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Spatial Conceptualization in Mayan Languages

Edited by

JOHN B. HAVILAND
and
STEPHEN C. LEVINSON

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“Te xa setel xulem” [The buzzards were circling]: categories of verbal roots in (Zinacantec) Tzotzil¹

JOHN B. HAVILAND

Abstract

The semantics of Zinacantec Tzotzil verbs displays an apparent preoccupation with space, shape, position, and configuration, which pervades all aspects of normal language use. Spatial notions are routinely conflated with states and actions. Surface verb stems derive from verbal roots that can be partitioned into formal types on the basis of derivational possibilities. These formal types, in turn, represent unmarked vehicles for expressing certain schematic semantic domains. The paper sketches both the formal and the notional categories that must be distinguished across the entire verbal inventory of the Tzotzil lexicon.

1. Verb roots and spatial description

If one starts with a pretheoretical notion of “space” and tries to catalogue resources for “spatial description” in a language like Tzotzil,² one is quickly led to verbs. Although the language uses nominal devices — “body part” words and “relational nouns” — to express part-whole relations and certain sorts of proximity and configuration, the elaboration of such notions is limited to a closed class of nominal roots (de Leon 1992). Certain schematic paths (Talmy 1985), sometimes understood as expressing orientation, are grammaticalized in a small set of auxiliaries and directionals. These elements have verbal provenance, transparently deriving from full lexical verbs of “motion” (Haviland 1990a, 1993; Aissen, this volume). Moreover, it is with verbs that the Tzotzil lexicon seems to explode with expressive richness in characterizing such apparently spatial notions as shape, relative position, contact, support, containment, and manner of motion. Some of these verbs appear to complement a schematic geometry or anatomy encoded in body-part words (see Haviland 1992b; Levinson, this volume). Others concentrate

on shape, and configuration; still others conflate these notions with other sorts of action or event: motion, rest, and affect (Dixon 1991: 9).

With apparent spatial notions scattered through the lexicon, notional criteria for isolating spatial domains must respect the language's own formal criteria for partitioning lexical elements into classes (Lucy, this volume). In Tzotzil, productive verbal morphology generates a wide range of verbal stems from a basic repertoire of underlying roots. It is at the level of the root that semantic content conjoins with formal character. In this paper I begin to investigate how to assign Tzotzil verb roots to formal classes, as a necessary preliminary to any serious semantic study of the resulting surface verbal forms.

After presenting fragments of Tzotzil narrative, I explore formal and semantic grounds for classifying Tzotzil verb roots. I sketch a method for profiling the derivational possibilities of roots that divides them into three ideal types or clusters: *intransitive*, *transitive*, and *positional*. I show that each ideal type implies a schematic template for argument structure and event or situation type. Nonetheless, many Tzotzil roots do not fall neatly into one type or another. I relate this fact to the observation that different schematic linguistic packages are appropriate to different construals of a single situation.³ My aim overall is to show how the lexical-semantic analysis of such putative notional domains as "spatial language" depends on a prior analysis of formal patterns, which allow us to understand the form-meaning mappings characteristic of a given language.

2. Verb semantics in Tzotzil narrative

A striking feature of Tzotzil narrative is the semantic specificity of predicates used by both adult and child speakers. For example, consider the following fragments of a seven-year-old Zinacantec boy's rendering of the picture book *Frog, Where Are You?* (Mayer 1969).⁴

The child describes a picture in which a boy and his dog are searching for a frog they had left in a jar the night before. First the dog examines the empty bottle. (The verb roots are italicized.)

(1) Fragment 1⁵

24 s -xoj -oj ta s -jol limete li tz'i'-e
3E-insert-PF PREP 3E-head bottle ART dog-CL
'The dog has stuck a bottle over its head.'

The dog subsequently jumps out a window.

- 33 i -0 -p'it lok'el ta anil li tz'i'-e
CP-3A-jump leaving(DIR) PREP quick ART dog-CL
'The dog jumped quickly out.'
- 34 i -0 -p'aj yalel li s -tz'i'-e
CP-3A-fall descending(DIR) ART 3E-dog -CL
'The dog fell right down.'
- 35 ay s -tzak ta anil li k'ox krem-e
went(AUX) ICP 3E-grab PREP quick ART small boy -CL
'The little boy went to grab it right away.'
- 36 toj vok' -el li limete ta s -jol -e
too.much break-PASNOM ART bottle PREP 3E-head-CL
'The bottle on its head smashed to bits.'

Later, when the boy and his dog go to the woods to search for the frog, ...

- 52 ch -0 -muy xa ta ton noxtok
ICP-3A-ascend CL PREP rock also
'Now he climbs up on a rock.'
- 53 ali' xa va'al ch -y -apta noxtok-e
here already standing ICP-3E-shout.at also -CL
'Here he's standing up and he's calling out again.'

The boy is lifted up and carried off by a deer that was hidden behind the rock.

- 56 te xa noch'ol ech'el li k'ox krem-e
there already clinging away(DIR) ART small boy -CL
'The little boy is clinging there, being carried off.'

The deer throws the boy down off a cliff, and his dog jumps down after him.

- 60 te xa puch'ul i -0 -k'ot li k'ox krem-e
there already lying.down CP-3A-arrive ART small boy -CL
'The little boy landed lying down.'
- 61 ta -s -k'el xa yalel te'tikal chij -e
ICP-3E-look already descending(DIR) wild sheep,deer-CL
'The deer is looking downwards now.'
- 62 te xa luchul ta s -jol li tz'i'-e li
there already perched PREP 3E-head ART dog-CL ART
y -ajval-e
3E-lord -CL
'The dog is perched on his head, his master's (head).'

- 63 i -0 -lok'-ik xa noxtok
CP-3A-exit-PL already also
'They got out again.'
- 64 li yo' t'ub -ajtik ta vo' yech ch -0 -'och
ART where immersed-PL PREP water thus ICP-3A-enter
-ik xa ta y -ut te'
-PL already PREP 3E-inside tree
'— from where they were immersed in the water, they are going
inside a tree.'

The semantic specificity of the indicated verb roots may not be apparent from the monolexemic English glosses, but a few details will illustrate. The root *xoj* (line 24) implies a configuration in which an object with a hole or a central cavity is, as it were, impaled on another object, thereby enclosing the latter; it is how one would describe a ring on a finger, a needle with a thread through its eye, or perhaps a leg with a thorn deeply embedded in it. The root contrasts with a variety of words that might equally be translated in English by 'insert' or 'stick on/over' but that denote quite different configurations. Among these latter are, for example, *tz'ap* 'insert (pointed object) (shallowly) into (surface without hole)'; *paj* 'insert, fix (long object, with or without point) in (surface or medium) (firmly)'. The root *vok'* 'break', similarly, is appropriate only of a brittle or hard object that is broken into irregular, unpredictable pieces; it contrasts with such roots as *k'as* 'divide or break (longish object, divided across its narrow axis, typically cleanly)' or *tuch'* 'cut, separate, break (typically, flexible object or surface, such as rope or paper)'. The Zinacantec child further uses the roots *noch'* (line 56) and *luch* (line 62) to describe the position first of the boy sitting on (in my gloss, 'clinging to') the antlers of a deer, and second the dog sitting on (in my gloss, 'perched on') the boy's head. Although the English glosses might well be interchanged without greatly altering the scenes depicted, the same is not true of the Tzotzil predicates. Part of the difference could be characterized as follows. *Luch* suggests a configuration in which a smallish figure protrudes above a typically horizontal ground, whereas *noch'* suggests that the figure protrudes laterally from a vertically oriented ground (or perhaps below a horizontal ground). Being *noch'ol* is thus more precarious than being *luchul*, although in neither case is there firm attachment between figure and ground (in which case words like *pak'al*, *tzakul*, or *nap'al* would be more appropriate).

Semantically complex descriptive predicates are also characteristic of adult speech, especially colorful, affectively laden verbal performances such as personal anecdotes. Here are fragments from a long conversation

in which Petul, an eloquent elderly Zinacantec, tells about the time that one of his horses took sick. He had been travelling in the Chiapas lowlands, hauling harvested corn from the fields back up to the mountains.

- (2) Fragment 2
- 8 a j -tam-be ixim ulo'
went(AUX) 1E-lift -BEN corn visitor
'I had gone to pick up Chamula corn.'
- ...
- 16 kol -em to'ox ta s -jop ixim-e
get.free-PF at.that.time ICP 3E-gather.up corn-CL
'(My horse) was not tied up, and it wanted to gather up some corn.'
- 18 bu busul ta monton ti sat ixim-e
where heaped PREP pile ART(remote) eye corn-CL
'where the grains of corn were heaped up in a pile.'
- 20 ja' s -k'ux un
! 3E-crunch PT
'He wanted to crunch it up.'
- 21 i -j -tij ech'el li j -ka' un
CP-1E-strike away(DIR) ART 1E-horse PT
'I chased my horse away.'
- ...
- 23 ja' nox chopol i -y -a'i
! only bad CP-3E-hear
'Only it didn't like that.'
- 24 bulet xa likel li ka' -e
rolling.around already DIR(arise) ART horse-CL
'The horse just started to roll around.'
- 28 ja' nan ti muk' s -ta ta jopel li
! perhaps that NEG 3E-find PREP gathering ART
ixim-e
corn-CL
'Perhaps it was because it didn't get to gather up the corn.'
- 29 mu j -na' mi s -pich' y -o'on i -y -a'i
NEG 1E-know Q 3E-squeeze 3E-heart CP-3E-feel
'I don't know if perhaps it was longing (for the corn).'
- ...
- 38 ta j -k'el mi ch -0 -kol to k -u'un
ICP 1E-watch Q ICP-3A-recover still 1E-agency
'I (waited to) see if I could still manage to cure (the horse).'

Petul goes to look for medicine but is unsuccessful. He returns to where he had left the horse, describing its agony.

- 64 I -j -sut ech'el ti ch -ba j -k'el
 CP-1A-return away(DIR) that ICP-go(AUX) 1E-look.see
 li j -ka' tc ch -0 -balet i -0 -kom
 ART 1E-horse there ICP-3A-rolling.around CP-3A-remain
 'I went back to see my horse, which was rolling around, when I left it.'
- 66 s -jip s -ten s -ba ti j -ka' -c ch
 3E-throw 3E-throw 3E-self ART(remote) 1E-horse-CL ICP
 -0 -va'i batcl un
 -3A-stand.up DIR(sometimes) PT
 'My horse would throw itself down, then stand up from time to time.'
- ...
- 71p; t'in xa li x -ch'ut un-e
 bloat already ART ASP-stomach PT-CL
 'Its belly was all bloated.'
- ...

Petul's verbal choices are again semantically specific in ways not always obvious from the English glosses alone. Consider a single example, the roots *jip* and *ten* (line 66), both glossed as 'throw'. The two verbs denote, as it were, two different perspectives on the same event, one the starting configuration (when something is launched onto a trajectory where ultimately gravity will take effect, *jip*) and the other the end configuration (where a projectile so launched will make contact with a surface, in this case the ground, *ten*).

3. Verb roots and verbal virtuosity

In Zinacantán, people are conscious of whether or not one "knows words" and uses them appropriately. "Speaking well" involves lexical virtuosity, eloquence, expressivity, expertise in word play both humorous and serious, and knowledge of specialized genres such as prayer or denunciation, as well as rhetorical and humorous skills (see Haviland 1990b).

Because of the productive derivational morphology of the language, lexical knowledge has two complementary aspects. On the one hand, the grammar allows a speaker to clothe the semantic body of a particular verb root in a wide variety of surface guises: from simple verbs, to

causatives, resultatives, nominalized forms, and so forth. Thus, from the root *vok'*¹⁶ 'smash' the child narrator in fragment (1), line 36 above, formulates the derived passive form *vok'el* to characterize what happens to the bottle when it falls out of a window. On the other hand, specificities of meaning accrue to particular derived forms, drawing on the semantic core of a given root but elaborating on it in often idiosyncratic ways. Thus, in fragment (2), line 24, the narrator describes his horse's movements with the affective verb stem *balet*, derived from the root *ball* 'round' but with the unpredictable reading 'rolling, tossing (with pain or desire)' (Laughlin 1975). It is the regular semantic productivity of roots in the first sense that will largely concern us here.

Verb roots provide much of the semantic raw material for verbal virtuosity, offering up precisely the *mot juste* for everything from a precise locative descriptor to a scathing epithet. The semantic specificity of verb roots in Tzotzil, and neighboring Tzeltal, was a prime motivation for early studies of "native categorization," exemplified by Berlin's classic works on Tzeltal verbs of eating (Berlin 1967) and numeral classifiers (Berlin 1968).

Verb roots are central to Tzotzil descriptions of both motion and location. As I mentioned at the outset, motion and trajectories are conveyed in Tzotzil through intransitive motion verbs, both finite and grammaticalized as auxiliaries and directional particles (Haviland 1990a, 1993). Since generalized trajectories are built into the very morphology of predicates, they are available to descriptions of virtually all events. As for location, specific classes of Tzotzil verb roots assume the same importance as in sister Mayan languages. For example, Smith-Stark (1981) comments that Pokomam positional roots inflected as predicates mean basically 'be located (said of something [with some specific character])'. Similarly, Brown and Levinson (1990) claim that the work accomplished by spatial prepositions in English is achieved in Tzeltal by what they call "dispositional" predicates, a formally mixed category to which they assign stative adjectives but also perfect forms of both transitive and intransitive verbs (see also Levinson 1991; Brown, this volume).

