7E. Isthmus Zapotec

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0.1. LANGUAGE AND DIALECTS. The presentation of the structure of any one of the so-called dialects of Zapotec cannot fully represent the language group as a whole, for it includes at least seven mutually unintelligible "dialects," more properly called different "languages." In an article of this nature, therefore, it is impossible to do more than cover in broad scope the structure of only one of these languages. The present sketch is of Isthmus Zapotec, which is spoken in an area bordering the Pacific coast in the Isthmus of Tehuantepec, and specifically of the dialect spoken in the largest town of the area, Juchitan. In a few details in the phonemics and lexicon, the dialect differs somewhat from those spoken in other towns of the area. For greater detail on the structure of Isthmus Zapotec, and for comparison with other Zapotec languages, the reader may consult the monographs and articles included in the bibliography.

0.2. METHOD OF PRESENTATION. Zapotec grammar is here presented in terms of three interlocking hierarchies[1] — phonological, grammatical, and lexical — each with its levels of structure ranging from the lowest (least inclusive) to the highest (most inclusive). The hierarchies are interlocking in that they are dealing with the same body of data, but they are distinct in that each has its own separate set of criteria for distinguishing contrastive units. Even units given similar names (words, phrases, and sentences) are distinguished differently in each hierarchy, with criteria which relate only to the particular hierarchy under attention. The phonological hierarchy presents the material related to the traditional "phonological level"; the grammatical hierarchy includes both morphology and syntax; the lexical hierarchy singles out those parts of morphology and syntax which treat morpheme classes, word classes, and morphophonemics.

1. PHONOLOGICAL HIERARCHY. The phonological system of Isthmus Zapotec is viewed as composed of at least five levels ranging from lowest to highest as follows: phonemes, syllables, phonological words, phonological phrases, phonological sentences.

1.1. PHONEMES. Isthmus Zapotec phonemes include fortis and lenis consonants, simple and rearticulated vowels, and three tones.

1.1.1. CONSONANTS. The consonants are divided into two major contrastive groups: fortis and lenis. The fortis group comprises stops and fricatives which are always voiceless (*p, t, č, k, s, š*). The lenis group is further divided into those which freely vary from voiced to voiceless (stops and fricatives *b, d, ǰ, g, z, ž*) and those which are regularly voiced (resonants *m, n, ŋ, l, w, y,* flap *r*, and apical trilled *r̃*). In addition, there is a glottal stop phoneme and two rare voiceless consonants, *f* and *h*, all of which have limited distribution.

In other Zapotec languages there are both fortis and lenis resonants. In Isthmus Zapotec the resonants have a phonetic difference between short and long, but the long resonants are more limited in distribution than they are in the other languages of the family. The phonetically long resonants have previously been analyzed as fortis consonants in Isthmus Zapotec, but the description is somewhat simplified by considering them to be clusters of like consonants. Note the following contrastive pairs: */'šonǒ/* [*'šo·nǒ*][2] 'eight':*/'čonnă/* [*'čon·ă*] 'three'; */'gela/* [*'ge·la*] 'new corn plants':*/'bello/* [*'bel·e*] 'flame'.

1.1.1.1. FORTIS CONSONANTS. Fortis con-

[1] The model used is based on the trimodal structure theory set forth by Kenneth L. Pike (1954, 1955, 1960). There are some differences, however, in the application of the theory as to details and terminology.

[2] Except in the section dealing specifically with tone (§1.1.3), phonetic illustrations are written with phonemic tones.

sonants are always voiceless. Of these, the stops are frequently slightly aspirated and the fricative *š* is slightly retroflexed, varying to clearly retroflexed in some idiolects. Illustrations in initial position: */'peʔpeʔ/* 'a wild fruit'; */'tappa/* 'four'; */'čii/* 'ten'; */'koʔ/* 'no'; */'saa/* 'music, fiesta'; */'šoʔ/* 'odor'.

1.1.1.2. LENIS VOICED-VOICELESS CONSONANTS. Lenis consonants which vary from voiced to voiceless are the stops and fricatives corresponding to the fortis series. The stops *b*, *d*, and *g* tend to vary slightly toward a more fricative articulation in medial position and are more frequently voiced than the affricated stop *ǰ* and the fricatives *z* and *ž*. Velar stop *g* is especially fricative and somewhat fronted before high front vowel *i*.

Illustrations in initial position: */'be/* 'mold'; */'daa/* 'mat'; */'ǰi/* 'day'; */'gu/* 'sweet potato'; */'gi/* ['gi] 'fire'; */'zee/* 'fresh corn'; */'žaʔnaʔ/* 'underneath'.[3]

1.1.1.3. LENIS VOICED CONSONANTS. The series of lenis voiced consonants comprises three nasals (bilabial, alveolar, and velar), an alveolar lateral, two semi-vowels (*w* and *y*), flap *r*, and apical trilled *r̃*. The trilled *r̃* and the velar nasal are both rare phonemes and have limited distribution. The two *r* phonemes are in contrast in utterance initial and medial positions only. In final position they do not contrast but vary from flap to trill and from voiced to voiceless. In this position, only the symbol *r* is used. In utterance-initial position the flap *r* is accompanied by a vocalic onset. The velar nasal occurs only utterance medial and final and contrasts with */n/* only in medial position and in very limited distributions.

Illustrations (in initial position where possible): */'maníʔ/* 'animal'; */'naa/* 'me'; */'páŋ/* 'bread'; */'lari/* 'cloth'; */'waga/* 'rat'; */'ya/* 'yes'; */ru'zaa/* [ⁱřu'zaa] 'passes (something) through'; */r̃u'zàá/* 'medium ripe'.

[3] Certain subdialects, for example speakers from Tehuantepec, do not seem to have a contrast between *š* and *ž*. But compare the following contrast in the Juchitán dialect: */ru'šiǰi/* 'plays': */ru'žiǰi/* 'laughs.'

1.1.1.4. LENIS VOICELESS CONSONANTS. Three phonemes of limited distribution are lenis and voiceless: *f*, *h*, and glottal stop. When *h* precedes vowels it varies freely with a light velar fricative. When in clusters (preceding *m*, *n*, or *l*), it has allophones of voiceless nasals and lateral, corresponding to the contiguous voiced phonemes, e.g., */'hmá/* ['Mmá] 'more'; */'hneza/* ['Nne·za] 'fine'; */'hluuna bě/* ['Lluuna bě] 'his/her bed'.

Glottal stop occurs only following vowels, e.g., */'koʔ/* 'no'; */'biʔkuʔ/* 'dog'.

Illustrations of *f* and *h* in initial position: */'féw/* 'ugly'; */'hánna/* 'let's'.

1.1.2. VOWELS. Vowel phonemes are of two types: simple and rearticulated. Each type has five qualities; high front *i*, mid front *e*, low central *a*, mid back *o*, and high back *u*. */e/* and */o/* freely vary from open to close. */i/* and */a/* have rare nasalized allophones which occur immediately following */nw/*, or as phonetic manifestations of */Vnʔ/*, e.g., */nan'wĭ/* [*nan'wį̃*] 'in very small pieces'; */'špánʔ/* ['špą̃ʔ] 'my bread'.

Simple vowels have lengthened allophones which occur in the nuclear syllable of phonological phrases, under the following conditions: in open syllables and syllables closed with */ʔ/* but which have an up-glide tone. Rearticulated vowels are always stressed and are long.

Rearticulated vowels freely vary from rearticulation with no glottal closure to weak glottal closure in normal speech and heavy glottal closure in special emphatic style. The rearticulated vowel, although a single phonemic unit, is symbolized in this paper by a digraph of two like vowels.

Illustrations of both simple and rearticulated vowels: */"bi/* ["bi·] 'wind'; */"de/* ["de·] 'ashes'; */"na/* ["na·] 'says'; */"ro/* ["ro·] 'eats'; */"ru/* ["ru·] 'a cough'; */"rii/* 'water jug'; */"zee/* 'fresh corn'; */"naa/* 'me'; */"doo/* 'rope'; */"čùú/* 'let's go'.

1.1.3. TONE PHONEMES. Phonemic tones are high (written with acute accent), low (unmarked), and up-glide (written with a

wedge /ˇ/ on single vowels and with grave plus acute accent /\`´/ on rearticulated vowels).

