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ILLUSTRATION OF THE IPA

Southern Tati: Takestani Dialect

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Southern Tati is a North-Western Iranian language in the Indo-European language family. Different varieties of this language group are spoken intermittently in the northern and northwestern parts of Iran, mainly in the Qazvin, Alborz, Markazi, Tehran, Ardabil, Gilan, Zanjan, and Khorasan-e-Shomali provinces. Previous linguistic work on the language consists of multiple descriptive grammars. These include Yarshater's (1969) analysis of multiple Tati dialects including Takestani, Chali, Eshtehardi, Xiaraji, Ebrahim-abadi, Sagz-abadi, Danesfehani, Esfarvarini, and Xozini, as well as Taheri's (2009) and Rahmani & Rahmni's (2021) analyses of the Takestani dialect. The variety of Southern Tati analyzed in this study is the Takestani dialect (tks, ISO 639-3). Takestani is spoken by the Tat community in the city of Takestan, known by its residents as Siayden (IPA: [sijʌˈten]). The speakers of Takestani know their dialect of the Tati language as Siaydiniji (IPA: [sijʌtiniˈd͡ʒi]), as 'related to the residents of Siaden.' Figure 1 shows the location of Takestan in the Qazvin province in Iran.

Southern Tati has been categorized by UNESCO's *Atlas of the World's Languages in Danger* project as 'definitely endangered.' According to *Ethnologue*, Takestani is classified as 'shifting,' as children no longer acquire the language. Although *Ethnologue* reports the number of Southern Tati speakers at 395,000 in 2009, the current number of its speakers and the number of its speakers in the city of Takestan is not clear to us. Among the several reasons for the endangered status of Takestani are (a) proximity to Tehran, the capital of Iran, where Persian, as the standard language of the country, is spoken, (b) the limitation of the educational system to teaching Persian, (c) the dominance of Persian in the media, (d) higher prestige attributed to Persian speakers who are socio-economically higher in the area, compared to the farmers in Takestan, and (e) limited resources for language research and documentation of Tati.

Southern Tati lacks a writing system of its own, and it has been passed down from generation to generation orally. Tati speakers have adapted the Persian alphabet, which itself is adapted from the Arabic writing system, into their writings, such as in personal correspondence. All the data in this study comes from the first author, a thirty-seven-year-old native female speaker of Takestani who was born and raised in Takestan before age eighteen. The speaker is also a native speaker of Persian and has learned Arabic and English since childhood. She has been living in the United States for eight years.

Consonants

	Bilabial		Labio-dental		Alveolar		Post-alveolar		Palatal		Velar		Uvular		Glottal	
Plosive	p^h p				t^h t						k^h k		Q		ʔ	
Affricate							t͡ʃ	d͡ʒ								
Nasal		m				n										
Trill						r										
Fricative			f	v	s	z	ʃ	ʒ					χ		h	
Approximant										j						
Lateral approximant						l										

Takestani has a laryngeal contrast (voiceless unaspirated vs. voiceless aspirated) for three of the four plosive places of articulation (bilabial, alveolar and velar) and the affricate series (voiced vs. voiceless). Yarshater (1969) previously analyzed the laryngeal contrast as being voiced vs. voiceless. He indicates that the voiceless stops are slightly aspirated, while there is no explicit discussion of the acoustic properties of the voiced series. Our analysis of the voice onset time characteristics (VOT; Lisker & Abramson, 1964) of these sounds indicates that the 'voiceless' series has a moderate-to-long VOT value with noticeable aspiration, while the 'voiced' series occasionally shows minor pre-voicing but most often has a short lag VOT value with no aspiration. This analysis is supported by the VOT data presented in Table 1, which outlines the mean and standard deviations for VOT of initial plosives in Takestani. This makes it clear that the laryngeal contrast in plosives in the language is marked by aspiration and not voicing. There is no laryngeal contrast for the uvular plosive, but it has a short lag VOT with no aspiration. Yarshater (1969) previously used the symbol [q] to represent this sound despite writing that 'it appears to be partially voiced' (p. 34) and using the voiced plosive symbols for the other non-aspirated plosives in the language. The VOT analysis therefore helps to better show the relationship between the different plosives in Takestani.

The velar∼uvular plosive contrast is typologically rare. In the PHOIBLE database of phonemic inventories (Moran & McCloy 2019), only 232 out of the 3,020 inventories (7.7%) contain both a voiceless velar plosive and a voiceless uvular plosive. Figure 2 shows spectrograms for the words /kal/ 'throat' and /qar/ 'anger'. The formant trajectories are noticeably different in /kal/ and /qar/. Furthermore, the velar stop causes the vowel /a/ to have a higher F2 value which has previously been identified as a cue for place difference between velar and uvular fricatives (Gordon et al. 2002).