To illustrate, in Tzotzil one could give an answer of the following form to a question like 'Where is the X?'

- (3) te P ta Y (li X e)
 there P at Y ART X CLITIC

Here P is the relevant predicate — an adjectival or stative form of a positional root — and Y is the "ground" or "landmark" against which the "figure" or "trajector" X is to be "located." For example, to describe the scene in which the boy and his dog, searching for their frog, have

been thrown into a pond, with the dog landing on the boy's head, the Tzotzil child above offers the sentence at Fragment (1), line (62), repeated here:

- (4) {te P ta Y li X e}
 te xa *luchul* ta s -jol li tz'i'-c
 there already perched PREP 3E-head ART dog-CL
 'The dog is now perched on his head.'

The fact that the dog (X) is ON the boy's head (Y), and in exactly what position, is captured by the predicate (P) *luchul* 'perched' (and minimally also by the general locative *te* 'there'). The semantically vacant preposition *ta* merely introduces an oblique argument to the clause, relying on *luchul* to indicate what sort of locative relation is involved.

Of course, *luchul* and in general the predicates P in contexts like (3) indicate more than an English preposition would. (4) makes it clear that the dog is not "on" the boy's head in the same way that, for example, a hat normally would be. The Tzotzil word *luchul* makes it explicit that the dog is "perched," sitting on the boy's head or protruding upward from it in the manner of a bird on a branch or perhaps a blister on the skin. There is thus more than "spatial" meaning to the P element; it is not simply a translation equivalent to English *on*, whatever "locative" component there may be to its characteristic uses.

The pragmatic value of such a predication ordinarily goes beyond mere locating. Imagine someone asking *bu li jpok'e?* 'where is my scarf?' and receiving the reply *te pak'al ta lum* 'it's [lying flat] on the ground'. The reply, and centrally the predicate *pak'al* 'lying flat' suggests not only that the scarf is "on" the ground but also that it is thrown carelessly down there. That is, the answer CRITICIZES as much as it LOCATES. Omitting an explicit verbal predicate and saying simply

- (5) Te ta lum l-a-pok'-e
 there PREP ground ART-2E-scarf-CL
 'Your scarf is there at/in/in the ground.'

might well suggest — in context — that the scarf is just "on" the ground, but the unadorned preposition is equally compatible with its being buried underground or (with a different reading of *lum* as 'municipal center') simply forgotten in another village. There is no Tzotzil way simply to say 'on' without carrying along the rest of a potentially complex expressive package built into one of these positional roots.

Spatial description is thus only a part — and, indeed, a relatively small part — of what verbal roots allow. They are major devices for description and categorization of all kinds. Verb semantics largely characterize what

we might call Tzotzil "conceptual style": the sorts of notion the language seizes upon for lexical and constructional hypertrophy. The categorial distinctions insisted on in one part of the language (for example, the precise discriminations of shape and substance reflected in numeral classifiers) are reflected as well in locatives, verbs, and even color terms (Haviland 1991b). In Tzotzil, it is the basic semantic repertoire encoded in roots, and thus spread across all the surface categories of the language, that guarantees this consistency of conceptual style.

4. Root categories

Laughlin's (1975) dictionary of modern Zinacantec Tzotzil contains roughly 35,000 lexical stems, built from 2,715 distinct roots. Nearly 60% of these roots are formally nominal or adjectival in character; they yield noun or adjective stems in pure unaffixed form. Another 300 or so roots produce particles, numerals, and members of a variety of miscellaneous word classes. This leaves about 850 roots whose character is basically verbal: they yield normally inflected verb stems directly or with minimal affixation.

The tradition in Mayan lexicography, followed by Laughlin, is to classify verb roots on the basis of the sorts of stems they produce. Here is the rough procedure in the Tzotzil case, drawn from Haviland (1992a). First, we define as potential predicates those stems that can bear absolute inflection. Of these, "stative" stems are those that do not accept aspectual inflection, whereas "verbal" stems obligatorily inflect for aspect. "Transitive" verb stems bear both ergative and absolute inflection and "intransitive" verb stems only absolute.

To classify a root one looks to see what sort of predicate stem, if any, can be produced from it. If the bare root can serve as a transitive verb stem, the root may be called T(ransitive).⁷ If a root is not by this criterion transitive but it does yield a bare intransitive verb stem, then it may be labelled I(ntransitive).⁸ A(djective) and N(oun) roots, which I do not consider in the present study, produce nonverbal stative stems directly.

Note that the facts described so far complicate the much-used continuum from open- to closed-class elements (see, for example, Talmy 1983, 1985) as applied to a language like Tzotzil. The roots, unlike stems derived from them, are in an ambiguous position between free "lexical" elements and more "schematic" grammatical formatives. The roots form reasonably small, closed classes in the sense that they are not easily added to. True "intransitive" roots, for example, number no more than 50 in this language, and adjective roots fewer than 200 (see Dixon 1982).

Moreover, virtually all words -- including verbs -- borrowed from Spanish enter the language formally as nouns. The Tzotzil inventory of verb roots seems basically fixed, although its internal structure, judging by variation between dialects and neighboring languages, clearly can change.

The criteria discussed leave out a large class of roots, typically called P(ositional)s, which can produce predicate stems only in affixed form.⁹ In Tzotzil there are three characteristic stem forms derived from P roots: a stative stem produced by suffixing *-V₁l*;¹⁰ an inchoative intransitive stem with the suffix *-i*; and a causative transitive stem with the suffix *-an*. Thus, under the root *luchl* Laughlin (1975) includes, among many others, the following entries:

- (6) *luchul*, adjective = 'perched, protuberant' (blister)
luchi, intransitive verb = 'be perched' (bird, person, animal)
luchan, transitive verb = 'set on top of'

Roots which are neither T nor I can be classified as P if they yield such forms, giving a neat tripartite formal division that corresponds rather nicely to a notional trichotomy of causative (i.e. T), inchoative (I), and stative (P) roots. Given the largely disjunctive sets of further derivational processes in which roots of each class participate, it seems reasonable to search for a semantic motivation for the resulting formal classes, so that certain notional concepts can be predicted to be realized by certain formal root classes (see, for example, Croft 1990).

Perversely, having seduced us with such analytic simplicity, Tzotzil proceeds to betray. The harsh light of breakfast reveals that many roots fail to fall cleanly into one of the three categories. Of the total of 855 verbal roots under consideration, only 157 are clearly T, 45 are I, and 273 are P by the criteria in question. This leaves some 380 roots whose formal properties perch them on some categorial fence, mixed between intransitive, transitive, and positional characters. Some 80 of these occur in such limited stem forms that they are ultimately too defective for assignment. Nonetheless, there are more mixed-category roots than roots unambiguously assignable to any one of the three ideal classes. Laughlin resorted to several different dodges¹¹ in his 1975 root classification. He postulated three subtypes, *I₂*, *T₂*, and *P₂*, for roots that fit a single pattern with a few otherwise uncharacteristic additional forms. He also assigned single roots to several classes at once, sometimes probabilistically.

Given such a categorial mess it is tempting to impose order by partitioning forms that extend across different root diagnostics, postulating two (or more) different homonymous roots, each with just the forms it needs to belong to a single category. Laughlin tried just this strategy with the

T root *javl* and the P root *jav2* meaning, respectively, 'split in two' and 'belly up'. (By folk etymology, incidentally, these two roots are conceptually linked by an image of the kind of 'splitting' *jav* implies: when one *javs* an object, such as a log, it splits in the middle, falling open with the interior surface -- the 'belly' -- up.) However, faced with a very similar range of forms in the case of the root *lik1*, Laughlin stoically maintained a single root, assigning it to the three categories P, T, and *T₂* simultaneously, and combining under this single root meanings that include 'overhanging (cliff, tree), hanging by a thread (branch), hanging ominously (cloud), puffy (face)' (as a stative stem), 'get up, arise, become erect' (as an inchoative), and 'begin, lift or carry object with handle or by edge' and also 'hang up' (as a transitive/causative). A similar dilemma arises for the root *vel1*, which encompasses a transitive meaning 'cutting with horizontal sweeps' and a positional meaning 'bending upwards (a flat thing)', with a full inventory of forms for each. Again, Laughlin lists only a single root, assigning it equally to the three categories P, *P₂*, and *T₂*. Such inconsistencies suggest that we are straining a model that is inadequate for the phenomena.

5. Morphological profiles and Tzotzil voice

I have experimented with a different set of diagnostics to profile the formal possibilities afforded by each root. The verbs in Laughlin's 1975 dictionary provided an initial working database of roots and derived stems.¹² The database was then extended by elicitation designed to push the derivational and extensional possibilities (as well as native speakers' wits and patience) to their limits. Further derived forms surfaced in a series of tasks (de León 1991) designed to produce "spatially"-oriented lexical materials and to exercise the productive knowledge surrounding them. Finally, the database incorporates situated illustrative material from a corpus of roughly 200,000 words of Tzotzil text: both published tales (especially Laughlin 1977) and transcribed conversational materials tape-recorded and occasionally filmed in a variety of ethnographic settings in my own fieldwork.

I produce for each root a derivational "profile" based on a set of diagnostic derivational possibilities (whether an adjective in *-V₁l* is possible, for example, or whether the bare root can serve as a verb stem of some sort). All roots with similar derivational profiles are then grouped together, so that any semantic coherence can be inspected. There are thus two complementary aspects to claiming theoretical status for such a derivational profile in a formal treatment of Tzotzil roots. First, one

must show that certain derivational possibilities are DIAGNOSTIC of formal character, that is, capable of DISTINGUISHING "kinds of roots." Second, one must provide criteria for the relevant similarities between profiles, allowing one to decide whether there are, indeed, root CLASSES or only lexically governed CLUSTERINGS of derivational possibilities.¹³ I return to this issue in section 10.

Let me begin with verbs we have already met in context. The result of collecting all of the verb tokens from the two narrative fragments quoted above and deriving a verb profile for each root is shown in Figure 1. I first subdivide the verbs on the basis of the inflectional characteristics of their roots. I then arrange them into provisional notional/formal subgroups.

Figure 1 employs a notation designed to exhibit the morphological profile for individual Tzotzil roots in the narratives with which we began. To justify the system requires further details about Tzotzil voice and derivational morphology. At issue will be the prototypical schematic semantics of different transitivity classes and stem forms.

Tzotzil has a straightforward ergative pattern of verbal cross-indexing, in which intransitive S(ubjects) and transitive O(bjects) are cross-indexed by absolutive affixes (zero in third person), and transitive subjects (A) are cross-indexed by ergative affixes. There is thus an unambiguous morphological test for basic transitivity: an inflected transitive stem bears ergative affixes, and an intransitive stem does not. In the discussion that follows, I will use the labels S, A, and O for the nominal expressions cross-referenced by morphologically marked case relations.

However, there are reasons to distinguish different flavors of both transitive and intransitive constructions; part of the flavor, indeed, comes from the character of the root underlying the predicate in a particular clause, and the grammatical encoding of different thematic roles. In the discussion, I will use the words *agent* and *patient* as shorthand labels for semantic roles, conceived of here as endpoints of a continuum of control (Comrie 1989) or as thematic "protoroles" (Dowty 1991). I will use several verbs listed in Figure 1 to illustrate the general patterns.

6. Intransitive roots

Consider the commonly used intransitive root, *muy* 'ascend'. From this root, one can form an intransitive verb stem directly; the stem, in a 3rd person incomplete form, occurs in line 52 of Fragment (1), repeated here as (7), where the boy "gets up" on a rock.

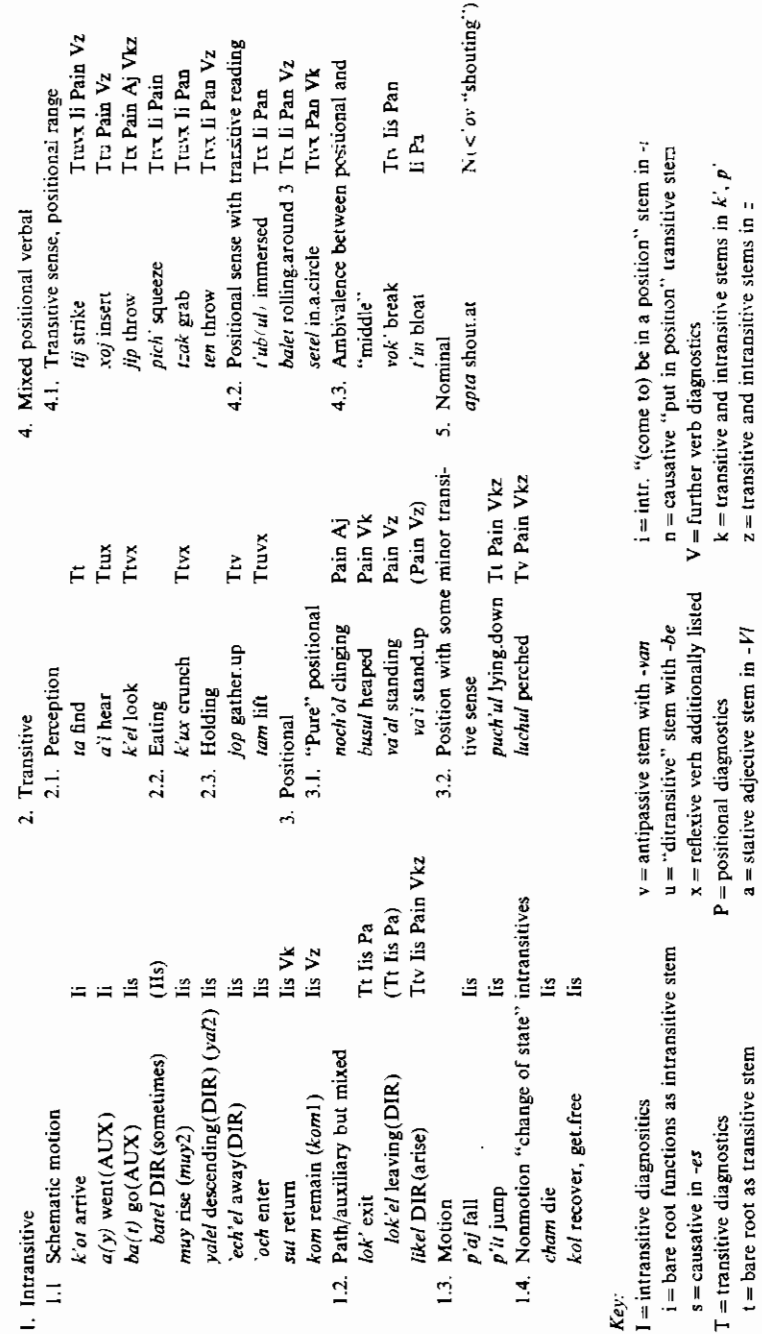


Figure 1. Classes of verb-stem types, by root type

- (7) ch -0 -muy xa ta ton noxtok
 ICP-3A-rise already PREP rock also
 'Next he gets up on a rock.'

