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A Phonology
of
Zinacantan Tzotzil

by

Nicholas A. Hopkins

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at

The University of Texas
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A PHONOLOGY OF ZINACANTAN TZOTZIL

by

Nicholas Arthur Hopkins, B. A.

THESIS

Presented to the Faculty of the Graduate School of
The University of Texas in Partial Fulfillment
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For the Degree of

Master of Arts

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1.0. Introduction. Tzotzil, a language of the Maya family, is spoken in the central highlands of the state of Chiapas, Mexico, and in adjacent areas of low-altitude "hot country" culturally linked to the highlands. There are an estimated number of 75,000 speakers of the language, of whom approximately 75% are monolingual and the remainder bilingual to various degrees in the official language of the area, Spanish. The area of Tzotzil speech is bounded by Chol to the north, Zoque to the west, Tzeltal to the east, and the Grijalva River to the south (See Map No. 1). This area is interspersed with communities of non-Indian Spanish speakers.

1.1. The Municipio of Zinacantan. The municipio (a political division corresponding roughly to an American county) of Zinacantan, enclosing the town of Zinacantan, is located in the southwest sector of the Chiapas highlands, the town lying about fifteen kilometers west of the area's major trading center, San Cristóbal de Las Casas. In relation to the municipio itself, the town of Zinacantan lies in the north-east corner. For a graphic representation of the municipio, see Map No. 2. The area of the municipio is roughly 175 square kilometers and the population is slightly over 7600. Of this population, slightly less than four hundred Zinacantecos live in the town of Zinacantan itself. (Vogt 1961)

The majority of the population live in small settled areas called parajes scattered throughout the municipio. The parajes are usually areas of agriculture with houses ~~that are~~ distributed throughout the farmed area; but some of the larger parajes have centers of clustered housing arranged along streets, with a church and a central plaza.

Politically, the parajes are subservient to the central government in the town of Zinacantan (the cabecera, "county seat"). The central government, which controls both political and religious activity, is composed of office holders selected from the parajes who spend a year living in the

cabecera during the term of each office they hold. There are strong cultural ties between the cabecera and the parajes, and the parajes are very similar in both socio-cultural and linguistic characteristics.

1.2.1. The Major Informant. Antonio López Pérez Tzintán was born in the paraje wo?čoh wo?, but moved to the cabecera after having served a number of terms in office in the central government. He is fluent in local Spanish, but his Spanish contains a large number of Indianisms and is clearly a second language. The majority of the data in this paper were elicited from this informant during the months March-August of 1961, under the auspices of the University of Chicago's Chiapas Study Projects.

1.2.2. The Secondary Informants. A number of informants were utilized in a dialect survey of the municipio, and they were:

Paraje	Informant
hteklum (the cabecera)	Antonio Montejo Conde Cruz
	Mariano Gómez
	Mariano Hernández González
	Domingo Pérez Hacienda
	Domingo de la Torre Pérez
načih	Mariano Gómez Vásquez
	José Pérez ?Ocotz
	José Santis ?Es
nabenčauk	Nicolás Gómez Tasajo
	Mariano López Tzintan
	José Pérez Pérez
	Juan Santis
paste?	Agustín Santis Hueyo
	José Santis Pérez
?elanwo?	Mariano de la Cruz Montejo
	Mariano Hernández Patixtan
?apas	Rosa Santis Gerónimo

Since phonetically there is little difference from paraje to paraje, this study is, with the exception of occasional notes, confined to the idiolect of the major informant.

2.0. The Phonemes of Zinacantan Tzotzil. There are twenty-six segmental phonemes in Zinacantan Tzotzil, of which twenty-one are consonants, five vowels. There are two juncture phonemes; there are two pitches, four stresses, and three terminal contours which are non-lexically phonemic.

2.1. Consonants.

p t ʈ ʈ̥ k	non-glottalized stops and affricates
p̥ t̥ ʈ̥̥ ʈ̥̥̥ k̥ ʔ	voiceless glottalized stops and affricates
b	voiced glottalized stop
s ʂ h	voiceless fricatives
w y	voiced fricatives
m n	nasals
l	lateral
r	flap

2.2. Vowels

i e	front, high and low
a	non-front, non-round
o u	round, low and high

2.3. Junctures

ʃ	internal open
#	external

2.4. Pitches

1	low
2	high

2.5. Stresses

CV	primary
----	---------

CV	secondary
CV	tertiary (unmarked)
CV	weak

2.6. Terminal Contours

→	steady
↓	falling
↑	rising

3.0. Phonetic Orthography. For the purpose of convenience in typing a special orthography has been used in this paper. To avoid confusion where new marks have been used, or where marks which might be ambiguous have been used, this orthography is listed below.

3.1.0. Sub-scripts.

3.1.1. [_t]. Consonant and vowel phones sub-scripted with [_t] are blade-articulated with the tip of the tongue pressed tightly against the backs of the lower teeth, the tongue tip pointing downwards. Since this is later referred to as "tight" articulation, a mnemonic sub-script [_t] has been used.

3.1.2. [_r]. Consonant phones sub-scripted with [_r] are tip-articulated with the tongue tip coming into contact with the backs of the upper teeth; vowel phones sub-scripted [_r] are articulated with the tongue tip either lightly touching the backs of the lower teeth or slightly withdrawn from the lower teeth. Since this articulation is later referred to as "relaxed" articulation, a mnemonic sub-script [_r] has been used.

3.1.3. [_̣]. Non-syllabic phone.

3.1.4. [_̤]. Devoiced phone.

3.1.5. [w]. Rounded phone.

3.2.0. Super-scripts.

3.2.1. [']. Consonant and vowel phones marked with ['] are accompanied by glottal friction or squeeze.

3.2.2. [ʔ]. Consonant phones super-scribed with [ʔ] are accompanied by complete glottal closure. A series of super-scribed [ʔ] appearing over a series of adjacent segments represents the same glottal closure held over the series of segments, not a series of releases and closures of the glottis. In the sequence [tsʔ] for instance, the glottis is closed throughout and the [ts] is articulated only with the air in the column above the glottis. The super-script [ʔ] should not be confused with the mark [ʔ], which is glottal closure unaccompanied by other consonant articulation.

3.2.3. [↘]. Tone glide downwards over one phonetic syllable.

3.3.0. Other Marks.

3.3.1. [·]. Phonetic syllable boundary.

3.3.2. [:]. Lengthening of preceding vowel.

3.3.3. [-]. The stop quality of the consonant phone through which the [-] passes is replaced by fricative quality. The phone [ʙ], for instance, is a voiced bilabial slit fricative.

3.3.4. All other marks are segmental phones whose representation is in accordance with general linguistic usage.

3.4.0. Pitch and stress are not generally marked. When

pitch is unmarked it is steady over the phonetic syllable.
Stress is not marked as it has no significance in the contrast system at this level.

4.0. Allophone Charts.

4.1. $\frac{\neq}{\#} \underline{C}(C)CV$

4.1.1. $\bar{v} = i/e$

4.1.2. $v = a$

4.1.3 $v = o/u$

/p/	.p _r	.p _r	.p _r
/t/	.t _r	.t _r	.t _r
/t̥/	.ts _t	.ts _t	.ts _t
/t̥̃/	.tʃ _t	.tʃ _t	.tʃ _t
/k/	.k _r	.k _r	.k _r

/p̣ ṭ t̥̃ ĉ ḳ ʔ ḅ/ do not occur in these environments.

/s/	.s _t	.s _t	.s _t
/ʃ/	.ʃ _t	.ʃ _t	.ʃ _t
/h/	.l _o r before /l/ .m _o r before /m/ .n _o r before /n/ .t̥ _o r before /w/ .t̥ _o elsewhere	.l _o r before /l/ .m _o r before /m/ .n _o r before /n/ .t̥ _o r before /w/ .t̥ _o elsewhere	same as 4.1.2.

/w y m n l r/ do not occur in these environments.

4.2. $\frac{\neq}{\#} \underline{C}\neq(C)$

/p/ and /t/ do not occur in these environments.

/t̥/ .ts_ti_ot̥.

/t̥̃/ .tʃ_ti_ot̥̃.

/k p̣ ṭ t̥̃ ĉ ḳ ʔ ḅ/ do not occur in these environments.

/s/ .s_t.

/ʃ/ .ʃ_t.

/h/ .t̥_o.

/w y m n l r/ do not occur in these environments.

4.3.0. \neq
(c)CCV4.3.1. v = \hat{a}/e

4.3.2. v = a

4.3.3.

/p/	p _t	p _r	p _r
/t/	t _r	t _r	t _r
/tʃ/	ts _t	ts _t	ts _t
/tʃ/	tʃ _t	tʃ _t	tʃ _t
/k/	k _t	k _r	k _r
/p̣/	p̣ _t	p̣ _r	p̣ _r
/ṭ/	ṭ _r	ṭ _r	4.3.3. con- tinues to differ from 4.3.2. only in rounding.
/tʃ̣/	tʃ̣ _t	tʃ̣ _t	
/tʃ̣/	tʃ̣ _t	tʃ̣ _t	
/ḳ/	ḳ _t	ḳ _r	
/ʔ/	ʔ _r	ʔ _r	
/s/	s _t	s _t	
/ʃ/	ʃ _t	ʃ _t	
/h/	v _t	v _r	
/w/	w _t	w _r	
/y/	i _t	i _t	
/m/	m _t	m _r	
/n/	n _r	n _r	
/l/	l _r	l _r	
/r/	r _r	r _r	

4.4.0. VCV

4.4.1. v = i/e

4.4.2. v = a

4.4.3. v = o/u

/p/	.p _t	.p _r	.p _{ωr}
/t/	.t _r	.t _r	.t _{ωr}
/tʃ/	.tʃ _t	.tʃ _t	.tʃ _{ωt}
/tʃ/	.tʃ _t	.tʃ _t	.tʃ _{ωt}
/k/	.k _t	.k _r	.k _{ωr}
/p/	? .p _t [?] ~ v: .p _t [?]	? .p _r [?] ~ v: .p _r [?]	? .p _{ωr} [?] ~ v: .p _{ωr} [?]
/t/	? .t _r [?] ~ v: .t _r [?]	? .t _r [?] ~ v: .t _r [?]	4.4.3. continues to differ from 4.4.2. only in rounding.
/tʃ/	? .tʃ _t ^{??} ~ v: .tʃ _t ^{??}	? .tʃ _t ^{??} ~ v: .tʃ _t ^{??}	
/tʃ/	? .tʃ _t ^{??} ~ v: .tʃ _t ^{??}	? .tʃ _t ^{??} ~ v: .tʃ _t ^{??}	
/k/	? .k _t [?] ~ v: .k _t [?]	? .k _r [?] ~ v: .k _r [?]	
/r/	? .r _r [?] ~ .r _r [?]	? .r _r [?] ~ .r _r [?]	
/b/	? .b _t [?] ~ v: .b _t [?]	? .b _r [?] ~ v: .b _r [?]	
/s/	.s _t	.s _t	
/ʃ/	.ʃ _t	.ʃ _t	
/h/	.v _t	.v _r	
/w/	.b _t	.b _r	
/y/	.i _t	.i _t	
/m/	.m _t	.m _r	
/n/	.n _r	.n _r	
/l/	.l _r	.l _r	
/r/	.r _r	.r _r	

