Verbs and shapes in (Zinacantec) Tzotzil: the case of "insert"
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Surface verb stems in Zinacantec Tzotzil, a Mayan language spoken in the highlands of Chiapas, Mexico, derive from roots which 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 current work is part of an attempt to characterize the resources for describing space in Tzotzil.[1] In such a project one is quickly led to verbs. Verb roots provide much of the semantic raw material for verbal virtuosity, offering up precisely the <u>mot juste</u> 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). Tzotzil verbs that are especially rich in characterizing such apparently spatial notions as, among others, shape, relative position, contact, support, containment, and manner of motion.

In recent work (see, for example, Haviland 1994) I have explored <u>formal</u> criteria for dividing Tzotzil verbal roots into types. In this paper, on the other hand, I examine a set of Tzotzil verb roots that I have somewhat arbitrarily assigned to a <u>notional</u> category of "inserting" (and its reversive opposite [Cruse 1986] "extracting"). Such a category might initially be formed on the basis of rough extensional equivalence with the English terms *insert* and *extract* (or perhaps with more natural expressions like *put in* and *take out*). To employ such notional criteria, although clearly Anglocentric, would be to follow hallowed principles in the investigation of "spatial concepts," drawing comfort from claims about "spatial relations which arise in primitive or rudimentary perception" (Piaget and Inhelder 1967:6), and which are universally recapitulated, according to Piagetian theory, at successive stages of cognitive development.

Verbs of inserting and extracting--along with locative expressions like *inside* or *outside* (and their corresponding prepositions), and with notional inchoatives like *enter* and *leave*--transparently relate to a candidate topological prime, Piaget's "enclosure," an exemplary "spatial relationship present in elementary perception" (*ibid.*,p. 8). Here is Piaget's explanation:

On a surface one element may be perceived as surrounded by others; such as the nose framed by the rest of the face. In three dimensions enclosure takes the form

of the relation of 'insideness', as in the case of an object in a closed box (Piaget and Inhelder 1967:8).

The verbs in question arguably represent part of the Tzotzil lexical equipment for denoting exactly this relation of "insideness" in causative guise. The hypertrophy of Tzotzil predicates to describe inserting and removal from enclosures must be seen as a potentially problematic elaboration of this allegedly primitive notion.

Setting up such a category for Tzotzil seems no more (and no less) presumptuous than taking the preposition *in* as a model for the English encoding of Piaget's primitive topological relation "enclosure." Recent work on lexical semantics also lends limited support to the legitimacy of a category of "inserting" verbs, at least for English. For example, Cognitive Semantics of the received variety (see, for example, Jackendoff 1983, 1990) makes conspicuous use of a primitive spelled like *in* but written in capital letters. Talmy's typological suggestions about Motion Events (e.g., Talmy 1985, 1991) would encompass most candidate "insertion" verbs, with the relating function Path specifying a relation of "interiority" between Figure and Ground. Croft (1990) likewise includes 'insert' and 'extract' in the verb type "Motion-position (path)." Levin's summary of English verb classes (Levin 1993) recognizes "Put verbs" (Class 1.1) (with several "insertion"-encompassing subvarieties, including "Fill verbs" or "Sow verbs") as well as "Verbs of Removing" (Class 2) with such subtypes as "Pit verbs," "Debone verbs," and "Mine verbs." Dixon (1991) says nothing directly about either *insert* or *extract*, but they seem to belong to the MOTION-C, TAKE subtype, or REST-C, PUT subtype, with perhaps a few stray taxonyms belonging to the AFFECT-C STAB subtype. There is, therefore, some comfort to be taken from other theorists in starting from a notion of interiority or "insideness" and trying to apply it to the lexicon of a language.