No corresponding transitive verb stem exists without derivational affixation to the root. In this case suffixing *-es* creates a transitive 'causative' stem *-muyes* 'raise, i.e. cause to go up (e.g. a price)'. Consider the following line from one of Laughlin's stories about a ghoulish woman called Fallen Flesh:

- (8) T73
 ch-0-tal s-muyes s-bek'tal unc
 ICP-3A-come 3E-cause.to.rise 3E-flesh CL
 '[S]he has [i.e., makes, JBH] her flesh climb up' (CK 276).

Here the woman, who had exhorted her own flesh to descend from her bones so that she could spend a skeletal night in the graveyard, causes it to climb back onto her body, to 'rise' once again. The causative formation with *muyes* implies a two-stage process: the logical subject of the underlying intransitive "ascends," due to the action of a further "causer" argument. The resulting verb contrasts with a normal transitive verb, say one meaning 'lift', as we shall shortly see.

Because of these two basic stem forms, the root *muy* is listed in Figure 1 with the notation Iis: it shows the intransitive (i) stem form, and the causative stem in *-es* (s), both typical of intransitive (I) roots.¹⁴

By contrast, an intransitive root like *'ay* 'go and come' has no corresponding causative (and hence is shown simply as Ii).¹⁵

A root like *sut* 'return' has both a plain intransitive stem and a regular causative, as well as an additional set of nonproductive forms with a catalytic infix *p'/k'*, such as *sutp'ij-*, an intransitive stem that means 'turn over' or 'regress'. Such stem forms are notated with k. The root *sut* thus has the profile Iis Vk.¹⁶

In (7) and (8) the notional "ascender" argument of the underlying root *muy* is at least potentially conceived of as an agentive or volitional agent: a climbing boy, or the supernatural flesh of the ghoulish that can move about under its own steam. By contrast, the entity that "ascends" in the nominal derived from the causative stem *-muyes* in (9) is clearly nonagentive; it is the bundle of flowers that must be loaded on top of a bus.

- (9) Lol3:340
 ch-(y)-ich' muyesel `un
 ICP-3E-receive raising CL
 'They (the flowers) get carried up.'

Similarly, the "returning" entity in the following sentence in which the derived stem *-sutes* serves as the main verb in an auxiliary construction is the presumably nonagentive "sandal."

- (10) revista:99
 ch-tal sutes-b-at-uk ti x-xonob-e
 ICP-return(AUX) return-BEN-PASS-SBJ ART 3E-sandal
 '(The rabbit waited to see if) someone would come to bring him back his sandals.'

I(n)transitive roots often give rise to intransitive stems that fit into a typical frame, "[S] does X," and also to causative stems whose schematic frame is "[A] causes {[O] to do X}" (also, sometimes, "[A] causes {X to happen to [O]}"). The absolutive argument is in such frames agentive, volitional, etc. A useful diagnostic is the interpretation of the negative *mu* in combination with unmarked aspect, a construction that suggests 'will not, doesn't want to'.

- (11) T173
 "pero mu x-i-lok'," xi la. "pero mu x-i-bat," xi
 but NEG ASP-1A-exit say CL but NEG ASP-1A-go say
 la.
 CL
 "'But I'm not leaving," he said. "But I'm not going," he said'
 (CK 395).

The line is spoken by a story character who refuses to leave his new wife's house when she reveals that she already has another husband. The speaker is clearly casting himself in the role of a volitional (and in this case unwilling) leaver/goer. Similarly agentivity is displayed by the wife, who speaks the following line when her husband announces that he plans to go to live with a king.

- (12) T143
 mu x-i-kom vo'on a`a
 NEG ASP-1A-stay I EMPH
 'I certainly won't stay behind' (CK 272).

Although it seems that intransitive stems formed directly from intransitive roots frequently involve subject arguments that are agentive,¹⁷ there is evidence that such verbs can accommodate an "unaccusative" structure, with a characteristic reading "X happens to [S]," where S corresponds to a semantic patient and an "underlying" grammatical object argument. Such an argument is advanced by Aissen (1987: chapter 11) in her analysis of the Tzotzil "abilitative construction," which is used to

expresses the fact that an agent manages or is able to accomplish an action on a patient. Typically the construction involves an underived transitive verb stem, inflected with only an absolutive argument (cross-referencing the logical patient), combined with an oblique phrase composed of the word *-u'un* 'by, because of' grammatically marked to agree with the logical agent. Thus, for example,

- (13) Loll
 mu xa x-0-*maj* k-u'un-tik
 NEG CL ASP-3A-hit 1E-able-1PI
 'We can't beat (i.e. remove the kernels from) it (corn) anymore (i.e. we aren't strong enough).'
- (14) Chepwe
 mu x-0-*jav* y-u'un antz-etik
 NEG ASP-3A-split 3E-able woman-PL
 'Women can't split (so much firewood).'

In both these examples the main verb, derived from a transitive root, is inflected to agree with only a single absolutive argument, clearly the logical patient. The logical agent is obliquely encoded with the *-u'un* phrase.

Exactly parallel constructions are possible for many verbs derived directly from formally intransitive roots.

- (15) Chanovun
 mu x-0-*lok'* av-u'un
 NEG ASP-3A-exit 2E-able
 'You can't work it out [an arithmetical calculation].'
- (16) T107
 ta j-k'el kik ... mi x-0-*lok'* k-u'un i taria-e
 ICP 1E-look perhaps Q ASP-3A-exit 1E-able ART job-CL
 'I'll see ... if I can finish the job' (CK 33).
- (17) Lrnachij
 j-na'-tik mi x-0-*'ech'* y-u'un
 1E-know-1PL Q ASP-3A-pass 3E-able
 'Who knows if she will survive' (lit. 'if she will manage to make it pass') '[an illness].'
- (18) T151
 yu'n xa van ch-0-*yal* k-u'un-tik
 because CL perhaps ICP-3A-descend 1E-able-PL
 'We hardly could get it down ourselves [a heavy church bell]!' (CK 215).

Although the subject of a verb like *'ech'* 'pass', *lok'*¹⁸ 'exit,' or *yal*

'descend' — prototypical intransitive motion verbs — will frequently be agentive and self-motivating, this construction apparently casts the absolutive argument of the intransitive verb in a patientlike role.¹⁹

In fact, a sentence like (17) CAN be used even to describe making a potential agent such as a person, rather than a disease, pass by. Such an interpretation is available if the subject of the verb *'ech'* is understood to be something like a decrepit car or a balky mule. In such a case the clause *mu x'ech' yu'un* would mean 'he [some person] can't get it [the horse or car] to pass' (e.g. to pass by some difficult stretch of road, by driving it or whipping it, etc.). The construal of arguments implicit in this construction is clearly seen in the following example from one of Laughlin's tales.

- (19) T158
 0-*lok'* k-u'un 1-av-ajnil une
 3A-exit 1E-able ART-2E-wife CL
 'I got your wife out' (CK 395).

Here Rabbit makes a bet with a man whose wife has been stolen away to a cave by the Lord of the Earth. If Rabbit can recover the man's wife he will be able to sleep with her for one night. He manages to get her out with the aid of wasps. Notice that Rabbit brags with the abilitative construction, consistent with the fact that the wife "exits" the cave by being dragged out rather than under her own steam: she doesn't just "go out" but rather he GETS her out.

A similar analysis is evidently required for an abilitative construction with the intransitive root *sut*.

- (20) mu s-0-*sut* y-u'un
 'He can't pay it back.'

Such a sentence immediately suggests a situation in which someone cannot repay a debt: the absolutive argument corresponds to the debt itself, superficially a subject here, and also understood to be grammatical subject of the unaccusative intransitive stem *-sut*. However, the sentence can equally well be interpreted, again, as about a balky horse who refuses to return home, despite the efforts of its owner. It now receives a notionally agentive reading — 'he (the owner) can't make it (the horse) return'.²⁰

Tzotzil intransitive roots thus produce intransitive stems that are indeterminate with respect to the agentivity of their subjects, allowing both for volitional, agentive action and for notionally "unaecusative" interpretations. Distinct constructions involving such roots seem to cast the actions characteristically in distinct forms: intransitive roots as auxiliaries, or as simple motion verbs, typically associate intention and purpose with

their absolutive S arguments; in abilitative constructions they suggest that their absolutive arguments are notional patients.

7. Transitive roots

A typical transitive root such as *tam* 'lift, pick up' will display a different range of stem forms. The principle criterion is the possibility of an unaffixed transitive stem, as in the following line from a narrative.

- (21) Melz-k'op
 ch-0-ba j-tam tal li k'usuk
 ICP-3A-go(AUX) 1E-lift come(DIR) ART things
 k-u'un-tikotik
 1E-POSS-1xp
 'We went to pick up our possessions.'

An immediate correlate of the possibility of this bare transitive stem is a passive stem with the suffix *-e*.²¹

- (22) CK133
 i-0-maj-e ta chauk, 0-bat un, i-0-tam-c un
 CP-3A-hit-PASS PREP thunder 3A-go CL CP-3A-lift-PASS CL
 '(A supernatural bell) was struck by Thunderbolt. It left. It was picked up.'

In passive clauses ergative inflection is lacking, and there is always an understood agent, sometimes obliquely expressed (as in the first clause of [22], where the bell is struck by a Thunderbolt) and sometimes unexpressed (as in the *tam-e* clause where the understood agent is the wind that carries the supernatural bell away). Transitive roots also produce unaffixed intransitive stems, with an unaccusative²² meaning.

- (23) T78
 mo'oj ta x-0-tam i tok-e, tok no'ox le'e
 no ICP ASP-3A-lift ART cloud-CL cloud only that
 'No, the cloud will rise. It's just a cloud' (CK 239).

The sentence suggests that the fog (cloud) will spontaneously lift. Unaccusative sentences differ from passives in not allowing agents, even obliquely expressed.²³

Transitive stems of all sorts — not just those that derive from a bare, unaffixed transitive root, but also transitive stems derived by various processes of suffixation from these and other root types — give rise to a variety of further derived forms. Because arguably transitive roots do

not always yield a bare transitive stem directly, the presence of such further derived stems constitutes indirect evidence of an underlying transitive character for the root.

i. Transitive stems may typically be suffixed with *-be* to produce a ditransitive stem. For example, in line 8 of Fragment (2), repeated as (24), the speaker uses a stem *-tambe* that allows him to introduce into the clause a second animate argument for whom something was 'picked up'.

- (24) Setel
 a j -tam-be ixim ulo'
 went(AUX) 1E-lift -BEN corn visitor
 'I had gone to pick up corn for a Chamula.'

The ditransitive stem with *-be* allows a second argument — a beneficiary, a recipient, or sometimes just the grammatical "possessor" of a direct object — to occupy object position, where it is cross-indexed by absolutive affixes on the verb.

ii. Tzotzil reflexive constructions combine a transitive stem with a possessed form of the noun *ba* 'self, face' as syntactic object. Thus, for example,

- (25) T95
 s-tam la s-ba ti jun 'une
 3E-lift CL 3E-self ART one CL
 '[T]he other one began' (lit. 'picked himself up') (CK 355).

Laughlin (1975) lists reflexive forms as separate entries when the meaning of the reflexive is idiosyncratic, or when a corresponding nonreflexive verb stem is absent.²⁴

iii. Transitive stems occasionally occur as well with Tzotzil's highly restricted antipassive inflection, via the suffix *-on*. The following examples, which use the antipassive to characterize a generalized or unknown third person agent, are characteristic.

- (26) T60
 'o-k buch'u tam-on-uk ech'ele 'ak'-o
 exist-SUBJ who lift-ANTIP-SUBJ away(DIR) do-IMP
 bat-uk
 go-SUBJ
 'If only there were someone who would take it away, make it' (i.e. 'let it' [JBH]) 'go' (CK 333).
- (27) T86
 k'usi x- 0 -yu' x -tam -on li j -bek'et-tik-e
 what ASP-3A-can ASP-lift -ANTIP ART 1E-meat -PL-CL
 'What can take our meat?' (CK 282).