There is also a laryngeal contrast for the labiodental, alveolar and postalveolar articulated fricatives. The fricatives articulated further back in the vocal tract only occur in the voiceless form. Previous analyses of Takestani have not included fricative spectra. Here we provide information about both the spectral peak, as well as the shape of the spectrum for the voiceless fricatives in the language. The general pattern follows standard assumptions about voiceless fricatives: fricatives with places of articulation further back in the vocal

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Table 1. Mean and standard deviations for voice onset time of initial plosives in Takestani

	Mean VOT (ms)	SD VOT (ms)	n
pʰ	55	15.7	242
tʰ	57	19.9	202
kʰ	67	17.5	207
p	8	2.3	88
t	13	4.6	195
k	25	14.0	129
q	23	10.0	175

Figure 1. The location of Takestan in the Qazvin province in Iran.

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Table 2. Spectral peak locations for the voiceless fricative segments in Takestani.

	Spectral peak location (kHz)
f	13.7
s	8.6
ʃ	3.7
χ	0.7
h	0.9

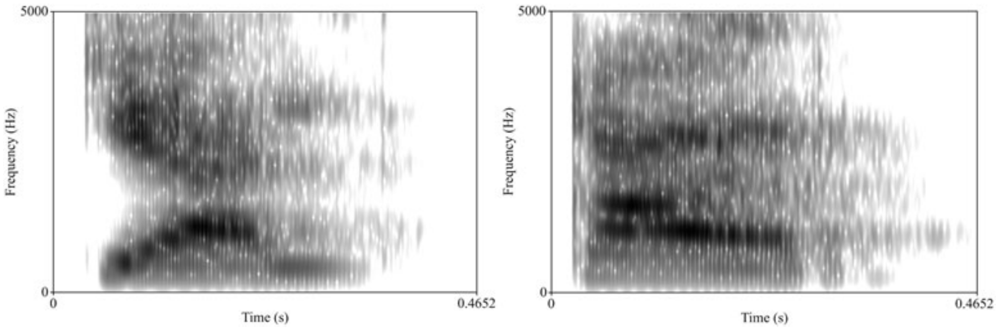

Figure 2. Spectrograms for /kal/ 'throat' (left) and /qar/ 'anger' (right).

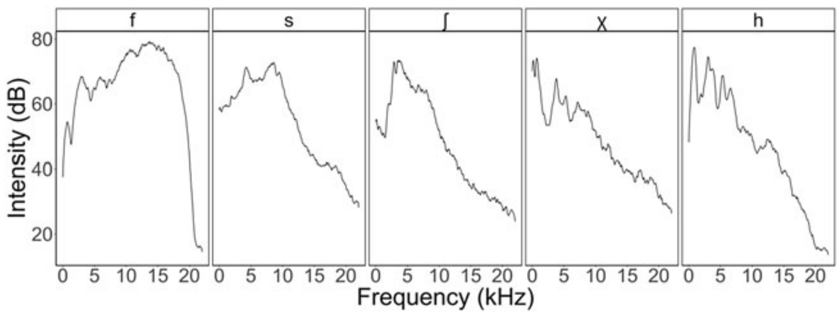

Figure 3. FFT Spectra for the voiceless fricative segments in Takestani.

tract have lower spectral peaks and the labiodental has a relatively flat shaped spectrum (Strevens 1960; Heinz & Stevens 1961). An average FFT spectrum for each voiceless fricative in the language is shown in Figure 3. The spectra were computed in Praat (Boersma & Weenink 2022) using a 5 ms Hamming window around the midpoint of 697 fricative tokens (Mean of 139.4 tokens per fricative; SD = 42.6). Spectral peak locations are listed in Table 2.

There are several words in the language that contain long/geminated consonants. The only consonants in the inventory that are not found in the geminate form are [v, ʒ, h, ʔ]. It is not entirely clear whether the geminate forms should be considered phonemes, allophones, or sequences of two identical segments. There does not seem to be a singular rule governing their distribution, but there are also no minimal pairs that contrast only for gemination. There are certain words that come close to being minimal pairs,

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such as /ˈtʰulɛ/ 'cheek' and /tʰuˈlːɛ/ 'stable (N)'. Since these words also vary in stress location, it appears at first glance that gemination may be the result of stress, but words such as /poχːoasˈtʰan/ 'cough-inf' and /ˈtʰopːɛ/ 'ball' show that this is not a generalization throughout the language.

Another possibility for explaining gemination may be through loanword adaptation. Words originally adapted from Arabic such as /ˈelːʌ/ 'except' and /ˈvʌlːʌ/ 'I swear to God' retain the native language gemination, but native Takestani words such as /poχːoˈastʰ/ 'he coughed' and /takː-e-tim/ 'mouth and face area' show that gemination is not limited to just these loan words. Some geminated consonants can be explained through a process of compensatory lengthening due to syllable simplification (e.g., taʃtʰ-i-ʃɛ → tɛˈt͡ʃːiɛ 'She/He has had it'). But once again, this cannot completely explain the data, as words with geminates such as /pet͡ʃːarˈt-an/ 'graze-INF' and /peˈkːert-em/ 'plant.PST.1SG' are not able to be analyzed the same way.