4.5.0. \neq
CV

4.5.1. v = 1/e

4.5.2. v = a

4.5.3. v = o/u

/p/	·p _t	·p _r	·p _{wr}
/t/	·t _r	·t _r	·t _{wr}
/tʃ/	·tʃ _t	·tʃ _t	·tʃ _{wt}
/tʃ/	·tʃ _t	·tʃ _t	·tʃ _{wt}
/k/	·k _t	·k _r	·k _{wr}
/p/	·p _t ?	·p _r ?	·p _{wr} ?
/t/	·t _r ?	·t _r ?	·t _{wr} ?
/tʃ/	·tʃ _t ?	·tʃ _t ?	·tʃ _{wt} ?
/tʃ/	·tʃ _t ?	·tʃ _t ?	·tʃ _{wt} ?
/k/	·k _t ?	·k _r ?	·k _{wr} ?
/ʔ/	·ʔ _t	·ʔ _r	4.5.3. continues to differ from 4.5.2. only in rounding.
/s/	·s _t	·s _t	
/ʃ/	·ʃ _t	·ʃ _t	
/h/	·v _t	·v _r	
/w/	·b _t	·b _t	
/y/	·i _t	·i _t	
/m/	·m _t	·m _r	
/n/	·n _r	·n _r	
/l/	·l _r	·l _r	
/r/	·r _r	·r _r	

4.6.0. VCC4.6.1. $\bar{v} = i/e$ 4.6.2. $v = a$ 4.6.3. $v = o/u$

/p/	p_r	p_r	p_r
/t/	t_r	t_r	t_r
/ʃ/	ts_t	ts_t	ts_t
/tʃ/	$tʃ_t$	$tʃ_t$	$tʃ_t$
/k/	k_t	k_r	k_r
/p̄/	$v:p_t$	$v:p_r$	$v:p_r$
/t̄/	$v:t_r$	$v:t_r$	$v:t_r$
	$\sim v: ?_r$ before /t/		
/ʃ̄/	$v:ts_t$	$v:ts_t$	$v:ts_t$
/k̄/	$v:k_t$	$v:k_r$	
/ʔ/	$v: ?_t$	$v: ?_r$	
	$\sim v: ?_t$ $^{?v}$ before		
	/t/ and /n/		
/b̄/	$v:m_t$	$v:m_r$	
/s/	s_t	s_t	
/ʃ̄/	$ʃ_t$	$ʃ_t$	
/h̄/	$v:t_r$	v_r	
/w̄/	v_r	v_r	
/ȳ/	i_t	i_t	
/m̄/	m_t	m_r	
/n̄/	n_r	n_r	[n] replaced by [ŋ] before /k̄ k̄/
/l/	l_r	l_r	
/r/	$r_r \sim rr_r$	$r_r \sim rr_r$	

4.6.3. continues
to differ from
4.6.2. only in
rounding

4.7.0. $\underline{VC} \neq C$ 4.7.1. $\underline{v} = i/e$ 4.7.2. $\underline{v} = a$ 4.7.3. $\underline{v} = o/u$

/p/	$\overline{p}_t \cdot \overline{pv}$	$\overline{p}_r \cdot \overline{pv}$	$\overline{p}_r \cdot \overline{pv}$
/t/	$\overline{t}_r \cdot \overline{tv}$	$\overline{t}_r \cdot \overline{tv}$	$\overline{t}_r \cdot \overline{tv}$
/ʈ/	$\overline{ts}_t \cdot \overline{sv}$	$\overline{ts}_t \cdot \overline{sv}$	$\overline{ts}_t \cdot \overline{sv}$
/ʈ̥/	$\overline{t\check{s}}_t \cdot \overline{\check{s}v}$	$\overline{t\check{s}}_t \cdot \overline{\check{s}v}$	$\overline{t\check{s}}_t \cdot \overline{\check{s}v}$
/k/	$\overline{k}_t \cdot \overline{kv}$	$\overline{k}_r \cdot \overline{kv}$	$\overline{k}_r \cdot \overline{kv}$
/p̣/	$\overline{p}_t \cdot \overline{pv}$	$\overline{p}_r \cdot \overline{pv}$	$\overline{p}_r \cdot \overline{pv}$
/ṭ/	$\overline{t}_r \cdot \overline{tv}$	$\overline{t}_r \cdot \overline{tv}$	$\overline{t}_r \cdot \overline{tv}$
/ʈ̣/	$\overline{ts}_t \cdot \overline{sv}$	$\overline{ts}_t \cdot \overline{sv}$	$\overline{ts}_t \cdot \overline{sv}$
/ʈ̣̥/	$\overline{t\check{s}}_t \cdot \overline{\check{s}v}$	$\overline{t\check{s}}_t \cdot \overline{\check{s}v}$	
/ḳ/	$\overline{k}_t \cdot \overline{kv}$	$\overline{k}_r \cdot \overline{kv}$	
/ʔ/	$\overline{ʔ}_t \cdot \overline{ʔv}$	$\overline{ʔ}_r \cdot \overline{ʔv}$	
/b/	$\overline{ʔ}_t \cdot \overline{m}_t$	$\overline{ʔ}_r \cdot \overline{m}_r$	
/s/	s_t	s_t	
/ʂ/	\check{s}_t	\check{s}_t	
/h/	\overline{v}_t	\overline{v}_r	
/w/	\overline{w}_t	\overline{w}_r	
/y/	\overline{i}_t	\overline{i}_t	
/m/	m_t	m_r	
/n/	n_r	n_r	
/l/	l_r	l_r	
/r/	$r_r \sim rr_r$	$r_r \sim rr_r$	

4.7.3. continues to differ from 4.7.2. only in rounding

NOTE: The raised syllables [CV] are extremely weak in intensity and very short in duration, so that the vowel quality is impossible to determine; the vowels may be rounded or unrounded, voiced or unvoiced, glottalized or non-glottalized, and may not be homorganic with the preceding vowel.

4.8.0. VC

4.8.1. $\bar{v} = i/e$ 4.8.2. $\bar{v} = a$ 4.8.3. $\bar{v} = o/u$

/p/	$p_t \cdot p_{t \cdot t} \bar{v} \cdot$	$p_r \cdot p_{r \cdot r} \bar{v} \cdot$	$p_r \cdot p_{r \cdot r} \bar{v} \cdot$
/t/	$t_r \cdot t_{r \cdot r} \bar{v} \cdot \sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$	$t_r \cdot t_{r \cdot r} \bar{v} \cdot$	$t_r \cdot t_{r \cdot r} \bar{v} \cdot$
		$\sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$	$\sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$
/ʃ/	$t_t \cdot s_{t \cdot t} \bar{v} \cdot$	$t_t \cdot s_{t \cdot t} \bar{v} \cdot$	$t_t \cdot s_{t \cdot t} \bar{v} \cdot$
/ʒ/	$t_t \cdot \xi_{t \cdot t} \bar{v} \cdot$	$t_t \cdot \xi_{t \cdot t} \bar{v} \cdot$	$t_t \cdot \xi_{t \cdot t} \bar{v} \cdot$
/k/	$k_t \cdot k_{t \cdot t} \bar{v} \cdot$	$k_r \cdot k_{r \cdot r} \bar{v} \cdot$	$k_r \cdot k_{r \cdot r} \bar{v} \cdot$
/p̣/	$p_t \cdot p_{t \cdot t} \bar{v} \cdot \sim p_t \cdot p_{t \cdot t} \bar{v} \cdot$	$p_r \cdot p_{r \cdot r} \bar{v} \cdot$	$p_r \cdot p_{r \cdot r} \bar{v} \cdot$
	$\sim p_t \cdot p_{t \cdot t} \bar{v} \cdot$	$\sim p_r \cdot p_{r \cdot r} \bar{v} \cdot$	$\sim p_r \cdot p_{r \cdot r} \bar{v} \cdot$
		$\sim p_r \cdot p_{r \cdot r} \bar{v} \cdot$	$\sim p_r \cdot p_{r \cdot r} \bar{v} \cdot$
/ṭ/	$t_r \cdot t_{r \cdot r} \bar{v} \cdot \sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$	$t_r \cdot t_{r \cdot r} \bar{v} \cdot$	4.8.3. continues to differ from 4.8.2. only in rounding
	$\sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$	$\sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$	
	$\sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$	$\sim t_r \cdot t_{r \cdot r} \bar{v} \cdot$	
	$\sim t_r \cdot t_{r \cdot r} \bar{v} \cdot$	$\sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$	
	$\sim t_r \cdot t_{r \cdot r} i \bar{v} \cdot$	$\sim t_r \cdot t_{r \cdot r} \bar{v} \cdot$	
		$\sim t_r \cdot t_{r \cdot r} \bar{v} \cdot$	
/ʃ̣/	$t_t \cdot ts_{t \cdot t} \bar{v} \cdot$	$t_t \cdot ts_{t \cdot t} \bar{v} \cdot$	
	$\sim t_t \cdot ts_{t \cdot t} i \bar{v} \cdot$	$\sim t_t \cdot ts_{t \cdot t} i \bar{v} \cdot$	
	$\sim t_t \cdot ts_{t \cdot t} \bar{v} \cdot$	$\sim t_t \cdot ts_{t \cdot t} \bar{v} \cdot$	
	$\sim t_t \cdot ts_{t \cdot t} i \bar{v} \cdot$	$\sim t_t \cdot ts_{t \cdot t} i \bar{v} \cdot$	