The schematic form of an antipassive clause is "[S] does X (to something)." The logical patient ("something"), whether or not it appears explicitly in the clause, must be understood as a third person nominal, and it is not cross-indexed on the verb.²⁵

Transitive stems typically give rise to a further derived intransitive stem, with an even more specialized antipassive meaning, usually "[S] does X (in general, to animates, especially to humans)." Tzotzil thus singles out for special treatment, via the derivational suffix *-van*, precisely those marked transitive situations where an animate entity (normally a prototypical agent) is patient. This marked argument structure frequently extracts a specialized meaning from the corresponding transitive stem. For example, when used with human patients the transitive stem *tam* can mean 'deliver (a child)'. (The word for 'midwife' is *jtamol*.) The derived intransitive *tamvan* means 'escort' (for example, when a procession passes by a house to pick up a ritual official or a curer). It can also mean, literally, 'pick someone up' (for example, a baby or a drunk off the ground). Because such forms often exhibit quite specialized meanings, Laughlin occasionally accords them their own dictionary entries.

To summarize, a transitive root displays as diagnostic a normal transitive stem, unsuffixed; it will regularly produce an unaccusative intransitive stem, also unsuffixed, and a passive stem with the suffix *-e*. Roots that combine directly with suffixes to produce ditransitive stems in *-be*, other passive stems in *-at* or *-bil*, or antipassive stems in *-van*, or that appear in reflexive constructions in unsuffixed form thereby demonstrate a (somewhat defective) transitive profile even if the diagnostic bare transitive stem form is absent. Since the latter derivational processes are highly productive with transitive stems derived from all sources, only those with semantic idiosyncrasies are separately listed in Laughlin (1975).

Accordingly, only the stem forms distinctly diagnostic of transitive roots show up in the morphological profiles. For a typical transitive root a profile can thus include up to four forms: the bare transitive root (t), a ditransitive stem with *-be* (u), a derived antipassive in *-van* (v), and a reflexive form earning its own entry (x). The root we have been looking at, *tam*, has all four and thus could have the profile Ttuvx (see Figure 1). The capital T introduces the set of diagnostic stem forms characteristic of T(ransitive) roots, and the following lowercase letters indicate which forms turn out to be possible with the root in question. In general, for grouping purposes, one can expect that whenever the bare transitive stem appears, all of the other forms are in principle possible. I therefore usually ignore all but the t form. Only when the latter is absent — that is, when a root is somehow defective in its transitive reflexes, showing, for example,

ONLY a reflexive or ONLY a ditransitive do the other transitive diagnostics assume significance.

The unmarked schematic action associated with a transitive root contrasts with that of an intransitive root. In (21) *tam* has a conventional transitive meaning in which the agent is an animate, volitional actor, and the patient is a (nonacting) thing. The plain transitive suggests "[A] does X to [O]." In this sense it differs in its schematic semantic frame from the frame "[A] causes {[O] to do X}" possible for causative stems in *-es* formed from intransitive roots. The schematic frame implied by a ditransitive stem is "[A] does X (to something) for [O]." The logical or underlying patient (the "something"), if mentioned explicitly at all, must be a third person nominal expression in such a construction. It cannot be cross-indexed on the verb. Unaccusative stems involve a schematic frame in which "X happens to [S]," with the absolutive argument, corresponding to an underlying patient, again treated as thinglike. The action in reflexive clauses is self-directed, operating on self as "thing": "[A] does X to self." In passive clauses, the logical patient of a transitive action is grammatical subject, cross-indexed as an absolutive argument on a stem with explicit passive inflection: "[S] has X done to it (by someone)." Finally, the schematic form of an antipassive construction is "[S = third person] does X (to something)." The logical patient ("something"), whether or not it appears explicitly in the clause, must be understood as a third person nominal, and it is not cross-indexed on the verb.

8. Positional roots

What about a typical positional root? Consider the root *va'* 'standing (on two legs)', which appears in two different stem forms in Figure 1. Positional roots characteristically yield an adjective stem, derived by suffixing *-V₁l*. This is the form seen in Fragment (1), line 53, repeated here.

- (28) ali' xa va'al-0 ch (y)-apta noxtok-e
 here already standing-3A ICP-3E-shout.at also -CL
 'Here he's standing up, and he's calling out.'

An adjective like *va'al* can only be used predicatively, with absolutive suffixes cross indexing its subject argument. It predicates of the subject whatever state, shape, or position the root denotes. There are formal reasons to suppose that this derived adjective form in *-V₁l* is the unmarked or basic form in which a positional root surfaces.²⁶

A further stative adjective stem is formed from positional roots simply

by reduplicating rather than suffixing the root. The reduplicated adjective denotes a position or shape similar to that expressed by the *-Vl* stem, but unlike the latter the reduplicated adjective seems to suggest that the property described is an inherent or natural state, not brought about by outside agency, or not obviously transitory. For example, in describing the volcanos on the outskirts of Mexico City, a Zinacantec traveller contrasts Ixta with Popo by saying, of the latter,

- (29) SS:8
 ali j-p'ej-e mas va'va'
 ART 1-NC(round)-CL more upright
 'The other one is steeper.'

The derived intransitive stem in *-i* is inchoative, denoting entry into or arrival at some state or position. Thus, in Fragment (2) we see *va'i* 'stand up':

- (30) ch -0 -va'i batel un
 ICP-3A-stand.up DIR(sometimes) PT
 '(My horse would) stand up from time to time.'²⁷

Such a stem form allows a positional root to combine with explicit verbal aspect, since the *-Vl* form is stative and bears only absolutive inflection with no aspect.²⁸

Positional roots further yield a causative stem with the suffix *-an* to denote an action in which an agent brings a patient into the state or position indicated by the root. An example with particularly striking imagery is the following:

- (31) T9131BEN
 ta xa j-va'an-be-tik xa muyel 'un
 ICP already 1E-stand.up-BEN-1PL already ascend(DIR) CL
 'Then we turn towards the east' (lit. 'then we stand it up, rising').

The narrator is describing a route. He has come to a point on the narrated road where one stops travelling north and turns east (or, for Zinacantees, "up"). The northward trajectory has been described as 'sideways' or 'horizontal', and thus the turn to the east represents 'standing (the road) up' again.

As a transitive stem, this verb *-va'an* can occur as a ditransitive *-va'anbe* (as in [31]), a reflexive (i.e. *sva'an sba* 'he stood himself up' or, perhaps, 'he took responsibility'), and even as a derived antipassive with the further suffix *-van*, as in the following example, where the stem *-va'anvan* means 'stand people up (i.e. nominate people)'.

- (32) CH108²⁹
 K'alal laj xa va'anvan-ik-uke s-kotol ti
 when finish(AUX) CL stand.up-PL-SUBJ 3E-all ART
 abat-etike ...
 worker-PL
 'Después de haber recibido el nombramiento, los "abatetik"' ...
 ['When all the officials have finished nominating' (lit. 'standing [people] up) ...']

The predicative adjective (a), inchoative (i), and transitive (n) forms are all represented as positional (P) diagnostics in the profile of the root *va'*, which is shown on Figure 1: Pain Vz. The last part of the formula (Vz) indicates that there are nondiagnostic verbal forms with the catalytic suffix *-z*. The intransitive stem *va'tzaj-* means 'stand unsteadily' or 'manage to stand'. Example (33) exemplifies this stem, together with a reflexive use of the transitive root *tam*, which we met earlier, and another positional root, *kej* 'kneeling'.

- (33) T131
 s-tam la s-ba, te la x-0-balet y-a'uk la
 3E-lift CL 3E-self there CL ASP-3A-rolling 3E-thought CL
 kejl-uk, mu la x-0-va'tzaj
 kneeling-SUBJ NEG CL ASP-3A-stand.unsteadily
 'He picked himself up. He was rolling around, trying to get up on his knees. He couldn't stand up' (CK 298).

From the root *va'* is also derived the numeral classifier *vo'* used in Zinacantán to count human beings, perhaps the prototypical bipeds.

The formal possibilities show a division of notional labor between the three major Tzotzil root classes. On the basis of the schematic frames in which they occur most naturally, that is, in least morphologically marked form, positional roots characteristically surface as one-place predicates that denote resultlike states, or that characterize their absolutive arguments as prototypical patients that have arrived at (or been put in) such states. At the other end of the scale, intransitive roots denote one-place predicates where the single argument may range from prototypically agentive to patientlike. Indeed, only those verbal roots that are formally intransitive by the criteria described produce bare unaffixed verb stems whose absolutive arguments (subjects) can be volitional agentlike entities (although syntactic evidence can be adduced to suggest that intransitive stems derived from intransitive roots can have either "unergative" or "unaccusative" character). Transitive roots most naturally produce verbs whose absolutive arguments can also range over this notional agentivity

scale, with the canonical simple transitive stem denoting a change or action effected on a thinglike patient by an active agent. I have diagrammed the prototypical positions of these three root types³⁰ and their derived stems on the agentivity scale in Figure 2. I consider what sorts of verbal stem each putative root type produces with the least morphological marking. I also show, for each root type, a "secondary" or slightly less unmarked stem type. The stem types are in turn arranged on a rough scale according to the "agentivity" of the corresponding absolutely cross-indexed thematic argument, from relatively patientlike to relatively

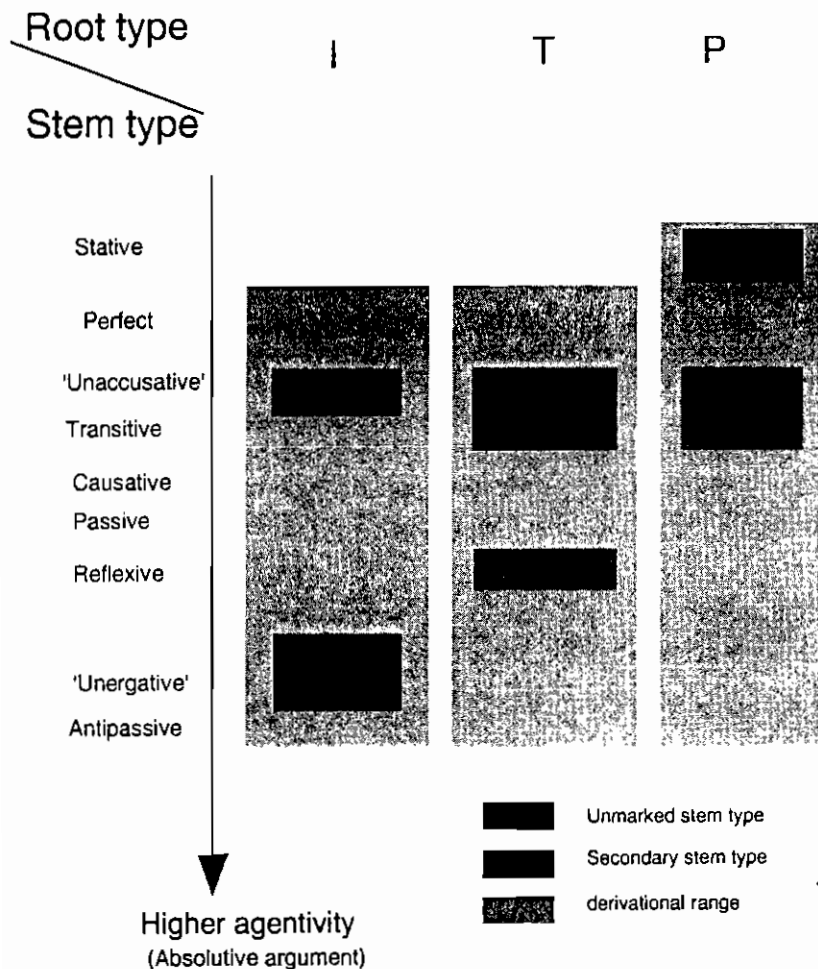


Figure 2. Root types and agentivity

agentlike. The resulting arrangement suggests that root classes not only represent a formal partitioning of possible stem types but also provide (more probably, derive from) a semantic template for situations, events, and the kinds of participants (arguments) involved in them.

Although each root class has its own characteristic territory in the voice/agentivity cline implicitly represented here, there are areas of potential overlap. The roots can poach on one another's hunting grounds, in ways that turn out to have principled consequences.

9. Mixed root types

Another look at Figure 1 will show that many of the verb types do not fall neatly into one of the three root types just described. One example was mentioned above: the root *lik1* combines derivational characteristics of all three root classes, I, T, and P. Here are extracts from several of Laughlin's (1975) entries for this root, arranged to show diagnostic forms for the three root classes.³¹

(34) Forms typical of I roots:

lik = iv = get up, arise, become erect

likes = tv = begin, lift

Forms typical of T roots

lik = tv = begin,³² lift or carry object with handle or by edge /table, chair, empty demijohn, basket/ /in hand, on arm/, take off /fire/

likvan muyel = vphr(iv & dr) = lift person (ferris wheel, log that springs up at one end)

Forms typical of P roots:

likil = aj = overhanging (cliff, tree), hanging by a thread (branch), hanging ominously (cloud), puffy (face)

liki = iv = bc hanging by the arms (person, monkey, *yalem bek'et*)

likan ba = rv = hang by the arms (person, monkey, *yalem bek'et*, *tz'uj ton* /stone that is believed to hang from trees during severe norther/), hang heavily (rain cloud)

It seems at least possible to connect the different meanings bundled together in these entries. The kind of "arising" (and perhaps the metaphorical "beginning") captured in the I-type stems seems to suggest arriving at a vertical or erect position. This vertical position, in turn, is captured in the T-type stems, which typically denote lifting or carrying an object that hangs down from one's hand, as, for example, a bag with

a strap. The resulting hanging collocation of a certain sort of figure with a suspending ground is, in turn, recorded in the P-type stems.