Definitional chains

One can adduce certain empirical evidence for a notional category of "insertion" verbs as well. Suppose that, when asked to explain the meaning of a word based on the root *tz'ap* (whose English gloss might be 'insert, prick'), a Zinacantec gives a series of paraphrases that include stems based on a root like *paj*1 (which also has the gloss 'insert'). Now suppose that he also glosses *paj*1 in terms of *vom*1 'puncture,' which in turn is glossed in terms of *tz'ap*. There is here a miniature definitional circle which could be extended via a longer route of semantic neighbors of various sorts.
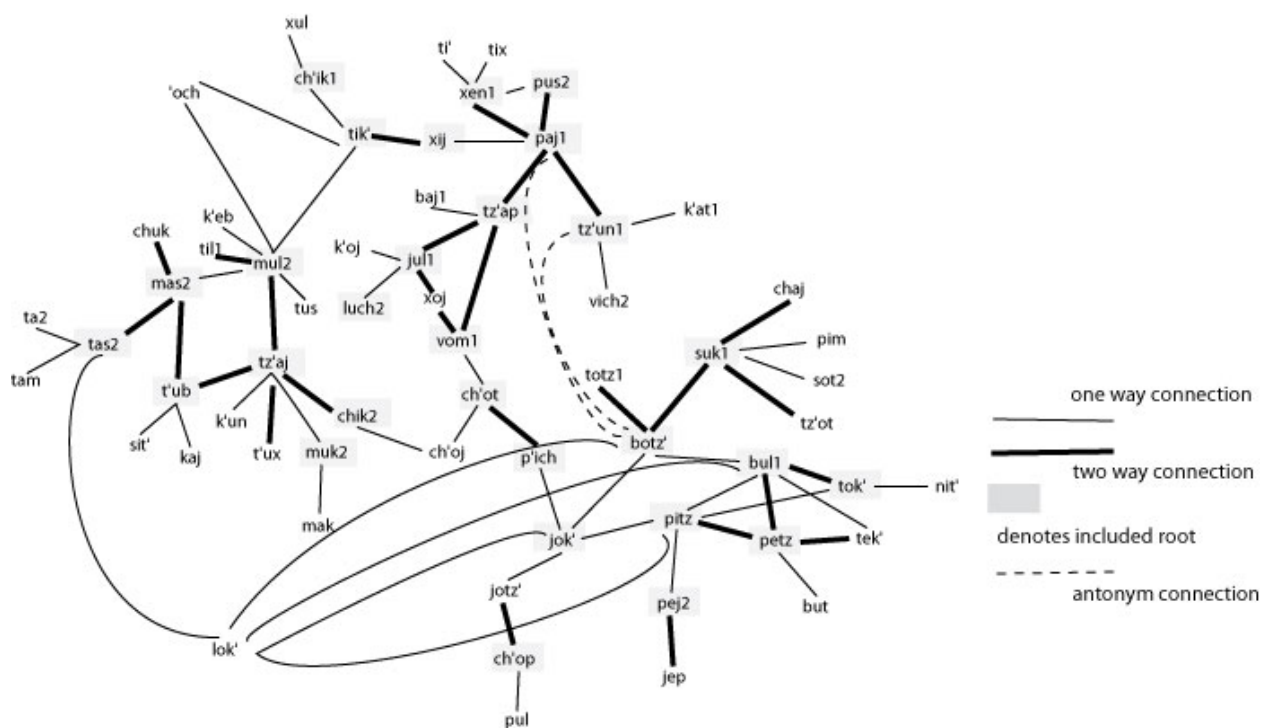
Figure 1:
Partial map of semantic space:
"inserting" and "extracting"

I have constructed a map of such definitional neighbors across a range of verbal roots I have investigated in detail. Certain sets of roots tend to cluster together.[2] Figure 1 shows a graphic representation of one such cluster. Thin lines represent one-way links between roots (where a stem using one root is defined in terms of a stem using another, but not vice versa), and thick lines reciprocal links. (The graph also shows a couple of links explicitly given as antonymous, i.e., "word X doesn't mean word Y," although it does not exhaustively distinguished between links in this way.) Roots on the map that belong to my notional "insert"/"extract" category are shown in shaded boxes.[3] Note that the roots do appear to cluster together semantically, at least by the folk metalinguistic criteria implicit in such definitional chains.

Table 1 lists the roots of "insertion" to be treated here, though the set should not be taken to be in any sense exhaustive. The table groups the roots by morphological criteria described in Haviland (1994), and shows for each root a rough gloss. In the

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[2] Following suggestions by Bert Hoeks, I have applied a home-grown version of the nearest neighbor statistic to the set of cross-referenced verbal roots in my entire database, and the results are incorporated into Figure 1.

