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Stress and Tone in the Phonology of Diuxi Mixtec¹

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Abstract. Each word in Diuxi Mixtec has a stressed syllable which is marked by a long vowel. In addition to this stress, some words have a second stress. This second stress occurs only on the last syllable of the word and is marked by intensity and by allotones of both high and low tone. There is a contrast of high versus low tone, and there are allotones which occur in relation to the presence versus absence of word-final stress.

Introduction

The Diuxi² dialect of Mixtec³ is of special interest in that there is a contrast between words with one stress versus words with two stresses. That is, each word has one syllable with a long vowel, and in addition there may also be stress on the word-final syllable (see 'Stress and the

¹ A shorter version of this paper was presented at the Eighth International Congress of Phonetic Sciences, Leeds, August 17-23, 1975.

² The town of San Juan Diuxi (consisting of one village) is located south-southwest of Nochixtlán, Oaxaca, Mexico. The principal informants were ROMÁN PABLO REYES and AMELIA DE MARTÍAS. Both are residents of San Juan Diuxi. A neighboring town, Santiago Tilantongo, consists of 25 villages and hamlets. The people of both towns say that they speak 'almost the same'. About 5,000 people speak either the dialect of San Juan Diuxi, or the 'almost the same' dialect of Tilantongo. Concerning the town of Tilantongo, see SPORES [1967].

³ For material on the verbs of Diuxi Mixtec, see KUIPER and MERRIFIELD [1975]. For material on personal pronouns, see KUIPER and PICKETT [1974]. For material on the phonology of some of the other dialects of Mixtec, see BRADLEY [1970], HUNTER and PIKE [1969], PANKRATZ and PIKE [1967], PIKE and COWAN [1967], PIKE and SMALL [1974], PIKE and WISTRAND [1974], PIKE [1948].

Phonological Word'). There is stress sandhi (see 'Stress Sandhi') as well as tone sandhi (see 'Tone Sandhi').

Stress and the Phonological Word

Diuxi Mixtec has a contrast between words with only one stressed syllable (i.e. words with a simple nucleus) versus words with two stressed syllables (i.e. words with a complex nucleus).

Every word has a stressed syllable which is marked by a long vowel, and that syllable coincides with the first syllable of a non-compounded stem. (Throughout this paper we have indicated that stressed syllable with a colon following the vowel. High tone is indicated with an acute accent⁴; low tone is unmarked.) kí:tʃ *animal*, k^wá:â *yellow*, čá:ka *fish*, téšâ:ʔnũ *old man*.

Some words have a second stressed syllable which follows the first, either contiguously, or noncontiguously. This second stressed syllable is always in word-final position. It is marked by intensity and allotones of both high and low tone (see 'Tone Variants'). When the last syllable is stressed, we have indicated it with an apostrophe: zá:'á *ashes*, tú:'tú *paper*, ñũ:ú'ñâ *her town*.

The segmental phonemes include 18 consonants. The stops and affricates are /t, d, č, k, k^w, ʔ/. The /k/ and /k^w/ become slightly voiced when following /n/ within a word. The fricatives are /β, ð, s, š, ž, h, h^w/. The voiced bilabial fricative /β/ is a rounded resonant when following the long syllable. The voiced interdental fricative /ð/ is voiceless when following /t/. The voiceless alveopalatal retroflexed fricative /š/ has a voiced retroflexed affricate allophone when following /n/ within a word. The voiced alveopalatal fricative /ž/ has a resonant allophone when noncontiguously following the long syllable; it has an affricate allophone when following /n/; it becomes a voiceless fricative when following /t/. There are nasals /m, n, ñ/, a lateral /l/, and a flap /r/. When following /n/, the flap is preceded by a voiced stop. When occurring in word-final position, the consonants /n/ and /r/ are syllabic and carry contrastive tone.

There are six oral vowels /i, e, a, i (high central), o, u/, and the corresponding nasalized vowels /ĩ, ɛ̃, ɔ̃, ɨ̃, ʉ̃, ɯ̃/. The vowel /i/ optionally has a voiceless allophone when occurring prepause if following

⁴ The printers do not have available the sign for $\acute{\text{ı}}$ with high tone. As a signal for this, we have used $\text{L}\acute{\text{ı}}$ as parallel to $\acute{\text{â}}$, $\acute{\text{é}}$, and $\acute{\text{ú}}$.