The fact that we can concoct a plausible story about the family of meanings of such a root, however, tells us little about the regular processes of formal lexical packaging of the semantic raw material of roots. It is as though the root *lik1* had several interrelated notions bundled up inside it, in what I have been calling a semantic portmanteau (involving arising [= beginning] in a certain way, linked with picking something up in that same way, and linked again with how something so picked up arranges itself). Each notion then selects its most appropriate stem costume. The schematic nature of the root is fleshed out in combination with presumptions about voice, agentivity, and affectedness in the semantic template of the stem form.

The other "mixed" type roots in Figure 1 are somewhat more systematic than *lik1*. As my rough groupings indicate, it seems sensible to start with the assumption that mixed roots are either T or P in character, with principled excursions into the stem patterns of the other class.³³

Thus, the roots in sections 3.2 and 4.2 of Figure 1 largely behave like positionals even though they allow some T-like stems. For example, *puch'* displays the forms of a normal P root meaning 'lying down', except that it allows a stem that acts like a simple transitive in idiomatic expressions like (35):

- (35) (constructed)
 i-0-s-puch' ta majel li tz'i'lele
 CP-3A-3E-lay.out PREP hitting ART weed
 'He hacked at the weeds' (i.e. chopped some of them down, but sloppily, perhaps with a blunt machete; cf. 'he laid them out').

Similarly, the root *t'ub* has a full set of positional forms meaning 'underwater'. It also produces a simple transitive verb stem that has the predictable meaning of 'submerge, i.e. put underwater', which appears in the following textual example.

- (36) T116
 ep i-0-s-mil 0-s-t'ub ta vo'
 many CP-3A-3E-kill 3A-3E-submerge PREP water
 'They killed many of [them]. They threw them in the water' (CK 107).

Notionally, the state, arrangement, or position denoted by the root extends to a verb denoting an action that PRODUCES or RESULTS IN that state, thus exploiting some of the overlap displayed on Figure 2.

Conversely, the roots of section 4.1 of Figure 1 seem primarily transi-

tive, although they also display what seems a derivative set of P-like forms. For example, the root *ten* 'throw (down)' produces a reflexive form that appears in Fragment (2), line 62, repeated here:

- (37) s -ten s -ba ti j -ka' -e
 3E-throw 3E-self ART(remote) 1E-horse-CL
 'My horse would throw itself (down).'

The transitive verb also means 'tamp, beat', and, as a reflexive (according to Laughlin's glosses) 'become matted (wool) or accumulated (work), throw self/on the ground/, give up'. The root also produces a range of P-type stem forms that center on the meaning 'matted (wool), accumulated (work)' (Laughlin's gloss) or perhaps, simply, 'short and thick (i.e. as if tamped down or beaten)'. The latter usage, most familiar to my acquaintances in the hamlet of Nabenchauk, is illustrated by the adjective *tenel* as applied to, for example, short or stubby weeds growing thickly on the ground, close-cropped wool, or the thickened skin resulting from some eruption or disease like measles. Here again there seems to be leakage from a transitive paradigm, in which action by one entity affects another — in the case of *ten* by causing it to impact a surface downward with force — to a stative paradigm where the effect is represented as a property of some thing (e.g. matted wool).

10. The formal status of root types

The verbal roots from just two short fragments of Zinacantec narrative display a wide range of formal patterns. A simple tripartite root classification begins to capture the derivational possibilities but such a classification fails to account for roots that display overlapping or defective patterns. If we want to maintain that a given root draws its derivational possibilities from membership in some overarching root CLASS we must thus extend the set of such classes to encompass these more complex patterns. The system of morphological profiles provides a more delicate diagnostic of formal type. Via such profiles even roots yielding only defective derivational paradigms can be assimilated to their more prolific cousin roots; conversely, roots whose derivational possibilities extend across several putative types can be seen to form systematic groups. In this sense, the derivational profiles DEFINE the root "classes," which thus appear as merely an epiphenomenal product of clusterings or similarities in the patterning of those derivational possibilities that analysis suggests to be significant.

As the description of "mixed" roots in the previous section may sug-

gest, however, ideal root types may still play a formal role in Tzotzil verbal morphology in two important respects. First, the “pure” patterns characteristic of intransitive, transitive, and positional roots seem to put pressure on roots toward completeness of formal patterns. Thus roots with apparently defective paradigms may, with a sufficiently pressing context, yield forms that speakers would be reluctant to accept in the abstract. Intensive and insistent eliciting often produces verb stems that fill gaps in the derivational profiles based, say, on Laughlin’s (1975) otherwise exhaustive dictionary. For example, *pitl* is an apparent positional root that denotes a smallish, round, bare object (e.g. a rock, an egg, a bald head, or even an eyeball) partially exposed to view. According to the forms listed in Laughlin (1975) this root would have the profile Pai V — defective in that it lacks the causative stem in *-an*. It is easy to induce Tzotzil speakers to produce such a form, however, if given an appropriate context; for example,

- (38) XR931022
 pitan-o ta lum li ton kaxlan-e
 set.down-IMP PREP ground ART rock chicken-CL
 ‘Set the egg down on the ground.’

Here the verb stem *-pitan* suggests precisely the action of setting down a smallish round thing in an exposed position — an action perhaps performed infrequently but certainly imaginable. Thus the profile must be revised to show the full range of predicted “positional” forms, Pai V. Such otherwise inexplicable gaps can often be filled in like manner.

A second and more important reason to accord some theoretical status to ideal root types is that the schematic action template associated with each of the three types described seems to exert pressure on the semantic “portmanteau” of a single root to separate into distinct though perhaps related conceptual strands. I can illustrate the pressures to both formal completeness and semantic distinctness with the “mixed” roots *vik’* ‘open (eyes)’ and *mutz’* ‘close (eyes)’. They form a pair of semantic opposites³⁴ with apparently transitive character. Yet, according to the forms listed in Laughlin (1975), they have different derivational profiles. *Mutz’* appears as a fairly standard transitive root, which further allows an adjective in *-Vl*; it thus would have the profile Tt Pa.³⁵ *Vik’* by contrast shows additional forms: the causative transitive stem in *-es* characteristic of intransitive roots, two stem forms typical of positionals, and some additional nondiagnostic stems as well; its profile is thus Tt Is Pan V.³⁶ This, at least, is the situation described by the stem forms Laughlin’s informants produced.

A little probing with friends from Nabenchauk, however, produces a

more complex but ultimately more systematic picture. Consider *vik’*. The first puzzle in its profile is the isolated apparent intransitive-type stem, the causative in *-es*. One can say, with a standard bare transitive stem,

- (39) xr931014
 vik’-o l-a-sat-e
 open-IMP ART-2E-eye-CL
 ‘Open your eyes!’

By contrast, using the explicit causative stem in

- (40) xr931014
 vik’cs-o l-a-sat-e
 open-IMP ART-2E-eye-CL
 ‘Open your eyes!’

suggests that you are overcome by sleep, and that your eyes are, as it were, closing by themselves. The causative in *-es* portrays your keeping them open as something you must do to overcome your eyes’ own tendency to shut. Similarly, we may contrast stative or perfect forms of these two stems. The perfect “participial” form from the bare transitive stem *vik’bil*, suggests that one’s eyes are being held open (perhaps with one’s fingers). The perfect of the bare intransitive “unaccusative” stem *vik’em* suggests, in contrast, that the eyes are still open of their own accord, perhaps because sleepiness has not yet set in.

The second puzzle about *vik’* is the inchoative stem in *-i* missing from the inventory of positional-type stems. However, it turns out to be perfectly possible to use such a form, as in

- (41) xr931014
 ch-0-vik’i xa li s-sat-e
 ICP-3A-open already ART 3E-eye-CL
 ‘His eyes are opening.’

Such a sentence suggests that someone’s eyes, until now closed, are just opening; it would be appropriate to say, for example, of recently born puppies just, as we say, “opening their eyes.”

Putting these observations together suggests that the anatomical configuration captured by *vik’* — open eyes — can lend itself to three characteristically different Tzotzil packages, coded by morphology. The transitive package is appropriate to an external agent’s efforts to open someone’s eyes. The intransitive package suggests some sort of self-motivation in their opening on the part of the eyes. The positional package simply captures the fact of open eyes, neutral as to agentivity.

What has happened to the opposite, *mutz’* ‘close (eyes)’? Again, probing

the stem possibilities appears to erase all differences between these two roots, with *mutz'* exhibiting the full range of verbal stems we found for *vik'*. A crucial and revealing contrast may be found again between the bare transitive stem and the causative stem in *-es*.

(42) xr931014
 laj j-mutz'-be li s-sat-e
 finish(AUX) 1E-close-BEN ART 3E-eye-CL
 'I have closed his eyes.'

(43) xr931014
 laj j-mutz'-es-be li s-sat-e
 finish(AUX) 1E-close-BEN ART 3E-eye-CL
 'I have closed his eyes.'

Example (42) suggests that I have perhaps held his eyes shut. Example (43) suggests that perhaps I have clapped my hands in front of him to startle him into shutting his eyes "involuntarily" (i.e. they just "shut themselves"). A more perspicacious derivational profile for both roots would thus have to be Tt Is Pain V.

A final example of the apparent formal pressure toward semantic "fissioning" is provided by a root like *vok'* 'break, smash', which we met earlier. The English gloss suggests that such a root represents a canonical "affect verb" denoting a situation in which one agent acts on and affects a patient. Exceptionally, *vok'* permits a causative in *-es*, although informants are reluctant to accept such a form at first. However, one sense of the verb *vok'* in its bare intransitive verb stem guise is not just 'break_{INTR}' but 'hatch_{INTR}'. It is this "self-agentive" sense that is, as it were, picked out of the overall root portmanteau by the causative in *-es* otherwise characteristic of intransitive roots.

(44) xr931014
 i-j-vok'es cp vivic ta lus
 CP-1E-hatch many chick PREP electricity
 'I hatched (i.e. caused to break) many chicks with an electric light.'

11. Root types and semantic conflation

Grouping roots by similarities in derivational profiles provides a preliminary tool for matching formal realizations against underlying semantic content, a project too large to undertake here. Let me indicate by way of conclusion some directions such a fuller project might take.³⁷

First, I should note that the idea of semantic motivation for formal classes has long been applied implicitly to Mayan root categories. For

example, Mayanists have commented on two opposing aspects of the semantics of positional roots, delimited in languages throughout the family by formal criteria similar to those described for Tzotzil. It is often observed that there is some sort of semantic coherence to the class, although the exact range of semantic domains encountered is usually bewildering. Beginning with Norman's classic paper (Norman 1973), which notes the "conflation" in Mayan languages of "physical qualities or states" and "relative spatial orientation," linguists have simply listed a range of semantic domains encountered in positional roots. Thus, Martin (1977) writes of Kanjobal "[a]lthough a few roots do describe the position of bodies in space, most members of the class refer to physical shape, texture, size, quantity or distribution of objects and a few others to describe measures and orientation" (1977: 332). In addition to categories of shape, position, orientation, and aggregation or configuration, Smith-Stark (1981) adds the following notional categories for Pokomam positional roots: conflagration, aperture, containment, suspension, and completion; Knowles (1984) adds a further category she calls "transference" for Chontal. All of these scholars also remark on a few semantic oddities in the formally defined class: unclassified roots like 'shiny' and 'staring' in Kanjobal; 'quiet' or 'accustomed' in Mam (England et al. 1978); 'wet, damp', 'crying', 'visible, clear' in Chontal; or 'live, awake', 'nonflying', 'speechless', 'have time', and 'clear area' in Pokomam.

In recent work on spatial expressions in languages of the Mayan family, positionals pose central but vexing problems. Many apparently topological relations posited as primary in spatial cognition are most naturally expressed in these languages by means of forms derived from positional roots. Their complex semantics are thus imported into even the most apparently basic locational expressions. "Spatial" information is distributed across a wide range of root types, and it is nearly always "conflated" (Talmy 1985) with other sorts of semantic domains.

Moreover, Norman pointed out that in Mayan languages the patterns of conflation in positional roots typically extend to full transitive roots as well — not surprising, since the formal criteria for distinguishing transitives from positionals are usually no less ambiguous in other Mayan languages than in the case of Tzotzil. Many semantic categories expressed in positional roots, having to do with location, orientation, shape, and aggregation, are bound up in the meanings of transitive and intransitive verbal roots as well.

In this spirit one could try to assign ALL Tzotzil verb roots to rough semantic categories. Such a procedure relies on the implicit (and dubious) claim that appropriate semantic categories can be invented independent

of the formal groupings the language itself exhibits. However, as an heuristic device to help uncover relevant contrasts, interconnections, and patterns of conflation, such a notional subdivision of Tzotzil roots is an enlightening exercise.

Intransitive root semantics

The entire inventory of Tzotzil roots that, by formal criteria outlined above, form a putative intransitive root class is surprisingly small. Laughlin assigned a total of 47 roots to his intransitive category, and another three dozen or so to combined classes with a partially intransitive character. By our criteria there are fewer than 20 I roots that allow only an intransitive stem, and between 40 and 50 roots that allow both the bare intransitive stem and a corresponding causative stem in *-es*.