Illustrations: */ti'léžu/* 'a rabbit'; */ne 'béénda?/* 'and snake'; */ti'neza/* 'a road'; */ne 'bèèlă/* 'with meat'.

High tone has three allophones: high, slightly lowered, and high-gliding-down (written [ˆ]). In a series of high tones, the last is slightly lowered. High tone tends to glide down when it occurs on the nuclear syllable of a phonological phrase (§1.4), especially when these syllables are open or are closed with a resonant consonant.

Illustrations: */í'rúttí?/* (last tone slightly lowered) 'no one'; */'čuppa ″zá/* [*'čùppà ″zâ·*] 'two clouds; */″léžu/* [*″lê·žù*] 'rabbit'; */ne ″bénnye/* [*nè ″bên·yè*] 'with mud'.

Low tone has three allophones: mid (written with a macron), low, and mid-gliding-down (written ¬). Like the high tone allophones, their distribution relates to the nuclear syllable of the phonological phrase. The nuclear syllable itself has a down glide when the word including it is final before pause and alternates freely between downglide and low when medial. The low tones preceding such a low tone nucleus are phonetically mid; those following such a nucleus and those in other distributions are low.

Illustrations: */'giǰi la″yu/* [*'gīǰī lā″ŷu͡·*] 'world'; */″laadu 'lá/* [*″l͡aadù 'lá*] ~ [*″lààdù 'lá*] 'us?'; */'biku ″wiini 'yaase?/* [*'bīkū ″wi͡inì 'yààsè?*] 'little black dog'.

The glided allophones of both high and low tones are very short in closed syllables. In syllables closed by a resonant, the glide ends on the consonant.

Illustration: */″čonnă/* [*″čo͡n`a*] 'three'.

Resonant consonants carry the pitch of surrounding vowels: syllable-final they have the pitch of the preceding vowel with glides ending on them as illustrated above; syllable-initial they have the pitch of the following vowel.

Illustration: */kán'dááná?/* [*kán'dááná?*] (last tone slightly lowered) 'I'm hungry'.

1.2. SYLLABLES. There are four common syllables patterns: *CV*, *CCV*, *CCCV*, and *CVC*. Each of these is divided again into those which may occur in either stressed or unstressed position—those with simple vowels—and those which occur in stressed position only—those with rearticulated vowels.

1.2.1. SYLLABLE-INITIAL MARGIN. In the single *C* syllable-initial position, any consonant may occur except glottal stop. Consonant clusters which may occur in syllable-initial position are listed individually and illustrated under two headings: major and minor, according to their frequency of occurrence.

Major monosyllabic consonant clusters:

šp: */'špiini?/* 'servant'
št: */'štaanĭ/* 'her blouse'
šk: */'škaanda?/* 'dream'
mb: */'mbòótă/* 'very big'
nd: */'ndĭ?/* 'this'
ŋg: */'ŋgă/* 'that'
by: */'byaǰi/* 'plum'
dy: */'dyaga/* 'ear'
gy: */'gyá?/* 'above, north'
ny: */'nyee/* 'foot'
ry: */'rye/* 'goes'

Minor monosyllabic consonant clusters:[4]

šl: */'šlužu/* 'maguey fiber'
šn: (idiolectal variant of *hn*, but in some idiolects contrasts with *hn*) */'šneza/* 'his road'
fl: */'flùúčĭ/* 'loud whistle'
hl: */'hlaza/* 'scales'
py: */'pyú?/* 'a very little bit'
sy: */syá'do?/* 'morning'
šy: */'šyaa/* 'his wing'
zy: */'zya?/* 'deep, much (liquids)'
žy: */'žyàá/* 'cotton'
my: */'myattí?/* 'unidentified person, one's self
ǰy: */'ǰya/* 'griddle'

[4] In addition to those listed, there are a few minor clusters found only in unassimilated Spanish loans, e.g., */tr/* and */yn/* in */'tréynta/* 'thirty'.

tw: /*na'twi 'lu*/ 'is embarrassed'
kw: /*'kwe?*/ 'next to, side'
bw: /*'bwi?*/ 'guava'
dw: /*laǰi'dwá?*/ 'my heart'
gw: /*'gwe?*/ 'drank'
šw: /*'šwaa 'liǰi*/ 'daughter-in-law'
sw: /*ru'swi?*/ 'extinguishes'
zw: /*ru'zwi? 'lu*/ 'imagines'
žw: /*'žwaana?*/ 'person in charge of a fiesta'
čw: /*na'čwi?*/ 'slippery'
ǰw: /*ri'ǰwi?*/ 'burns oneself'
rw: /*'rwa?*/ 'carries'
nw: /*'nwǎ?*/ 'is carrying'
yw: /*ka'ywi?*/ 'is being extinguished'
mp: /*'bladú 'sa?mpa?*/ 'clay plate'

The clusters of three consonants are likewise considered to be minor, since they are of limited distribution in terms of dictionary count. The following combinations have been noted:

str: /*strom'pi?pi?*/ 'fruit of the kapok tree when still green'
špr: /*'šprímu*/ 'his/her cousin'
špy: /*'špyaani?*/ 'his/her intelligence'
šty: /*'štyá?ya?*/ 'my aunt'
hny: /*hnyàá*/ 'his/her mother'
stw: /*stwi*/ 'embarrassment (a sickness)'
škw: /*'škwassa*/ 'temples'
ryw: /*rywi?*/ 'is extinguished'
byw: /*'bywi?*/ 'was extinguished'
nyw: /*'nywi?*/ 'should have been extinguished'
gyw: /*'gywi?*/ 'let it be extinguished'
zyw: /*'zywi?*/ 'it will be extinguished'

The 'extinguished' verb has the only occurrence of the *Cyw* clusters listed above.

1.2.2. SYLLABLE-FINAL MARGIN. In syllable-final position, only the following single consonants may occur: lenis voiced consonants (*m*, *n*, *ŋ*, *l*, *w*, *y*, *r*), fortis stops and fricatives (*p*, *t*, *č*, *k*, *s*, *š*), and glottal stop. The fortis consonants occur final only in stressed syllables which are simultaneously the nuclear syllable of a phrase. Glottal stop most frequently occurs in this same distribution.

1.2.3. SYLLABLE NUCLEUS. Most syllable nuclei contain only a single vowel. There are also six vowel clusters, all of rare occurrence, all including an */i/* or */u/*, and all having a limited tonal pattern. The six clusters are */ɨu/*, */ɨaa/*, */ɨee/*, */ɨuu/*, */úaa/*, and */iă/*. These are in contrast with the combination */yV/* and are also in contrast with the two-syllable combination */CVyV/*, as seen in the following illustrations: */'ryaa/* 'feels at home'; */ne'rɨaa/* 'and feels at home'; */'nyàá?/* 'I should have gone'; */'niă/* 'I have with me'; */bi'yaa/* 'danced'.

1.2.4. RARE SYLLABLE PATTERNS. In addition to the patterns thus far presented, there are the following rare patterns: those which include a final consonant cluster and those which are composed of or begin with a vowel.

The syllable-final consonant clusters are limited to */w?/*, */l?/*, and */ŋ?/*, and these are very limited in occurrence. Only the following syllables of this type have been noted: *Cow?*, *Cal?*, *Caŋ?*, and *CCaŋ?*.

Illustrations: *w?* syllable final: */'tŏw?/* 'turkey'; *l?* syllable final: */'šál?/* 'my shawl'; *ŋ?* syllable final: */'špáŋ?/* 'my bread'.

Syllables consisting of or beginning with a vowel are very rare in words of native origin; they occur principally in free alternation with the syllable *gV*, e.g., */gi'rǎ?/* ~ */i'rǎ?/* 'all'; */genda'ro/* ~ */enda'ro/* 'dinner'. This alternation occurs only on unstressed syllables. Stressed vowel syllables occur in Spanish loan words such as */'óra/* 'hour, when (relative)'; */'ána/* 'Anna'.

1.2.5. CONSONANT AND VOWEL RESTRICTIONS. A few restrictions have been noted on the occurrence of specific vowels and of tone in relation to specific syllable patterns. Syllables including a rearticulated vowel are either open syllables or are closed with a glottal stop. When closed with glottal stop, only the up-glide tone occurs, as in */'čàá?/* 'I'm going'. Unstressed syllables closed by a glottal stop have only high or low tone, not the up-glide tone, e.g., */'ǰiinya?/* 'work'; */'nappá?/* 'I have'.

