost stress
- There is a preference for stress to fall on vowels corresponding to the hypothetical low vowel in Proto-Semitic

He additionally stipulates that a low vowel preceding a guttural consonant is *more* stressable than a high vowel but *less* stressable than an *a in another context. Watson (2012) describes the stress systems algorithm in Mehreyyet thus:

1. Word-final CVVC or CVCC

2. Word-final diphthong (/ay/) in Mehreyyet, or CVV in disyllables
3. If (1) and (2) fail to apply, stress the rightmost non-final heavy syllable: CVC, CVV or CVVC
4. If (1), (2) and (3) fail to apply, stress the initial CV syllable

For Šherēt-Jibbāli, since long vowels are perhaps exclusively the result of productive processes which seem to happen ‘after’ stress assignment, and there are no diphthongs, several of the syllable types in the above algorithm are irrelevant. If we assume the same algorithm for Mehri and Šherēt-Jibbāli we can modify it so that we have:

1. Stress word-final CVC or CVCC
2. If (1) fails to apply, stress the rightmost heavy syllable, CVC
3. If (1), (2) fail to apply, stress the initial CV syllable

For the Mehri dialect of Bit Thuwar, Watson & al Mahri (2018, p. 29) describes how long vowels in stem-level suffixes are stressed, and the nominal and adjectival plural suffix *-tan* predictably shifts stress onto the heavy penultimate syllable. They give the example of *ḥayd* > *ḥaydūtan*, *ghiggit* > *ghaggūtan*. Elsewhere, we see that this *-ūtan* suffix alternates with *-aytan*: *kəl.ʿyēt* > *ʿklay.tan* (‘kidneys’), *lē* > *lʿhaytan*, and *heʿrūm* > *her.ʿmay.tan*. These latter two have cognates in Šherēt-Jibbāli of *lhuti* and *hermiti* respectively, demonstrating that the diphthong (as expected) is collapsed into a simplex /u/ or /i/ vowel, and final *-tan* is rendered as *ti* reflecting a familiar Semitic phenomenon of final /n/ loss, and familiar MSAL phenomenon of nasal raising described earlier in this thesis.

If we apply the provisional stress algorithm above, slightly modified to fit the more limited possible syllables of Šherēt-Jibbāli, stress would fall as expected on

l.'hu.ti but on the initial syllable of *'her.mi.ti*. This assignment of stress is supported by my analysis of my fieldwork data, but leaves open the question of the nature of the f0 peaks which have been interpreted as stress by linguists historically. My working hypothesis, which I devote the rest of the discussion to, is that these peaks found in many lexical items in Šherēt-Jibbāli are reflexes of historical MSAL stress which have been preserved in the form of a vestigial tone.

6.2 Speaker intuition vs. researcher intuition

Though I did not have the time or the foresight to conduct a complete survey of speaker intuitions regarding stress while I was on the field, I was able to conduct informal surveys with a couple of my principal consultants via email correspondence. Though this data is not robust or controlled enough to themselves form the basis of my argument, if viewed with discretion these surveys do lend modest support to my hypothesis and affirm the value of always appealing to speaker intuition when investigating linguistic questions. For this survey, I compiled a list of words (mostly gathered from the *JL*) that had cognates in Mehri, and for which stress assignment has been controversial. The results of this survey modestly supports the hypothesis that primary stress has moved from its original MSAL placement in Šherēt-Jibbāli. For example, both of the consultants surveyed identified the “strongest” syllable in *hermiti* to be the first syllable, and the same with *mehroti* (Mehri women) and *sheroti* (Shahri women). This is interesting considering the fact that all of these items have medial stress in Mehri. The word list used in this survey can be found in Appendix 6.5.

6.3 Does Šherēt-Jibbāli have a complex word-prosodic system?

If we take the definition of tonal language as a language that uses pitch at the level of the morpheme, phoneme, or word to make lexical distinctions then the “official”

status of Šherēt-Jibbāli at the time of this research and now is bound to be the same, whether or not you, the reader, were convinced by the findings of this research: the “tone” in Šherēt-Jibbāli bears a vanishingly small functional load under any of the traditionally-defined domains of “function”. However, as this study has shown, there is considerable evidence to support Šherēt-Jibbāli having a broadly stress-based system that also accommodates a lexically-restricted lexical high tone. Analysis of Šherēt-Jibbāli as a strictly stress-based system has lead to considerable frustration seems to and though the numbers could be convincingly fudged or ignored as noise to the satisfaction of an elegant account, such an account will be neither consonant with my cursory survey of speaker intuitions, nor has this approach proven particularly helpful in advancing the field.