Intransitive roots fall into several specific semantic groups. In organizing the roots I have had recourse to several notional categories that suggest the range of actions and events lexicalized in Tzotzil as intransitive roots.

"Biological events" include actions characteristic of biological organisms (especially humans): sweat, awaken, grow, die (or be sick), weep (or cry out), fatten, tire, and so on.

"Physical events and states" may be further subdivided into "burning" (e.g. catch fire), "change of consistency or form" (e.g. split, crumble, fray, explode), "surface form or arrangement" (e.g. fall out in great quantities [hair]), "opening, closing, loosening, filling" (e.g. slip [knot], get loose, escape, fill, slide), and events having to do with "wetness" (dry out, ooze, drip, evaporate, melt, sprinkle).

A similar elaboration appears in the class of roots denoting the beginnings or endings of events: conception, passing (of time), postponement, and cessation. Thus, for example, one says *tzutz* 'finish' only of work — a piece of weaving or a term in religious office, for example. The root *paj2*, by contrast, denotes the cessation of something one finds disagreeable: pain, rain, even gossip. Such selectional specificity is characteristic of the entire Tzotzil verbal lexicon.

Intransitive roots are also the natural home of events of motion, emphasizing "manner" of motion (e.g. jump, fly, move around [making noise]), "falling" (e.g. fall down, fall from a height, slip down [pants, skirt]), and general "trajectory" (e.g. go, come, return, go and return, arrive here, arrive there, ascend, descend, pass by). The roots grammaticalized as auxiliaries and directionals (Haviland 1990a) generally belong to the intransitive class.³⁸ The auxiliary and directional roots denote

motion combined with paths or trajectories. Directionals and auxiliaries, indeed, are somewhat remarkable in the context of the larger root class because of their semantic generality. There may often be specific nuances of meaning to these roots as verbs (for example, *yul* means 'descend' not only of moving objects, but also of prices and frost on a cold morning). However, as directionals and auxiliaries the roots encode schematic trajectories, so that a root like *yul* corresponds in many cases to an English expression containing the word *down*.

The notable fact about the semantic content of these intransitive roots is how Tzotzil apparently conceptualizes potentially self-motivated or spontaneous actions or events. That is, although marked derivational guises allow intransitive roots to assume other characters, the least marked form of the root casts a process or event as something brought on by the agency of the entity encoded as grammatical subject. Thus, certain biological or psychological actions (including making certain sounds) are portrayed formally as characteristically self-motivated, as are such physical changes as drying out, burning, rotting, swelling, getting fat, splitting, or coming loose.

Mixed transitive/intransitive roots:

About 15 roots share derivational characteristics of both the intransitive and transitive classes. These roots fall into many of the same notional groups as plain intransitive roots: psychological events (fear); physical events including burning (extinguish), opening (be crumbly, split open), surface form (peel, chip); beginnings and endings (die, end); and motion such as falling (fall down, fall over). Also included are roots meaning 'dwindle', 'come to an end', 'think (or become accustomed)', and 'throw away (or be lost)'. Tzotzil provides these mixed T/I roots with two morphological possibilities: to treat the action or state denoted as the product of outside agency, using characteristically transitive-type stems; or to treat it as the result of the spontaneous agency of the subject, using intransitive-type stems.

For example, the verb *mal* 'spill' can be used intransitively. In the following line from a Laughlin tale, a Spook calls to a woman who has left a pot on the fire.

- (45) T67
 i-0-*mal* xa l-a-jux-e
 CP-3A-spill CL ART-2E-boiled.corn-CL
 'Your corn boiled over' (CK 347).

Here the emphasis is clearly on the cooking corn boiling over and thus spilling, as it were, by itself. Later in the story, a group of angry women kill the Spook by pouring hot broth over him. Now the same root is used transitively, to denote deliberate action by an outside agent.

- (46) T67
 kalto *s-mal* ma`lta-ik
 broth 3E-spill pour-PL
 'They spilt broth, sprinkled it [on him]' (CK 347).

Plain transitive roots

Roots with straight transitive profiles number around 160. Most of these roots exhibit the full range of transitive diagnostics; a defective transitive morphological profile usually signals that a root belongs to a different category but has picked up a few transitive forms along the way.

One way of organizing transitive roots into notional groups starts with activities in which a human (or other animate) subject interacts with some object (or event). I have somewhat arbitrarily subdivided these activities as follows. One group comprises "biological" actions, characteristic of human and other animal bodies: cry, drink, stutter, swallow, kiss/suck/smoke, suck out, fast (or otherwise endure something), sweat, grow, yawn, bite, sob/inhale, tire, get fat, gag, fuck, revive, crunch up (=eat), lick, eat (mushy things), feel drowsy, chew, proliferate, eat (meat), sleep, eat (tortillas, bread), etc. Other subcategories include "mental" activities (e.g. count, believe, teach, want, wait, know, remember, search for, endure), events of perception (e.g. hear, see, look, measure, pick out or choose), speech (e.g. ask, say, answer, tell, summon), giving or exchange (e.g. give, accept, lose, sell, receive, take, exchange, refuse [a gift], pay, etc.), and a residual "human activities" category (including plant [crops], sow, weave, set up weaving, harvest, use, etc.).

The second large proliferation of transitive roots involves what Dixon (1991) has called "verbs of affect" — verbs that denote an action that directly affects or changes the entity encoded as grammatical object. Perhaps the most general such verb is *pas*, which means 'do, make, ferment'. Once again, following apparent notional preoccupations in the Tzotzil lexicon, I have distinguished several subgroups. There are transitive verbs of burning and cooking (e.g. burn, boil, fry, toast, roast, cure [in fire], steam, kindle, as well as extinguish). There are verbs of hitting (e.g. strike, bash, butt, punch, etc.) and of holding (e.g. grab, carry in arms, carry in hands, carry on back, lift, hold, press, pinch, touch, knead,

etc.). There are verbs of "dividing" or separation (e.g. grind, hew, split, rip, untie, strip off, crack, break by twisting, break by pulling, hack, cut off, snip off, shred, sever, etc.), and verbs of opening and closing (e.g. open, cover, wrap, hide, husk, etc.). I have further distinguished verbs of inserting and extracting (e.g. verbs meaning stick in, push in, slip in, inject, insert [fingers], stab, poke, as well as draw [water], pull out, prick out, dig out, uproot, and so on). There are also verbs of transitive motion (bounce [a baby], turn, whirl, chase, shoo, and so forth), verbs of washing (wash, rinse [exterior], rinse [interior], wipe, anoint, etc.), verbs of tying and wrapping, verbs that denote actions whose effects are on the surface of an object (e.g. smooth, scratch, scrape, sweep), and again a residual class (including words like 'pour'). The extent to which these notional groupings can be further motivated by formal facts of Tzotzil morphosyntax is the subject of ongoing investigation.³⁹

There are additionally a few roots whose morphological profiles require their assignment to the transitive category but whose meanings — involving shapes (e.g. 'tight-necked') and sounds (e.g. drumming, scratching, rumbling, gurgling, slurping, or jingling sounds) — suggest instead a positional or expressive character, of the sort described in following sections.

Positional roots

The roots that display a standard positional profile account for over 30% of the entire corpus of Tzotzil verb roots.⁴⁰ The language has clearly devoted considerable lexical inventiveness to this form class. The vast majority of positional roots fall into one of two formal subclasses: either they yield ONLY a stative adjectival stem in *-VI* (about 131 roots — profile Pa), or they produce the FULL range of stative and verbal stems (about 76 roots — profile Pain). There are smaller subsets of roots that allow, in addition to the adjectival form, only a causative (profile Pan — about 27 roots) or only an inchoative stem (profile Pai — about 40 roots).

Positional roots also range over several interrelated notional domains. Again somewhat arbitrarily, I have assigned roots to provisional (and not necessarily mutually exclusive) categories. The following notes clarify some plausible subcategories, in descending order of numerical importance.

1. "Shape" roots are logically one-place predicates that denote sometimes complex outlines in one, two, or three dimensions. Frequently these roots select for specific sorts of nominal argument: body parts, articles of clothing. Some specialized shapes when applied to appropriate body

parts also denote “expressions” — often facial expressions — and their associated emotional states. Stative only (Pa) roots in this category convey such notions as curled up, huddled, pointed, bobbed, branchless, lopsided, sagging, baggy, bulging downward, pursed or protruding (lips), standing on end (hair), abundant (hair), fat and immobile, fat (face), chubby (belly), plump (leg), glaring or staring, sunken-eyed, squint-eyed, heavy-lidded, snub-nosed, toothless, thin or drawn (face), bulbous, warped, blistered, and so on. Roots displaying the full complement of forms (Pain) encode such notions as protruding (belly), stubby, open-wide (mouth), long and flexible, swollen, squat, dangling, stretched out, hatless or lumpy, erupted, pyramidal, stiff, straight, twisted, flat and turned down (hat brim), squashed, etc.

2. “True positionals” (those formally positional roots that notionally denote what we might in English consider “position”) are distinguished by their Gestalt nature. These predicates presuppose a figure with a complex anatomy; they place certain parts of that anatomy in a specific relationship to a ground (Haviland 1992b). Examples denote such “positions” as cross-legged, fallen over, bowed, with lowered head, scated, face up, kneeling, leaning, on all fours, with bent back, crouched, lying flat, stuck on precariously, with mouth face downward, floating on the surface, on side, upside down, huddled, standing upright, squatting, etc.

3. Roots categorized under “collocation” involve the juxtaposition of multiple figures and include notions like hanging, tangling, and intertwining. Thus, stative-only roots include notions like ‘toasting by the fire’, or ‘on the brink or edge’. Positional roots displaying the full range of stem forms in this category include hanging from a point, stuck between two supports, almost falling from a support, hanging in abundance, clinging, stuck, perched high, etc.

4. Roots that denote “groups” (of otherwise undistinguishable individuals) and the special case of “piles” where things are arranged one on top of another are a further elaborated domain in positional roots (e.g. piled [discrete objects], in disordered pile, in blob, etc.).

5. There is a similar hypertrophy of roots describing the “surface” characteristics of objects, and also their “substance” — consistency, material, and so forth. (Recall that a significant number of formally transitive roots denote actions that produce effects on the surface of objects.) Stative-only roots in this group encode such notions as dirty or sticky, bluish, sparsely covered, slimy, sprouting (e.g. plants or hair on surface), bald, hairy, glistening, spotted, uneven, moist, shiny).

6. Finally, a small number of formally positional roots share with defective “expressive” roots (see the following section) a notional domain

that includes the perceivable properties of things: dimension, visual peculiarity, or marked perceptible movement.

There are also less numerous examples of formally positional roots having to do with size (e.g. small [face], short [tail], tight [clothes], overly long [skirt]), and substance (wet, hot and dry, mushy, watery).

The formal subclasses of positional roots distribute themselves differently over these notional domains, as might be expected from the nature of the three diagnostic stem forms: stative, inchoative, and causative. Those roots that produce only a stative adjective stem predominantly denote shapes and such apparently inherent properties of objects as their size, substance, and superficial or otherwise visual appearance. On the other hand, those roots with inchoative and causative stem forms are the primary vehicle for expressing what I have called “true positionals,” which describe the disposition of a complex figure or anatomy whose parts are arranged in some particular way. Roots of the former type express static features of objects; roots of the latter type denote changeable positions, which may be inherent, adopted, or the result of outside agency. Figures 3 and 4 show how the four formal subclasses of

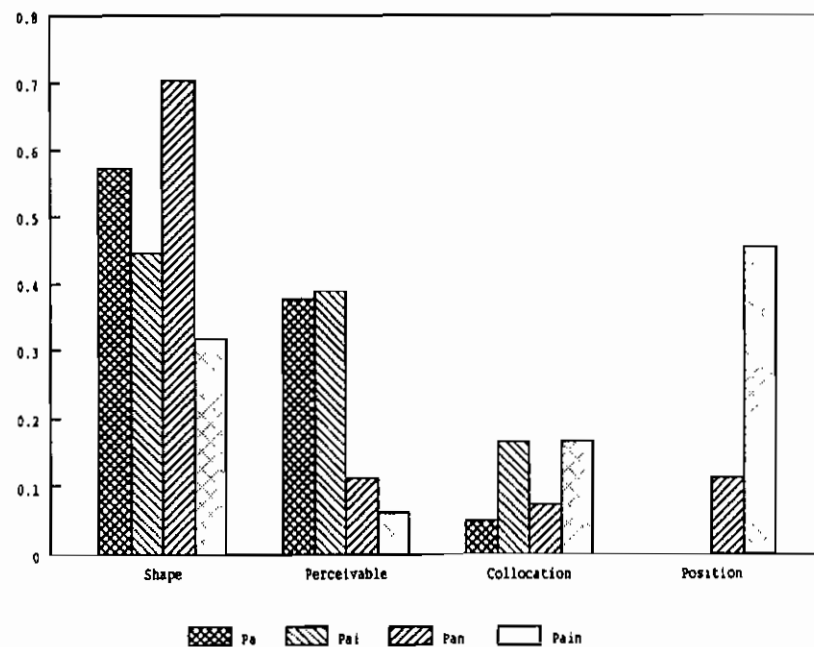


Figure 3. Percentages of positional root subclasses by semantic category

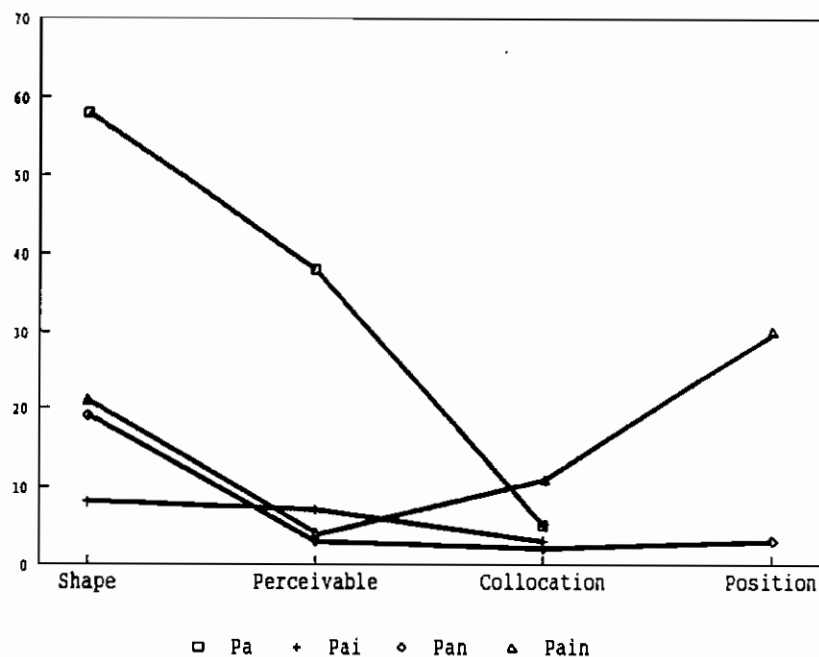


Figure 4. Rough absolute numbers of positional root subclasses by semantic category.

positional roots compare with respect to a subset of the notional domains expressed.