4.8.0. VC ≠ (continued)

4.8.1. v = i/e

4.8.2. v = a 4.8.3. v = o/u

/č/ continued

 $\sim \overset{?}{t}_t . \overset{?}{t} \overset{?}{s} \overset{?}{t} v . t .$ $\sim \overset{?}{t}_t . \overset{?}{t} \overset{?}{s} \overset{?}{t} v . r .$ $\sim \overset{?}{t}_t . \overset{?}{t} \overset{?}{s} \overset{?}{t} i v . t .$ $\sim \overset{?}{t}_t . \overset{?}{t} \overset{?}{s} \overset{?}{t} i v . r .$

/k/

 $\overset{?}{k}_t . \overset{?}{k} \overset{?}{v} . t .$ $\overset{?}{k}_r . \overset{?}{k} \overset{?}{v} . r .$ $\sim \overset{?}{k}_t . \overset{?}{k} \overset{?}{v} . t .$ $\sim \overset{?}{k}_r . \overset{?}{k} \overset{?}{v} . r .$ $\sim \overset{?}{k}_t . \overset{?}{k} \overset{?}{t} v . t .$ $\sim \overset{?}{k}_r . \overset{?}{k} \overset{?}{r} v . r .$

/?/

 $\overset{?}{t} . \overset{?}{t} v . t .$ $\overset{?}{r} . \overset{?}{r} v . r .$

/b/

 $\overset{?}{t} m . t . \sim \overset{?}{t} m . t .$ $\overset{?}{r} m . r . \sim \overset{?}{r} m . r .$

/s/

 $s_t . \sim s_t . s_t v . t .$ $s_r . \sim s_r . s_r v . r .$

/š/

 $\overset{?}{s}_t . \sim \overset{?}{s} \overset{?}{t} v . t .$ $\overset{?}{s}_r . \sim \overset{?}{s} \overset{?}{r} v . r .$

/h/

 $\overset{?}{t} .$ $\overset{?}{r} .$

/w/

 $\overset{?}{t} . \sim \overset{?}{t} \overset{?}{t} .$ $\overset{?}{r} . \sim \overset{?}{r} \overset{?}{r} .$ $\sim \overset{?}{t} . \overset{?}{t} v . t .$ $\sim \overset{?}{r} . \overset{?}{r} v . r .$

/y/

 $\overset{?}{t} . \sim \overset{?}{t} . \overset{?}{t} v . t .$ $\overset{?}{t} .$ $\sim \overset{?}{t} . \overset{?}{t} v . r .$

/m/

 $m_t . \sim m m . t .$ $m_r . \sim m m . r .$ $\sim m_t . m . v . t .$ $\sim m_r . m . v . r .$

/n/

 $n_r . \sim n n . r .$ $n_r . \sim n n . r .$ $\sim n_r . n . v . r .$ $\sim n_r . n . v . r .$ $\sim n_r . n . i v . r .$ $\sim n_r . n . i v . r .$

4.8.0. VC # (continued)

4.8.1. v = i/e

4.8.2. v = a

4.8.3. v = o/u

/l/ l_r · ~ ll_or ·l_r · ~ ll_or ·~l_r · l_or_ov ·~l_r · l_or_ov ·~l_r · l_or_oi_v ·~l_r · l_or_oi_v ·/r/ r_r · ~ rr_or ·r_r · ~ rr_or ·

NOTE: The "echo syllable", [.CV.], is rare after all phonemes except the stops and affricates.

4.9.0. $C_1 V C_2$ 4.9.1. $C_2 =$ any non-glottalized consonant or any juncture.

C_1	$V=/i/$	$V=/e/$	$V=/a/$	$V=/\phi/$	$V=/u/$
/p/	i_t	same sub- script as with /i/.		always V_r .	
/t/	i_r				
/ç/	i_t				
/ç/	i_t				
/k/	i_t				
/p̣/	i_t				
/ṭ/	i_r				
/ç̣/	i_t				
/ç̣/	i_t				
/ḳ/	i_t				
/ʔ/	i_t				
/ḅ/	i_t				
/s/	i_t				
/ç/	i_t				
/h/	i_t				
/w/	i_t				
/y/	i_t				
/m/	i_t				
/n/	i_r				
/l/	i_r				
/r/	i_r				

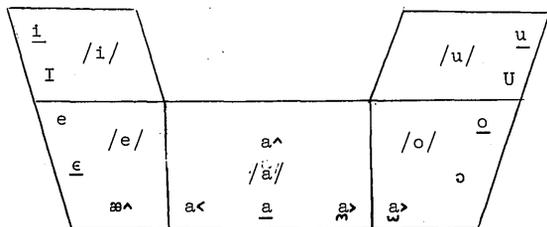
4.9.0. C_2 = any glottalized consonant (see 4.6.): the vowel allophones have the same $[t/r]$ as 4.9.1., but the vowel is lengthened and the second segment is glottally squeezed.

4.9.3. C_1 and C_2 both glottalized consonants: the vowel allophones have the same $[t/r]$ as in 4.9.1., but the vowel is glottally squeezed throughout its length.

4.10. VVC

/i/	/e/	/a/	/o/	/u/
<u>i</u> _t	<u>e</u> _t	<u>a</u> _r	<u>o</u> _r	<u>u</u> _r

4.11. Phonetic Range of the Vowels. With the exception of /a/ and /o/, the vowels each have a unique range of free variation, with no overlapping of the variants of one vowel with those of another vowel. The variants of the vowels /a/ and /o/, however, do overlap in part--the phonemic identity of these overlapping variants is maintained through rounding, the variant of /a/ being unrounded and the variant of /o/ being round. The range of variation of all the vowels may be shown graphically (the most common variants are underscored):



5.0. Examples for 4.

7

5.1. # C(C)CV

v = i/e

v = a

v = o/u

/p/ presu

/t/ tren

trawo

/ɕ/

/ʃ/

/k/ krem

/p̣/

/ṭ/

/ɕ̣/

/ḳ/

/ʃ̣/

/ḅ/

/s/ sniʔ

sna

snuk

/ʃ/ ʃčič

ʃčak

ʃčoal

/h/ hniʔ, hkrem

hna

hnuk

/w/

/y/

/m/

/n/

/l/

/r/

5.2. ^ʃ
#cʃ(c)

v = i/e

v = a

v = o/u

/p/

/t/

/tʃ/

/tʃ/

/k/

/p̣/

/ṭ/

/tʃ̣/

/ḳ/

/ʔ/

/ḅ/

/s/ s ʃ niʔ, s ʃ ʃiʃ

s ʃ na, s ʃ ʃak

s ʃ nuk, s ʃ ʃoal

/ʃ/

/h/ h ʃ niʔ

h ʃ na

h ʃ nuk

/w/

/y/

/m/

/n/

/l/

/r/

5.3. # (C)CCV

v = i/e

v = a

v = o/u

/p/

/t/

/ç/

/š/

/k/

/p̣/

/ṭ/

/ç̣/

/ṣ̌/

/ḳ/

/v/

/ḅ/

/s/

/š/

/h/

/w/ pwersa

kwarcate

/y/ tyenta

/m/

/n/

/l/

/r/ kriščano

trawo

5.4. VCV

	$v_2 = i/e$	$v_2 = a$	$v_2 = o/u$
/p/	sepel	ʔapat	ʔopol
/t/	setel	lital	kotol
/tʃ/	ʃoʃil		
/tʃ/	smoʃik	ʃaʃam	ʃaʃon
/k/	takin	makal	sakub
/p/	ʔapin		
/t/	tutik		ʔatul
/tʃ/	soʃetik	ʔaʃam	
/tʃ/	ʃoʃetik	yiʃak	yiʃon
/k/	takin	kakal	ʔakob
/ʔ/	ʃiʔil	haʔal	koʔon
/b/	kobik	ʃibat	
/s/	spasik	ʔasat	ʃisut
/ʃ/	poʃil	yaʃal	kuʃul
/h/	ʃohik	ʃahal	ʔahol
/w/	ʃawil	ʔawakan	ʃawuk
/y/	ʔayik	liyalbē	toyol
/m/	ʃamel	simal	ʔamoton
/n/	konik	tana	ʔanuk
/l/	yalik	kalal	ʔolol

5.5. #_{CV}

	v = i/e	v = a	v = .o/u
/p/	pim peč	pat	pom pus
/t/	ti? te?	tal	tot tut
/č/	čič ček	čak	čoč čuč
/č/	čib čet	čam	čoy ču?
/k/	kil ke	kap	kok kul
/p/	pih pēh	pāt	pōt pūtum
/t/	tih		tul
/č/	či? čēt	čap	čot čuh
/č/	čič čen	ča?	čo? čut
/k/	kim kel	kab	kok ku?
/o/	oic oik	oak	ooc ul
/b/	bi be	bak	boč bu
/s/	sim set	sak	soč sut
/š/	ši šet	šan	šoč šut
/h/	hip hep	ha?	hoy hun
/w/	wič weš	wah	wo? wun
/y/	yi? yeč	yaw	yok yut
/m/	mil met	maš	moy mut
/n/	ni? ne	nab	nom nuk
/l/	lik lek	la?	lok lum

5.6. VCC

	v = i/e	v = a	v = o/u
/p/	kiptik	tahčaptik	snupleh
/t/	spitpon	hatwil	šlutlon
/ç/	wiçtik	h'ikaçnom	
/č/	kičtik	kačkač	kučban
/k/	buliktal	sakwayan	hčukbenal
/p̣/	hçeptik	hçaptik	tup'ik
/ṭ/			hottik
/ç̣/	hseçttik		soçleb
/č̣/	hničnab	spačleh	ʔučbol
/ḳ/	hčikp̣om	h'akčamel	muktabe
/ʔ/	či'lel	ha'beh	wo'he
/b/		čabhe	sūtúb'ike
/s/	čisbenal	šʔtaston	
/š/	sʔtišpun	taštal	kušleh
/h/	ʔihwoktik	yahnil	htohbalal
/w/			
/y/			hpoytik
/m/	ʔočemčak	kampoman	slumta
/n/	čentik	labanwan	šunleh
/l/	hmilbail	šbalčuh	hkoltaobba
/r/		kwarčate	surto