In summary, what my study suggests is that Šherēt-Jibbāli has a general stress algorithm that is dependent on syllable weight. However, in a minority of cases, words seem to possess two points of prominence that are distinct in their acoustic correlates to prominence. In these, the secondary accent is characterized by an f0 peak but no significant changes in other correlates to stress described in Chapter 4. The primary accent, on the other hand, utilizes other cues in its arsenal including duration and intensity. This contrasts with stress in Šherēt-Jibbāli more generally that deploys f0 as the primary cue and features very little tonic lengthening. Because of the canonical role of f0, this secondary prominence has been a red herring for investigators of Šherēt-Jibbāli prominence, leading no one up to this point to contradict claims in the *JL* that Šherēt-Jibbāli stress is identical to that of Mehri, despite some eyebrows raised at its apparent prosodic quirks.

6.4 How did this system develop?

The fact that this secondary point of prominence has been so misleading nods to the fact that seems to *always* occur where stress would fall in Mehri, as well as in the

rest of the continental MSALs. This is suggestive of situation of language shift and language contact where competing exemplars of a single lexical item: one older one where stress is in its original place, and a novel one where stress had shifted as the result of a constellation of phonological affecting syllable weight in Šherēt-Jibbāli. This leads to a split between stress and tone; a compromise between these two exemplars rather than a decisive victory. Since the data I have at hand do not permit me to draw a conclusion for why Šherēt-Jibbāli exhibits a complex prosodic system, the subsequent discussion should be read primarily as an invocation to continued investigation. A few established facts about Šherēt-Jibbāli phonology were informative in formulating this hypothesis—namely, the loss and incipient reemergence of vowel quantity. But it Julien Dufour who unwittingly provided the basis for my hypothesis. This insight came, rather than from his writing on Šherēt-Jibbāli, from his analysis of vowels in Soqoṭri. Frustrated in his attempts to furnish a phonological explanation of Soqoṭri vowel elision between obstruents, he turns to a morphological one that is admittedly strange but works with the data. I in turn propose that something analogous is happening in Šherēt-Jibbāli, but whereas this morphophonemic marking is ‘silent’ in Soqoṭri¹, it seems to manifest in Šherēt-Jibbāli as an f₀ peak. The presence of morphophonemic analogs between the two languages is consonant with Lonnett’s grouping of Soqoṭri and Šherēt-Jibbāli into an Eastern Modern South Arabian subgrouping (Lonnet, 2008) and suggests that these innovations have their genesis at an earlier time before the hypothetical Eastern MSAL separated into insular and continental varieties.

In Dufour account, Soqoṭri’s so-called “stable vowel”—the vowel in every word that is immune to otherwise robust processes of elision—is explained by positing a vestige of Proto-MSAL stress has been preserved in the morphological template and now functions independent of stress (which in Soqoṭri falls predictably on the penul-

¹According to Dufour, it manifests no phonetic evidence. An actual acoustic study is needed to support this claim.

timate syllable in most cases) and which putative exhibits no other surface features other than its resistance to elision. He admits that this implies a “morphophonemic nightmare” for Soqotri:

“Each morphological pattern contains two marked syllables. The first one (the ‘stressed’ syllable) is phonetically marked in actual lexemes by features usually associated with word stress: pitch, length, etc. though it is unclear whether this syllable possesses any particular phonological property that would distinguish it from the other syllables of the word. The second one (the ‘stable’ syllable) is marked by the phonological fact that its vowel is non-sensitive to the ©©-effect², though there seems to be no way to identify a priori which syllable in the pattern is the stable one through purely phonetic criteria in considering an actual lexeme. It can only be evidenced through comparison of different words recognized to exemplify the same pattern, some of which lack a vowel the others have, the presence or absence of the vowel being correlated to the nature of the adjacent consonants. The historically stressed vowel thus still behaves as prominent in the morphophonology of the language although its prominence remains phonetically hidden in individual forms, with no prosodic feature manifesting it ... The alternative solution would be to consider the possibility that all the researchers that have worked on Soqotri up to now—including myself of course—have been unable to hear properly the Soqotri stress. We would have been sensitive to phonetic features that are usually associated with word stress in languages we speak or have studied but that are irrelevant for Soqotri, while we would have missed an essential phonetic feature (a tonal feature, for instance, or a rhythmic feature at the level of the whole word) pointing at the only important