Defective verb roots: "expressives" or "perceivables"

Around 200 roots produce only limited verbal stems, all of them "affective." (The category of affective verb, a traditional term among Mayanists, is not to be confused with Dixon's notion of "verb of affect.") According to Laughlin (1975: 26) affective verbs "are used characteristically in narrative description with a certain gusto, a desire to convey a vivid impression. They have dash." Most verbal roots can produce stems of this sort, but the defective roots in question here produce ONLY affective stems and none of the other stems characteristic of I, T, or P roots. About 140 of the roots that display this restricted derivational profile were assigned by Laughlin (1975) to the category of "onomatopoeic" roots, although no formal criteria for such a class were given, and Laughlin evidently relied on the fact that the resulting stems seemed to

denote kinds of "sound." Most of the remaining roots in this formal group are listed by Laughlin as of "undeterminable" type.

Here is a good example of the treacherousness of notional semantic categories not guided by language-internal formal groupings, for there does seem to be semantic coherence to the entire group of defective roots. All are, in some sense, iconically expressive — as one would expect of onomatopoeic lexemes — but the perceptual modality implied is not limited to hearing. Roots in this formal class express not only sounds of various sorts (whizzing, whirring, thudding, squeaking, coughing, and so forth), but also visual properties of things (flashing, sparkling, glowing, blazing, etc.), as well as marked and especially sudden movements (streaming, swarming, bouncing, wafting, bubbling, brimming over, staggering, and so on), and sensations (stinging, aching, etc.). (Again note the kinship with semantic domains lexically elaborated through both transitive and positional roots.) It seems appropriate to characterize these formally defective roots as "expressive," capturing both the rhetorical properties of the stems they yield and the content conveyed. An alternate label for the class might be "perceivables," since all seem to deal with sensory modalities.

Notably, there is a small group of formally similar roots that allow a single nonaffective verb form, namely a ditransitive verb stem. (Using the notation introduced above, such roots would appear with the profile Tu, to show that they produce a single transitive diagnostic form, namely the ditransitive stem suffixed with *-be*.) This ditransitive stem characteristically means 'do (often hit) (somebody or something = the coindexed absolutive argument) producing a certain sound or with a certain movement'. The following examples illustrate two such roots not listed in Laughlin (1975); both express rapid movements (and in the first case possibly the accompanying sound).

- (47) PV
 ta j-*ch'ib*-be seryo
 ICP 1E-strikc-BEN match
 'I'll strike a match.'
- (48) XR
pus-b-o kuchilu
 stab-BEN-IMP knife
 'Jab him (a pig) with the knife!'

A further example, from one of Laughlin's tales, illustrates the use of a defective root in the guise of a ditransitive stem to describe a quick blow with a machete. In affective verb stems, the same root *tz'it* describes both the sound and appearance made by a thunderbolt.

- (49) T38
 j-likel la s-tz'it-be machita 'un
 1-moment CL 3E-crack-BEN machete CL
 'Quickly he slashed at it with his machete' (CK 238).

Mixed type roots

There remain more than 300 verbal roots of mixed type, sharing formal characteristics between positional and transitive roots (about 230 roots), between positional and intransitive roots (about 30 roots), or between all three categories (another 35 roots). There seem to be two complementary directions of semantic shift involved in the interplay within stem forms of a single root, between positional and transitive or intransitive. On the one hand, a T or I root that denotes an action apparently can denote as well the RESULTING STATE, assuming positional stem forms. On the other, a root encoding a typical positional property (for example, a shape) appears to expand to incorporate an action that characteristically endows an object with that property (for example, ALTERING it so that it assumes the relevant shape). One imagines that the language adapts itself here to facts about the world — the character of objects, the nature of potential action on objects — by clothing complex meanings in formally appropriate guises.

I must leave to another place detailed examination of the semantic groups involved. However, a brief survey of notional categories discernable in roots of mixed type shows that each group is similar to the "parent" type roots. Thus, a subset of the notional categories found with I roots (notably excluding "motion") can also be applied to those mixed P/I roots that display in addition the adjectival form diagnostic of positional roots. This suggests that an I root denoting an intransitive action or event has been extended to convey a P-like state or property resulting from such an event. Thus, for example, in this mixed category there are roots denoting biological or psychological states (become angry, sleep), as well as physical changes of state (burn, glow [embers], rot, become soggy or soft, swell, fill up, bloat, puff up [tortilla], split open, crack [something brittle], blister, dry up, etc.).

Conversely, several roots that have the full inventory of P-type stem forms allow a bare intransitive stem in addition to the expected derived inchoative stem in *-i*. The contrast between these two intransitive stems is instructive about the semantic character of each root type. For example, the root *nach'* has a full range of positional forms that describe a collocation between a figure (with "eyes" or a "face") and some obstructing

ground, so that the "face" of the figure is just protruding from behind the obstruction: "peeking out," as it were. The inchoative stem *nach'i* describes the neutral emergence of such a collocation, often suggesting that someone is inadvertently discovered peeking over a barrier, or that something simply becomes visible where it was previously obstructed. The bare intransitive stem *nach'*, on the other hand, describes the first emergence of the sun or moon over the horizon: the sun "peeks out" of its own accord.

Similarly, a root like *tz'an2* as a positional denotes standing water, sitting in puddles and not running off. As an intransitive stem it suggests the action of water as it forms into puddles, flowing in and not escaping.

Finally, contrast two stems based on the mixed root *kaj* 'astride, (balanced but not attached) on the top surface of'. As an inchoative P-type stem form it means to assume a particular position, either literally or metaphorically.

- (50) T163
 j-likel la i-0-kaji ech'el ta chak ka'
 1-moment CL CP-3A-mount DIR(away) PREP ass horse
 'Quickly [he] mounted on horseback' (CK 364).

Despite Laughlin's gloss, the verb emphasizes not so much that the person climbed on the horse's back, but that he moved off having once gotten astride the horse. The same verb can also suggest occupying a superior position in the social and economic order, as in the following line from a story in which the domination of Indians by non-Indians is explained.

- (51) CK106
 i-0-kaji li larino-e
 CP-3A-perch.on.top ART ladino-CL
 'The ladinos got on top' (CK 106-107).

As a bare intransitive stem the same root has more of the flavor of a motion verb: rising to the top. In the following example, blowflies have laid eggs in a cauldron, and the people about to eat their meal observe the result.

- (52) T150
 i-y-il-ik xa ti kaj tal s-kotol ti
 CP-3E-see-PL CL CONJ rise DIR(come) 3E-all ART
 xuit-etik une
 maggot-PL CL
 'They saw all the maggots rising up' (CK 23).

Between 25 and 35 roots share formal characteristics of I, T, and P type roots simultaneously. A typical example is the root *toy*, which has characteristic T forms meaning 'lift', characteristic I forms meaning 'rise (of one's own accord)', and a stative adjective *toyol*, which means, unsurprisingly, 'high'.

Finally, there is a very large group of more than 200 roots that display transitive diagnostic stems as well as positional forms. These break down into four groups with respect to diagnostic P-type stems: those that allow just a stative adjective (i), those that allow in addition an inchoative (ii), or a causative (iii), or both (iv). Judging by the notional categories applied above to T and P roots, roots in group (i) are most like transitive roots, and those in group (iv) are most positional-like, with the intervening types progressively more P-like and less T-like.

The most T-like roots express, say, an action that leaves an effect on a patient. Examples include roots whose meanings, like plain T roots, include characteristic human activities, like kiss, eat, sip, wear; and verbs of affect, like burning (light), dividing (rip, tear, cut in strips, husk, mix, pluck, splinter, pick [fruit], tear [edge], chip, break into bits, etc.), hitting (smash, slug), holding (hold in flexible object, embrace, squeeze, hold up, lift), opening/closing (dig up, open, remove [blanket], close [eye], sew, stopper, etc.), inserting (take from surface of liquid, dislodge, drop in liquid, dunk, plant), moving (drag, stir, scrape, saw with back-and-forth motion, etc.), washing, and tying.

Such roots produce, in addition to the transitive stem forms, a stative adjective that describes the resulting effect as a property, or as a position assumed without the benefit of intentional agency. Thus, for example the root *tz'ap* as a transitive verb (of affect: inserting) means 'stick [some sharp pointed thing into a surface]'. A ditransitive form appears in the following example, in which a man from Chamula stabs a demon.

- (53) T124
 te no 'ox i-s-tz'ap-be s-moton
 there CL CL CP-3E-stick-BEN 3E-gift
 '[The Chamulan ...] g[a]ve him a good stab' (lit. 'right there he stuck him a gift') (CK 136).

The adjective *tz'apal*, on the other hand, means 'stuck into', but it suggests that a sharp pointed object comes to stick into something without the conscious intervention of any outside agent. If I drop my machete from a tree and it lands with its point sticking in the ground, it is *tz'apal*. In the following line from a story, a Devil jumps into the air and comes down impaling his enemy's hat with his sword.

- (54) T10
 tz'apal i-0-k'ot y-espara ta s-pixel
 stuck.in CP-3A-arrive 3E-sword PREP 3E-hat
 '[The devil's] sword clove through his hat' (lit. '[the devil's] sword arrived sticking into his hat') (CK 30).

The most P-like mixed roots, on the other hand, have a full set of positional diagnostic roots, typically denoting a shape or position. Examples include shapes (e.g. round, sticking out, long and narrow, stretched, sagged, knotted, coiled, loose and hanging wildly, tangled, spiralling, squeezed, bent at a joint, curled, folded, etc.), distinct surface configurations (perforated, scratched, gashed, stretched open, flattened, splattered), collocations (lined up, hanging from many points, stuck together, etc.), and more "true positions" (e.g. with bent leg, with hands in clothes, standing weakly, leaning forward, lying naked, firmly planted or rooted, with protruded midsection, with orifice upward, etc.).

In addition to the diagnostic positional stems, these roots also produce transitive type stems that denote actions that PRODUCE such positions or shapes on their patients. Thus, from the root *chol* 'in a line', one derives the stative adjective *cholol*, as in the following example.

- (55) T167
 te cholol ech'el un
 there in-a-line DIR(away) CL
 '[The toads were] lined up' (CK 377).

At the same time, one can form a transitive stem *chol* 'put in a line', which occurs as a reflexive 'line themselves up' in the following example.

- (56) T5
 i-x-chol s-ba-ik amuch-etik
 CP-3E-line-up 3E-self-PL frog-PL
 'The toads lined up' (CK 44).

12. Conclusion: form, meaning, and conceptual style

In this paper, I have described criteria by which the Tzotzil verbal lexicon may be partitioned into formal root classes. Such formal classes, I have suggested, must be the starting point for a semantic analysis of what appears, on first inspection, to be a highly elaborated spatial domain in the language: its preoccupation with shape, position, and configuration. I have not gone beyond this starting point here, although I have tried to indicate what I think are promising paths to follow. Clearly much detailed

research in Tzotzil lexical semantics must be done to improve upon and correct these preliminary observations about form/meaning mappings in verbal roots.

Let me end by returning to my compadre's sick horse. The reader will remember that he had left the animal in great pain, rolling and tossing on the ground. Coming back empty-handed from his search for medicine, he finds the poor beast dead. How does he relate this discovery?

(57) Fragment

85 k'al l -i -k'ot -e kere
when CP-1A-arrive-CL boy
'When I got there -- damn!'

86 cham-em-0 xa te xa setel xulem
die -PF-3A already there already in.a.circle buzzard
'It was already dead; the buzzards were already in a circle.'