5.7. VC#C

	v = i/e	v = a	v = o/u
/p/	kip#tik	tahčap#tik	snup#leh
/t/	spit#pon	hat#wil	šlut#lon
/č/	wič#tik	h'ikač#nom	
/č/	kič#tik	kač#kač	kuč#lon
/k/	bulik#tal	sak#wayan	hčuk#benal
/p/	hčep#tik	hčap#tik	tuč#'ik
/t/			hot#tik
/č/	hseč#tik		soč#leč
/č/	'eč#'el	'ač#na	'uč#'bol
/k/	hčik#pom	h'ač#čamel	muk#tabe
/ʔ/	čiʔ#lel	haʔ#'beh	woʔ#ne
/b/		čab#he	sutuč#'ike
/s/		š#tas#ton	
/š/	s#tiš#'pun	taš#tal	kuš#leh
/h/	'ih#woktik	kah#wal	hton#'balal
/w/			
/j/			hpoy#tik
/m/	'očem#čak	hpom#tik	slum#ta
/n/	čen#tik	kan#pom	shun#leh
/l/	hmil#'bail	šbal#čuh	hkol#taobba
/r/		kwar#čate	pur#pur

5.8. VC #

	v = i/e	v = a	v = o/u
/p/	kɪp	kap	kuč
/t/	sɪt	sat	bot
/tʃ/	wɪtʃ		foč
/tʃ/	ʔɪtʃ		moč
/k/	lek	bak	tok
/p/	hɛp	ɛap	ɛiɛop
/t/	hit		tut
/tʃ/	setʃ	sač	soč
/tʃ/	kič	ʔač	šoč
/k/	ʔik	škak	hbok
/ʔ/	tiʔ	kaʔ	woʔ
/b/	ʔib	naʔ	ʔokob
/s/	ɛis	mas	kos
/š/	čiš	maš	yoš
/h/	čih	lah	noh
/w/	taiw	šanaw	potow
/y/	tey	ʔay	poy
/m/	pim	čam	pom
/n/	pin	tan	čon
/l/	kil	šal	hol

5.9.1. CVC

v = i	v = e	v = a	v = o	v = u
kiš	yeš	baš	hol	tut

5.9.2. CVC

v = i	v = e	v = a	v = o	v = u
kiš	peš	kaš	koš	tuš

5.9.3. CVC

v = i	v = e	v = a	v = o	v = u
šiš	beš	kaš	koš	kuš

5.10. WVC

v = i	v = e	v = a	v = o	v = u
šail	kaep	ššcoal	beo?	ššuk

6.0. Significant Features and Phoneme Classifications. On the basis of the allophones listed in 4., several classes of phonemes can be determined, restricting the criteria for the formulation of the classes to the phonetic features necessary and sufficient for the distinction of any one phoneme from any other and to the phonetic characteristics of any one phoneme necessary and sufficient for the description of the distribution of the allophones of surrounding phonemes.

6.1.0. Significant Features and Phoneme Classification: Consonants. The following features represent the necessary and sufficient criteria for the description of differences between all consonant phonemes and the description of the distribution of vowel allophones.

6.1.1. Glottalized, Non-glottalized. On the basis of the features ['] and [ʔ], glottal squeeze and simultaneous glottal closure (see 3.2.1.-2.), all stops and affricates may be divided into two contrastive classes: glottalized and non-glottalized (all non-stop, non-affricate phonemes are non-glottalized; the contrast is only within the set of stops and affricates). Glottalized consonants have glottal elements ['] or [ʔ] in all allophones. Non-glottalized consonants never have glottal elements ['] or [ʔ] in any allophones. The set of glottalized consonants is /p t ʈ ʂ k ʔ b/. The set of non-glottalized consonants is /p t ʈ ʂ k/ and all non-stop, non-affricate phonemes.

The contrast between glottalized and non-glottalized consonants is in one environment not dependent on the presence of ['] or [ʔ] as in this environment the glottal elements can only be inferred. The environment is VCC (see 4.6.) and the contrast is maintained through a pitch glide that occurs only with C a glottalized consonant; i.e., the contrast is [v:Ċ.] versus [vC.]. The glottal squeeze is not detectable but inferred over the consonant; vowel lengthening is detectable only in the presence of a pitch glide, which indicates that there are two vowel

segments. The pitch glide is therefore the major contrastive feature in this context.

6.1.2. Voiced, Voiceless. Although there are no two phonemes that differ only in voicing versus non-voicing (some allophones of /b/ and /p/ differ only in voicing, but the contrast does not extend through the full set of allophones), there are phonemes which are characterized by voicing, and these are conveniently labelled "voiced". The phoneme /b/, for instance, is a glottalized stop, but its allophones differ sufficiently from those of other members of the set of glottalized stops that it is desirable to place /b/ in a class apart, namely voiced glottalized stops, a class in which /b/ is the sole member. The fricatives /w y s ʃ h/ contrast at no one point in voicing alone, but the fricatives /s ʃ h/ occur in environments where /w y/ do not occur (see 4.1.-2.), and it is thus desirable to make a distinction between the two sets. This is done by referring to those characterized by voicing, /w y/, as voiced fricatives, and referring to /s ʃ h/ as voiceless fricatives.

The set of voiced consonants is /b w y m n l r/. As a rule, these consonants devoice before external juncture. The phoneme /b/, however, is an exception to this rule. Weathers, in a paper based on work with a female informant in the paraje of Nabenchauc, Zinacantan, states that /b/ also devoices before external juncture, i.e., -b # = [ʔm] (Weathers 1947). This is the general rule in Tzeltal, where /b/ also takes the final variants [Cç] ~ [C.çy] which characterize the voiced phonemes. Working with male informants, however, I found that final /b/ devoices only sporadically in all of the Tzotzil area, including male informants from the paraje of Nabenchauc.

6.1.3. Place of Articulation. For consonants, five

places of articulation are necessary and sufficient to describe the phonemes: bilabial, dental, alveolar, velar, and glottal. Thus, /p t k/ differ from each other only in place of articulation, as do /p̣ ṭ ḳ ʔ/, /ɸ ʧ/, /m n/, etc.

6.1.4. Manner of Articulation. The distinction of six manners of articulation is necessary and sufficient for the description of consonant phonemes: stop, affricate, fricative, nasal, lateral, and flap. Thus, /s ʧ/ differ only in manner of articulation, as do /ʃ ʧ/, /l n r t/, /w m/, etc.

6.1.5. Tight, Relaxed, Neutral. On the basis of the features marked [_t] and [_r] in 4., all phonemes can be divided into three classes: tight, relaxed, and neutral. Tight consonants have no relaxed ([_r]) allophones. Relaxed consonants have no tight ([_t]) allophones. Neutral consonants have tight allophones if occurring in the same syllable as a tight vowel (see 6.2.3. for the classification of the vowels). The set of tight consonants is /ɸ ʧ ʃ ʧ̣ s ʃ̣ y/. The set of relaxed consonants is /ṭ ṭ̣ ṇ ḷ ṛ/. The set of neutral consonants is /p̣ p̣̣ ḅ ẉ ḳ ḳ̣ ʔ̣ ṃ ḥ/. These features [_t] and [_r], however, do not form part of the phonemic contrast system; blade- versus tip-articulation classification is not significant above the phonetic level.

6.1.6. Consonant Classification. Utilizing the criteria in sections 6.1.1-5., the consonant phonemes can all be uniquely classed:

- /p/ voiceless non-glottalized bilabial stop;
- /t/ voiceless non-glottalized dental stop;
- /k/ voiceless non-glottalized velar stop;
- /ɸ/ voiceless non-glottalized dental affricate;
- /ʧ/ voiceless non-glottalized alveolar affricate;

- /p̥/ voiceless glottalized bilabial stop;
- /t̥/ voiceless glottalized dental stop;
- /k̥/ voiceless glottalized velar stop;
- /ʔ/ voiceless glottalized glottal stop;
- /t̪̥/ voiceless glottalized dental affricate;
- /ç̥/ voiceless glottalized alveolar affricate;
- /b̥/ voiced glottalized bilabial stop;
- /s/ voiceless non-glottalized dental fricative;
- /ʃ/ voiceless non-glottalized alveolar fricative;
- /h/ voiceless non-glottalized glottal fricative (vocalic);
- /w/ voiced non-glottalized bilabial fricative;
- /y/ voiced non-glottalized alveolar fricative;
- /m/ voiced non-glottalized bilabial nasal;
- /n/ voiced non-glottalized dental nasal;
- /l/ voiced non-glottalized dental lateral;
- /r/ voiced non-glottalized dental flap.

6.2.0. Significant Features and Phoneme Classification:

Vowels. The following features represent the necessary and sufficient criteria for the description of all vowel phonemes and the description of consonant allophones. Three criteria are necessary for the description of vowels: tongue position on the horizontal axis, on the vertical axis, and lip articulation.

6.2.1. Height. Since there are no more than two heights necessary and sufficient to describe the vowel phonemes, all vowels may be classed as high or low. High vowels are /i u/, low vowels are /e a o/.

6.2.2. Front, Back. Two horizontal positions are necessary and sufficient to describe the vowel phonemes: front and back. The front vowels are /i e/; the back vowels are /a o u/. The phoneme /a/ also has central allophones, but is classified as back since its allophones may overlap those of /o/; since this contrast is maintained through rounding, a three-way contrast in horizontal

position is not necessary to the description of minimal contrast.

6.2.3. Tight, Relaxed. On the basis of the features marked [_t] and [_r] in 4., all vowels may be classified as either tight or relaxed (see 3.1.1.-2.). Relaxed vowels have no tight ([_t]) allophones. Tight vowels have relaxed allophones ([_r]) only after a relaxed consonant in the same syllable. Tight and relaxed vowels affect their environment (see 6.1.5. for a listing of tight and relaxed consonants and the effect of tight and relaxed vowels on neutral consonants). The set of tight vowels is /i e/. The relaxed vowels are /a o u/. At no point does the tight-relaxed classification form a critical part of the vowel contrast system, and it is thus not significant above the phonetic level.

6.2.4. Round, Unround. On the basis of the allophones listed in 4., all vowels may be classified either round or unround. Round vowels are articulated with lip rounding, and consonants in the same syllable are rounded. Unround vowels have no round allophones. Lip rounding forms the sole distinction between /a/ and /o/, which are identical as to place of articulation. Round vowels are /o u/; unround vowels are /i e a/.

6.2.5. Vowel Classification.

- /i/ high front
- /e/ low front
- /a/ non-front, non-round
- /o/ low round
- /u/ high round

6.3.0. Criteria for Establishment of Junctural Phonemes.

Three criteria have shown the establishment of junctures to be necessary for the description of segmental allophones. While the place of junctures in the contrast system of the language is not yet clear (two contrasting utterances do not normally differ in junctural phenomena only), it is

presumable that junctural differences do contrast at some level, and it is this presumption, rather than actual knowledge, which justifies setting up juncture phonemes.