Two nasal stops are phonemic in Takestani, but additional nasal segments surface phonetically due to a process of nasal place assimilation. The labiovelar nasal [ɱ] is found in words like [saɱˈvʌr] 'samovar', the velar nasal [ŋ] is found in words like [saŋk] 'stone', and the uvular nasal [ɴ] is found in words like [t͡ʃʌɴˈqʌlɛ] 'a traditional food'.

	IPA	Orthography	Gloss
pʰ	/pʰonˈsad/	پُنصَد	Five hundred
p	/pon/	بُن	Roof
tʰ	/tʰo/	تُ	Saute'
t	/toˈnɛ/	دُنِه	Item, piece
kʰ	/kʰon/	کُن	Which one
k	/kerd/	گِرد	Round
q	/qom/	قُم	The city of Ghom
t͡ʃ	/t͡ʃoˈnɛ/	چُنِه	Chin
d͡ʒ	/d͡ʒon/	جُن	Life, dear
m	/mon/	مُن	Inside
n	/nom/	نُم	Name
r	/roʒ/	رُژ	Rouge, lipstick
f	/fel/	فِل	Money
v	/voˈnɛ/	وُنِه	Excuse
s	/son/	سُن	Cow dung
z	/zoˈnem/	زُنِم	Knee

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	IPA	Orthography	Gloss
ʃ	/ʃom/	شُم	Dinner
ʒ	/ʒest^h/	ژِست	Pose, gesture
χ	/χo/	خُ	Well, OK
h	/hon/	هُن	Yes
j	/jon/	يُن	Life, body
l	/lonɛ/	لُنِه	Nest

Takestani allows for many different types of CC clusters in codas, both in native words and loanwords. Rahmani's (2021) dictionary of Takestani includes words containing 180 of the 506 possible coda clusters that can be made with the segment inventory of the language (36%). Table 3 shows all attested combinations. The cluster numbers can be further split to show that there is no hard limitation on the types of consonants that can combine, at least at a broad level. Using a sonority scale where the sonority of segment classes increases such that approximants > nasals > fricatives > affricates > stops, there are more examples of clusters where the sonority falls (eighty-four out of the 192 possible clusters; 44%) than examples where the sonority rises (sixty-one out of the 192 possible clusters; 32%). There are an additional thirty-five out of 122 possible clusters where the sonority plateaus (29%). /r/ is the segment most likely to appear first in a consonant cluster and is attested in eighteen out of the ternty-one possible clusters. /s/, /m/, and /t/ are the most likely consonants to appear as the second consonant in a consonant cluster. Each of them appears in fourteen out of the twenty-one possible non-geminate clusters that can be constructed for each phone. In some cases, there is variation when a word ends with an obstruent-resonant sequence, such as /sefr/ 'zero', which sometimes is pronounced with an [e] vowel breaking up the cluster and other times with no intervening vowel.

Vowels

Takestani has eight phonemic vowels /i e ɛ ø u o ʌ a/. Noteworthy is the inclusion of the mid-front rounded vowel /ø/, which is probably due to language contact with Azerbaijani and other Turkic languages. Figure 4 shows the phonemic layout of the Takestani vowel system while Figure 5 shows the acoustic space for the vowel system. All vowels can be allophonically nasalized when appearing before or after a nasal consonant, but the nasalization is stronger and more likely in the carryover nasalization cases. There is no contrastive vowel length, but length differences do appear due to stress, which will be explained in more detail below. Additionally, vowels at the end of words and phrases are generally lengthened.

Formant measurements were taken at the midpoint of vowel tokens that appeared in non-final open syllables and were not flanked by a nasal consonant. Additional measurements of duration, intensity and f0 were taken. Table 4 lists the mean and standard deviation measurements for each vowel grouped by stress. In total, 892 vowel tokens were included (239 stressed; 653 unstressed). Table 4 also included counts for each individual vowel by condition. There were no unstressed tokens of [a] in the subset of the data set

Table 3. Attested consonant clusters in Takestani are filled in with gray. Black squares indicate identical consonants. Rows indicate the first consonant in a CC cluster, columns indicate the second consonant

(■ = black square; ░ = gray)

	pʰ	p	tʰ	t	kʰ	k	Q	ʔ	tʃ	dʒ	m	n	r	f	v	s	z	ʃ	ʒ	χ	h	j	l
pʰ	■																						
p		■	░	░	░		░	░				░	░			░	░	░		░			░
tʰ		░	■		░		░	░			░	░	░	░		░	░				░		
t				■			░						░			░							
kʰ					■						░	░	░			░							
k						■					░												
q		░	░	░			■				░		░	░		░	░	░					░
ʔ		░		░				■			░		░	░		░	░	░				░	░
tʃ									■														
dʒ				░						■	░		░		░		░						
m	░	░	░	░			░	░	░		■	░	░			░	░						░
n		░		░	░	░		░	░	░		■	░	░		░	░						
r	░	░	░	░	░	░	░	░	░	░	░	░	■	░	░	░	░	░		░			
f				░			░	░				░	░	■	░	░	░	░		░			░
v															■								
s		░	░	░	░			░			░		░	░		■				░			░
z		░		░		░	░	░			░	░	░	░			■						░
ʃ			░	░	░		░				░		░	░	░			■				░	
ʒ																			■				
χ			░				░				░		░			░	░	░		■			
h			░	░							░	░	░		░	░	░				■		░
j	░	░	░	░	░						░	░	░	░	░	░	░	░		░		■	░
l		░	░	░	░	░	░	░			░			░		░				░	░		■