1.3. PHONOLOGICAL WORDS.[5] The phonological word includes an obligatory stressed syllable (indicated by ' preposed to the syllable) and optionally one or more unstressed syllables. (The maximum number noted is six.) Illustrations: */'gye?/* 'flower'; */raka'la?-ǰikabenǎ/* 'They want it'.

The placement of the stressed syllable is contrastive.[6] Note, for example, the following contrastive pairs: */'riga/* 'shell, rind': */ri'ga/* 'is cut'; */'nagá?/* 'twisted': */na'gá?/* 'green'; */'bigu/* 'turtle': */bi'gŭ/* 'crumbs'.

The obligatory feature of the stressed syllable of a word is greater intensity than that of the unstressed syllables. In addition, there are certain optional features which, when present, help to identify the stressed syllable, since these features occur only in a stressed syllable: presence of a glottal stop in utterance-initial or medial position and presence of a rearticulated vowel.

1.3.1. CONSONANT CLUSTER DISTRIBUTION. Certain of the monosyllabic consonant clusters listed above may also be ambisyllabic when medial in a phonological word. These are */tr/*, */mb/*, */nd/*, */ŋg/*, and */ny/*.

Other consonant clusters are only ambisyllabic. They include the following:

n.ny: */'bennye/* 'mud'
n.w: */nan'wǐ/* 'in very small pieces'
n.dr: */beren'drú/* 'ant lion' (This */drú/* syllable, which occurs only in this one word, varies phonetically to [*dr̃*] and [*ð̃*], a voiced bilabial trill, but even in these forms it is stressed and carries a high tone.)
n.ɨ: */riginyen'ɨáá/* 'throws or drops on the floor'
ŋ.k: */'řěŋkě/* 'a turn on the heel'
n.č: */nin'čaa/* 'large jar'
n.ǰ: */žin'ǰá?/* 'fever'

Glottal stop plus consonant or consonant cluster, e.g., *?.k:* */'bi?ku?/* 'dog'; *?.nd:* */ba'ká?nda?/* 'shade'. These clusters occur only between a stressed and unstressed syllable and occur most frequently when the stressed syllable coincides with the nuclear syllable of a phonological phrase.

1.3.2. VOWEL CLUSTER DISTRIBUTION. A few vowel clusters occur between syllables within the phonological word which do not occur within the syllable. Since syllable-initial vowels are very uncommon in words of native origin (see §1.2.4), only a few random clusters have been observed, including the following:

e.u: */neú'naakă/* 'with that woman'
a.u: */laú'kaa/* 'write (plural imperative)'
a.i: */žai'ba?/* 'sky, heaven'
e.a: */neá'ǰe/* 'and different'
i.u: */tiu'naa/* 'a woman'
e.i: */neǐ'ră?/* 'and all'
a.a: */paá'ǰe/* 'if different'
e.e: */neénda'ro/* 'and dinner'
e.o: */ne'órakě/* 'and at that time'

1.4. PHONOLOGICAL PHRASES. The phonological phrase has an obligatory nuclear syllable (indicated by " preposed to the syllable), which coincides with the stressed syllable of a phonological word. In addition, it may include one or more optional words. The number of words included in a single phrase varies with the speed.

Illustrations: */"gidi/* 'skin'; */'gidi 'ladi "yaga/* 'skin body tree (=bark)'; */'gědá 'túžá gú"naa/* '(each time) comes some woman'.

The features described (§1.3) as sometimes present in the stressed syllable of a phonological word are intensified here, and in addition there is increased length on the vowel (§1.1.2).

[5] For the relationship of phonological words to gammatical words, see §3.2.1.1.

In the analysis of the higher levels of phonology, consultation with Eunice Pike has been very helpful.

[6] As indicated above, the stressed vowels in open syllables are phonetically long. An alternate analysis (Pickett, 1951) considers vowel length to be phonemic and makes nonphonemic stress dependent partially on this length. The present analysis is preferable because it more easily includes the rapidly increasing Spanish loan-word list and is in more accord with the description of the higher phonological levels.

In song, where musical rhythm is substituted for the spoken phonological phrase, these identifying features are eliminated. Even songs of native origin are sung without glottal stops and without rearticulated vowels. Any vowel length which is present is determined by the rhythm of the music rather than by the place of the syllable in the corresponding spoken phrase unit.

There are two contrastive features of the spoken phrase which include more than the nuclear syllable: (1) presence of geminate consonant clusters at the border between the nuclear syllable and the one following and (2) allophonic tone distribution.

Geminate consonant clusters occur only in this position in the phonological phrase, and they include only fortis consonants and resonants. Illustrations: */"gittu 'ngă/* 'That's a squash'; */'stĭ "binninĭ/* 'It belongs to the people'.

The phrase nuclear syllable carries the phonetic down-glide of high and low tones, and the mid and low allophones of low have their distribution in relation to this syllable. The details of these alternations and illustrations have been given above.

The placement of the phrase nuclear syllable is contrastive. When it is in the first word of the phrase, the identifying features of a stressed syllable are more frequently retained on the nonnuclear words than when the nuclear syllable is in a later word.

Illustrations: */"ba?du 'laadŭ/* 'We were children'. (Here the rearticulated vowel is retained in the nonnuclear word.) */'ǰapa "wiini?/* 'little girl' (Here the nonnuclear word */'ǰapa/* has an oral vowel instead of the rearticulated vowel it has in nuclear position. Compare */'badu "ǰaapa?/* 'young lady', in which nonnuclear */'badu/* has lost the stress-identifying medial glottal stop, but nuclear */"ǰaapa?/* retains the stress-identifying rearticulated vowel not present in the above illustration.)

Phonological phrases are frequently equivalent to grammatical phrases, but they may also include more than one grammatical phrase and are often a full grammatical clause. Only one grammatical phrase, the noun compound, includes more than one phonological phrase. Each co-ordinate part of the compound phrase may be a complete phonological phrase.

1.5. PHONOLOGICAL SENTENCE. A phonological sentence is composed of one or more phonological phrases bounded by pauses. Within a running text, the phonological sentence frequently coincides with grammatical sentence boundaries, but it may include more than one grammatical sentence, and in one instance—dependent clause followed by pause—it is part of a grammatical sentence.

There are at least three ways of ending sentences. These are a combination of grammatical form and a pitch contour which affects the pitch of the tone system. These are listed and illustrated below.

(1) Sentences ending with the dependent marker */'lá/* (closing certain grammatical dependent clauses and sentences) usually maintain their regular tone relationships. The pitch of the */'lá/* morpheme coincides with the height of the regular high tone or (freely variant) the up-glide tone. Illustrations: */pa"gèédábé 'lá/* 'if he comes, . . .' (dependent clause); */'kumu "ríkku 'laabe 'lá/* 'Since he is rich' (dependent sentence).

(2) Sentences ending with the interrogative marker */'lá/* or the parenthetical interrogative marker */"hán?/* have an extra-high pitch on these morphemes, a pitch which does not correlate with the high of the tonal system. Sometimes the interrogative */'lá/* tends also to gradually raise the "key" of the tones of preceding words, but without affecting the relative pitch of the tones themselves. Illustrations: */nan"dá? 'lá/* (the */'lá/* is higher than the */á?/*) 'Is it hot?; */nan"dá? "hán?/* (the */"hán?/* is higher than the */á?/* 'It's hot, isn't it?

(3) Phonological sentences which are grammatically independent and declarative

tend to have a general down-drift of pitch, lowering the key of the tone registers gradually but leaving the relative pitches of the tones unaffected. Accompanying the down-drift of pitch there is also a tendency toward a relaxed quality, a fade in intensity, sometimes even to voicelessness—completely unvoiced unstressed syllables, voiceless off-glide on the vowel of final stressed syllables. (This relaxed quality is less, however, if the sentence ends with a syllable including *V?* with high tone.) Frequently such declarative sentences are followed by a step-up in pitch at the beginning of the next sentence unit. Both the down-drift and the step-up in pitch are more frequent on longer sentences than on shorter ones.

1.6. HESITATION PAUSE. Extra-systemic to the phonological hierarchy described above is the hesitation pause. This pause may break into any of the above-described groupings (word, phrase, or sentence). It is marked by tenseness of quality, change of tone, and some lengthening of otherwise short syllables.

