

# Introduction to the Chumburung Tone Exercises

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The data and sound file recordings for these exercises were provided by Isaac Demuyakor, a mature native speaker of Chumburung who has lived his entire life in the Chumburung village of Kumindi, Northern Region, Ghana.

This set of exercises takes the student through a detailed analysis of nominal tone in Chumburung, following the methodology introduced in Chapter 2 of *Tone Analysis for Field Linguists*. For each exercise, there is a corresponding database so that regardless of how students might have entered their data into the database of the previous exercise, they can move on to the next exercise with “good” data. For each exercise, there is a formal answer key.

As with all natural languages, there is a certain amount of “mess,” and for the most part, I have chosen not to include idiosyncratic data that would detract from the overall goal of exemplifying the methodology. On the other hand, I have chosen to include some idiosyncratic data, but only to the extent that including them furthers the goals of the present work.

Chumburung is a Guang language spoken in Ghana. The Guang group, in turn, belongs to the Kwa family, part of the greater Niger-Congo family of languages. To help orient students to the Chumburung language, the reader will find helpful the following pertinent information on the phonology and morphology of the language.

The surface vowel inventory of Chumburung is set out as follows:

(1) Surface vowel inventory of Chumburung<sup>1</sup>

[-ATR]		[+ATR]	
ɪ	ʊ	i	u
ɛ	ɔ	e	o
	a		ə

Although there are ten surface vowels, underlyingly there are only nine, with [ə] and [a] occurring in complementary distribution: [ə] only occurs to the left of [+ATR] (Advanced Tongue Root) vowels, and [a] never occurs to the left of [+ATR] vowels within phonological words. The vowels of words are normally either all [+ATR] or all [-ATR]. The only exceptions are compound forms in which two roots are from different harmony sets (e.g., *kɪsari-d̄ʒi* ‘finger’, *wuru-b<sup>w</sup>ari* ‘God’), or when [a] occurs to the right of a [+ATR] vowel (e.g., *kuruma* ‘donkey’). In the case of *kɪsari-d̄ʒi*, the [+ATR] vowel in the second root of the compound spreads its [+ATR] value leftward to the last vowel of the first root, rendering it [i] instead of [ɪ] (cf. *kɪsari?* ‘arm’).

ATR vowel harmony also exists between the vowels of stems and prefixes, the latter always harmonizing with the former with respect to ATR. In addition, the *kl*-noun class prefix harmonizes with the Round specification of the first vowel of the stem, unless the first consonant of the stem is Labial. The following examples are illustrative.

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<sup>1</sup> Students who listen to the sound files associated with these exercises will quickly notice that all front vowels are pronounced with “centralized” allophones unless they occur in root-final environments. Since these exercises focus only on tone, this centralization, which is entirely predictable, is ignored in the transcriptions found in all documents that pertain to these exercises.

(2) Vowel harmony between stems and the *ki-* prefix in Chumburung<sup>2</sup>

	[-ATR]		[+ATR]	
[-Rd]	ki-sɪbɔ	‘ear’	ki-jiʔ	‘tree’
	ki-kɛʔ	‘headpad’	ki-teʔ	‘story’
	ki-pa	‘hat’	ki-jeʔ	‘meat’
[+Rd]	ku-kutɔ	‘claw’	ku-ŋu	‘head’
	ku-kɔ	‘debt’	ku-d̄ʒo	‘yam’

## (3) Round harmony blocked due to intervening labial consonant

[-ATR]		[+ATR]	
ki-pu	‘forest’	ki-bu	‘stone’
ki-furi	‘rock’	ki-boŋirəŋ	‘bell’

Vowel assimilation processes also occur across word boundaries within phonological phrases, and careful readers will notice that some of the outputs of these processes (only those that affect [+High] vowels, which are the easiest to hear) are represented in the phonetic transcriptions in the exercises. Here are the processes relevant to the representations in these exercises.<sup>3</sup> Whenever a [+High], [-ATR] vowel occurs in a syllable across a word boundary from a syllable with a [+ATR] vowel, the [-ATR] vowel will be realized as [+ATR], regardless of the order of the syllables. For example, /dapu kike/ → [dapu kike] ‘hawk’s basket’ (1st syllable [-ATR], 2nd syllable [+ATR]), and /buni kipa/ → [buni kipa] ‘butterfly’s hat’ (1st syllable [+ATR], 2<sup>nd</sup> syllable [-ATR]). Similarly, whenever a [+High], [-Rd] vowel occurs in a syllable that is on the left side of a word boundary from a syllable with a [+Rd] vowel, it is realized as [+Rd] (e.g., /buni kukutʃe/ → [bunu kukutʃe] ‘butterfly’s oyster’). If, however, the two vowels are separated by a labial consonant, the spreading only occurs optionally (e.g., /kid̄ʒi buni/ → [kid̄ʒu buni] ~ [kid̄ʒi buni] ‘seed’s butterfly’). Unlike the situation

<sup>2</sup> Since these exercises are focussed on investigating the Chumburung tone system, tone marking has been removed from all data in this document so as not to compromise the integrity of the exercises.

<sup>3</sup> Since it is beyond the scope of this brief introduction to discuss these processes in depth, the interested reader will find a fuller discussion of this subject in Snider 1985, 1989.

with [+ATR] assimilation, [+Rd] spreading only occurs leftward. So, if a [+High], [-Rd] vowel occurs in a syllable that is on the right side of a word boundary from a syllable with a [+Rd] vowel, [+Rd] spreading does not occur (e.g., /dapu kɪdʒá/ → [dapu kɪdʒá] ‘hawk’s market’, \*[dapu kudʒá]).