²Dufour uses this to describe the process of vowel deletion between voiceless consonants.

syllable in each word: the ‘stable’ one. There would have been no stress shift in Soqoṭri: stress would still be where it has always been, only we would have failed to hear it. ” (Dufour, 2016, p. 187-188)

Dufour does not entertain that some analog may be present in Soqoṭri’s closest relative, Šherēt-Jibbāli. My investigations suggests not only that there may be an analog, but also addresses some of the uneasiness produced by Šherēt-Jibbāli under a traditional stress-based account.

Though on the face surprising that Dufour stopped shy of testing his insight on the closest relative of Soqoṭri, this probably be attributed to the fact he had just engaged in an extensive analysis of Šherēt-Jibbāli prosody which, for most intents and purposes was adequate and at least more elegant than what had come before, and for which such a position as I am currently taking would require a major reworking. Furthermore, this prior account of Dufour aligned Šherēt-Jibbāli unproblematically with Mehri’s (and Proto-MSAL’s) in virtually all applicable cases, thus removing the need for further inquiry. The need for further investigation is additionally obscured by the fact that there is indeed *something* that mirrors the position of Mehri stress in Šherēt-Jibbāli words, and that *something* is typically the most salient cue to prominence for speakers of European languages. Ironically, Soqoṭri’s ‘silent’ morphophonemic marking presented itself more readily than Šherēt-Jibbāli ’s, which has hidden in plain sight.

My cursory survey of Šherēt-Jibbāli speaker intuitions support my assertion that Šherēt-Jibbāli stress does not always align with its Mehri cognates, nor is it always where it has been ‘heard’ by Johnstone and others. Potential issues with “folk” descriptions and the “limits of awareness” notwithstanding, we find that some aspects of Johnstone’s analysis which have been neglected for the sake of analysis actually provide valuable insights. There is a loss of fidelity, as it were, when it gets subordinated to theory. We have to conclude that Johnstone’s transcriptions of “multiple

points of primary stress” are either the indecision of a non-native listener, as Rubin and subsequent scholars have editorialized; or, like Dufour posits, insights into the finer details of the vocalic system. In thinking through these issues, I return to Gussenhoven’s discussion of tonogenesis in Central Franconian, and consider what one multilingual milieu—that of the Rhineland region— can illuminate regarding the Semitic one of Dhofar.

Related-language contact and prosodic systems

Salmons (1992), while arguing that contact-induced tonogenesis is just as probable as tonogenesis, states that high tone can become “an anchor for metrical structure” (p. 76), meaning that a tone-bearing unit bearing a high tone, owing to its inherent prominence, might facilitate the shift to a stress system. Can we say that the reverse might also be true: That stress might become an anchor for tone in situations of contact?

The account of tonogenesis that Carlos Gussenhoven offers for Central Franconian is one that involves both ease of articulation (what he calls “ergonomic” reasons) and social motivations. This account is similar to my provisional explanation for Šherēt-Jibbāli prosody. I am especially interested in his discussion of social motivations, which include the more important and provocative parts of his analysis.

The social mechanism of tonogenesis in Central Franconian, according to Gussenhoven, involves two types of broadly-defined contact: The first is an inter-generational type of contact where the phonological representations of older generations are mismatched with the perceptual cues that are salient for younger generations. This leads to a phonologization of previously secondary cues as primary. The second type is contact between prestige and non-prestige dialects. He argues that speakers of the prestige variety of Central Franconian lost vowel quantity contrasts between singular and plural nouns due to a process known as analogical lengthening. Subsequently,

speakers of a non-prestige variety adopted this change in spite of the fact that it threatened to create massive amounts of syncretism, the phenomenon where functionally distinct forms become homophonous (e.g. you sg. and you pl. In Standard American English). In order to preserve morphological distinctiveness and approximate the prestige variety, speakers of the non-prestige variety hedged their accommodation by lengthening the vowel but maintaining the higher intonational contour of the short vowel. Thus a tone contrast was born where newly lengthened segments adapted a rising tone, and contrast was accentuated later by the introduction of a falling tone.