/č/ or /š/. The vowel /ɨ/ when in phrase-final position optionally ends with a lenis velar nasal closure.

For a more complete description of the segmental phonemes, see ORAM and PIKE [in manuscript].

The following words and phrases demonstrate contrast between words with one stress versus words with two stresses: ʔɨ:ɨ *one*, ʔɨ:ʔɨ *nine*; ndó:ó *clean*, ndó:ʔó *sugarcane*; žá:šíró *our* (inclusive) *gourd dipper*, žú:číró *our* (inclusive) *knife*; lu:čí *small*, ku:ʔčí *pig*; lu:čí kí:ti *the animal is small*, lu:čí ʔí:ta *the flower is small*; ʔú:ʔú ną:ʔmą *two pieces of soap*, ʔú:ʔú tną:ną *two tomatoes*.

Some words which end in a low-high tone sequence alternate between one and two stresses. For example: čikwi:í or čikwi:ʔí *fox*, la:piñá or la:piʔñá *her pencil*, tkwí:tiñá or tkwí:tiʔñá *her potato*.

Each phonological word is composed of two or more syllables. In words of more than two syllables, the syllables which precede the long one are pronounced with medium speed, whereas non-stressed syllables which contiguously follow the long syllable are pronounced rapidly: tađí:ʔđó *father-in-law*, čiliđa:ʔá *bird*, kitlaβi:ʔčí *a harmful animal*, hwi:nikađa *I* (polite) *want more*, nde:ʔañáʔásđá *he* (man speaking) *sees me*.

When a compound word is made up of two stems, the first stem loses the length from its long syllable: ká:đá *will do*, βá:ʔá *good*, kađaβá:ʔá *will write*. If the first stem has a CVV or CVʔV pattern, the second syllable is also lost: šé:ʔé *foot*, đó:ʔó *ear*, šeđó:ʔó *earring*; tá:ʔá *father*, đí:ʔó *brother* or *sister-in-law*, tađí:ʔđó *father-in-law*.

Tone

High tone contrasts with low tone. This contrast can be demonstrated by showing words with differing tone sequences as they occur after the frame ʔɨ:ɨ *one*: ną:ñá *chayote*, tną:ną *tomato*; ku:ʔčí *pig*, žú:ʔčí *knife*; ža:á *tongue*, žá:ú *maguay*.

The following words are cited as they occur after nšé:ę *were bought*: čá:ká *fish*, le:lú *hats*, ki:ti *animals*, ko:ʔló *turkeys*, žu:ʔčí *knives*.

The following words are cited as they occur after nšé:ę *I bought*: čá:ka *fish*, kí:ti *an animal*, žúu:ʔčí *a knife*, kúu:ʔčí *a pig*, đí:kú *milk*.

Other examples showing contrastive tone sequences: žá:ʔáro *our* (inclusive) *chile*, žá:ʔáro *we* (inclusive) *are passing*; đí:koñá tną:ną *she*

is selling tomatoes, *ði:kõñá ðá:ʔmá she is selling cloth*, *hʷi:nĩñá tkʷi:ti she wants potatoes*, *hʷi:nĩñá tði:či she wants tadpoles*, *tkʷi:ti ži:či a dry potato*, *tkʷi:ti lúu:či a small potato*.

When in isolation, especially in a calling context, there is occasional alternation between the high high-stressed pattern, and the high-low pattern: *ði:ʔði* or *ði:ði* *unt*.

There is no contrast of high versus low tone on a syllable, or on a sequence of syllables, which occur between pause and a long-high syllable. A syllable in that environment has mid-pitch, or perhaps fluctuates between high and low. For example: *tendá:ku broom*, *ñužá:ka dust*, *ñakanakú:tuti the animals are not plowing*.

Two-syllable words, when in isolation, have one of five different stress-tone patterns: *bí:kó fiesta*, *ði:kú milk*, *le:lú hat*, *ko:ló turkey*, *ču:ku louse*.