Illustrations (hesitation pause marked with #): */en"tónses # "ndǐ? #/* 'So then, this, . . .' The */e/* of the final syllable of the first word is lengthened; the phonemic up-glide tone of */"ndǐ?/* is kept phonetically at a level mid; */'beda "nda tíer"mánu "este # "de # "méhiko/* 'Arrived a brother uh # from # Mexico City'. The two low tones of */"este/* (hesitation word) are maintained phonetically low-low rather than the expected mid-low; the final */e/* of this word is lengthened somewhat, as is the */e/* of */"de/* before the next pause.

2. GRAMMATICAL HIERARCHY. In this section, the same data are divided into grammatical functional parts rather than phonological parts.

2.0.1. HIERARCHY. The grammatical system of Isthmus Zapotec is viewed as composed of at least seven structural levels, ranking from the highest to the lowest as follows:

Discourse level
‖
Utterance level
‖
Sentence level
‖
Clause level
‖
Phrase level
‖
Word level
‖
Morpheme-cluster level

The constructions represented by each level contain one or more units which function as nucleus, and one or more modification forms, which are here labelled satellites. The kind of structure at one level is differentiated from that at another level by the functional relationship of nucleus and satellite constituents, by their potential complexity, and by their potential distribution is larger matrices.

Within the general kind of structure represented by each level, there are further divisions into construction "types" which differ from one another in their composition or in their composition and external distribution.

Each higher-level construction is potentially composed of a sequence of constructions of the level next lower in the hierarchy, as indicated by the connecting lines in the diagram above. The diagram is presented with the levels in schematic, sharply differentiated form for introductory purposes. The description of the various levels must likewise be presented in order, as though they were completely mutually exclusive units with step-by-step inclusiveness. The facts presented in the description, however, will reveal that a particular text cannot necessarily be successively segmented into sublevel layers; i.e., not all sentences of any one utterance can be directly segmented into successive layers of clause, phrase, and

word. Clauses, for example, are determined not simply by the fact that they are composed of phrases and are the basic components of sentences but also by their particular kind of internal structure. In terms of their distribution, certain types of clauses may occur as part of another clause construction or even as part of a (lower-level) phrase construction.

2.0.2. LIMITATION OF SCOPE. The various levels in the grammatical hierarchy provide a framework for a complete description of the grammar of the language. Lack of space in the present paper, however, precludes a thorough, detailed description of all of the levels. Morpheme-cluster-level and word-level constructions, since they relate to only one word type and since they have not been previously described in tagmemic terms, are described completely with formulas to show their tagmemic structure. At phrase, clause, and sentence levels, however, only representative patterns are described and presentation is in summary statement form. Utterance and discourse levels are not included. A brief survey of these two higher levels and details of phrase, clause, and sentence levels are given in Pickett, 1960.

2.0.3. IDENTIFICATION OF TERMS AND SYMBOLS. In addition to those which are considered to be traditional, the following terms and symbols are used.

2.0.3.1. SLOT, FILLER, AND TAGMEME. The constructions at each level of the hierarchy are viewed as composed of a sequence of tagmemes, i.e., a sequence of emic units composed of a functional "slot" and the class of forms which "fill" that slot. A clause construction, for example, includes a predicate slot filled by a verb phrase, and hence a predicate tagmeme. The phrase filler is likewise composed of tagmemes (e.g., the head slot filled by a verb) but at the next lower level. The terms used here are taken from Kenneth L. Pike, but with certain differences of interpretation. (See Pike, 1954, 1960; Longacre, 1964; Pickett, 1960.)

2.0.3.2. FORMULAIC REPRESENTATIONS. The following conventions are used to represent tagmemes and morphemes.

(1) Tagmemic formulas include the following representation for each tagmeme: Slot-name:Slot-filler name, e.g., +asp:asp +nucl:v-stem, to be read "plus (obligatory) aspect slot filled by aspect prefixes, plus nucleus slot filled by verb stems." Explanation of the abbreviations and details regarding the fillers are given in paragraphs labelled "slot fillers" below each formula.

(2) Braces { } are placed around a name-form of morphemes which have more than one allomorph of nonautomatic alternation.

2.1. MORPHEME-CLUSTER LEVEL. Slots in word-level constructions are filled either by single morphemes or by clusters of morphemes which function as units. These clusters of morphemes, although below word level, have their own tagmemic structure.

2.1.1. PLURAL IMPERATIVE CLUSTER. The plural imperative morpheme cluster is composed of two obligatory tagmemes: +imper: *la-* +asp:{*gu-*}.

Slot fillers. Each of the two slots is filled by only one morpheme. The prefix *la-* occurs only in this construction. The aspect prefix {*gu-*} is the potential aspect, which may also occur alone in the verb aspect slot of verb words.

Illustration[7] *la—gú* (*'kaa*) 'plural-imperative—potential (write)'.

2.1.2. AMBULATIVE CLUSTER. The ambulative morpheme cluster has a meaning of movement or repetition in performing an action. It is composed of two obligatory tagmemes: +amb:*ka-* +sta:*na-*.

Slot fillers. The *ka-* prefix which fills the

[7] In §2 and 3, the tagmemes of the level under discussion are separated by dash—, both in citation form and English literal translation. Spaces between words in the citations indicate grammatical word boundaries. Phonologically, words are written as in slow speech, i.e., as though each word were the center of a phonological phrase. The nuclear syllable is indicated by the word-stress symbol ˈ.

ambulative slot is one specific allomorph of the continuative-aspect prefix. The *na-* prefix which fills the stative slot is one specific allomorph of the stative prefix. An alternate form (depending partially on the verb stem class, partially on idiolect) adds the potential aspect prefix in the second slot. Illustrations: *ka—na ('yubi)* 'continuative—stative (search)' ~ *ka—na-u ('yubi)* 'continuative—stative-potential—(search) (=goes around searching)'.

2.1.3. CAUSATIVE CLUSTER. The nuclear slot of verb words may be filled by single-morpheme stems (roots) or by morpheme clusters. The causative cluster is composed of two obligatory tagmemes: +caus:{*si-*} +core:v-root C.

Slot fillers. The prefix {*si-*} has a meaning of causative action. Verb roots which fill the core slot are those of the C class—causative-forming roots (see §3.1.1.1).

Illustrations: (*ru-*) *si—'žoonye?* '(habitual aspect) causative—run (=makes run)'. (Compare *ru'žoonye?* 'runs'.)

2.2. WORD LEVEL. Grammatical words are single morphemes or combinations of bound and free morphemes which fill slots within constructions at phrase (the most common distribution), clause, or sentence level. Words are of two major classes: independent (minimum free forms) and dependent (enclitics and proclitics). The latter are discussed further in §3.1.1.3.

There is very little word-level structure (morphology) in Isthmus Zapotec, since most of the bound morphemes are enclitic or proclitic. In this section we deal with the tagmemic structure of the only words which include affixes—a class of verb-like words. The remaining words are treated as distribution classes (based on external distribution) and are described under the lexical hierarchy (§3.2).

There are three word types,[8] but these are joined as a class named verbs because of overlap of fillers in some of their slots. These are: declarative verbs, stative verbs, and imperative verbs. Another classification, based primarily on external distribution, crisscrosses this classification and the classification of verb stems—that of transitive vs. intransitive. Since the transitive-intransitive distribution does not parallel either the stem classification or the word-level tagmemic structure, it is treated in the lexical hierarchy under distribution classes.

2.2.1. DECLARATIVE VERBS. Declarative verbs include two obligatory tagmemes: a satellite tagmeme of aspect and a nuclear tagmeme.

Formula. +asp:asp +nucl:v-stem

Slot fillers. The verb stems which fill the nucleus slot include verb-stem clusters and active-verb roots. The aspect slot is filled by a class of seven aspect prefixes and the ambulative morpheme cluster.