[3] Not all roots in the notional group are shown on the map, because spontaneous definitions and explanations did not always make use of partial synonyms or antonyms which could serve as the basis for a cross-reference chain. It is also instructive to look at the stragglers--those nodes on the graph that do **not** fall into my notional grouping-- although I do not try to do so here.

gloss, the notation P[atient] indicates the sort of entity that typically serves as grammatical object; the notation B[eneficiary] suggests a typical object in a ditransitive clause involving the root. I shall return shortly to the grammatical facts of Tzotzil voice and argument structure involved here.

Table (1)
Pure positional
kak   stuck between two objects (P = stuck thing)

Pure Transitive
chik'2 dunk, dip (in order to cook or eat), soft-boil (P = egg)
ch'op   insert (fingers or hand) into (P=container)
chuch2   push into /fire/ (P= firewood)
jul1   inject, gore, graze /with pointed object/ (P = victim)
xen1   stab at, scrape, or poke quickly (P=instrument, B= target)
pus2   stab (B = person or hollow thing, P = stabbing instrument)

Mixed Transitive/Intransitive
mul2   dip (in liquid, fire) (P = things moistened, pitch pine)
muk2 bury, hide

Transitive with Positional extensions
t'ub   submerge, soak (P enters the medium fully)
tz'aj   dunk (P is affected by the medium)
tz'un1 plant (firmly, vertically?)
suk1   plug, jammed together

Positionals with Transitive extensions
ch'ik1 slip in (P = narrow thing?) (into small openings or cracks)
tz'ap   pierce (P = pointed) (no prior hole in Ground)
xij   tamp, push in firmly (Ground resists)
xoj   insert-in-place, skewer (B,P = appropriate enclosure/ insertee)
paj1   jab in, fix (P = not pointed) (Ground already has place?)
tik'   insert (into more or less closed container)

Inserting events and Tzotzil argument structure

Suppose that sense can be made of an abstract relation of "insideness" as something that human beings naturally acquire in the course of cognitive development. One expression of such a relation in natural language would presumably be through verbs like *insert* and *extract*. If we let our unabashedly Anglo-centric intuitions run wild, we can imagine a primitive breakdown of an "insertion event"[4] into a series of component parts. The repertoire of entities would include an "insertee" object as well as a "container" or "enclosure." (We could also imagine these two entities to be encoded as typical Figure and Ground [Talmy 1978, 1983], i.e., movable object and fixed reference object, though this seems to prejudge a number of possible alternative views.) Optional extra entities, such as an agentive "inserter" and perhaps his/her

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[4] See Talmy's (1985) decomposition of generalized "motion events."

"instrument" may also be involved. Making explicit appeal to a prior notion of "insideness," the "insertion event" could be conceptualized as a transition between two states, one in which the insertee is "outside" the "container" or "enclosure," followed by another state in which it is "inside," with various sorts of agents, means, manners, etc., involved in bringing about the transition. I have cartooned this schematization in Figure 2.
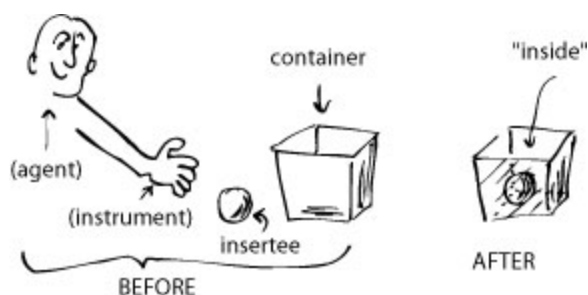
Figure 2: an abstract "insertion event"

What happens to such a schematic scenario once it begins to be encoded in a language like Tzotzil? The facts of Tzotzil clause structure suggest some possible constraints on how such a schematic insertion event can be expressed. Tzotzil has an ergative pattern of verbal cross-indexing, in which intransitive subjects)and transitive objects are cross-indexed by <u>absolutive</u> affixes (zero in third person), and transitive subjects are cross-indexed by <u>ergative</u> prefixes. Furthermore, at least from the point of view of surface syntax, basic constitutent order in a Tzotzil clause is V(erb) O(bject) S(ubject), with the clause-final constituent--normally also the most "definite" NP in the clause--corresponding to the intransitive subject or transitive agent. Intransitive clauses then have a (possibly null) subject argument which is cross-indexed by an absolutive affix on the verb, and which, if realized, comes normally in clause-final position. (Example 2 illustrates such an intransitive clause.) Transitive clauses have an object argument which ordinarly follows the verb and which again engenders absolutive affixes on the verb. They have additionally a subject argument, or "ergator" which is realized clause-finally, and which is cross-indexed by an ergative verbal prefix. (See example 3.) Finally, in a ditransitive clause--signalled by the verbal suffix *-be*--the "logical" patient, if expressed, follows the verb directly in syntactic *chômage* (Aissen 1987); the agent or ergator, cross-indexed by an ergative prefix on the verb, again comes clause finally; and a logical "beneficiary" argument intervenes, now itself cross-indexed by absolutive affixes on the verb. Note that in the sorts of examples involved here, the patient *chômeur* may often be the Figure, whereas the "beneficiary" may correspond to the Ground. (An example ditransitive clause is shown in 4.)