6.3.1. Stop and Affricate Releases. An examination of the syllable-final allophones of stop and affricate phonemes listed in 4.6., 4.7., and 4.8. shows that three differing environments apparently must be postulated to explain the phonetic differences in the quality of releases. For this explanation, three junctural phonemes are tentatively postulated: (1), (2), and (3). The releases [C.Cv], etc. in 4.8. are said to occur before (3), the releases [C.²Cv.], etc. in 4.7. are said to occur before (2), and the lack of release at phonetic syllable boundary in 4.6. is said to occur before (1).

6.3.2. Syllable Initial Allophones of Glottalized Consonants. The allophones of glottalized consonants found in 4.3., 4.4., and 4.5., require two environments to account for the differences between [(?).²C̥] and [.²C̥?]. Taking the stretches [consonant (stop or affricate) + glottalized consonant] to compare the syllable initial allophones with the releases mentioned in 6.3.1., we find that [.²C̥] occurs after no release of the preceding consonant, that [.²C̥?] occurs after [C.²Cv.] and [C.Cv.], i.e., that [.²C̥] occurs after (1), and that [.²C̥?] occurs after (2) and (3). Since there is only a two-way split in the distribution of the syllable-initial allophones of glottalized consonants, however, we could, in the description of glottalized consonants' syllable-initial allophones alone, group (2) and (3) together into an "open" juncture, and call (1) a "close" juncture.

6.3.3. Devoicing of Voiced Phonemes. Voiced phonemes (except /b/) final in the syllable devoice in some environments. To compare the de-voicing environments

with the environments that determine the syllable-initial allophones of glottalized consonants, we examine the stretches voiced consonant + glottalized consonant, and find that voiced consonants devoice before $[\overset{?}{\text{C}}]$, and sometimes devoice before $[\overset{?}{\text{C}}^?]$, or

$$\begin{aligned} C_{vd} + \overset{?}{\text{c}} &= [C_{vd} \cdot \overset{?}{\text{C}}] , \\ &= [C_{vd} \cdot \overset{?}{\text{C}}^?] , \\ &= [C_{v1} \cdot \overset{?}{\text{C}}^?] . \end{aligned}$$

Since there are only two allophones of C_{vd} to be accounted for, on the basis of voiced consonants alone we need postulate only two junctures, "open" and "close", voiced consonants devoicing before "open" only.

6.3.4. Necessary and Sufficient Junctural Phonemes.

The minimal number of junctural phonemes necessary for the description of the distribution of segmental allophones is no less than two--at least two environments must be postulated to explain the syllable-initial allophones of glottalized consonants and the syllable final allophones of voiced consonants. If, however, the existence of only two junctures is admitted, then a number of problems are left unsolved.

Let, for instance, the two junctures "open" and "close" stated as necessary in 6.3.2. and 6.3.3. stand as the only junctural phonemes; the statement of allophones is then

$$\begin{aligned} \text{CLOSE} + \overset{?}{\text{c}} &= [(\overset{?}{?}) \cdot \overset{?}{\text{C}}] , \\ \text{OPEN} + \overset{?}{\text{c}} &= [\cdot \overset{?}{\text{C}}^?] , \text{ and} \\ C_{vd} + \text{OPEN} &= [\overset{\circ}{\text{C}}] \text{ (devoicing),} \\ C_{vd} + \text{CLOSE} &= [\overset{\circ}{\text{C}}] \text{ (no devoicing).} \end{aligned}$$

But, when C_{vd} occurs before $\overset{?}{\text{c}}$, we find phonetic stretches of the nature

$$[C \cdot \overset{?}{\text{C}}^?] ,$$

which would have to be, phonemically,

$$C_{vd} + \text{CLOSE} + \text{OPEN} + \overset{?}{\text{c}} .$$

To avoid the necessity for a description which calls for two immediately adjacent junctures, we revise the number of junctures to three, (1), (2), and (3), and state the allophonic distribution to be:

$C_{vd} + (1)/(2)$ does not devoice;

$C_{vd} + (3)$ devoices;

$(1) + \acute{c} = [(\acute{?})\acute{c}]$,

$(2)/(3) + \acute{c} = [.\acute{c}^?]$.

If we now re-examine the syllable-final allophones of the stop and affricate phonemes (6.3.1.) we find that three junctures were also necessary to describe the distribution of the release phenomena. Examining the stretches [stop/affricate + glottalized consonant], it is found that the phonetic stretches fit the patterns

$[C.\acute{c}^?]$, or $C + \{(1) + \acute{c}\}$,

$[C.Cv.\acute{c}^?]$, or $C + \{(2) + \acute{c}\}$; and

$[C.Cy.\acute{c}^?]$, or $C + \{(3) + \acute{c}\}$, so that the three

junctures necessary to describe the allophones of voiced consonants and initial glottalized consonants are also sufficient for the description of the syllable-final allophones of stops and affricates.

We therefore set up three junctures corresponding to the above-postulated (1), (2), and (3). The juncture (1), however, may be said to be the absence of (2) and (3), and so only two junctural phonemes need be established: /#/ corresponding to (2), and /##/ corresponding to (3). The statement of the allophonics of the segmental phonemes discussed above is then:

$C_{vd} + /##/$ devoices;

C_{vd} elsewhere does not devoice;

$/# \#/ + \acute{c} = .\acute{c}^?$,

medial $\acute{c} + \# = [(\acute{?})\acute{c}]$;

$\acute{c} + \# \# = [.\acute{c}^?]$.

$C_{\text{stop/affricate}} + \# = [C.C\ddot{y}] , [C.C\ddot{y}], \text{ etc.}, \text{ as}$
 listed in 4.9.;

$C_{\text{stop/affricate}} + \# = [C.C^V.]$;

$C_{\text{stop/affricate}} + C = [C.]$.

6.4.0. Suprasegmentals.

6.4.1. Pitch. Pitch levels and contours are not lexically phonemic in the Zinacantan dialect of Tzotzil. In one dialect of Tzotzil, that of San Bartolomé de los Llanos, there are phonemic tones (Sarles 1961); this is, however, an independent development in that dialect and not a survival of the proto-Maya tone system (for which see McQuown 1960; data on the development of San Bartolo tones from Kaufman 1962). In Zinacantan there are, however, preferred (and possibly minimally contrasting) sequences of pitch and pitch contours which occur at sentence level.

In a given stretch of phonetic material with unbroken pitch line, as many as four pitch levels may occur. Two of these levels occur only on the final syllable of a given stretch and because of this limited distribution may be considered pre-contour allophones of the other two pitches. The four pitches will be labelled (low to high) [1 2 3 4], pitches [3] and [4] occurring only on pre-contour syllables and being considered allophones of pitches /1/ and /2/ respectively. Both pitches /1/ and /2/ may occur with any of the three contours (falling, rising, and steady).

The two preferred sentence-level sequences of pitches differ only in the distribution of pitches over the syllables of the pre-contour syntactic unit (which may consist of a root and its affixes; /'išt'alal'üne/, a compound of roots /kwentorey/, a polysyllabic loan morpheme /limošna/, etc.). This syntactic unit may consist

of from two to five syllables. One preferred sequence that stretches over final syntactic units is phonetically a step-like rise to the pre-contour allophone: /12-/ , which gives /122/ = [124] or /121/ = [123]. The second preferred sequence is /21-/ , giving /211/ = [213] or /212/ = [214].

1) The pre-contour sequence /12-/. If the sequence /12-/ occurs over a final two-syllable unit, the two pitches /2-/ (either /21/ or /22/) will occur over the two syllables of the unit and the pitch /1/ will occur over the preceding syllable. If the sequence /12-/ occurs over a three-syllable unit, pitch /1/ will occur on the first syllable of the unit, pitch /2/ on the second syllable, and either pitch /1/ or /2/ will occur on the pre-contour syllable. If the sequence /12-/ occurs over a unit of more than three syllables, the pitch /1/ may occur over all but the final two syllables in the unit, or /1/ may be replaced in the unit-initial sequence by /2/, giving the possible sequences:

/1121/	[1123]	/1122/	[1124]
/2121/	[2123]	/2122/	[2124]
/11121/	[11123]	/11122/	[11124]
/21121/	[21123]	/21122/	[21124]

2) The pre-contour sequences /21-/. If the sequence /21-/ occurs over a two-syllable unit, the initial pitch /2/ may be lost or replaced by /1/, or it may occur over the syllable preceding the syntactic unit. If the sequence occurs over a three-syllable unit, pitch /2/ will occur in the first syllable of the unit, pitch /1/ on the second syllable, and either pitch /1/ or pitch /2/ on the pre-contour syllable. If the sequence /21-/ occurs over a syntactic unit that is longer than three syllables, pitch /2/ usually occurs on the initial syllable of the unit, pitch /1/ on all other syllables of the unit except the final syllable, and either pitch /1/ or /2/ on the final syllable. The initial pitch /2/ in this case may be replaced by /1/, giving the possibility of the sequences:

/2111/	[2113]	/2112/	[2114]
/1111/	[1113]	/1112/	[1114]
/21111/	[21113]	/21112/	[21114]
/11111/	[11113]	/11112/	[11114]

In sequences other than pre-contour, pitch /2/ tends to occur phrase-final (at breaks in the pitch line) and phrase-initial, especially after hesitations. Pitch /2/ also occurs falling to /1/ over syllables of the type /VC.UV/. Pitch /1/ tends to occur elsewhere.

Since the distribution of pitches /1/ and /2/ over a given stretch is not completely predictable (even though general patterns can be predicted), these two pitches (each with two allophones) are considered to make up significant pitch sequences at sentence level. While at the present stage of research no minimal contrast between sequences can be shown, the possibility that further research will reveal such contrasts cannot be discounted.

6.4.2. Stress. Stress is not lexically phonemic. In a given stretch of phonetic material, as many as four levels of stress may occur. The distribution of these four stresses over a stretch is not completely predictable, as two repetitions of the same lexical item may have two different distributions of stress phenomena.

The two stronger stresses tend to occur on roots, but there are sequences in which not all roots are so stressed, and these stresses also occur on non-roots.

The two weaker stresses tend to occur on non-roots, but the unmarked stress may occur on roots as well. The weakest stress occurs only before contours, but is apparently not a pre-contour allophone of one of the other stresses, as all other stresses also occur on pre-contour syllables.