used, but for all other vowels, the stressed variant was longer, louder, and higher in pitch than the unstressed variant. Furthermore, Figure 4 shows that while there is no categorical reduction, the formant space does reduce when vowels are unstressed. Figure 5 also highlights that the vowel transcribed as /ʌ/ has significant variation along the F1 dimension. When stressed, it can appear phonetically much closer to [ɑ] in specific tokens.

	IPA	Orthography	Gloss
i	/pʰir/	پیرُ	Old
e	/fer/	فِر	Son
ɛ	/pʰɛj/	پِی	Back

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	IPA	Orthography	Gloss
ø	/pʰør/	پوُرُ	Full
a	/pʰar/	پَر	Feather
u	/pʰur/	پور	Powder
o	/por/	بُر	Bring.imperative
ʌ	/pʌr/	بار	Load

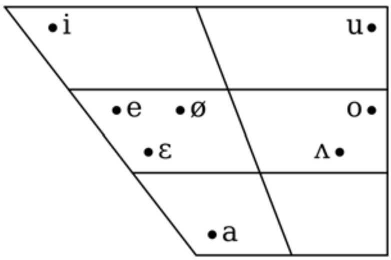

Figure 4. Phonemic vowels in Takestani.

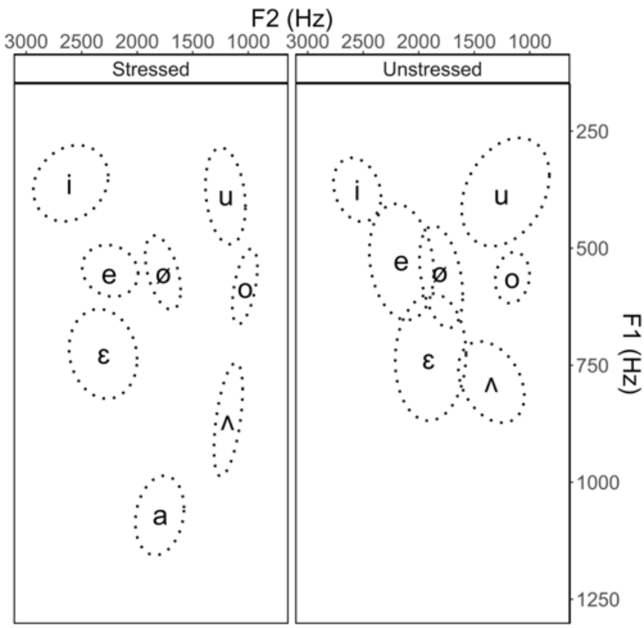

Figure 5. Mean F1 and F2 values + 95% SD ellipses as measured at midpoint of each phonemic vowel in stressed and unstressed positions.

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Table 4. Duration, Intensity, and f0 values for each phonemic vowel in Takestani in stressed and unstressed positions

		Duration (ms)		Intensity (dB)		f0 (Hz)		n
		Mean	SD	Mean	SD	Mean	SD	
i	Stressed	141	76.8	62	8.7	267	25.3	29
	Unstressed	99	43.4	50	6.8	220	36.2	159
u	Stressed	149	75.8	60	7.8	279	21.7	31
	Unstressed	100	15.6	52	7.5	233	12.0	16
e	Stressed	121	52.5	67	8.8	258	22.3	59
	Unstressed	93	38.5	53	7.7	221	33.3	158
ø	Stressed	148	73.6	66	7.4	265	23.8	29
	Unstressed	108	28.5	57	7.5	263	34.7	72
o	Stressed	157	83.2	67	8.6	262	18.9	29
	Unstressed	64	9.2	56	6.3	245	21.4	51
ɛ	Stressed	257	41.9	72	7.4	234	9.2	14
	Unstressed	154	28.4	49	5.7	192	19.1	108
ʌ	Stressed	196	34.8	74	7.8	239	16.2	14
	Unstressed	128	45.6	57	7.4	218	25.9	89
a	Stressed	164	42.1	65	9.0	237	17.4	34

Prosody

Stress

Stress is contrastive in Takestani words and partly predictable from word class and shape. Stress in nouns is generally ultimate (e.g., /peˈrʌ/ 'brother') unless in nouns ending with the feminine suffix -ɛ (e.g., /zɛjˈni.ɛ/ 'woman'). Most adverbs and adjectives, like nouns, are stressed on their last syllable, such as [pøland-pøˈland] 'loud-loud (loudly)' and [qaˈʃank] 'beautiful.' Adpositions are primarily mono-syllabic and are typically cliticized to a nominal complement, which is stressed. An example is the noun-postposition – [zʌˈrine rʌ] 'child for (for the child)' in which the nominal component [zʌˈrin] rather than the adposition rʌ is stressed. At the phrase level, nouns attract stress, so adverbs and adjectives are typically less prominent overall. For example, in the adjective-noun sequence [qaʃankɛ zʌˈrin] 'beautiful child,' the noun [zʌˈrin] 'child' rather than the adjective has a prominent stress.