In certain contexts (see 'Stress Sandhi'), two other stress-tone patterns may occur. They are: (1) a low-low sequence with one stress: *βá:ʔá ki:ti the animals are good*; (2) a low-low sequence with two stresses: *βá:ʔá žu:či the knives are good*.

The pattern high-low-stressed does not occur.

Tone Variants

A prepause stressed-high tone which is preceded by high usually has a sharp downglide (*ʔi:ñú six*), whereas there is no downglide on a non-stressed high in that environment (*ʔi:ñú thorn*).

When a word-final stressed high syllable is preceded by a low tone, the stressed high does not always downglide, but it is distinguished from a non-stressed high since the non-stressed high has mid-pitch in that environment: *ku:či pig* versus *lu:či small*. The allophonic downglide at the end of a stressed syllable contrasts with a high-low tone sequence: *li:ʔi rooster* versus *li:ʔi his (child's) rooster*.

A sequence of high tones has allophonic downdrift when the sequence ends with a non-stressed high: *ʔi:či žá:ši one gourd dipper*, *ži:ki lú:či a small needle*, *n-i:ñ-i-ró our (inclusive) dry corn*. A sequence of high tones does not have allophonic downdrift, however, (1) when the final syllable has a stressed high tone: *ʔi:či žú:či one knife*, *žú:či-ró our (inclusive) knife*, and (2) when following a sequence of low tones: *ði:ko žá:ši gourd dippers are sold*, *ði:ko ʔi:tá flowers are sold*. (There is

downdrift, however, when following a single low tone: le:lú mę:ú *your (familiar) hat*, nšę:ę čá:ká *fish were bought*.)

A word-final stressed high syllable, and a word-final non-stressed high syllable with a consonant onset, have raised allotones when preceding a word-initial low tone. In the following examples, the second syllables have higher allotones than the first: βá:’pá le:lú *the hat is good*, ’ú:šá ča:ka *seven fish*. A non-stressed high syllable without a consonant onset, however, is not raised. That is, the second syllable in the following example does not have a higher allotone: ’ú:ú le:lú *one hat*.

A high tone has a raised allophone when preceding low tone within a word: tí:čfđa *my avocado*, ’ú:ú čá:ka *one fish*.

When in analogous environments, the vocal vowel /i/ with high tone is usually higher than the vowel /a/ with high tone. That is, the third syllable of the first example is higher than the third syllable of the second example: lu:či tđí:či *the tadpole is small* versus lu:či čá:ka *the fish is small*; the last syllable of the first example is higher than the last syllable of the second: ká:’nu žu:či *the knife is big* versus ká:’nu ’i:ta *the flower is big*.

A prepause stressed low tone starts slightly higher than a preceding long low tone, and ends with a slight downglide: ’ú:ú ’ú:ú đi:’ta *nine tortillas*.

When prepause and non-stressed, a low tone is lower than a contiguously preceding low tone: nšę:ę ki:ti *animals were bought*, čá:ka mę:ú *your (familiar) fish*.

A non-stressed low tone (or a sequence of non-stressed low tones) varies to mid when occurring between a long-low tone and a high tone. In the following example the second syllable varies to mid: đi:ko kí:tí *animals are sold*. In the following example the second and third syllables vary to mid: h’i:njkađá *I (polite) want more*.

There is a slight downdrift in a sequence of low tones when they are preceding a long-low tone: kitlaβi:’čí *any harmful animal*, žolinj:stá *a forked stick*.

When following pause, a non-stressed low tone, is slightly higher than a following long-low tone: kupa:’á *noise*.

The two words lome:’tá *bottle* and lu:či’á *is it small?* both have the tone sequence low-low-high, but because of the contrastive placement of the long-low syllable, the phonetic sequence of the first is mid-low-high, whereas the phonetic sequence of the second is low-mid-high.

Stress Sandhi

Except in compound words (see 'Stress and the Phonological Word'), the stress which is marked by a long vowel is fixed, but word-final stress may sometimes be lost from, and sometimes added to, the basic form.