Since stress is not phonemic on a lexical level but may possibly occur in significantly differing distributions on a sentence level, four non-lexically phonemic levels of stress are postulated, corresponding to the four phonetic levels of stress that are found.

6.4.3] Terminal Contours. There are three terminal contours, rising pitch /↑/, falling pitch /↓/, and steady pitch /→/, which occur with the pre-contour allophones of pitches /1/ and /2/. Of the three terminal contours, rising pitch is the least frequent, steady pitch the most common. There appears to be no simple correlation of the three contours with syntactic sentence types, as the use of these contours appears to differ with the style of speech (prayer style, for instance, tends to have only steady contours, as does the style used in citation of forms). Roughly, rising pitch contours tend to accompany "asides" and explanatory remarks, while falling contours tend to signal some kind of finality, as does steady pitch with the weakest stress and pitch /2/. Other than these rough impressions, which indicate that terminal contours may be significant at some level, no statement can be made at this time concerning the distribution and significant contrasts of terminal contours.

7.0. Phonemes in Loans from Spanish. There is a group of phonemes which is found only in Spanish words used in Tzotzil (or Spanish) context, and which, in the speech of the major informant, follow the rules of local Spanish allophonics. For this reason they have been considered as appearing only in citations from Spanish and have not been previously discussed; to state the allophonics of these phonemes would be merely to state the allophones of Chiapas Spanish. The allophones of /r/ have been stated, as /r/ does occur in one native word, krem boy. This word is historically related to kelem in other Tzotzil and Tzeltal dialects, and kelem (rooster in modern Zinacantan) retains the meaning "young man" in at least one story of the origin of the town. The analysis of this instance of [r] as a unique allophone of /l/ was rejected, as Spanish loans beginning in kl- are borrowed with /l-/ (clavos, lawuŕ).

7.1. Assimilated Loans. All Spanish phonemes occur in the citations of Spanish words. There is, however, for most of these citations, an assimilated form which can be considered a true loan into Tzotzil. In the assimilated form Spanish phonemes are replaced by the Tzotzil phoneme whose positional allophone is most similar to the positional allophone of the Spanish phoneme.

The replacement of Spanish phonemes is as follows:

Spanish		Tzotzil	
p t k	=	p t k	<u>peso</u> pešu <u>tiempo</u> tyempo <u>carro</u> karo
d g	=	t/r k	<u>durazno</u> turasnu <u>Domingo</u> romin <u>azadón</u> 'asaron <u>guineo</u> kinya
# b [b]	=	b' [b']_w	<u>burro</u> buru <u>vacas</u> wakaš
vbv [b]	=	w [b]	<u>chivo</u> čiwo <u>jabón</u> šawon
f	=	p	<u>finca</u> pinka <u>ficha</u> piča <u>café</u> kape
s	=	s/š	<u>castellano</u> kašlan <u>mas</u> mas <u>castilla</u> kastilya <u>limosna</u> limošna
x	=	š	<u>jabón</u> šawon <u>Juan</u> šun
č	=	č	<u>chivo</u> čiwo
m n	=	m n	<u>minas</u> minaš
w y	=	w y/ly/l	<u>huarache</u> warač <u>yeguas</u> yewaš <u>castilla</u> kastilya <u>cuchillo</u> kučilu

Spanish		Tzotzil	
r ř	=	r/l	<u>mayor</u> mayol <u>rana</u> rana <u>pero</u> pero
l	=	l	<u>clavos</u> lawuř <u>López</u> lopis
i e a o u	=	i e a o u	(as a rule but not always)
			<u>chivo</u> čiwō <u>peso</u> peřu <u>azadón</u> 'asaron <u>oro</u> 'oro <u>durazno</u> turasnu <u>López</u> lopis <u>Sánchez</u> řantis

Several Spanish phonemes have two or more different assimilated forms: Sp /b t s y r/. The assimilated forms with Tzotzil /w r ř/, /ly.l/, and /l/ are apparently older loans than those with Tz /b t s y l/.

The vowels are also often borrowed with different qualities, e.g. peso peřu, gato katu, etc.

There are apparently several layers of Spanish loans into Tzotzil, and some of the loans are certainly much older than others. The explanation for some of the variants in assimilated forms can be found in the phonology of earlier Spanish in Chiapas. The loans with Sp /s/ = Tz /ř/ probably date from a time in which local Spanish had retroflex apical allophones of /s/. The loans with Sp /y/ = Tz /ly.l/ also probably date from a period in which local Spanish had /ly/ where modern Chiapas Spanish has /y/--represented (ll) in the orthography. No comprehensive presentation of the rationale of the nature of the loans into Tzotzil has been attempted as suitable studies of local Spanish, modern or earlier, are not yet available.

8.0. Phoneme Distribution.8.1. Syllable Shapes. The following syllable types occur:8.1.1. V. This syllable type does not occur after /#/ or after /##/: ma·la·o 'wait', čo·e·tik 'rats'.8.1.2. C. Consonants occurring as syllables are limited to the verbal prefixes and the possessives, /h s ʃ ʒ/: h·či·kin 'my ear', s·ni? 'his nose', ʃ·pas 'he does'.8.1.3. CV. There are no limitations on the consonants and vowels which occur in this syllable type; the syllables may occur between any two junctures: na 'house', s·na·ik 'their house', bi·kitʃna 'little house'.8.1.4. CVC. This syllable type occurs only before consonants, or before /#/ and /##/: pat 'back', (but s·pa·tik 'their backs'), patʃʔodil 'the back of the Earth (name of a Zinacantan paraje)', h·bān·kil 'my elder brother'.8.1.5. CVCC. Only one word has been found in which this syllable shape occurs: ʔanʃ, 'woman', and in this word only before /#/, /##/, or consonant: ʔanʃ 'woman', kanʃ·tak 'my women', liʃʔanʃli·ʔe 'this woman'.8.1.6. CCV. Only one native word has been found in which this syllable shape occurs: krem 'boy', and in this word only when followed by suffixes: kre·mo·tik 'boys'. Loans from Spanish, however, often have syllables of the shape C₁C₂V; the first consonant, C₁, is apparently limited to /p t k/, and C₂ is apparently limited to /r w y/: kos·tum·pre 'custom', li·tro 'liter'.8.1.7. CCVC. This syllable shape occurs in only one native word, krem 'boy', and in this word only when

followed by /#/ , /##/, or followed by a consonant: krem
 'boy', li#krem#li·ʔe 'this boy', h.krem.tak 'my boys'.
 Loans from Spanish often have syllables of the shape
 $C_1C_2VC_3$, and C_1 and C_2 are restricted as in syllables
 of the shape CCV: kriš·ʒa.no 'human', kwar·ʒa.te
 'cuartilla, a measure of grain', pwer·sa 'force',
 tyen.ta 'store', tyem.po 'weather'.

8.1.8. VC. Syllables of the shape VC do not occur
 after /#/ or /##/ or after a consonant: s.be.ik 'their
 road', ta.iw 'hail'.

8.2. Phoneme Sequences.

8.2.1. Post-junctural.

8.2.1.1. After /#/ and /##/, only consonants occur, vowel-
 initial roots and stems acquiring an initial glottal stop.
 All consonants occur after these junctures.

8.2.2. Syllable-medial. In native words, only vowels
 occur syllable-medial, and all vowels occur in this
 position; in loans from Spanish, /r w y/ may also occur
 as C_2 in syllables of the shapes C_1C_2V and $C_1C_2VC_3$.

8.2.3. Pre-junctural. All consonants and vowels may
 occur before /#/ and /##/. There are some restrictions
 on sequences of consonants (see 8.2.5.).

8.2.4. Sequences of VV. All sequences of V_1V_2 occur:

$V_1 = /i/$	ii	biil	'names'
	ie	bieso	'add lime to ground corn meal'
	ia	sʔyial	'its young ear of corn'
	io	ʒiom#kaʔ	'young horse'
	iu	ʒiuk	'that it grow'
$V_1 = /e/$	ei	ʔibein	'he who journeyed'
	ee	beetik	'(many) roads'

	ea	'eal	'sores in the mouth'
	eo	'beo'	'irrigation ditches'
	eu	'eubem	'uncooked corn gruel'
$V_1 = /a/$	ai	taiw	'hail'
	ae	kaep	'trash'
	aa	čakoltaat	'they will help you out'
	ao	tao	'catch it!'
	au	nauk	'that it be a house'
$V_1 = /o/$	oi	yoik	'they take it out'
	oe	woetik	'(many) flies'
	oa	s ^h coal	'his rat'
	oo	yoo	'take it out!'
	ou	wouk	'that the meat be cooked'
$V_1 = /u/$	ui	stuil	'its bad odor'
	ue	stiluel	'he thumps (it)'
	ua	sual	'squash blossom'
	uo	tiluo	'thump (it)'
	uu	čuk	'that it be a gourd'

8.2.5. Sequences of CC. There are two apparent restrictions on sequences of C_1C_2 which may occur: certain assimilations and replacements occur, and most geminates are reduced. Except for these phenomena it would appear that all combinations of C_1C_2 occur that can occur within the frame of morphology and syntax of the language (see Weathers 1947, p. 111).

8.2.5(1) Assimilation and replacement. The phoneme /s/ does not occur as C_1 if C_2 is an alveolar, but is replaced by /š/. The phoneme /š/ does not occur as C_1 if C_2 is a dental affricate or fricative, but is replaced by /s/. If C_2 is a bilabial stop, $C_1 = /n/$ is replaced by /m/.

If $C_1 = /s/$, $C_2 = /h/$ is assimilated and the result is /s/. If $C_1 = /š/$, $C_2 = /s h y/$ is assimilated and the result is /š/.

(2) Geminate reduction. Only one geminate consonant cluster has been found to be preserved: /b^hb^h/. Other geminates are reduced to a single phoneme, /C/, [·C].

(3) Sets of /CC/ which have been found are the following:

		C ₂																					
C ₁		p	t	č	č̣	k	ʔ	p̣	ṭ	č̣	č̣̣	ḳ	ḅ	s	š	h	m	n	w	y	l	r	
p		x																				x	
t						x	x					x								x		x	
č		x										x							x				
č̣		x											x										
k		x											x							x		x	
ʔ		x	x	x	x	x						x	x						x	x	x	x	
p̣		x				x																	
ṭ		x																					
č̣		x																				x	
č̣̣		x										x	x						x			x	
ḳ		x	x		x	x							x									x	
ḅ		x	x			x							x			x							
s		x	x	x		x	x	x	x			x	x					x	x	x		x	
š		x	x		x	x	x	x		x	x	x						x	x	x		x	
h		x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x		x	
m		x	x								x												
n		x	x	x	x									x	x	x	x			x	x	x	
w		x																					
y		x										x											
l		x	x			x						x	x	x	x		x	x			x		
r		x		x	x									x									

Many of these clusters occur in elicitation of derived verbs, where C₂ is the first phoneme of the derivational suffix and C₁ is the last phoneme of the root or stem. The above list is not an exhaustive list; if the appropriate roots can be found, any of the consonants which occur as C₂ above can probably occur with all of the consonants occurring as C₁, since phonemic shape does not determine verb class.