Stress assignment in verbs depends on the presence of specific morpho-syntactic features or stress-attracting morphemes that compete for stress in a hierarchy. For example, present tense verbs are generally stressed on their last syllable (e.g., [meχanˈte] 'laugh.3SG.M.IND (He laughs)', and past tense verbs are stressed on their stem /ʌˈχɑrtem/ 'PV.drink.PST.1SG (I drank)'. The interfaces with morphology for stress assignment of verbs go beyond the scope of this study.

Regarding acoustic properties of stress in Takestani, stressed syllables often appear to be longer than their unstressed counterparts. In our complete vowel data set of 2,579 tokens,

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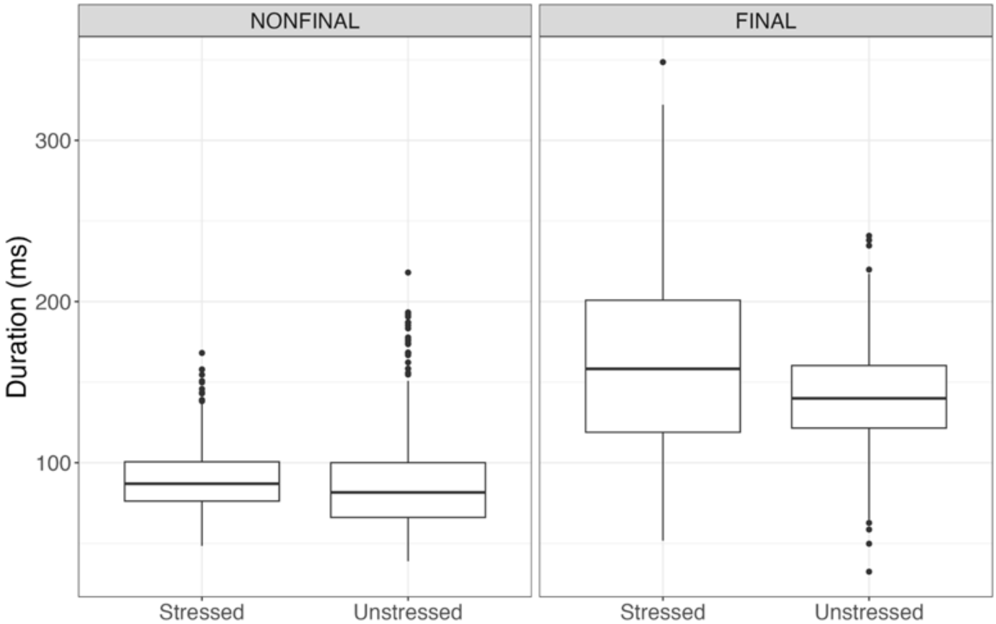

Figure 6. Boxplots indicating duration of vowel in stressed vs. unstressed syllables grouped by whether the syllable is final.

there are 1,055 stressed vowels and 1,524 unstressed vowels. The stressed vowels have a mean duration of 125.99 ms while the unstressed vowels have a mean duration of 105.18 ms. This difference turns out to be correlated with the fact that stress often falls on final vowels and final vowels lengthen by default.[1] This suggests that duration is not used as a cue for prominence in Takestani. Both f0 and intensity also interact with finality, but unlike duration, they also significantly cue prominence as f0 is higher in stressed vowels and lower in final vowels while intensity is higher in both stressed vowels and final vowels.[2] Figures 6, 7 and 8 provide boxplots of duration (ms), f0 (Hz), and intensity (dB) in stressed and unstressed position and broken up by whether the syllable is a final or non-final syllable.

[1] To determine the effect of finality and stress on the duration of vowels we used a linear mixed-effect model that was implemented with the lmerTest package for the R statistical computing software (Kuznetsova et al. 2017). The fixed effects were stress (base level: stressed) and finality (base level: non-final), as well as their interaction. The maximal random effect structure that led to convergence was used. This includes random intercepts for both vowel and word, as well as random slopes for both stress and finality by vowel and stress by word. The model shows a significant effect of finality on duration (β=59.78, t(23.92)=10.26, $p < 0.001$), but no significant effect of stress (β=−1.4, t(3.68)=−0.49 $p = 0.65$) or their interaction (β=−6.2, t(221.09)=−1.23, $p = 0.22$).