A word-final stressed syllable, which has a consonant onset other than /ʔ/, loses that stress when not prepause: tá:ʔtná *medicine*, tá:tná kʷí:ši *white medicine*; ʔú:ʔsá *seven*. ʔú:šá ča:ka *seven fish*. On the other hand, a word-final stressed syllable which has /ʔ/ in the onset, or which has no consonant onset, retains that stress even when not prepause: ʔłi:ʔłi *nine*, ʔłi:ʔłi kí:ti *nine animals*; βá:ʔá *good*, βá:ʔá βe:ʔe *the house is good*.

When an enclitic is added to class A stems with a word-final stress, the stress changes from the stem to the enclitic with high tone: žú:ʔčí (A) *knife*, žú:čí'té *his* (woman speaking) *knife*; žú:ʔú (A) *stone*, žú:ú'í *his* (child's) *stone*. But stress does not occur on a clitic with low tone: žú:čí *his* (child's) *knife*.

When the same enclitic is added to class B stems, however, the stress does not change to the enclitic: tá:ʔtná (B) *medicine*, tá:tnáte *his* (woman speaking) *medicine*; žú:ʔá (B) *thread*, žú:ʔái *his* (child's) *thread*.

When stems which are low-high, or high-low, in the basic form, are followed by a person marker with high tone, a word-final stress optionally occurs on most person markers: le:lú *hat*, le:lu'ńá or le:luńá *her hat*; tkʷí:ti *potato*, tkʷí:ti'té or tkʷí:tité *his* (woman speaking) *potato*, tβé:a *squash blossom*, tβé:a'í *his* (child's) *squash blossom* (but there is no final stress on le:luđá *my* [polite] *hat*).

The possessors mé:í *he* (child) and mé:ú *you* (informal) acquire a word-final stress when following a high-stressed-high noun: tá:ʔtná *medicine*, tá:tná mé:'í *his* (child's) *medicine*, tá:tná mé:'ú *your* (informal) *medicine*.

Some adjectives acquire a word-final stress when following high high-stressed-class B nouns: tá:ʔtná (B) *medicine* + lu:čí *small* becomes tá:tná lu:ʔčí *a small bit of medicine*; tí:ʔčí (B) *avocado* + lu:čí *small* becomes tí:ʔčí lu:ʔčí *a small avocado*. But the adjective kʷi:ši *white* does not acquire a word-final stress in that environment: tá:tná kʷi:ši *white medicine*. Adjectives do not acquire a word-final stress when following class A nouns: žú:ʔčí (A) *knife* + lu:čí *small* becomes žú:čí *a small knife*.

Two-syllable nouns of class A with a word-final stress in the basic form lose that stress when following class B words with a basic low-high or high-high pattern: $\delta i:k\acute{o}$ (B) *is sold* + $\acute{z}u:'\acute{c}i$ (A) *knife* becomes $\delta i:ko$ $\acute{z}u:'\acute{c}i$ *knives are sold*; $k\grave{a}:?n\grave{u}$ (B) *large* + $\acute{z}u:'\acute{c}i$ (A) *knife* becomes $k\grave{a}:?n\grave{u}$ $\acute{z}u:'\acute{c}i$ *the knife is large*.

Tone Sandhi

This study of tone sandhi has been limited to (1) representative frames preceding monomorphemic nouns, and (2) a few noun stems plus bound person markers.

Sequences of Monomorphemic Stems (table I)

The basic form of a monomorphemic stem occurs in isolation and also when following a high-high (class A) stem. In isolation two-syllable words occur in five stress-tone patterns (see p. 328 below): (1) high-high; (2) high high-stressed; (3) high-low; (4) low-high, (5) low-high-stressed.

Frame $?i:i$ (A) *one*. Words when following this frame retain their basic stress-tone pattern: $\acute{c}a:ka$ *fish*, $\acute{z}u:'\acute{c}i$ (A) *knife*, $t\acute{a}:'\acute{t}n\grave{a}$ (B) *medicine*, $li:?'i$ *rooster*, $le:l\acute{u}$ *hat*, $k\acute{i}:t\acute{i}$ *animal*.