(2) T78[5]

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[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	absolutive cross-index
ART	article
AUX	auxiliary

```
mukul   la ti  s-jol   ta    yi`  `une
buried  CL ART 3E-head PREP  sand CL
```
Verb-(ABS)   Subject
The fellow had his head buried in the sand.

(3) T176
```
s-  jach'oj    la  y- e       li  povre koyote `une
3E- open       Cl  3E-mouth   ART poor  coyote  Cl
```
ERG-Verb-(ABS)   Object   Subject
The poor Coyote opened his mouth wide.

(4) PV
```
ch-a-xoj-be         y-ak'il   a-k'u`,
ICP-2E-impale-BEN 3E-string 2E-garment
```
ERG-Verb-be-(ABS) Object   Beneficiary   (Ergator="you")
You insert a string (into) your shirt

The various participant entities in any "insertion" event must be realized as clausal arguments, of which Tzotzil thus permits basically five types: intransitive subject, ergator (transitive subject), transitive object, "recipient" (i.e., the absolutive argument in a ditransitive clause), and oblique (a an additional noun phrase argument, which may be introduced into a Tzotzil clause by one of a number of devices, principally the all-purpose preposition *ta*). The various argument positions are diagrammed in Figure (3).

```
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
```
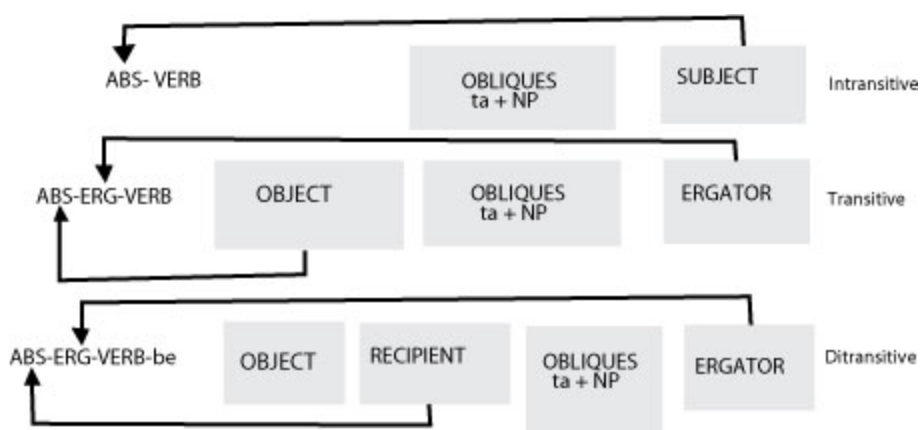
Figure 3: Argument structure of Tzotzil clauses

Let me now proceed to the roots themselves, seeing what sort of specialized structure they impose on the insertion events they may be used to describe.

Inserting in Tzotzil: Pure positional

From a formal point of view, nearly all of the "insertion" roots are Transitive, in the sense that they yield a bare transitive verb stem. One root that does not do so is formally a positional root (see Haviland 1992, 1994), *kak* 'stuck between two objects.' Like other positionals, it produces a transitive stem in *-an*, which appears in perfect passive form in the following example:

```
(5) MA
kakan-bil    ta   jet-te`,  tzinil,
stick in-PF PREP fork-tree tight
    oy   yech nox  kajal  ch-kom
    EXIST thus only on top ICP-remain
```
It is stuck in the fork of the tree, it's tight; otherwise it would just be resting on top.