[2] Two additional linear mixed-effect models were fit to model Average f0 (Hz) and Average intensity (dB) across the duration of the vowel. The fixed effects for both models were identical to the duration model above. The mixed-effect structure for the f0 model was also identical to the duration model. The mixed-effect structure for the intensity model was identical except it contained no random slopes by word. There was a significant effect of stress (β=−39.99, t(5.65)=−4.94, $p < 0.001$), finality (β=−20.7, t(4.87)=−3.71, $p = 0.003$), and their interaction (β=−17.44, t(275.32)=−6.25, $p < 0.001$) on average f0. All three fixed effects also had a significant effect on average intensity: stress (β=−4.11, t(5.19)=−3.3, $p = 0.02$); finality (β=11.43, t(7.4)=11.61, $p < 0.001$); interaction (β=−18.13, t(349)=−22.98, $p < 0.001$). Since both models have a significant interaction effect, this suggests that the magnitude of the stress effect is different in final vs. non-final vowels.

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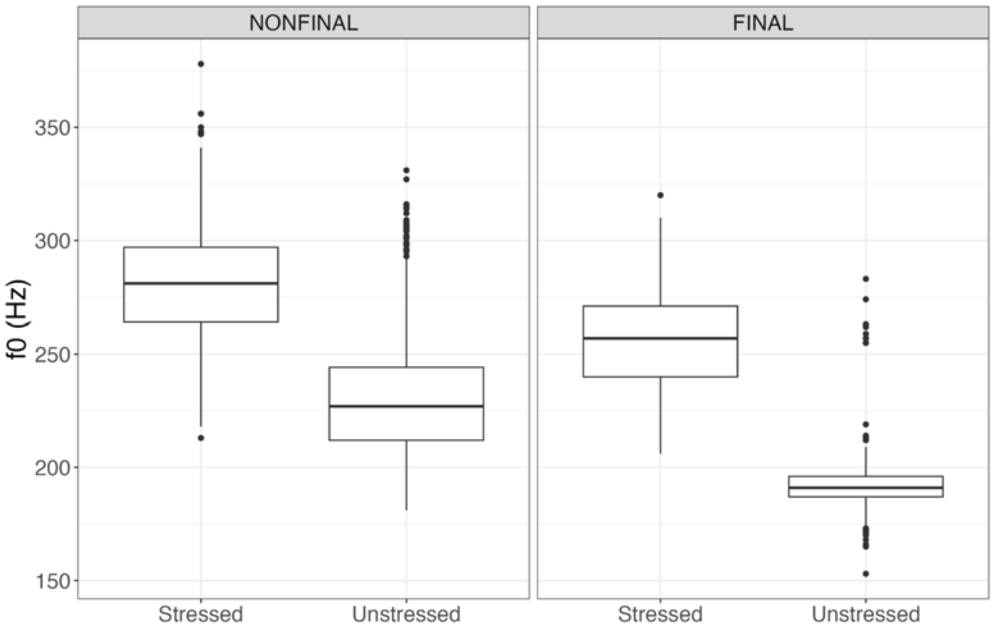

Figure 7. Boxplots indicating average f0 of vowel in stressed vs. unstressed syllables grouped by whether the syllable is final.

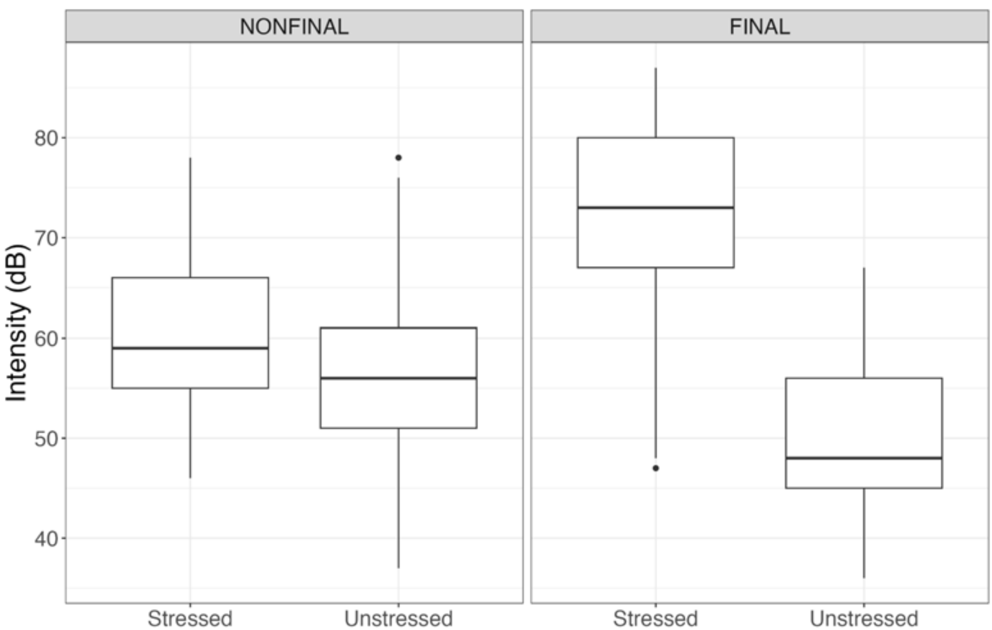

Figure 8. Boxplots indicating average intensity (dB) of vowel in stressed vs. unstressed syllables grouped by whether the syllable is final.