(4) Examples of forms in which the clusters listed in the previous chart are as follows:

pt	ʔihnuptanpalta	'they found fault'
pl	nupleh	'married couple'
tk	batkun	'let's go'
tʔ	spitpon	'it bounces'
tk	ʂpatkuh	'he falls face down'
tw	hʔhatwil	'fugitive'
tl	ʂpitluh	'he becomes frightened'
ʧt	hwiʧtik	'our mountain'
ʧk	hpaʧkun	'I flatten it'
ʧn	hʔikaʧnom	'our bearers'
ʂt	kiʂtik	'our pepper'
ʂb	hkuʂban	'I carry (it)'
kt	ʋuliktal	'where did you come from?'
kb	hʂukbenaltik	'our waist'
kʋ	sakwayan	'a shade of white'
kl	naklan	'sit down!'
ʔp	ʂaʔpot	'two mounds'
ʔt	niʔteʔ	'tree crown'
ʔʧ	ʂaʔʧako	'grab it again (for the second time)'
ʔʂ	ʂaʔʂop	'two sets (clothing)'
ʔk	ʂaʔkot	'two four-legged things'
ʔk	meʔkinubal	'rainbow'
ʔb	siʔbeh	'wood-carrying'
ʔn	woʔne	'past'
ʔw	ʂʂaʔwinik	'forty'
ʔy	baʔyi	'first'

ʔl	ʔiʔlel	'brush: (underbrush)'
pʔ	tupʔik	'breathless; can attack'
pʔ	hpʔptik	'can dust'
tʔ	hottik	'we scratch'
ʔt	hnaʔtik	'our necklace'
ʔl	soʔleb	'Zinacantán'
čt	hšočtik	'our bats'
čk	špučkik	'he falls from fatigue'
čb	ʔučbol	'a drink', 'beverage'
čn	hničnabtik	'our descendants'
čl	spačleh	'plain (flat place)'
kʔ	hčikpom	'incense burner'
kt	hkoktik	'our fire'
kč	hʔakčamel	'witch'
kʔ	kakʔelawša	'we entertain'
kʔ	škakʔe	'I give it to him'
kl	ʔikloan	'dark gray-green'
bʔ	situbʔas	'it swells (it)'
bʔ	šlubʔah	'he tires'
bʔ	sutubʔikəe	'whirlwind'
bb	hkoltaobba	'my helper'
bh	čabhe	'day after tomorrow'
sp	spat	'his back'
st	štaston	'he drags in exhaustion'
sʔ	sʔak	'he grabs'
sk	skap	'he turns it over'
sp	spup	'his dust'
st	stiluol	'he thumps it'

sč	sč <i>ʹ</i> i?	'his dog'
sk	skob	'his hand'
sb	čisbenal	'seam'
sm	smoton	'his present'
sn	sna	'his house'
sw	swiniktak	'his men'
sl	slumil	'his land'
šp	špišol	'his hat'
št	štal	'he comes'
šč	ščikin	'his ear'
šk	škoškon	'he limps'
šʹ	šʹalbat	'it is said'
šp	sʹtišpun	'he punctures (it)'
št	štin	'it swells (at the stomach)'
šč	ščiel	'his age'
šk	škep	'it (the weather) clears up'
šb	šbat	'he goes'
šm	šmišik	'his navel'
šn	sʹkišna	'he warms it up'
šw	šweš	'his pants'
šl	kušleh	'life!'
ht	hčintik	'our sheep'
hp	hpat	'my back'
hč	hčak	'I grab (it)'
hč	hčikin	'my ear'
hk	hkušac	'I rest'
hʹ	hʹakčamel	'witch'
hp	šnuhpih	'he falls face up'

hṭ	hṭul	'my rabbit'
hč	hč'i?	'my dog'
hč	hčiš	'one stick-like thing'
hk	hkob	'my hand'
hb	hbankil	'my elder brother'; htohbalal 'paid worker'
hs	hsat	'my eye'
hš	tahšaš	'I chew'
hm	hmišik	'my navel'
hn	kahnil	'my wife'
hw	hweš	'my pants'
hl	hlumil	'my land'
mp	kampoman	'dirty yellow'
mt	slumta	'he buries (it)'
mč	ʔočemčak	'a type of flea'
mp	tampol	'drum'
nt	kakantik	'our feet'; tontob 'garden snail'
nč	ʔančetik	'women'
nč	čančop	'four sets (clothing)'
ns	kanšetan	'a shade of yellow'
nš	čanšet	'four slices'
nh	naranja	'orange'
nw	šlabanwan	'he makes fun (of someone)'
ny	kinya	'banana'
nl	čanlahuneb	'fourteen'
nk	tonkašlan	'egg'; bankil 'elder brother'
nm	tonmut	'egg'
wt	yawhteklum	'town site'
yt	hčoytik	'our fish'

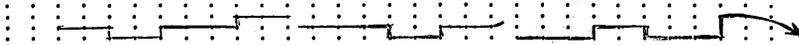
yk	čaykin	'name of a month'
lt	skolta	'he helps someone out'
lʃ	smelʃan	'he reads it'
lʔ	simalʔobal	'a cold'
lč	šbalčuh	'it rolls around'
lk	čiʔelkah	'I steal'
lb	čakilbahin	'I am bothering you'
lh	wolhe	'yesterday'
lm	hčulmeʔtik	'moon (holy mother)'
lw	smilwan	'he kills (someone)'
rt	surto	'left (hand)'
rč	kwarčate	'measure of corn (cuartilla)'
rk	parke	'town square'
rs	pwera	'force'

8.2.6. Restrictions on Two Consonants in the Same Syllable.

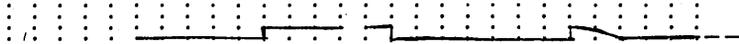
(1) No two non-identical voiceless glottalized consonants occur in the same syllable. Of the glottalized consonants, only /b/ may occur in the same syllable with another glottalized consonant.

(2) No combinations of fricatives, affricates, or affricates and fricatives occur in the same syllable except those combinations in which both consonants are dental, or both consonants are alveolar.

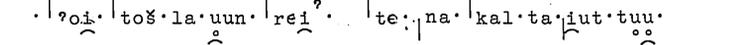
9.0. Text in Phonetic Transcription.

1) 
 | ʔoi̯i̯. uun̩. kuen̩. to^{u?}. ti̯. ʔo^{ʔo}. ne̯. e̯. taʔ. | tsi̯. na̯. kan̩. tan̩.
 w̩ w̩ ˆ w̩ w̩ w̩

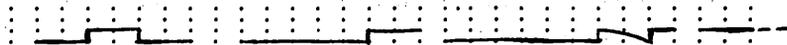
2) 
 | kuen̩. to̯. ʔei̯i̯.
 w̩ w̩ ˆ

3) 
 (ʔi ʔ) | li̯? | ʔal̩. ʔat̩. ʔi̯. | ia̯: l̩. be̯. tii̯. | m̩: k̩. ta̯.
 w̩ w̩

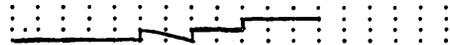

 tot̩. ʔo^{ʔo}. ne̯.
 w̩ w̩ w̩ w̩ ˆ

4) 
 | ʔoi̯i̯. | toʃ̩. la̯. uun̩. | rei̯? | te̯. | na̯. | kal̩. ta̯. | iut̩. tu̯.
 w̩ w̩ w̩ w̩ ˆ w̩ w̩ w̩ w̩


 te̯. | klum̩.
 w̩

5) 
 | ʔa̯. | un̩. | ʔi̯. | k̩?un̩. k̩?un̩. | la̯. ʔi̯. | n̩t̩ se̯. | lok̩. ʔe̯l̩. ta̯. .
 w̩ w̩ w̩ w̩


 | ti̯ ʔ. ʔii̯. | te̯. | klum̩.
 w̩ w̩

6) 
 ta̯. la̯. ʃ̩. | lok̩. e̯ʃ̩. ʔe̯l̩. li̯.
 w̩ w̩

7) | ʔoi·tei·uun·mū:k·ta·toh·nū.
 ω ω ω ω ω

8) | tei·ta:š·tšo·ti: | uun·uun·ka·kal.
 ω ω ω ω

9) (tas) s·|ma·la·la·kris·sia·no·(tas) ·kʔan·be·li·moš·na.
 ω ω ω ω

10) | ba·un·ni ta·uun·|sōʔm· (taʔ) |lik·la·s·|ooʔki·
 ω ω ω ω ω ω

lam·|ba·lu·mil·|ioʔ·bu·š·|ʔe:tš(i)·bo:ʔeε.
 ω ω ω ω

(ta) | ta·boʔ·ʔo·ti·kεε.
 ω ω

11) | te·|la·š·ta·(uun)·uun·ʔiš·ta·|lal·|na·ka·la·ʔo·roo·
 ω ω ω ω ω

12) ba·ʔun· ·kʔunkkʔun·la·ʔun· ·ʔiʔi:
 ω ω ω ω

13) | ʔo·še·la·s·|ta·ki·ni:k· ·s·|pas·kʔu:i:k·
 ω ω

·s·|man·s·kʷu·i:k·ki·
ω

13)

tšaʔ·ʔa·|tšop·la·s·kʷuʔ·ʔu· .|ʔants· ʔi·nik·
ω ω

|pas·ku·ik·ʔun·
ω

14)

·|kʷun·|kʷun·|ʔun· ʔš·|kot·ša·la·|iaa·uu·|laʔ·ʔa·lik·
ω ω ω ω ω ω ω

·š·|ko·tos·ke·le·lik·ʔun·ta·la·š·|ʔak·bik·s·|mo·ton·
ω ω ω ω

·|ta:kin·ni·
ω

15)

·|uun·^{nu}·|uun·la·|ta·saʔ·botšⁱ· .|tšaʔ·ki:k·tin·
ω ω

·ti·|ta:kiʔne^e·
ω

16)