The contrast with another positional *kajal* 'astride, sitting on top' already suggests the sort of complication offered by the Tzotzil verbal inventory for a putative general relation of 'insideness.' *Kakal* means neither simply 'between' nor 'inside' but rather '**stuck** between.' By contrast, something that is *kajal* is not only 'on top' but also just **lying** there, precariously stacked, and thus unattached. Thus, whatever 'insideness' is associated with the basic meaning of *kak*, the root also bundles further features unrelated to topology: in this case, let's posit, something like "tightness of fit" or "attachment." You could also use *kakal* for a rock stuck in a knothole, or even a pencil clenched in the teeth, although this last could also be captured by other roots with explicit reference to teeth, the mouth, etc., e.g., *skatz'oj* "(he has) held (it) crosswise in the mouth."

```
(6) T49
s-katz'-oj        la k'ot   `un, tzinil k'ot   ta   y-e
3E-hold-in-teeth-PF CL arrive CL  tight  arrive PREP 3E-mouth
```
(The sapotes) landed between his jaws. They landed hard in his mouth (CK 326).

A line from another version of the same story, where the word chosen is *kakal*, appears in 8 below.

In some ways more problematic, if we persist in looking for good 'insideness' words, is the fact that even the notion of enclosure or betweenness involved in the root *kak* can be independently expressed--whether redundantly or not the present analysis is not yet able to say. Thus, in the following line from a conversational transcript, the speaker describes the exotic food foreigners eat: a sandwich, composed of two pieces of bread, with some meat . . .

```
(7) Prans
kakan-bil    ta    `o`lol `un
stick in-PF PREP middle CL
```
stuck in the middle .

Here the explicit characterization "at *`o`lol*" (where *`o`lol* means 'half, midpoint, middle'--a notion whose 'insideness' is a bit too Euclidean to fit Piaget's primitive relation) seems to carry as much of the topological information as does the predicate *kakan* 'stick in.' (The image the speaker wishes to conjure may include the notion that the meat is **grasped between** the two pieces of bread, and thus held tight, as his accompanying gesture seems to suggest.)

Just to complete the picture for *kak*, notice that in the two examples given, the root appears with the transitivizing suffix *-an*; the resulting causative stem in turn appears in perfect aspect, passive voice, denoting the state resulting from some transitive action of "putting into the *kak* position." Here is a fragment from a trickster story using the the stative adjective *kakal*, which implies no active agency.

```
(8) T176
sa`bat tal bu lek tzotz tze ta j-mek `une,
```
(The rabbit then) looked for a sapote that was hard and raw.

```
sjach'oj la ye li povre koyote `une,
```
The poor Coyote opened his mouth wide.

```
juta tik'il ik'ote
```
Damn! It ended up inserted (in Coyote's mouth).

```
te    la kakal    i-kom    noxtok.
there CL stuck in CP-stay also
```
*And there it remained **stuck-in**.*

Rabbit has tricked Coyote by giving him several ripe *sapotes*. When he finally finds a raw one and puts it into Coyote's opened jaws, it sticks there. The root, here in its most unmarked surface realization, is pure "positional." It denotes a Figure located "between" the parts of a bi-partite Ground, and "stuck" there. The root conveys no sense (except from the schematic semantics of a particular derivational guise) that this configuration is the result of agency, whether spontaneous or otherwise.

Pure transitives

The fully positional root *kak* thus contrasts with the members of the "insert" set whose nature is clearly transitive. Here are six "inserting" roots whose derivational profiles involve root forms characteristic of Tzotzil T(ransitive) roots.

(9) Transitive "insert" roots

chik'2[6] =dunk, dip (in order to cook or eat), soft-boil (egg)
ch'op =insert (fingers or hand) into /P=container/
chuch2 =push into /fire/
jul1 =inject, gore, graze /with pointed object/
xen1 =stab, scrape, or poke /P=smth, B=into smth/ (quick movement)
pus2 =stab, puncture /B=something to release its contents/

That these roots have only typical transitive forms suggests that they canonically fit into the syntactic frame of paradigmatic transitive action: volitional agency (a perfect Proto-Agent--see Dowty 1991) acting on some patient. Passive forms are also possible, denoting states that result from such agentive action, but always with the syntactic possibility of incorporating the demoted Agent as an oblique.

With these roots it is essential to distinguish different argument structures, as well as what one might characterize as selectional restrictions on the sorts of nominals that can fill argument positions. I have tried to indicate these restrictions in the rough glosses.