Frame $k\grave{a}:?n\grave{u}$ (B) *large* (singular) becomes $k\grave{a}:?n\grave{u}$ when between pause and a noun. When following $k\grave{a}:?n\grave{u}$, all the nouns (except those with a basic high-low sequence) have a low-high tone sequence. That is, a basic low-high sequence and a low-high-stressed sequence remain unchanged: $le:l\acute{u}$ *hat*, $li:?'i$ *rooster*; a basic high-high sequence and a basic high-high-stressed sequence become low-high: $k\acute{i}:t\acute{i}$ becomes $k\acute{i}:t\acute{i}$ *animal*; $t\acute{a}:'\acute{t}n\grave{a}$ (B) becomes $ta:'\acute{t}n\grave{a}$ *medicine*, $\acute{z}u:'\acute{c}i$ (A) becomes $\acute{z}u:'\acute{c}i$ *knife* (the word-final stress is lost); a basic high-low sequence remains unchanged: $\acute{c}a:ka$ *fish*.

Frame $\delta i:k\acute{o}$ *is sold* becomes $\delta i:ko$ when between pause and a noun. When following $\delta i:ko$ all nouns (except those with a basic high-low sequence) have a high-high, or high-stressed-high tone sequence. That is, the basic tone sequences high-high and high-high-stressed (B) remain unchanged: $k\acute{i}:t\acute{i}$ *animal*, $t\acute{a}:'\acute{t}n\grave{a}$ (B) *medicine*; a basic high-high-stressed (A) becomes high-high: $\acute{z}u:'\acute{c}i$ (A) becomes $\acute{z}u:'\acute{c}i$ *knife* (the tone remains the same but the word-final stress is lost); a basic

Table 1. Sequences of monomorphemic stems¹

Frames	one	large	is sold	small	four	two	good	Stems
	ʔ _L i:i (A)	ká:ʔnú (B)	ði:kó (B)	lu:či	kó:ʔ	ʔú:ú	βá:ʔá	
HH HL	LL HL	LL HL	LL HL	LL HL	H ² H HL	H ² H LL	H ² H LL	čá:ka (B) fish
HH H ² H	LL L ² H	LL H ² H	LL H ² H	LL H ² H	H ² H HL ² H ²	H ² H L ² L	H ² H L ² L	tá:ʔná (B) medicine
HH L ² H	LL L ² H	LL H ² H	LL HL ² H ²	LL HL ² H ²	H ² H HL ² H ²	H ² H HL ² H ²	H ² H L ² H	li:ʔí rooster
HH LH	LL LH	LL HH	LL HL	LL HL	H ² H HL	H ² H HL	H ² H LH	le:lú hat
HH HH	LL LH	LL HH	LH HLL ²	LH HL	H ² H HL	H ² H HL	H ² H LL	kí:tí (A) animal
HH H ² H	LL LH	LL HH	LH HL ² L ²	LH HL	H ² H HL	H ² H HL	H ² H L ² L	žú:ʔí (A) knife

¹ High tone has been indicated by H, the low tone by L.² An extra vowel has been added of the same quality as the long vowel: táa:ʔná, líi:ʔí, kíí:tí, žúú:ʔí.

Table II. Noun stems plus person markers¹

	Stem	Person markers	
		class ñá	class óá
<i>Animal</i>	kí:tí (A)	HHH LLH ²	LLH
<i>Knife</i>	žú:’čí (A)	HH’H HHL ²	LLH
<i>Hata</i>	le:lú	LL’H LLH ²	LLH
<i>Potato</i>	tk’wí:ti (A)	HL’H HLH ²	HLH HLL ²
<i>Fish</i>	čá:ka (B)	HLL	HLH HLL ²
<i>Rooster</i>	li:’pí	LHL	LHL
<i>Medicine</i>	tá:’tná (B)	HHL	HHL

¹ High tones has been indicated by H, the low tone by L.

² Alternate forms.

low-high becomes high-high and a basic low-high-stressed becomes high-high-stressed: le:lú becomes lé:lú *hat*; li:’pí becomes lí:’pí *rooster*; a basic high-low remains high-low: čá:ka *fish*.