I argue along the same lines here. At a point in the history of Modern South Arabian, the speakers of the languages that now constitute Eastern (Šherēt-Jibbāli and Soqoṭri) and Western Modern South Arabian (Mehri and the rest) were sufficiently socially and linguistically distinct to undergo independent sound changes, but not so distinct as to except intense amounts of contact and linguistic accommodation. This theory is aided by—though not reliant upon—the notion that the Western subgroup, or one of its contemporaneous members, served as the prestige variety which was more often accommodated than accommodating. This would mirror the situation with Mehri in recent times, where one can readily find those ideolects accused of being Mehriized Šherēt-Jibbāli (as with Johnstone’s informant, Abdullah Musallam) but rarely if ever the other way around. At this former time, Eastern MSAL would have already lost its vowel quantity distinction and diphthongs, a feature retained to this day by its Western neighbors. Both groups, however, would have retained a system of phonologically predictable stress. These two features, taken together, meant shifts in stress for Eastern MSAL. Assuming that the active stress algorithm was largely similar to what is still exhibited across all MSAL languages except Soqoṭri (as seen in the theoretical background section), the word for ‘trees pl’ (Mhr. *hermayten*, Shr *hermiti*) would yield stress on the penult for Western MSAL and on the initial syllable

ble for Eastern MSAL. Subsequent contact between these varieties, I speculate, led to accommodative ‘fudging’ like that seen in Central Franconian where the intonational contour of Mehri’s penultimate stress became phonemic as a high tone.

6.5 Implications for theories of tonogenesis and prosodic typology, and conclusions

The findings of my study support the need for investigators of sound change to take serious heed for the sociolinguistic context under which sound change occurs. Contact-induced change is not a passive process, but one that is shaped by political, social, and language ideological factors. The political importance of Mehri speakers is almost certainly to account for the directionality of influence, as mentioned above. The scenario that I have proposed for Šherēt-Jibbāli lends even greater credibility to the account of Central Franconian tonogenesis in which dialect contact and sociolinguistic context play a central role.

Furthermore, this account lends support to Lonnet’s 2008 proposal for an Eastern Modern South Arabian subgroup. In this scenario, loss of vowel length distinctions and, most interestingly, the emergence of covert prominence would have been among the most distinctive characteristics of proto-Eastern Modern South Arabian in addition to the lexical isoglosses described in Kogan (2015). As Eastern MSAL branched further into the immediate predecessors of Jibbali and Soqatra, the latter must have undergone the additional innovation of a fixed stress system that is contemporarily seen in the language, while the former developed the productive vocalization of bilabials.

This thesis has clarified some of the impressionistic claims made about tonic lengthening, and left researchers of Modern South Arabian with a testable hypotheses about the synchronic and diachronic nature of Šherēt-Jibbāli prosody. The proposed account with which I have concluded this thesis—that Šherēt-Jibbāli developed a

marginal tone system as a vestige of historical stress, and that its development is owed to sustained contact with related languages—at first seems adventurous. At second glance, it seems to be the most elegant account available at this time for why Šherēt-Jibbāli prosody has proven to be challenge up to this point, and moreover one that is broadly compatible with recent observations about its most closely-related languages. At best, this thesis offers a detailed phonetic analysis of stress correlates, and a sketch of an interesting and typology uncommon type of complex prosodic system. At worst, it prompts critics to challenge routinized assumptions about the characteristics of different language families and what is possible within their phonologies. In any case, I hope it has read as a timely phonetic and phonological study of one of the most interesting and under-researched Semitic languages.