Thus both "stabbing" verbs *xen1* and *pus2* appear typically as ditransitives.[7] Their absolutive argument is a "beneficiary": the person or thing that gets stabbed. The stabbing instrument is reduced to a syntactic *chômeur*. Thus the order to kill a pig might be:
(10) CV
pus-b-o   kuchilu ta   s-nuk'-e
stab-BEN-IMP knife   PREP 3E-neck-CL
Stab him with a knife in the neck (lit. stab the knife to him in his neck).

The choice of *pus* suggests that the Beneficiary argument is, as they say, something with a *ch'ut*--a belly; that is, there is something inside (gas or liquid--in the case of the pig, its blood) which the insertion is to release.

In the case of *xen*, as a ditransitive the verb denotes the motion of sticking an instrument inside some object and suggests that you are trying to move, dislodge, or touch something else that's in there. As a simple transitive *xen* implies a shallow, rapid stabbing or grazing, as in the following apology:
(11) PV
laj   me j-**xen**-ot,   ch-kom   y-av   j-tz'uj
finish CL 1E-**graze**-2A ICP-remain 3E-place 1-NC
I have grazed you, and it left a little mark.

By contrast, *jul1* takes as its **direct** object the person or thing that gets stabbed. If a bull tries to gore you, you can say
(12) PV
ma`uk batz'i l-i-s-**jul**-e      p'ichu-bil no`ox
NEG   real   CP-1A-3E-**gore**-CL graze-PF   only

---

[6] The number following some root citation forms preserves the numbering Laughlin (1975) uses to distinguish putative homonymous roots.

[7] In fact, with *pus2* this is the only attested possibility.

It didn't really gore me, I was just grazed.

A person who gives injections is said to *julvan-* 'inject people' (the derived anti-passive stem, see Dayley 1981).

In the case of all three "stabbing" roots there is a clear presumption that the instrument of stabbing will be some sort of long pointed object: a bull's horn, a knife. The verb *xen1* seems to carry the implication of quickness; it is the verb one uses for an unexpected, rapid knife attack, or for repeated jabbing. *Pus2*, on the other hand, suggests deliberate stabbing, as, for example, when one tries to find a pig's jugular or punctures a ball. In the case of *jul1* the instrument is assumed: it does not serve as a syntactic argument of the verb. (The archaic expression *julub-te`*, literally "stick for *jul*-ing with" denotes a pointed instrument made from a very hard wood and used to remove a single row of corn from a dried ear to facilitate shelling the remainder of the corn.)

The other roots in this transitive "inserting" subgroup have more specialized meanings, centering around either the logical Figure (the thing that is inserted) or the logical Ground (the receiving enclosure). Once again, the exact details of argument structure are important. Thus, both *chik'2* and *chuch2* have heavily restricted unmarked Grounds. The former means stick something (presumably foodstuff) into water or broth, in order either to cook, soften, or otherwise render it edible, or to sop up the liquid itself.

```
(13) CV
mu  me j-k'an  tok'one, chik'-bil no`ox ta  j-k'an
NEG CL 1E-want cooked    insert-PF only  ICP 1E-want
```
I don't want (the egg) cooked (=hard-boiled), I want it just soft-boiled (i.e., to be eaten by dipping bits of tortillas in it).

The roots displays the typical Figure/Ground diathesis (see Brown 1991), taking as direct object either the thing dipped, or the stuff dipped into. Thus, the following is also possible:

```
(14) XPV 930421
ta  j-chik' k-ot        ta  kalto
ICP 1E-dip  1E-tortilla PREP broth
```
I dip my tortilla in the broth.

Chuch2, on the other hand, means to insert or push something (ordinarily firewood) into a fire, to keep the fire burning. (It would be odd, for example, to *chuch2* a piece of pitch pine, because that will flare up and burn too quickly; the proper verb to use for pitch pine would be *mul2*--see below.) Again, both the thing pushed into the fire (the notional Figure) and the fire itself (the notional Ground) can serve as the syntactic object, the absolutive argument, for *chuch2*, the same pattern of diathesis just mentioned.

```
(15) XPV 930421
chuch-o   li  si`-e
stoke-IMP ART firewood-CL
```
Poke the wood into the fire!

```
(16) PV
lek  x-chuch-oj k'ak'al
good 3E-push-PF  fire
```

She has pushed (firewood) into the fire (so it's burning) well .