Frame lu:čí *small* (singular) becomes lu:či when between pause and a noun, except that it retains its basic form when preceding a basic high-high, and a basic high-high-stressed (A) noun. When following lu:čí ∼ lu:či, all nouns begin with high tone, but some nouns acquire an extra syllable and may have still another change. Therefore there are five different stress-tone patterns in this environment. For example: lu:či čá:ka *the fish is small*, lu:či tá:’tná (B) *the medicine is small*, lu:či lí:’pí *the rooster is small*, lu:či lé:lu *the hat is small*, lu:či kí:ti *the animal is small*, lu:či žú:’čí (A) *the knife is small*.

Frame kó:’ó *four* remains the same. Nouns following this frame have a high-low or a high-low-stressed-high sequence. For example: čá:ka *fish* remains unchanged; le:lú becomes lé:lu *hat*, kí:tí becomes kí:ti *animal*, žú:’čí (A) becomes žú:či *knife* (with a loss of word-final stress), tá:’tná (B) becomes táa:’tná *medicine*, li:’pí becomes lí:’pí *rooster*.

Frame ’ú:’ú *two* remains the same. None of the nouns following this frame retain their basic forms. For example: čá:ka becomes ča:ka *fish*, tá:’tná becomes ta:’tná *medicine*, le:lú becomes lé:lu *hat*, kí:tí

becomes kí:tí *animal*, žú:'čí becomes žú:či *knife*, li:'ʔí becomes lí:'ʔí *rooster*.

Frame βá:'ʔá *good* remains the same. All nouns following βá:'ʔá begin with low. Only nouns with a basic low high or basic low-high-stressed remain the same; other nouns become low-low or low-low-stressed. For example: le:lú *hat* and li:'ʔí *rooster* remain the same, čá:ka becomes ča:ka *fish*, kí:tí becomes ki:ti *animal*, žú:'čí (A) becomes žu:'či *knife*, tá:'tná (B) becomes ta:'tná *medicine*.

Stems plus Person Markers (table II)

The basic forms of all person markers have high tone, but they alternate to low tone when following certain noun stems, and they become low when following certain other noun stems. Some noun stems have tone or stress changes when preceding person markers.

The person marker -s *his* (man speaking)⁵ has an allomorph with a vowel which is the same quality as the stem-final vowel. This allomorph occurs only when following a class A high-low stem: tkwí:tiís *his* (man speaking) *potato*. Following other stems /s/ is used: čá:kas *his* (man speaking) *fish*, ko:'lós *his* (man speaking) *turkey*.

There is a large class (class ñá) of person markers which include: -ñá *her*, -yá *his* (reverent), -té *his* (woman speaking), -ró *our* (inclusive), -tí *its* (animal), -í *his* or *her* (child), -ú *your* (familiar), -ř *my* (familiar).

A person marker of class ñá remains high when following stems with the stress patterns: high-high, high-high-stressed (class A), low-high, and high-low (class A). There are tone or stress changes in some of the stems, however.

The low-high pattern becomes low-low and a person marker of class ñá optionally has word-final stress: le:lú *hat*, le:luñá or le:lu'ñá *her hat*.

The high-high patterns may stay the same, or optionally they alternate to low-low: kí:tí *animal*, kí:tíró or ki:tíró *our* (inclusive) *animal*.

⁵ There is also the allomorph -s_i which occurs when following the person marker -ř *my* (familiar), or -ř_i *your* (polite), as in ndu:kurs_i *I* (familiar) *am looking for him* (man speaking), ndu:kurs_i *you* (polite) *are looking for him* (man speaking). The person marker -t_i *its* (animal) has an allomorph -t which occurs most frequently when following -té *his* (woman speaking) as in h^wi-n_itét *he* (woman speaking) *wants it* (animal), and when following -t_i *animal* as in ša:žit_it *it* (animal) *bit it* (animal).

Stems with a high-low pattern (class A) stay the same, but a person marker of class ñą may optionally have word-final stress: tk^wí:títé or tk^wí:ti'té *his* (woman speaking) *potato*.