APPENDICES

Appendix A: Participants

Participant ID	Age	Hometown
AbdAshSL	24	Salalah
AhBaJr	27	Salalah
AhHaCD	34	Jibjat
AhHaMi	68	Mirbat
HatemMi	32	Mirbat
b4AlAhMAsh	39	Sa'adah
Mgadz	27	Salalah
STE-018	29	Salalah
STE-020	26	Salalah
m7odshs3d	42	Sa'adah
AziBrNgb	38	Sa'adah
AlAhAshS3d	27	Sa'adah
Ma7AlShFJ	24	Salalah
Ste27CJ	24	Salalah
AhAlAmSL	29	Salalah
FiHuDa	34	Dhalkut
YaZi	32	Zik

Participant word list

Number	Word	Number	Word	Number	Word	Number	Word
1	daḥaṣ	13	daḥaf	25	ebkhes	37	yinʿof
2	ḡayḡ	14	ḡayt	26	khodod	38	eftereḡ
3	khofof	15	ḡif	27	khodoḡ	39	ḡahab
4	khofor	16	khofot	28	bakhaṣ	40	eḡḡeb
5	ḡofol	17	ḡofok	29	ebekheṣ	41	eḡḡel
6	aḡafiḡ	18	iyel	30	ebheḡ	42	anīṣun
7	ebhit	19	bakhas	31	foloḡ	43	ḡerun
8	folk	20	(d)ḡāḡal	32	ḡefof	44	ōt
9	eflit	21	jized	33	eḡeb	45	ṣīṣor
10	efterek	22	niṣab	34	dinis	46	ṣyeb
11	ḡahaf	23	sirin	35	hermiti	47	ṣini
12	eḡef	24	erun	36	mentof	48	tḡīret

Stress intuition survey

كلمة	بجيات	العربي	بالنجليزي	whiCh stress?
jižed	جيزاد	جلد	skin' or 'hide'	ji-žed
ħereti	(ح - ه ت)	اسود	'black' like in قيون حيريتي	he-re-ti
dhaykal	ذحاكالك	ضد التيار شمال	north or upstream	dhħay-kal
ʃaraf	شرف	شرف	noble	sha-raʃ
ķeršeta	قيرصيتي	حشرات صغيرة	'little bugs'	extsubdotker-se-ta
eyo	ايو	الناس	people'	ee-yo
men6of	مانطوف	قتل	'kill'	men-6of
ʃaθet	شاثيت	ثلاثة	'three'	sha-thet
ērun	إرون	الماعز	the goats'	ee-run
erbaʃot	اربعوت	اربعة	four	er-ba-ʃot
hermiti	هرميتي	اشجار	trees	her-mi-ti
direhem	ديرهم	فلوس	'money'	di-re-hem
karfeye	كارفايه	كرفايه	'bed'	kar-fe-ye
hereta	(ح - ه ت)	اسود	'black' حيريتي ” (سن)	he-re-ta
šħeroti	شħاروتي	نساء من الشاحرة	shahara women	šħe-ro-ti
šħerunta	شħارونتي	حقائب	suitcases (pl)	šħe-run-ta
tīrunta	تيرونتي	ضباع	hyenas	tii-run-ta
mehroti	مهروتي	مهريه	mehri women	meh-ro-ti
gizereti	جيزيريتي	مناجل (ماشيتي)	machetes	gi-ze-ri-ti
dlft	(سه) دولفوت		'she jumped'	dol-Fot
jirzoz	جرزوز	عين جرزيز	ayn garziz/girzoz	jir-zoz
aaħalob	آحلوب	احلوب	the nursing cows	aa-ħa-lob
aniisun	انيصون	صغير	small	a-nii-sun
iħħu	(إحون)	احون	he defends (سه إحو انوف)	iħ-hu(n)
emete	اميتي	كبيرة	big plural	e-me-te
gheebjot	غيبجوت	بنت صغيرة	little girl	gheeb-got
ghofok	غوفوك	كسر	to crack open	gho-Fok
fotšah	فوتشاح	نخل	'he was ashamed/embarassed'	Fot-šah

كلمة	بجبلات	العربي	بالنجليزي	whiCh stress?
keleta	كليتي	كلاب صغيرة	little dogs'	ke-le-ta
gezer	جزر	جزر	islands	ge-zer
ini	شيني	شهد	'he saw'	sí-ni
ghegeneti	غيجنيتي	بنات	girls'	ghe-ge-ne-ti
ghazeta	(-غ ي	بنت طويلة	big girls	gha-zé-ta
tembeko	تامبيكو	تبغ	tobacco	tem-be-ko
shereh	سحاراه	حقيبة سفر	luggage'	shè-reh
dh'efor	ظفر	ظفر	finger nail' or 'toenail'	dhe-for
ghofol	غفول	ساذج	care-free	gho-foI
ghatata	غاتتي	اخوات	'sisters'	gha-ta-ta

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