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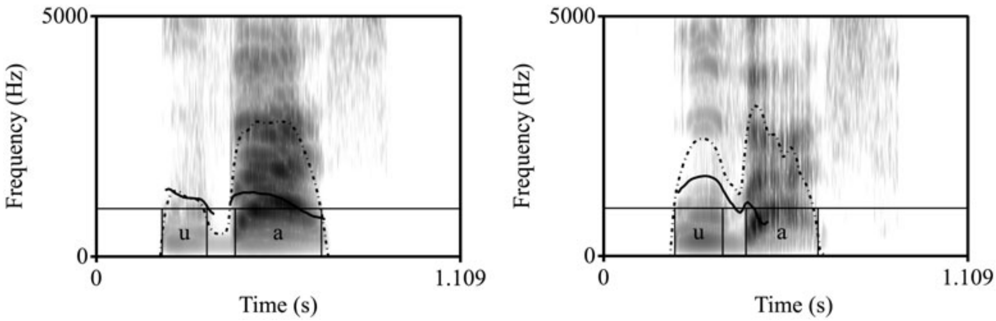

Figure 9. Spectrogram of /uˈvaz/ 'dancer' (left) and spectrogram of /ˈuvaz/ 'dance!' (right). Boundaries indicating duration are superimposed overtop. The solid line indicates the relative pitch tracking, and the dashed line indicates the relative intensity.

There are some examples of minimal pairs that directly contrast stress between final and non-final position, such as the nouns /vɛˈjɛ/ 'wedding' and /ˈvɛj-ɛ/ 'bride' or the verbs /uˈvaz/ 'dancer' and /ˈuvaz/ 'dance!'. The spectrograms of the recordings of the latter two words are shown in Figure 9. The analysis above indicates that vowels in stressed syllables typically have a higher average intensity and a higher average f0 value than their unstressed counterparts. Curves indicating both intensity (dashed) and f0 (solid) are superimposed over the spectrogram. While there has been much influence from Persian on Takestani, it does not seem to extend into the prosodic domain. Following Beckman (2012), we differentiate pitch-accent languages from non-pitch-accent languages based on whether other cues beyond f0 indicate prominence. Persian has been argued to be a pitch accent language due to its reliance on f0 for cueing word-level prominence (Mahjani 2003; Abolhasanizadeh et al. 2011), but since intensity also significantly cues word-level prominence in Takestani, the use of f0 appears to serve a supplementary rather than primary purpose in this domain.

Syllable structure

Various analyses of syllable structure can be made for different dialects of Takestani and related languages, such as Persian. Scott (1964) suggests that the Persian syllable structure is CV(C)(C) by assuming that any vowel-initial word has a glottal stop in the initial position. Asadi et al. (2014) say that for the Kajal dialect of Tati that the syllable structure is (C)V(C)(C), and the glottal stop sound is not present phonemically or phonetically. The Takestani dialect does allow glottal stops, at least at the phonetic level. This can be seen word-initially in the examples in Figure 6, but glottal stops in Takestani also appear in non-word initial positions such as [zɛˈʔif] 'week.' That being said, glottal stops are often realized phonetically as the lengthening of a neighboring vowel. This corresponds with Yarshater (1969)'s interpretation of the glottal stop phoneme. Additionally, the variation between producing the glottal stop or lengthening the vowel is often tied to a speaker's knowledge of the origin and spelling of a given word. For these reasons, it seems possible that for Takestani, the syllable structure is (C)V(C)(C).

Illustrative passage

English version of the passage

The North Wind and the Sun were disputing, which was the strongest, when a traveler came along wrapped in a warm cloak. They agreed that the one who first succeeded in making the traveler take off his cloak should be considered stronger than the other. Then the North Wind blew as hard as he could, but the more he blew the more closely did the traveler fold

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his cloak around him; and at last, the North Wind gave up the attempt. Then the Sun shone out warmly, and immediately the traveler took off his cloak. And so, the North Wind was obliged to confess that the Sun was the stronger of the two.