Habitual aspect {*ru-*}	: *ru—'dii* 'gives'
Completive aspect {*bi-*}	: *bi—'dii* 'gave/will have given'
Incompletive aspect {*zu-*}	: *zu—'dii* 'will give'
Continuative aspect {*ku-*}	: *ku—'dii* 'is/was giving'
Potential aspect {*gu-*}	: *gu—'dii* 'will give/should give'
Unreal aspect {*nu-*}	: *nu—'dii* 'if only would give'
	(*ké*) *nu—'dii* '(not) unreal—give (didn't give)'
Perfective aspect {*wa-*}	: *wa—'dii* 'has given'
Ambulative aspect *ka- na(u-)*	: *kanau—'dii* 'goes around giving'

2.2.2. STATIVE VERBS. Stative verbs differ from declarative in both of their two obligatory tagmemes.

Formula. +sta-asp:{*na-*} +sta-v-nucl: sv-root/n-root

Slot fillers. The stative aspect slot is filled by only one prefix, the stative prefix {*na-*}. The stative verb nucleus is filled by stative verb roots or a small subclass of noun roots.

Illustrations: *na—'lĕ* 'stative-aspect—hol-

[8] Structural types are contrastive structures within the general kind at any one level, contrastive in their internal tagmemic composition or in a combination of internal composition and external distribution.

low' (stative verb root) (='is hollow'); *na—'bennye* 'stative-aspect—mud' (noun root) (='is muddy').

2.2.3. IMPERATIVE VERBS. Imperative verbs differ from declarative verbs in their aspect tagmeme and their external distribution.

Formula. +imper-asp:imper-asp +nucl: v-stem

Slot fillers. The nucleus slot-fillers are the same as those in the declarative verbs. The imperative-aspect fillers comprise one prefix (second-singular imperative) and one morpheme cluster (plural imperative). The filler of the imperative-aspect slot is in agreement with the person filler of Imperative Dependent Subject slot in the clause-level constructions.

Illustrations: Singular imperative {*bi-*}: *bi—'dii* (*nǐ*) 'imperative-aspect—give (it)'. The singular imperative prefix is homophonous in most cases with the completive aspect prefix. In rare instances, the choice of allomorph is different in the two morphemes, however. Note, for example, *'b—eedă* 'came' (*b-* completive-aspect allomorph): *gu-'da?* 'come!' (*gu-* imperative prefix allomorph).

Plural imperative {*la- gu-*}: *lagú—'dii* (*nǐ*) 'imperative-aspect—give (it) (second plural)'; *lagú-'dii* (*nu nǐ*) 'imperative-aspect give (we it) (first plural)'.

2.3. PHRASE LEVEL. The phrase is a potential sequence of two or more words[9] which function as a unit of other than predicate-subject relationship. Phrases fill slots within constructions at clause (the most common distribution) or sentence levels or within another phrase construction.

There are at least seventy different phrase types in Isthmus Zapotec. The large number is due partially to extensive borrowing of Spanish prepositions but is primarily due to the analytical inclusion of clitics as (dependent) words.

Space prohibits presenting the formulas and illustrations of even all the major types. Only samples are chosen to indicate some of the varying types of constructions included at this level.

2.3.1. NOUN PHRASES. Phrases which have nouns as fillers of the head slot include a head-modification phrase, three kinds of possessive phrases, and a compound phrase. Noun phrases are all endocentric. They fill the Independent Subject or Object slot in clauses.

Head-modification phrase: *'štalle—'bére—'wiini?* 'many—chicken—little'; *'čuppa—'bá?du—'skwéla* 'two—child—school (=two school children)'.

Possessive noun phrase-1: *ka—'š— pi?ku —'wiini—be—kě* 'plural—possession marker —dog—little—his/her—that (= those little dogs of his/hers)'.

Possessive noun phrase-2 (obligatorily possessed nouns): *ti—'benda—'wiini—bě* 'a—sister—little—hers'.

Possessive noun phrase-3: *ka—'gi?ri—'wiini—'š tǐ—'bě* 'plural—candle—little—possession marker one—his/her (=his/her little candles)'. In phrase-1 the possession marker *š* is preposed to the head word; in phrase-3 it is part of a possession-marking phrase *š tǐ*, which is postposed to the head word.

Compound phrase: *'lari—ga'mižá?—kal-'són para 'ngiiw* 'clothes—shirt—pants for man'; *'za—bi'zaa—ka'fé—ne—'késu* 'lard—beans—coffee—and—cheese'.

2.3.2. INDEPENDENT PRONOUN PHRASE. This phrase, like the noun phrases, fills the Independent Subject or Object slot in clauses. It has a nuclear slot filled by an independent word, but the remaining (satellite) slots are filled by dependent words.

Illustrations: *'laa—bě* 'person base—he/she (=he/she or him/her)'; *'laa—sí—ka bě* 'person base—only—plural he/she (=only they/them)'.

2.3.3. VERB PHRASES. There are at least nine different verb phrases, filling predicate slots in clauses. Three basic types (classes of types) are differentiated by internal compo-

[9] A phrase construction may be represented by only one word provided it is potentially expandable.

sition criteria: stative, auxiliary aspect, and verb-modification phrases. The latter two are further divided according to the fillers of the head slots and correlation with external distribution in the clause structure: transitive-declarative, intransitive-declarative, transitive-imperative, and intransitive-imperative. Verb phrases are endocentric. Illustrations are given for each of the three basic types.

Stative phrase: *na'čonga—'gye* 'is-hard—rock (= as hard as a rock)'.

Auxiliary aspect phrase: *ze—'topa* (*be 'yága*) 'went—gather (he wood)'.

Verb-modification phrase: *má—ké—'zuni —rú*(*be ní*) 'already not—will-do—still (he/she it) (= He/she won't do it any more.)'; *ri'naba—'diiža?* 'asks—word (= inquires)'; *'bi?ni—ga'nár* 'did win (= won)'.

2.3.4. Other major phrases. Phrases which fill other clause-level slots include time phrases, location phrases, manner phrases, and purpose phrases. These phrases are all exocentric. Each includes a minimum of an orientation tagmeme and a focus tagmeme, in that order. One illustration for each of these four phrase types follows.

Time phrase: *'má — 'bya? — 'čupa — sé'mána* 'already—about—two-week'.

Location phrase: *'ike—'daně* 'head—hill (= at the top of the hill)'.

Manner phrase: *'kasi—ti 'téku* 'like—a Teco (= in a manner befitting a loyal native of Juchitán)'.

Purpose phrase: *para—'laa bě* 'for—person him/her'.

2.3.5. Minor phrases. Minor phrases include others filling clause-level slots, interrogative phrases filling sentence-level introducer slots, some which occur as complete sentences (e.g., vocative phrases), and some which fill slots within other phrases (e.g., the possessive relation phrase referred to under possessive noun phrase-3). A few illustrations follow.

Phrases with pause markers. Nearly all clause-level slots include a filler which is composed of any other filler of that slot plus the dependent or pause-marking word *lá* referred to as a "comma" by one bilingual speaker. Illustration, filler of Time slot: *'óra ke—lá* 'hour that—,'.

Content-question introducer phrase (sentence-level slot filler): *'ži—'módo* 'what—manner'.

Vocative phrase (complete sentence): *'ba? du—ka?* 'child—plural (= Children!)'.

Quantifier phrase (filler of modification slot in a noun phrase): *'tobi—sǐ* 'one—only'.

2.4. Clause level. The constructions labeled "clause" fill slots within constructions at the sentence level (the most common distribution) or within phrases or other clauses. A clause may be equivalent to a complete sentence (i.e., forming the sentence nucleus, with no satellites), or it may form a sentence nucleus which is accompanied by satellite forms, or it may be one of two clauses in a compound-nucleus sentence. Internally, the clause is a unit of predication which has as minimum form some kind of predicate tagmeme and some kind of subject tagmeme.

Clause types are of two major classes: dependent and independent. Dependent clauses fill optional slots in sentences or slots included within another clause or a phrase. They are marked as dependent by one or more of the satellite forms included. Independent clauses fill the obligatory nuclear slot of sentences.

2.4.1. Independent clauses. Independent clauses include four major types and three minor types. Each type is contrastive with the others in terms of the basic nuclear tagmemes—Predicate, Dependent Subject, Independent Subject, Object. Two types (the declaratives) have the same satellite tagmemes; the others have few or no satellite tagmemes.

2.4.1.1. Declarative clauses. There are two declarative clause types, differentiated by the presence or absence of the Object tagmeme and a corresponding difference of choice of verbs as fillers of the predicate slot. In addition to the predicate, the nu-

cleus of each includes an obligatory Dependent Subject and an optional Independent Subject. Optional satellite tagmemes in each are: Time, Location, Manner, Purpose.[10] The satellite tagmemes vary in order as they orbit around the nuclear tagmemes, and no more than three satellite tagmemes have been observed in any one clause occurrence. The most frequent distribution (about 85 per cent) is that of only one satellite.