        With both *chuch2* and *chik'2*, the Ground need not be explicitly stated, even as an oblique argument, when the alternate with Insertee as ABSolutive argument is selected. If the "Ground" (coded as a locative) is elided, its (liquid, edible) nature can be inferred from the verb itself.

        Finally, *ch'op* means stick the hand or fingers (or, in an extreme case, a foot) into some cavity: the fact that a limb is involved is part of the meaning of the root, and both something so touched, or the cavity or enclosure itself, may serve as syntactic Patient.

```
(17) T81
y-atz'am-e x-ch'op    ta   y-av      y-atz'am
3E-salt=CL NT +3E-dip PREP 3E-place 3E-salt
```
He extracted his salt from the salt-container (by dipping his hand in).

Once again, there is a Figure/Ground diathesis, but it does not involve the insertee (the assumed hand) but rather the Container or some object which one wants to reach (and presumably extract). (Notice that this root combines <u>both</u> the meanings of 'insert' and 'extract.')

```
(18) XPV 930427
ch'op-o  ta    a-k'ob  li  p'in-e/chenek'-e
dip-IMP PREP 2E-hand ART pot-CL/beans-CL
```
Dip your hand into the pot/(into something) for the beans.

If you include an explicit directional *ochel* "entering" with this verb, you suggest that whatever you want to get out of the container is *ta xchak* "at its bottom," i.e., all the way in.

```
(19) XPV 930427
ch'op-o `ochel
dip-IMP enter(DIR)
```
Stick (your hand) all the way in (it).

        I have diagrammed some of the distinct configurations here in Figure 4. Note that by virtue of their fully transitive morphology, all of the actions here are schematically presented as requiring the active intervention of an Agent. They are not actions that an inanimate object, say, would typically perform on itself.

	Condition	Patient	Oblique	Result
"extract"		Insertee	Container	
botz' "pull out"		tightly inserted object	hole-like cavity	pulled out
pej2 "dislodge"		large, broken in pieces	cavity	in largish pieces
mas2 "extract"	floating, spread out on surface	solid thing	surface (of liquid)	
tas1 "take out"	hanging out, partially protruding from enclosure	visible, or protruding object	resisting surface, or container	
"insert"			deep in liquid	submerged (place)
t'ub "sink"		solid object		
tz'aj "dunk"		transformable object	liquid medium	immersed, wet, dirty
tz'un "plant"		plant, or upright (pointed?) long object	supporting surface or enclosure	planted, upright, firm
suk1 "plug"	closely spaced, jammed together	opening to be filled	material to plug something with	jammed together, tightly spaced

Figure 4: Transitive verbs of inserting and extracting

Mixed transitive/intransitive "insert" roots

Other "insert" roots have a mixed character morphologically. All allow a bare transitive verb stem, but all also offer a variety of forms otherwise characteristic of Positional roots as well. A few roots, furthermore, display additonal stem forms characteristic of Intransitive roots. I turn to the latter group first.

Both *muk2* 'bury' and *mul2* 'dip' have, in addition to the normal transitive/unaccusative (Aissen 1987) stem pair (see examples 23 and 24, respectively), a further causative stem with the suffix *-es*, something characteristic of I roots (see example 25). Both also form a stative adjective with the suffix *-Vl*, a defining feature of P roots (see example 26). One may assume that something about the semantic raw material of the roots allows this range of different formal packages. Notice, furthermore, how the supposedly primitive notion of interiority begins to decompose once one starts to discriminate the enclosing medium of the "containing" Ground.

Mul2 as a verb conjures two prototypical contexts: pushing a whole piece of pine slightly into the fire, so that it flares up; and dipping something briefly in water, never

letting go of it, so that it emerges wet. The causative *-mules* seems to denote a very similar action, but with no such canonical context: it just means to dip something briefly into, or to poke something about in, a medium (water or fire). The causative morphology suggests, however, that unlike the fully transitive roots considered above, it is possible to imagine an object *mul*-ing itself, under its own agency; thus the causative inflection picks out exactly a situation in which something is made to dip into an appropriate medium briefly. Such a construal is hard to imagine if we are thinking about dipping vegetables or poking pine, but some of the other derived forms of *mul2* begin to suggest the underlying image. Thus, for example, it is possible to use the root in an affective verb, to criticize, say, a lazy wife:

```
(20)
yech x-mulmon                 ta   k'ok'
thus NT-insert in medium idly PREP fire
```
She is sitting idly warming herself by the fire.