Phonemic transcription

ʃemʌˈl-e	*jʌˈvʌ-jon*	*ʌfˈtʰʌv*	*kʰʌˈrʌ*	*d͡ʒi*	*saˈr-ɛ*	
north-EZ	wind-CONJ	sun	PROG	DET.PROX	about-AR	

tʌvʌ-ˈʃon	*m-iˈɛ*	|
struggle-3PL.NOM	PROG- do.PST	

kʰe	*ʌ*	*moˈqɛ*	*kʰe*	*mesʌˈfer*
COMP	DET.DIST	time	COMP	traveler

karˈm-ɛ	*qʌˈpʌ*	*tʰan-eˈʃ-ɛ*	*tɛ*	*mʌ-ø*	|
warm-ADJ	cloak	body-POSS.3SG-AR	AR	come-3SG.M	

kʰonɛ-ˈkʰɛin-eʃon	*zur*	*viʃˈtʰar-e*	‖
which-one-POSS.3PL	power	more-COP.PRS.3SG.M	

ʌˈχːer-ɛ	*d͡ʒeftʰ-eˈʃon*	*rʌˈzi-ʌ*	*ˈv-intɛ*	*kʰe*	|
ADV:final-AR	both-3PL	contented-E	become.PST-3P L	COMP	

ʌ	*kʰe*	*ˈpøtʰøn-e*	*i*	*kʰʌr*	*jar-e*
PRN.3SG.M	COMP	V.PRS.can-3SG.M	NUM.one	thing	do.PRS-3SG.M

mesaˈfer	*qʌˈpʌ-ʃ*	*ˈtʰan-eʃ-ɛ*	*par-oˈr-e*	|
traveler	cloak-POSS.3SG	body-POSS.3SG-AR	out-bring-3SG.M	

zuˈr-eʃ	*d͡ʒʌvɛ-ˈkʰɛin-e*	*χo*	*viʃˈtʰar-e*	‖
power-POSS.3SG	other-one-EZ	POST	more-COP.3SG.M	

ʌˈsʌni	*ʃoˈmʌl-e*	*jʌˈvʌ*	*tʰʌ*	*mø-tʰøˈn-astʰ*
ADV.then	north-EZ	wind	ADV.as_much_as	PROG-can-PST

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ˈzur-e	*pi*	*pe-vaˈz-astʰ-ø*	‖
power-EZ	POST.with	PV-blow-PST-3SG.M	

ʌˈmːʌ	*harˈtʰʃe*	*seftʰ-ˈtʰar*	*me-vaˈz-astʰ-ø*	|
CONJ.but	ADV.whatever	strong-COM	PROG-blow-PAST-3SG.M	

mesʌˈfer	*seftʰ-ˈtʰar*	*qʌˈpʌ-ʃ*	*mi-pʰi͡tʃ-teˈn-astʰ*
traveler	strong-COM	cloak-3SG.NOM	PROG-twist-CAUS-PAST

χoʃtaˈn-ar-eʃ	*toˈrɛ*	‖
REFL.self-POSS-3SG	N.surrounding	

ʌˈχːer-ɛ	*ʃoˈmʌl-e*	*jʌˈvʌ*	*ˈtas-eʃ*	*oqo*	‖
ADV:final-AR	north-EZ	wind	hand-3SG.NOM	take_off.PST	

ʌˈsʌni	*ʌfˈtʰʌv*	*kʌrˈmʌ-ʃ*	*pi*	*pe-ˈzant͡ʃɛ*	|
ADV.then	sun	heat-POSS.3SG	POST.with	PV-hit.3SG.NOM	

mesʌˈfer	*ˈipatenʌ*	*qʌˈpʌ-ʃ*	*tʰan-eˈʃ-ɛ*	*tɛ*	*ˈpar-o*	‖
traveller	ADV.suddenly	cloak-POSS.3SG.NOM	body-POSS.3SG-AR	AR	out-bring.PST	

piˈan-ʌ	*ve*	*kʰe*	*ʃeˈmʌl-e*	*jʌˈvʌ*	|
this_way-E	become.3SG.PST	COMP	north-EZ	wind	

mad͡ʒˈpuʌ-ʌ	*ve*	*qʌˈpul*	*jaˈr-e*	*kʰe*	|
ADJ.obliged-E	become.PST.SG.PST	acceptance	do.3SG.M	COMP	

ʌfˈtʰʌv	*zuˈr-eʃ*	*d͡ʒʌ*	*χo*	*viʃˈtʰar-e*	‖
sun	power-POSS.3SG	PRN.DS.3SG.M	POST	more-COP.PRS.3SG.M	

Abbreviations

1	First Person
3	Third person
ADJ	Adjective
ADV	Adverb
AR	Areal (place, time)
CAUS	Causative marker
COM	Comparative adjective

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COMP	Complementizer
CONJ	Conjunction
COP	Copula
DET	Determiner
DIST	Distal
E	Eventive
EZ	Ezafe marker
IND	Indicative mood
INF	Infinitive
M	Masculine
N	Noun
NOM	Nominative
NUM	Numeral
PL	Plural
POSS	Possessive pronoun
POST	Postposition
PRN	Pronoun
PROG	Progressive aspect
PRS	Present time
PST	Past tense
PV	Preverbal morpheme
PROX	Proximal
REFL	Reflexive pronoun
SG	Singular
V	Verb

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