Intransitive declarative: *za'ka—rí'ni?—bĕ* 'thus — speaks — he' (Manner — Predicate —Dependent Subject); *des'pwés lá—gu 'dinde—'nézu 'čéle—'laaka 'pór te'řéno* 'afterward,—fought—Nezuchele—also for land' (Time—Predicate—Independent Subject—Purpose).[11]

Transitive declarative: *'ji gu'la?ki 'stĭ 'dyúži 'gíji la'yu—gu'la?ki—be—'dĭiža 'za* 'day set up God world—set—he—word Zapotec (= When God made the world, He also made the Zapotec language.)' (Time—Predicate—Dependent Subject—Object); *ye 'tawá ny—á—'laa ka be—rá 'liji ka bĕ* 'went eat with—I—person plural she—location home plural she (= I went to eat with them at their house.)' (Predicate—Dependent Subject—Object—Location).

2.4.1.2. IMPERATIVE CLAUSES. Imperative clauses, like the declarative, are both transitive and intransitive. They differ from the declarative types in that they do not include an Independent Subject tagmeme, the Predicate slots are filled by imperative verbs, the Imperative Dependent Subject slot is filled only by imperative dependent pronouns, and satellite tagmemes are rare and are always postposed to the nucleus tagmemes.

Transitive imperative: *lagú'kaa—nĭ* 'write —it' (Predicate—Object); intransitive imperative: *la'kwĭ — nú — 'yánna* 'sit-down — we — now' (Predicate — Imperative Dependent Subject—Time).

2.4.1.3. MINOR CLAUSES. Minor clause types include three equational clauses. Two of these have three obligatory tagmemes; the third has two, but one of them may be repeated. No satellite tagmemes have been observed in equational clauses.

Equational-1 clause includes an Equational Predicate slot filled by a verb phrase with only one verb as head—the verb meaning 'to be' or 'to become'—, Dependent Subject, and an Equational slot filled by a subclass of noun phrases. Illustrations: *'nakka—be—'máystru de 'skwéla* 'is—he—teacher of school'.

Equational-2 clause includes Independent Subject, an Equational Predicate slot filled by a single word *ngă* 'that' (which in this slot carries the meaning of 'is'), and an Equational slot filled by noun phrases, independent pronoun phrases, or the nucleus of certain clauses. Illustrations: *'ngă—'ngă —'laa nĭ* 'that—that—person it' (= 'That's it.'); *'naa—ngá—'bìit é 'beenda kĕ* 'I—that —killed I snake that' (= 'I am the one who killed that snake'.)

Equational-3 clause has only two obligatory tagmemes, but the Independent Subject tagmeme may be repeated. Its Equational Predicate slot is filled by noun phrases or attributive phrases.

Illustrations: *'ba?du—'laa bĕ* 'child—person he/she' (= 'He/she is just a child'); *'ómbre rí lá—'póbre—'laa* 'man this ,—poor —person he' (= 'This man was poor') (repeated subject tagmeme).

2.4.2. DEPENDENT CLAUSES. Dependent clauses comprise a class of clause types which are differentiated from independent clauses, and in detail from one another, by their external distribution and by the internal feature of dependent-marking tagmemes. Postposed markers indicate only dependence; preposed markers also indicate the distribution of the clause as a whole, i.e., as to whether it is a filler of a Time slot, Location slot, etc. The nucleus of dependent

[10] There is in addition a Predicate Specifier tagmeme, but its occurrence is rare, and its fillers are nearly all Spanish loan expressions; hence it has been left out of this presentation.

[11] In this illustration the Dependent Subject tagmeme has a zero manifestation.

clauses may be the nucleus of any independent clause except one of the imperative types. Satellite distribution is limited, but those satellite tagmemes which do occur are the same as those of independent clauses.

In addition to differences as to transitive and intransitive predicates, there are ten basic dependent clause types: location, relative subject, relative object, relative manner, purpose, manner, two time clauses, object clause, and sentence-slot clause. Only a few of these will be illustrated.

Time clause: *'óra—ibi'gett—á—de ra 'nyaa* 'hour—return—I—from location field' (= 'When I return from the field'.) (Time introducer — Predicate — Dependent Subject—Location).

Location clause: *ra—'nùú—bé—kě* 'where —is—he—that' (= 'there where he is') (Location Introducer—Predicate—Dependent Subject—Demonstrative Closer).

Relative Subject clause: (*'zyaba*) *ni—'nùú — rá'kě* '(will-fall) which — is — place that' (Relative Introducer, functioning also as subject—Predicate—Location). This whole relative clause functions as subject of the clause 'will-fall. . . . '

Sentence-slot clause: *pa—'líi—ni'kòó—w —'lari—lá* 'if—you—had-accepted—you—clothes—,' (Introducer—Independent Subject—Predicate—Dependent Subject—Object—Dependent Closer).

2.5. Sentence level. Grammatical sentences are constructions which potentially occur alone as complete utterances. They may range in length from a single word (as in dependent response sentences or vocative sentences) to a lengthy coordinate structure or pyramiding structure of clause within clause. The sentence-level overlaps at certain points with the clause-level in that an independent clause may also be a complete sentence. The two kinds of constructions differ, however, in the type of potential expansion and in the fact that certain phrases or words may be sentences but not clauses.

In terms of their specific internal structure and their distribution in larger matrices, sentence types are of two classes: independent and dependent. Independent sentences frequently begin a discourse unit. Dependent sentences most commonly do not begin a discourse unit; when they do, they are dependent on the presence of some form of nonverbal behavior.

Each of these two classes is divided into subclasses, based on whether the sentence types are clause constructions or nonclause (phrase or word) constructions.

2.5.1. Independent sentences — nonclause. Independent sentences whose slots are filled by phrases and words are of three types: vocative, interrogative, and exclamation.

Illustrations: *'ba?du ka?* 'child vocative-plural' (= 'Children!'); *u'nă 'márko* 'which Mark' (= 'Where is Mark?'); *'áy 'nána* 'Oh!'

2.5.2. Independent sentences—clause. Clause independent sentences include four major types or classes of types. Type 1, the declarative-imperative subordinating, is basic to the others.

2.5.2.1. Independent sentence type 1. Declarative-imperative subordinating. This sentence type has an obligatory nuclear slot filled by an independent clause which is preceded optionally by a satellite slot filled by a sentence-slot dependent clause.

Illustration: *pa 'líi zu'syand u 'ngiiw ke lá—zuni ga'nár lu 'stalle bí'jičči* 'if you will-heal you man that,—will gain you much money'.

2.5.2.2. Independent sentence type 2. Declarative compound. This sentence is composed of a series of independent declarative clauses optionally connected by the link word *nĕ* 'and'.

Illustrations: *bi'ree be—'zĕ bĕ* 'went-out he—went he'; *'ryuu-nissa ni pri'méru— 'ryaya ni—ne—rí'biibi 'ndaani ti 'lari na 'lassé?* 'gets-rinsed it first—gets-dissolved it —and—gets-strained it inside a cloth thin'.

2.5.2.3. Independent sentence type 3. Yes-or-no interrogative. This sentence type adds an optional Question Introducer tag-

meme and an obligatory Yes-or-no Closer tagmeme to the basic form of sentence type 1.

Illustrations: *'čě w? lu'gyaa—lá* 'going you market —?'; *'nyée—'čě w? lu'gyaa—lá ?*— 'going you market—?'

2.5.2.4. INDEPENDENT SENTENCE TYPE 4. Class of interrogative sentences—clause content-information. Clause content-information sentences are a class of six sentence types, differentiated by the function of their introductory tagmemes. Most of the introductory tagmemes have a double function of indicating question and functioning in the place of some clause-level tagmeme in the basic clause, e.g., Subject, Object, Location, Time.

Illustrations. *'ži—'ráka 'la?ǰi bě* 'what—wants he' (the interrogative *ži* functions as Object filler in the clause); *pa'ǰi—'čě bě* 'what day—going he' (the interrogative phrase *pa 'ǰi* functions as Time slot filler in the clause).

2.5.3. DEPENDENT SENTENCES — NONCLAUSES. Nonclause dependent sentences are responses, dependent on an utterance of another speaker (or occasionally on one of the same speaker) or on some nonverbal behavior.