Here is a Tzotzil *mot juste* — *setel* — whose formal properties as a root illuminate its evocative virtues in narrative. The root *set* is a mixed transitive/positional root whose imagery combines slicing ACTION with the round SHAPE of a resulting slice (for example, of a fruit). Thus the word as applied to buzzards closing in on their meal, carries at once overtones of shape, geometry, and, perhaps, predation all rolled into a single CVC root. The conflation of actions with effects, or of specific configurations, shapes, and positions with the processes that produce them, is characteristic of the Tzotzil lexicon. It pervades what I have called the conceptual style of the language, whose elucidation is the central aim of ongoing semantic research.

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Notes

1. A preliminary version of this paper comprised the first half of Haviland (1992a), a presentation on Tzotzil verbs of inserting and extracting, at the Workshop on Spatial Conceptualization in Mayan Language and Interaction, Cognitive Anthropology Research Group, Max Planck Institute for Psycholinguistics, Nijmegen, in February 1992. I am indebted to John Lucy, Lourdes de León, and especially Judith Aissen for helpful criticism, encouragement, corrections, and reminders. It is a pleasure to acknowledge specific expert help from two Zinacantec friends, residents of Nabenchauk, my *compadre* Marian Ach'eltik and Xun "Zapato" Romín. This research was partly supported by NSF Grant SBR-9222394. Correspondence

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2. The dialect of Tzotzil described here is spoken in the *municipio* of Ziuacantán in highland Chiapas, Mexico. Grammatical descriptions of Zinacantec Tzotzil are to be found in Haviland (1981) and Aissen (1987); notes on the Colonial language are in Haviland (1988). Tzotzil is closely related to the neighboring Tzeltal, described in Kaufman (1971), Brown (this volume), and Levinson (this volume).
3. A central tenet of what is sometimes called "cognitive semantics" is put succinctly by Fauconnier (1988): "... the same objective situation could be framed in an unlimited number of ways, and conversely ... domains of very different objective content may share essential properties at some important level of meaning representation" (1988: 61).
4. The Frog book has been used in a multilanguage comparative project by Slobin and his associates (e.g. Berman and Slobin 1987, 1994). The method is due to Michael Bamberg (1985). These fragments are extracted from my transcript of a Tzotzil session organized and recorded by Lourdes de León, to whom I am indebted.
5. Tzotzil is written in a Spanish-based practical orthography, slightly normalized. Examples are drawn from conversational transcripts or from published Tzotzil texts, except where otherwise noted. The abbreviation CK refers to Laughlin (1977). The following abbreviations occur in morpheme glosses.

1	1st person
2	2nd person
3	3rd person
A	absolute cross-index
ART	article
AUX	auxiliary
BEN	benefactive, ditransitive suffix
CL	clitic
CP	completive aspect
DIR	directional clitic
E	ergative/possessive prefix
ICP	incompletive aspect
NEG	negative
NT	neutral aspect
PF	perfect/resultative suffix
PL	plural
PREP	generalized preposition
PT	particle
QUOT	quotative (evidential) clitic
REL	generalized relator clitic
SBJ	subjunctive affix
SUBJ	subjunctive suffix
6. For convenience, I preserve the root-numbering scheme of Laughlin (1975), who distinguishes between putative homonymous roots with a following number.
7. A transitive root will almost always yield a perhaps somewhat defective unaccusative (Perlmutter 1978; Rosen 1984) intransitive verb stem as well. See Aissen (1987). Thus it is only the possibility that these roots produce transitive stems directly that formally distinguishes them, on the present criteria, from intransitive roots.
8. I roots typically also produce transitive causative stems by suffixing *-es*.

9. One Tzotzil construction allows bare positional (and other verbal) roots to appear as independent words. It is the construction "CVC *xi*" (*xi* = 'thus, say'), which means 'X happens just like that, immediately'; X is whatever action can be construed from the root alone. An example from a narrative about marauding soldiers is the following, with the roots *tik* 'insert, stick in' and *jip* 'throw, hang up':

(58) T121
tik' xi ta koxtal jip xi ta jol xila.
 insert thus PREP bag throw thus PREP head chair
 '(They) popped (stolen tools) in bags, slung them from theommel' (CK 130).

The central effect of this construction is to emphasize the suddenness or directness of an action whose arguments can be inferred from the discursive context, as neither agent nor patient is directly expressible.

10. *V_i* is identical to the root vowel.
 11. See his explanation at Laughlin (1975: 23–24).
 12. Laughlin's dictionary was partly generated by exhaustively checking actual roots against possible CVC combinations, exploring potential stem forms for each. See Laughlin's description of the process (1975: 4). The resulting dictionary is remarkable for its completeness, although it both contains roots and forms unknown in the hamlet of Nabenchauk, where my work has concentrated, and omits others in use there. Derivational possibilities that diverge from (or expand upon) those Laughlin lists for particular roots are frequent across speakers and *parajes*; some of these differences are reflected in the material presented here.
 13. Judith Aissen, in comments on an earlier draft, contrasts a "tree" model of Tzotzil root classification in which a root's assignment to a particular root class "licenses" a set of derived stem types, with a "wave" model in which root classes "have no formal status in the derivational process, but would be the artifacts of the clusterings of derivational patterns."
 14. The transitivizing suffix *-es* in fact occurs with three classes of intransitive stems: (1) those derived directly from intransitive roots, as in the case of *-muy-es*; (2) those derived from reduplicated intransitive roots, as for example *-muy-muy-es* 'lift slightly'; and (3) intransitive 'inchoative' stems largely derived from underlying adjectives with a suffix *-Vj*, for example: *bik't-aj-es* 'make smaller' < *bik't-aj* 'become smaller' < *bik'ti* 'small'.
 15. There are rather few intransitive roots without regular causative stem forms — e.g. 'ok'2 'cry, weep', *chi2* 'say', *vay* 'sleep'. However, some of the missing causative-derived forms seem to be accidental gaps. Thus three of the four deictically anchored verbs of motion form a causative in *-es*: *bat* 'go (there)', *tal* 'come (here)', and *yul* 'arrive (here)'. Exceptionally, *k'ot* 'arrive (there)' does not appear to have such a causative form in Zinacantan Tzotzil. Similarly, although there is no transitive stem *'ok'es (from 'ok'2 'cry, weep'), the somewhat unusually shaped transitive stem 'ok'esin means just what this causative would be expected to mean: 'cause (something, e.g. a trumpet) to cry out (i.e. make a noise)'.
 16. The additional stem forms grouped with the prefix V(erb) in the profiles are apparently not diagnostic of any single root class, although they derive stems only from roots rather than from already derived stems. Kauffman (1971) describes cognate forms in neighboring Tzeltal as diagnostic of positional roots in that language.
 17. A subset of intransitive roots, all notionally denoting "motion," are grammaticalized into auxiliarylike verbs in a "motion-cum-purpose" clause (Haviland 1990a, 1993;

Aissen 1987, this volume). In this construction, some entity undertakes motion (denoted by the auxiliary) in order to bring about some result or perform some action (denoted in a following verb).

(59) T166
muy s-sa' ja'as 'un
 ascend(AUX) 3E-look.for mamey CL
 'He climbed up to look for mameys' (CK 369).

The entity in motion, in events so described, must evidently be understood to be the entity responsible for the action described, perhaps as construed by the "responsibility" relation "RESP(*i,s*), holding between an individual *i* and a situation *s* just in case *i* brings *s* about, i.e., just in case *s* is the result of some act performed by *i* with the intention of bringing *s* about" (Farkas 1988: 36). The sense of intentionality involved in the construction seems to derive, in the process of grammaticalization, from a potentially agentive reading of the parent motion verb.

18. In fact, Laughlin's root *lok*'1 shares properties of both intransitive and transitive roots, with a meaning 'exit' in the former guise and the meaning 'trim' or 'rent' in the latter. The examples given in this section seem unambiguously to relate to the former sense.
 19. This is a central observation of Aissen's (1987: 233ff.) analysis.
 20. Such an interpretation is apparently incompatible with Aissen's suggestion (1987: 234) that such agentive interpretations should be associated with "initially unergative structures," unless we reinterpret the overall clause that results as not "abilitative" but simply involving an oblique argument marked with *-u'ui*.
 21. As Judith Aissen points out in commentary (see also Aissen 1987: 65–66), unlike the passive suffix *-at*, which occurs with all transitive stems, derived and underived and with varied root provenance, the passive suffix *-e* combines only with bare unaffixed transitive roots to form a passive stem. A passive perfect or stative suffix *-bil* is also regularly possible with transitive stems.

(60) Tunem
komo y-il-uj yech tam-bil-0
 because 3E-sec-PF thus lift-PF + PASS-3A
 'Because he has seen it (i.e. been through it before), therefore he has just been picked (as a religious official).'

Laughlin lists neither passives nor antipassives in the dictionary, implicitly suggesting that such forms are regular inflectional products.

22. See Aissen (1987: chapter 6). Haviland (1981) called such stem forms "mediopassive." The single exception to this pattern for transitive roots appears to be the root *ve*' 'eat [tortillas, bread, etc.]', which as an intransitive stem is unergative, 'to eat (in general), to have a meal' (Aissen 1987: 95–96). Note that the roots that produce eating verbs can be formally distinguished as a set by a morphological irregularity: they form transitive imperatives with the suffix *-an* normally reserved for intransitive stems.

(61) T106
ba ve'-an papa', ba ti'-an chenk'
 go(AUX) eat-IMP tortilla go(AUX) bite-IMP bean
 'Go eat some tortillas! Go eat some beans!' (CK 43).

23. Any oblique argument will be interpreted as an instrument (Haviland 1981) or will force the "abilitative" reading (Aissen 1987: 229ff.) described above. Since the relationship between a bare transitive stem and a corresponding unaccusative intransitive stem

is almost totally productive, the possibility of such an unadorned intransitive stem does not require special mention in the morphological profile for transitive roots, although Laughlin (1975) frequently lists unaccusatives as separate entries.

24. Some roots in Tzotzil yield transitive stems ONLY in such reflexive constructions. See Haviland (1987), Aissen (1987: 88ff.).
25. It is possible for a stem to combine both the ditransitive suffix *-be* with the antipassive *-on*, as in the following elicited example:

(62) muk' much'u x-'a'i-b-on s-k'op
 NEG who ASP-understand-BEN-ANTIP 3E-language
 'There is no one who can understand his language.'

26. One such piece of evidence is that, exceptionally, such derived adjectives can combine with auxiliaries; equally exceptional is the fact that normal verbal stems derived from positional roots cannot do so. Thus, it is common to hear constructions like

(63) T107
 ba va'-l-uk ta x-xokon ti' na 'un
 go(AUX) standing-ADJ-SUBJ PREP 3E-side mouth house CL
 'He went and stood next to the door' (CK 33).

However, no auxiliary constructions are possible with the derived verb stems *-va'i* or *-va'an*. See Haviland (1993).

27. The example is somewhat odd, since normally when horses stand they are *kotol* 'standing on all fours' rather than *va'al* 'standing bipedally'. However, such conversational usage suggests that the normally marked distinction between the roots *kot* and *va'* can be neutralized, with *va'* being the less marked member of the pair. See Haviland (1992b).
28. But see note 26.
29. This example is from Pérez López (1990: 108) and represents a Chamula dialect of Tzotzil.
30. I have omitted from the diagram the nominal root classes that directly produce noun and adjective stems. Such roots would naturally appear in a further column to the right of P(ositionals), as they are most directly lexicalized as unaffixed stative predicates. These stative forms also differ formally from the *-V* positional adjectives in that they can routinely be used attributively as well as predicatively, something that is extremely rare for adjectives derived from positional roots.
31. Laughlin assigns the root to positional and transitive root classes simultaneously, finding the intransitive forms unconvincing for assignment to the I category. One could also argue for an intransitive provenance for *lik1*, since it figures in the small set of roots grammaticalized as auxiliaries and directionals in Tzotzil, most of which are unambiguously intransitive. On the other hand, the root *lok'1* mentioned above also yields an auxiliary, although its profile, too, is split between an intransitive sense ('exit') and a transitive one ('cut off'). See Haviland (1990a, 1993).
32. Despite Laughlin's glosses, in the hamlet of Nabenchauk where my work has concentrated the transitive stem *lik* does not appear to mean 'begin' (but rather 'lift'), whereas the intransitive stem *lik* does mean 'begin_{INTR}', corresponding to the causative *likes* 'begin_{TR}'.
33. Norman (1973: 10), in an early paper, comments on the close association of positional with transitive roots, a theme taken up by later students of the topic, in a variety of Mayan languages.

34. They can also denote actions on other eyelike openings; conversely, no other (more general) verbs of opening and closing are appropriately applied to eyes.
35. Laughlin (1975) assigns *mutz'* to his root class T2.
36. Laughlin (1975) assigns *vik'* to his root classes I and T2.
37. In Haviland (1992a) I apply these formal partitions in a preliminary way to Tzotzil verbs for 'inserting' and 'extracting'; Haviland (1992b) discusses verb root types that apparently conflate aspects of bodily position with other sorts of action.
38. A possible exception is the putative root *jelav*, which gives rise to the directional *jelavel* 'passing'. Although Laughlin (1975) gives this word its own status as a phonologically unusual root, it seems possible to relate it to the transitive root *jel*, which has to do with interchange (and imbalance or unevenness). As I have already mentioned, two further roots, *lik1* and *lok'1*, give rise to auxiliaries and have a mixed formal character, combining a full set of intransitive diagnostics with scattered transitive forms.
39. The research program takes both inspiration and heart from, for example, Levin (1993).
40. My working database for Zinacantan Tzotzil includes around 860 verb roots, of which 274 are formally positional.

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