·bu: ?un·ki?·ii·lik·la:·|?oi·la·s·pi·nik·
 } ω ω

·noš·la·ta·|ta:·kin·ni·
 ω ω

17)

·ba·un·|ia:·?i·la·ti·|kriš·ia·no·?e·ti?·|?oi·iet·
 ω ω ω ω

|ša·li·s·|ta:·kin·|ti·re·le·lik·la·a·|pas·bik·s·|te:·

nall

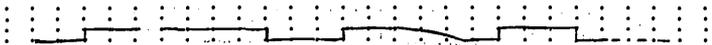
18)

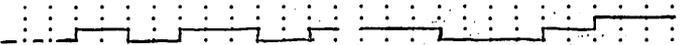
·mel·tsaa·la·ta·ta·|ten·ni·

19)

·k·un·k·un·|la·|?i·noo·ta·|lel·tis·ti·a·
 ω ω ω ω ω

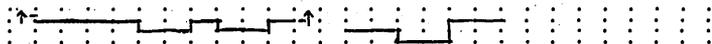
·ta·ki·ni·|ta·|ten·?u·ne·
 ω

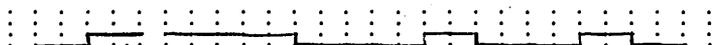
20) |ba·un·taʒ·|ian·to·la·ka·ka:l·ʔi·kʔot·la·

 ω ω

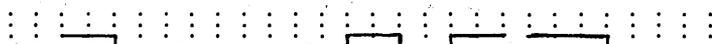
|uun·uʔ·|ʔetš·ʔel·|be·u·|uu·laʔ·ʔal·|ʔi·nik·ki·

 ω ω ω ω ω

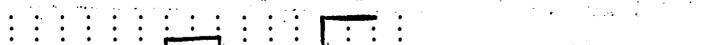
21) mük·|ʔo·ša·ti·|ti·|reii·ʔu·ne·

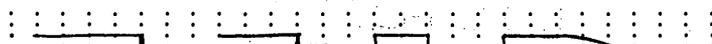
 ω ω ω ω

22) |s·|tuk·la·|te·ta·e·|iaa·ni·|lun·

 ω ω ω ω ω

23) |ba·un·|tšʔa·muən·|ba·ta·ti·|iiš·tol·te·|šo·ool·

 ω ω ω ω ω ω

|šo·oo·la·ti·s·|köʔm·ti·|ʔan·tse·s·|la·po·ii·

 ω ω ω ω ω

|ʔa·ti·|iiš·tol·ʔu·ne·

 ω ω ω ω

24) |iʔ·ʔiš·leʔ·|ii:tš·le·ti·|ʔi·nik·u·ne·|muk·la·šo·

 ω ω ω ω

ta·s·koʔm·ʔis·bik·la·un·
ω

25) bat·la·un·aa·taʔ·la·š^tšⁱ·uk·un·eetš·
ω ω ω ω ω

mar·to·la·s·llu·mal·ʔun·
ω ω ω

26) ba·ʔun·tšaʔ·ba·la·laa·la·ti·s·taʔ·ki·nik·u·
ω ω ω

ne·muʔ·iuk·ša·laʔ·bu·tiʔ·taʔ·ki·ne·
ω ω

ʔi·šo·kom·la·s·ti·nik·u·ne·
ω ω

10.0 Text in Phonemic Transcription.

- 1) #²oy¹ |²hun¹ #²kwento¹ #²ti¹ |²wo'nee¹ #²ta¹ |²cinakantan¹ #↓
- 2) #²kwento¹ #¹rey #↓
- 3) #¹li² |²al¹ |²bat¹ |²iyalbe¹ ti² h¹ |²mukta¹ tot² wo'ne¹ #
- 4) #¹oy² |²toš¹ la¹ |¹hun¹ |¹rey #¹te¹ |²na¹ |²kal¹ ta¹ |²yut¹ h² |²tek¹ |²lum¹ #↓
- 5) #¹wa² |²un¹ #¹vi¹ #¹kun¹ #¹kun² |²la¹ #¹vi¹ |²huhun² |²lok² |²el² #²ta¹
- |¹ti¹ |²h¹ |²teklum¹ #
- 6) #¹ta¹ |²la¹ š¹ |²lok² |²eč¹ |²el¹ #
- 7) #¹oy¹ |²tey¹ |²hun¹ |²mukta¹ |²ton¹ #↓
- 8) #¹tey¹ |²tā¹ š² |²čoti¹ #¹ |¹huhun¹ #²ka² |²kāl¹ #
- 9) #¹s¹ |²mala¹ |²la¹ |²krišćano² |²ta¹ s¹ #¹ |²kan¹ #¹ |²be¹ |²limošna² #
- 10) #¹wa² |²un¹ |¹i¹ #¹ta¹ |²hun¹ |²sob¹ #¹ |²lik¹ |²la¹ s¹ |²hokilam² |²balumil²
- |¹yo'bu¹ š² |²več¹ |²wo'e¹ #¹ |²ta¹ |²wo'tike² #
- 11) #¹te¹ |²la² š² |²ta¹ (hun)¹ |²hun¹ |²višta¹ |²lal² |²nakala¹ |²voroh² #↓
- 12) #¹(wa)¹ |²un¹ #¹kun¹ #¹kun¹ |²la¹ |²un¹ #¹(i)¹ |²vi¹ #¹ |²voše¹ |²la¹ s¹
- |²takinak² s¹ |¹pas¹ #¹ |²kuik¹ s¹ |¹man¹ s¹ #²kuik¹ #
- 13) #²ča¹ #¹ |²čop¹ |²la¹ s¹ #¹ |²ku¹ #¹ |²anč¹ |²winik¹ |²pas¹ |²kuik¹ |²un¹ #
- 14) #¹kun¹ #¹ |¹kun¹ |²un¹ š¹ |¹kot¹ |²ša¹ |²la¹ |²yahwu² |²la¹ |²al¹ |²ik¹ |²š¹ |²kotoh¹
- s² |²kelelik¹ |²un¹ |²ta¹ |²lā¹ š¹ |²akbik¹ s¹ |²moton² |²takin¹ #

15) # (h²un¹#) | hun² la | tasa² boč¹ ≠ | ča² kik¹ (tin)² ti | takine¹ #

16) # (wa¹) | un² (ki¹?) | yilik¹ la (i)² | oy¹ la s² pinik¹ | noš¹ la
ta | takin² #

17) # wa¹un² | ya¹i la ti | kriš²čano¹?etik² | oy¹ yeč¹ | ša² li s¹
| takin² | ti reye¹ | lik² la s¹ | pasbik² s¹ | tenal² #

18) # mel²čah¹ la (ta) ta | ten¹ #

19) # kun¹ ≠ kun² | la¹ ?i² | noh¹ ta | lel² (tis)¹ ti s² | takin¹ ta | ten²?une¹ #

20) # wa¹un² (ta) | yan¹ to la | kakal² ?i¹ ≠ | kot² la | hun¹ h² | več²?el¹
| be² h¹ | wula¹?al² | winik² #

21) # muk¹ | o² ša¹ (ti) | ti² | rey¹?une² #

22) # s² | tuk¹ la | te² tae¹ | yahni² | lun¹ #

23) # wa¹un² | čamun¹ ≠ | bat¹ta² ti | yištol² te (šohol)¹

| šohol² la ti s¹ | kob² ti | anže¹ s² lapohi¹ ?ati² yištol¹?une² #

24) # (yi²?išle¹?) | yič² le¹ ti | winik²?une¹ | muk² la šoh¹ ta s² | kob²
?iš¹ | bik¹ la?un² #

25) # bat¹ la?un² | hataw¹ la š² | čiu²k¹?un² # | heč² | marto¹ la s²
| lumal²?un¹ #

26) # wa¹un² | čabal¹ la | lah² la ti s¹ | takinik²?u¹ | ne² | mu¹?yuk² ša¹
la | bu² ti | takine¹ # | ?i² | šokob¹ la ti s² | tenik²?une¹ #

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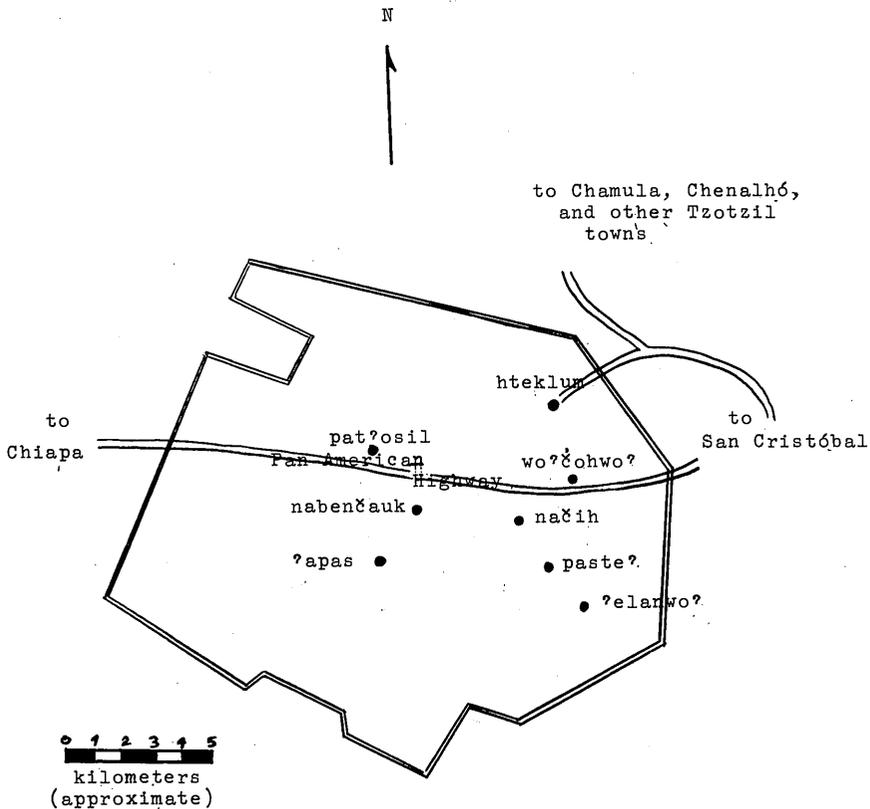
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Map No. 2. The municipio of Zinacantán, the parajes from which data were used.

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