Illustrations: Two answers to the question *'čě w? lu'gyaa lá* 'going you market ?': *ko?* 'no'; *stí 'řáttu sǐ* 'another little-while yet' (= 'A little later'.)

2.5.4. DEPENDENT SENTENCES — CLAUSE. Class of sequence types. Sequence sentences are composed of the basic independent sentence type 1 accompanied by one or two introductory tagmemes which connect sentences together in sequence. One of the introductory tagmemes has a double function of introducer and some other function within the main clause.

Illustrations: *'pwe—'čùú nǔ* 'well—go we' (= 'Well, let's go'.) (only one introducer tagmeme); *'peru—'da?gu 'yoo san an'tónyo* 'but—closed house Saint Anthony' (= 'But Saint Anthony was locked up'.) (only one introducer tagmeme); *'bwéno pwes—ra 'kě—ríza be i'rǎ ǰi* 'okay well—location that—walked he all day' (= 'Okay, well, he went there every day'.) (two introducer tagmemes, the second of which also functions as location marker).

3. LEXICAL HIERARCHY. In this section we view the fillers of the slots of the grammatical hierarchy as lexical forms and classes —the morphemes and words in terms of their distribution classes and their phonemic shapes.

3.1. MORPHEMES AND MORPHOPHONEMICS. Morphemes are viewed first as to their classification, second as to their phonemic shapes.

3.1.1. MORPHEME CLASSES. In terms of their general distribution, morphemes are of four major classes: bound roots, prefixes, clitics, and free roots.

3.1.1.1. BOUND ROOTS are verb roots only. These are of two subclasses, based on their distribution in verb or causative-cluster structures: causative-forming roots (class *C*) and neutral roots (class *N*). Class C roots may fill the core slot of the causative cluster (§2.1.3) or may directly fill the nuclear slots of verb (word) structures. Class *N* roots fill only the nuclear slots of the word structures. Illustrations: Class C root *-ra* 'be used up', as in *bi'ra* 'was all used up' and *bisi'ra* '(he) used (it) all up' (including causative prefix {*si-*}); Class N stem *-e* 'go' as in *'rye* 'goes'.

Verb roots are also divided into two major classes which crisscross the above grouping: active and stative verb roots. Active verb roots directly or indirectly (via the causative cluster) fill the nuclear slot in declarative or imperative verbs; stative verb roots fill the nuclear slot of stative verbs. There is some overlap of membership between the two classes. The root *-kiččí?* 'white', for example, may fill either the stative-verb nucleus or the declarative verb nucleus slot, as in *bi'kiččí?* 'became white', but the root *-biidi?* 'dirty' fills only the stative-verb nucleus slot. The external distribution of those which may occur in the stative-verb

nucleus slot, however, differs from those which do not. Stative-verb roots (occasionally the whole stative verb word) may occur in the Modification slot of noun phrases, as in *'yoo 'kiččí?* 'house white'.

Verb roots vary in length from one syllable to three, with two syllables as the most common shape.

3.1.1.2. PREFIXES comprise a small class of morphemes which fill the aspect slots of verb structures and an even more limited class of morphemes which fill slots in morpheme clusters. These are listed in §2.1. and 2.2.1.

Prefixes are of three canonical forms: C, CV, and V.

3.1.1.3. CLITICS are dependent forms, both proclitic and enclitic, which have a more free distribution in phrase and clause than affixes. These morphemes are treated as dependent words rather than as affixes. Most clitics are of one-syllable length, but there are a few composed of two syllables.

3.1.1.4. FREE ROOTS are root morphemes which are uninflected and which are isolatable grammatical words. The free-root class includes nouns and a number of smaller distribution classes. They include canonical shapes of one, two, or three syllables, with two syllables as the most common shape.

3.1.2. MORPHOPHONEMICS. Morphophonemic alternations include both automatic and nonautomatic types. Automatic alternations include the following three kinds:

Loss of glottal stop. Morphemes composed of or ending with an unstressed *V?* syllable or a stressed *V?* syllable with upglide tone, have an alternant without the glottal stop when in utterance medial position. Morphemes ending with a stressed *V?* syllable have an alternant without the glottal stop when the syllable is not in the nuclear slot of the phonological phrase. Illustrations: *"ba?du?* 'child': *"ba?du kă* 'that child'; *i"ră?* 'all': *i"ră kabě* 'all of them'; *'badu "wiini?* 'child little' (= 'baby').

Tone alternations. Morphemes composed of or ending in an unstressed syllable with up-glide tone when in utterance final position have two tone alternants when in medial position: a low tone and a high tone, depending on the basic tone and stress pattern of the word which precedes it. Morphemes which follow such a syllable may have alternant tones, depending on their own basic tone and stress pattern. For example, a word with all low tones has an alternant with the first tone high when following the above type syllable.

Illustrations: (1) up-glide alternates with low: *"ratti bě* (as complete utterance): *"nissa* (as complete utterance): *"ratti be 'nísa* 'he is always thirsty'; (2) up-glide alternates with high: *ka"yătti bě* (as complete utterance): *ka "yătti bé 'nísa* 'he is thirsty'.

There are more than a dozen word types with different basic tone and stress patterns, each one having its own pattern of tone alternation and effect on the surrounding tones.

Clusters of *š* or *s* plus consonant. There are no clusters of *š* or *s* plus lenis stop or plus *č*, *š*, or *s* (except ambisyllabic clusters *šš* and *ss*). When morpheme combinations would result in one of these clusters, morphemes beginning with lenis consonants *b*, *d*, or *g* have alternants beginning with the corresponding fortis consonant *p*, *t*, or *k*, and morphemes beginning with *r* have alternants beginning with *t*. Combinations with other consonants are most easily described in process terms of consonant cluster reduction, as follows: *š* or *s* + *č*, *ǰ*, *ž*, or *š* > *š*; *š* or *s* + *z* or *s* > *s*. Illustrations, using the possessive marker proclitic {*š*}: *'š pere bě* 'his/her chicken' (basic form *'bere*); *'š tii bě* 'his/her water jug' (basic form *'rii*); *'šál bě* 'her shawl' (basic form *'čal*); *'sidi bě* 'his/her salt' (basic form (*'zidi*).

Nonautomatic alternations are of two types: morphemically conditioned and phonemically-conditioned. It is the verb prefixes, the verb roots, and dependent pronouns which are most commonly affected by these alternations. The aspect prefixes have morphemically - conditioned alternations

which can be described by means of distributional sets, and within these sets there are phonemically-conditioned alternations and subsets of morphemically-conditioned alternations. The causative prefix {*si-*} has seventeen morphemically-conditioned allomorphs. Verb root alternations are only morphemically conditioned. Allomorphs of the dependent pronouns are principally phonemically conditioned. For details of these alternations, see Pickett 1953, 1955.

In addition to the segmental alternations, there is a complex system of tonal alternations in verbs, depending on the verb class, the person, and the aspect.

3.2. WORDS. Grammatical words are here described in terms of their distribution classes and their co-occurrence restrictions as fillers of slots.

3.2.1. WORDS AND WORD CLASSES. Words may be divided by two different types of classification: (1) independent vs. dependent, based on their distribution in utterances, and (2) smaller distribution classes, based on distribution in specific slots.

3.2.1.1. INDEPENDENT AND DEPENDENT WORDS. Independent words are isolatable units which can compose a whole sentence, at least as response to the question "How do you say X?" or "What do you call this?". Independent words are also phonological words, but a phonological word may include two independent words and several dependent words. Illustrations: *'ba?du?* 'child' (can be a vocative sentence); *'ndǐ?* 'this' (can be a response sentence); *'beedǎ* 'came' (can be a complete clause sentence).

Dependent words are proclitic and enclitic forms, which are not isolatable in the way independent words are but which have a freer distribution than affixes. Dependent words, like independent words but unlike affixes, fill slots on higher levels than the word level itself. Illustrations: *'lu 'wiini bě* 'face little his/her', in which the enclitic *bě* fills a phrase level slot. Compare the same *bě* morpheme at clause level in *'beeda bě* 'came he/she'.

Dependent words are usually unstressed parts of phonological words, but a few are themselves centers of phonological words, e.g., *'gupa "ga nǐ* 'keep meanwhile it', in which *"ga* 'meanwhile' is a dependent grammatical word but is stressed and thus is the center of a phonological word and phrase.