The tones of stems with a high-high-stressed pattern (class A) stay the same, but the word-final stress is moved to a CV person marker: žú:'čí *knife*, žú:čí'ró *our* (inclusive) *knife*, or optionally the person marker has a low tone žú:číró *our* (inclusive) *knife*. Person markers of class ñą which do not have a CV pattern usually have low tone when following high-high-stressed (A) stems: žú:čí *his* (child's) *knife*, žú:číú *your* (familiar) *knife*, žú:čír *my* (familiar) *knife*.

The person markers of class ñą have low tones when following the stems with the stress-tone patterns: high-low (class B), low-high-stressed, high-high-stressed (class B). For example: čá:ka (B) *fish*, čá:kate *his* (woman speaking) *fish*; li:'ʔí *rooster*, li:ʔíñą *her rooster*; tá:'tną (B) *medicine*, tá:tnąr *my* (familiar) *medicine*.

The other class of person markers (class óá) has only two members: -óá *my* (polite), and -ń *your* (polite).

Person markers of class óá become low when following stems with the pattern high-high-stressed (B), and low-high-stressed: tá:'tną (B) *medicine*, tá:tnąóá *my* (polite) *medicine*; li:'ʔí *rooster*, li:ʔíóá *my* (polite) *rooster*.

Person markers of class óá remain high when following other stems except that they alternate to low when following stems with a high-low pattern: čá:ka *fish*, čá:kaóá or čá:kaóá *my* (polite) *fish*; tk^wí:ti *potato*, tk^wí:tióá or tk^wí:tióá *my* (polite) *potato*.

The stems of patterns high-high, and high-high-stressed (A), and low-high, all become low-low when preceding a person marker of the óá class: kí:tí *animal*, ki:tióá *my* (polite) *animal*, žú:'čí (A) *knife*, žú:číń *your* (polite) *knife*, le:lú *hat*, le:luóá *my* (polite) *hat*.

Alternate Solution

Since mid pitches do occur with considerable frequency (see 'Tone Variants'), we considered analyzing the system as having the tones high, mid, and low with only one stress, instead of our present analysis of high and low tones with two stresses.

We rejected that solution for various reasons.

(1) A three-tone system would be nonsymmetrical. That is, of the

nine possible tone sequences in two-syllable words, three would be lacking. Specifically, in a prepause environment mid-high, mid-mid, and low-low would be lacking. On the other hand, when considering the system to have two tones and two stresses, all possible tone sequences occur, and only the tone-stress sequence high-stressed-low is missing.

(2) In a sequence such as *žá:šíró our* (inclusive) *gourd dipper*, the first syllable would be high, the last would be mid, but the middle syllable could be assigned to either tone.

(3) In a system with three tones and one stress, two glides would have to be accounted for, namely, high-mid and mid-low.

Diuxi Mixtec is difficult to record consistently with a system of three tones, since there is fluctuation between high-high and high-mid, between mid-low and low-low, between a high-mid glide and extra-high, etc.

(5) If Diuxi Mixtec was considered to have three tones, more complicated tone sandhi rules would be needed. For example, (a) high-mid would become high-high in some environments, or would fluctuate with high-high, and (b) a low-mid-low glide would become low-low when not prepause.

Zusammenfassung

Akzent und Ton in der Phonologie des Diuxi Mixtec

Jedes Wort in Diuxi Mixtec hat eine akzentuierte Silbe, die durch einen Langvokal markiert ist. Daneben haben manche Wörter eine zweite Hervorhebung. Diese zweite Betonung betrifft nur die letzte Silbe des Wortes und ist markiert durch Intensität und Allotone des hohen oder tiefen Tons. Es gibt einen Gegensatz von hohem zu tiefem Ton, und es gibt Allotone, die entsprechend der An- oder Abwesenheit eines Akzents des Wortendes vorkommen.

Résumé

Accent et ton dans la phonologie du diuxi mixtec

En diuxi mixtec chaque mot a une syllabe accentuée qui est indiquée par une voyelle longue. Beaucoup de mots portent en plus un accent secondaire. Celui-ci affecte toujours la dernière syllabe et est marqué par l'intensité et un alloton du ton haut ou du ton bas. Il existe une opposition ton haut/ton bas et des allotons dont l'apparition dépend de la présence ou de l'absence d'accent final.

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