Whenever two vowels are brought into adjacency in Chumburung phrases, hiatus resolution occurs (Snider 1989). In essence, the nucleus of the resultant syllable consists of the second of the two vowels, which potentially undergoes two assimilatory processes prior to deletion of the first vowel: a) If the first vowel is [+ATR] and the second vowel is [+High], the second vowel will be realized as [+ATR], regardless of the second vowel’s underlying specification for ATR; b) If the first vowel is [-High], the second vowel will be realized as [-High], regardless of the second vowel’s underlying specification for height or ATR. Finally, if the vowel that is deleted is [+Round], the preceding consonant is realized with a round off-glide. Examples of hiatus resolution, with the resultant vowels underlined, appear in (4).

(4) Vowel coalescence

<p><b>First vowel</b> [+ATR], [+High]  <b>Second vowel</b> [-ATR], [+High]            iwu isá → [iwɪsá] ‘three thorns’            thorns three</p>	<p><b>First vowel</b> [+ATR], [+High]  <b>Second vowel</b> [-ATR], [-High]            əbu asa → [əb<sup>w</sup>asa] ‘three stones’            stones three</p>
<p><b>First vowel</b> [+ATR], [-High]  <b>Second vowel</b> [-ATR], [+High]            idʒo isa → [idʒ<sup>w</sup>esa] ‘three yams’            yams three</p>	<p><b>First vowel</b> [+ATR], [-High]  <b>Second vowel</b> [-ATR], [-High]            əkpe asa → [əkpeasa] ‘three witches’            witches three</p>
<p><b>First vowel</b> [-ATR], [+High]  <b>Second vowel</b> [-ATR], [+High]            ɪburɪ isa → [ɪburɪsa] ‘three voices’            voices three</p>	<p><b>First vowel</b> [-ATR], [+High]  <b>Second vowel</b> [-ATR], [-High]            ɲarɪ asa → [ɲarasa] ‘three names’            names three</p>
<p><b>First vowel</b> [-ATR], [-High]  <b>Second vowel</b> [-ATR], [+High]            ɪkpaŋɲa isa → [ɪkpaŋɲesa] ‘three horses’            horses three</p>	<p><b>First vowel</b> [-ATR], [-High]  <b>Second vowel</b> [-ATR], [-High]            atɔ asa → [at<sup>w</sup>asa] ‘three things’            things three</p>

The final helpful piece of information concerns the behaviour of the glottal stop. The glottal stop only occurs pause initially (i.e., at the end of phrases), and this only in two environments: a) at the end of all negative phrases (see example (5) immediately below), and b) at the end of certain words when they are the end of a phrase (e.g., in isolation environments). When these certain words are pronounced phrase medially, the mora that is assigned to the glottal stop when the word is pronounced phrase finally is instead assigned to the preceding vowel. In other words, the syllable that is phonetically realized as CV? when spoken phrase finally, is phonetically realized as CVV when spoken phrase medially.

(5) Behaviour of glottal stop in Chumburung

nana ma nu dapu?                      ‘grandchild won’t hear a hawk’ cf. dapu ‘hawk’  
 nana ma ŋu buni?                      ‘grandchild won’t see a butterfly’ cf. buni ‘butterfly’

kisari?                      ‘arm/hand’                      cf. kisarii-d̄zi                      ‘finger’ (hand-child)  
 kid̄zabu?                      ‘cripple’                      cf. kid̄zabuɔu dapu                      ‘cripple’s hawk’

With respect to morphology, most nouns are comprised of a segmental noun class prefix followed by a stem (cf. *ki-pu* ‘forest’ *a-pu* ‘forests’). That prefixes are affixed to stems and not roots becomes evident when we consider forms such as the following. The word *ɔ-t̄fi?* ‘woman’ belongs to the *O-* class, which designates human beings and animals and birds deemed impressive by the people (e.g., lions and eagles). The noun root */t̄fi/* may be combined with the verb root */kpa/* ‘love, want’, to form the compound stem *[t̄fi-kpa]*. The complete word, *ka-t̄fi-kpa* means, ‘adultery with a woman’, or more literally, ‘woman-love’. (By the same token, when reference is made to a woman committing adultery with a man, there is a corresponding compound form that replaces the root for ‘woman’ with the root for ‘man’.) Pertinent to the matter at hand, and perhaps contrary to expectation, the prefix for this word is not *O-*, but rather *kA-*. While the *O-* prefix is appropriate for *ɔ-t̄fi?* because the referent is a human being, it is not appropriate for the concept of ‘adultery’, which belongs to the *kA-* class. The choice of *kA-* over *O-* for this class prefix clearly demonstrates that the choice of prefix is sensitive to the stem, as opposed to the immediately following root.

The methodology reinforced by these exercises will reveal the Chumburung tonal contrasts and phenomena and make them amenable to theoretical explanations.

### References

- Snider, Keith. 1985. Vowel coalescence across word boundaries in Chumburung. *The Journal of West African Languages* 15(1):3-13.
- Snider, Keith. 1989. Vowel coalescence in Chumburung: An autosegmental analysis. *Lingua* 78:217–232.