3.2.1.2. DISTRIBUTION CLASSES. Word classes defined by their differing distribution in slots at the various levels include a list of more than fifty basic classes and three types of subclasses. Only the major classes will be listed here, i.e., those which are frequent in occurrence either in text count (the independent and dependent pronouns) or in both text count and membership list.

(1) Nouns occur in head slots of noun phrases in Object and Independent Subject slot in clauses: *gu'naa* 'woman'.

(2) Dependent pronouns occur in Dependent Subject slot in clauses. The total list follows: {*a?*} 'first person singular'; {*lu?*} 'second person singular'; *bě* 'third person singular human'; *mě* 'third person singular animal'; *nǐ* 'third person singular inanimate'; *dǔ* 'first person plural exclusive'; *nǔ* 'first person plural inclusive'; *tǔ* 'second person plural'.

(3) Independent pronouns occur in Object and Independent Subject slots in clauses. The total list follows: *'ndǐ?* 'this'; *'ngǎ* 'that' *'ngě* 'that over yonder'; *'naa* 'first person singular'; *'lii* 'second person singular'; *nǐ* 'third person singular inanimate'. Other persons are indicated by independent pronoun phrases composed of person base word *'laa* and dependent pronouns (§2.3.2).

(4) Intransitive declarative verbs occur in Intransitive Declarative Predicate slot in clauses: *'beedǎ* 'came'. It should be noted that verbs as a unit do not form one single distribution class but four different classes, because of their relationship to other clause-level tagmemes. The transitive-intransitive distinction was not discussed in the word-level description of the grammatical hierarchy because it is not paralleled by the

internal structure of the verb words. Of the verbs formed from Class N (neutral) stems, some are transitive, some intransitive. Of the verbs formed from Class C (causative-forming) stems, there are various criss-crossing combinations. In some cases, a verb formed from a simple stem will be intransitive but its corresponding causative form will be transitive, e.g., *bin'dá?* 'was heated': *bisin'dá? be nǐ* 'he/she heated it'. In other cases both are transitive (or optionally members of the intransitive class as well), e.g., *bi'ziidi be* (*nǐ*) 'he/she learned (it)': *bi'siidi be* (*nǐ*) 'he/she taught it (causative form)'.

(5) Intransitive imperative verbs occur in Intransitive Imperative Predicate slot in clauses: *gu'da?* 'come'.

(6) Transitive declarative verbs occur in Transitive Declarative Predicate slot in clauses: *'bi?ni* (*be nǐ*) 'did (he/she it)'.

(7) Transitive imperative verbs occur in Transitive Imperative Predicate slot in clauses: *'bi?ni* (*nǐ*) 'do (it)'.

3.2.2. Words and tagmamorphemics. The term tagmamorphemics is used to describe those variants in tagmemic structure which are conditioned by the specific slot fillers. A number of co-occurrence restrictions exist in Zapotec between the fillers of one slot and those of another. Here we simply summarize the types of variants. Details are given in Pickett, 1960.

(1) Co-occurrence of specific fillers in phrase slots. This type of variation occurs in the exocentric location, time, and manner phrases and in the head-modification noun phrase. The location phrase, for example, has a Location Orientation slot filler *ra* 'location indicator', which co-occurs with only certain fillers of the Location Focus slot: *ra—'giigu?* 'at river' but not **ra—'giǰi* 'at town'.

(2) Limitations in agreement between the Independent and Dependent Subject tagmemes of both declarative and imperative clauses. The two subject tagmemes must agree in number and person. In addition, in the declarative clauses there are certain co-occurrence restrictions related to the position of the Independent Subject when it is filled by a noun. For details, see Pickett, 1960, pp. 58, 69.

(3) The verb 'to say' as Transitive Predicate slot filler. When a form of the verb 'to say' fills a predicate slot, the Object slot filler may be one or more sentences, and may include single words or phrases other than nouns or independent pronouns, is more frequently preposed to the predicate than with other fillers, and is often split in two parts. Illustration: *pa'rá '—čé w?—'na bě* 'where go you—says—he' (interrogative sentence in preposed Object slot).

3.3. Word clusters. A thorough study of levels of groupings of lexical units, as distinct from grammatical structure, remains to be done. There are, however, certain idiomatic clusterings of words which are worthy of note as a beginning study of levels of lexical structure.

In one type, the two grammatical slots involved are Head and Modifier of the stative verb phrase, but there is a one-to-one co-occurrence restriction between the fillers of the slots, and the total meaning is simply 'extremely X'. Illustrations: *na'nanda 'giiba?* 'is-cold metal'. This same order of words could well fill predicate and subject slots, with meaning 'The metal is cold', but this particular combination is so frequently used idiomatically that the first of the two ambiguous meanings to be understood is not the predicate - subject relationship but the phrasal relationship of 'cold metal', or 'very cold'; *na'kičǐ 'be* 'is-white mold' (= 'very white'); *na'ya 'gyé?* 'is-clean flower (= 'very clean'); *na'ǰaa 'dútu?* 'warm' plus a unique constituent (= 'comfortably warm').

A second lexical word cluster is composed of certain fillers of one of the transitive predicate slots combined with certain fillers of the Object slot. Illustrations: *ru'yubi* 'looks for' + *'diiǰa?* 'word' = 'picks a fight'; *ru'kaa* 'fastens' in various combinations with Object words, e.g., *ru'kaa 'dyaga* 'fastens

ear' (= 'listens'); *ru'kaa 'riji* 'fastens noise' (= 'screams, calls loudly'); *ru'kaa 'nă?* 'fastens hand' (= 'pushes').

A third cluster includes certain fillers of one of the predicate slots and certain fillers of the Location slot. Illustration: *'ratti* 'dies' + *'giigu?* 'river' = 'drowns' (not necessarily in the river).

4. TEXT. The following short text is given to show some of the relationships between groupings of the phonological and grammatical hierarchies.

Phonological word centers (stressed syllables) are marked by '. Borders are indicated by spaces. These spaces coincide with the borders of independent grammatical words. Dependent grammatical word borders are marked by hyphen.

Phonological phrase centers (nuclear syllables) are marked by ". Grammatical borders are marked by a vertical line |.

Phonological sentence borders are marked by diagonal /. Grammatical sentences are indicated by periods: one period for independent sentences, two for dependent. In addition, there is one instance of a sentence fragment, a portion of a sentence which was left incomplete as the speaker interrupted herself with a different sentence. The end of this fragment is indicated by dash —.

"bwéno / .. 'čí-'gwě-ní-á "lii | či-"hmá nă'wíín-é-'lá / | ..
okay going-speak-with-I you day more was-little-I,

"káda 'gědá bí"sita ra-'liǰ-é-lá / | 'gěda 'tǔžá gú"naa |
each come visitor to-home-my-, come some woman

'gědá 'gwǐ 'ně 'hnyă "diiǰa? | 'zědá man'dádu-lá / | —
come speak with mother-my word come errand-,

"napp-á ti-'bangú "wiini či-'kě |. na'wiini? / |.
have-I a-bench little day-that was-little

kasi-"gùúy-á ka-bi"sita | "gyuu-ke-lá / | 'máká
when see-I pl.-visitor enter-that-, already

'zi-u"žoony-é |. zi-"kàá "bángú? / |. gu"ry-ě ga"lawwí
went-run-I went-get-I bench sat-I center

de-"laa-ka? / |. "hnyàá kasi-"gúuya 'naa | 'máká
of person-pl. mother-my when-see me already

ka"gíru 'nyèé | 'para-"gyasá-? / | 'para 'ké-u'kaá
was-pinching leg-my for get-up-I for not-fasten

"dyá?ga-? | 'ži ká"ní?-ka-bě / |. 'peru "naa 'ké-"rúná-? |.
ear-my what was-saying-pl.-she but I not-hear-I

ri"niib-é "nyèé-sy-á? / |.
move-I leg-only-my

Free translation. Okay, I'll tell you about when I was little. Each time a visitor came to my home, some woman came to chat with my mother or came on an errand— I had a little bench at that time, a little one. Whenever I would see visitors coming, right away I would run and get the bench and sit down right in the middle of them. When my mother saw me, she immediately started pinching my leg to make me get up, so I wouldn't hear what they were saying. But I paid no attention. I simply moved my leg.

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