Other verbs derived from the same root denote, for example, an object's suddenly sinking in water, as it were, of its own accord. The root and its causative derivatives thus project an image in which an object *itself* might sink, or poke around 'in the fire.'

More revealing still is the adjectival form, *mulul*, which appears in the following example:

```
(21) PV
s-ta-oj    y-av,     mulul-Ø ta   k'ok'
3E-find-PF 3E-place  dipped  PREP fire
```
(A sick person) is no better; he is burning with fever.

The root in adjectival form denotes a feverish condition, invoking again the imagery of a pine stick flaring in the fire. And as the speaker explained: "no one has actually *put* him in the fire."

Now consider the root *muk2*, frequently used to mean 'bury' and 'be concealed.' Here again there is a dual character: something can be buried by the agency of something else. Or it can bury itself. The root itself specifies rather little about the medium in which something is buried--it can be anything from earth, to sand, to mud, to water. The crucial condition here is that, once "buried," it be concealed, covered, no longer visible, or otherwise accessible. It is thus the appropriate fate for a dead person, whose body must be appropriately hidden away, for the sake of its own soul and those of others. The morphological diagnostics for the three root types, T, I, and P, highlight three different aspects of a situation in which an object becomes thus 'buried' in a concealing medium:

```
(22)
transitive stem = someone puts it there
intransitive stem = it happens to it, or it does it itself
positional stem = it IS buried or concealed.
```

Thus one can talk about, e.g., burying money, as in

```
(23) (constructed)
i-s-muk     s-tak'in li  jk'uleje
CP-3E-bury 3E-money ART rich person
```
The rich man buried his money.

But a coin that has been dropped on the floor may, as if of its own accord, 'get buried in the ground' with an unaccusative intransitive stem form.

```
(24) (constructed)
i-muk   ta    lumtik
CP-bury PREP dirt
```
It got buried underground.

In the latter sense, it would be appropriate to blame someone because, for example

```
(25)
i-s-mukes  yalel         ta   vo`
CP-3E-bury descend(DIR) PREP water
```
He dropped it (inadvertently) in the water where it sank.

(As a bare intransitive stem the verb usually means 'sink [spontaneously].')

Finally, the positional adjective *mukul* simply denotes the hidden state of something concealed, as for example the head of Chamulan boy who was not supposed to watch something.

```
(26) T78
mukul  la ti  s-jol   ta   yi`   `une
buried CL ART 3E-head PREP sand CL
```
The fellow had his head buried in the sand.

The multiple frames available to the roots make it difficult to be sure about the central meanings involved. The evidence of other specialized morpho-syntactic environments, and the semantic resonances they reveal, is especially useful in such cases. *Muk2*, for example, produces compound color terms which describe the appearance of something that is only superficially colored in some way, but whose surface doubtless covers something different: a face covered with dust, a tree with white bark but whose wood is dark, or the color of something seen at dusk or dawn when it appears black only because we can no longer make it out properly. Here is an example of something that might be described as *sak-muk-an* (where the color word *sak* means 'white'):

```
(27) PV
k'u cha`al tzotz, ik'   y-ibel, ik'   i   y-ut
like       wool  black 3E-root black ART 3E-inside
```
It's like (white) wool, but it's black at the roots, black inside.

Transitive roots with positional extensions

The remaining "insert"/"extract" verbs display, in their morphological profiles, various combinations of characteristic positional forms and transitive forms. There are three basic types.

First are the verbs whose morphological profiles include both typical transitive stem forms, plus the additional adjective form in -*Vl* normally associated with Positional roots. These roots seem transitive in nature but also spawn stative adjectives which denote either necessary <u>preconditions</u> on Figure, or <u>resulting</u> mutual configurations of Figure and Ground. I have diagrammed these verbs in Figure 5.

Root	Instrument	Absolutive Patient	Recipient	Oblique Ground	Purpose, Manner
chik'2 "dunk"		foodstuff		(liquid)	to cook or prepare to eat
chuch2 "poke"		(firewood)		(fire)	
vaj "sow"		(collective object)		(surface)	scattered
ch'op "insert fingers"	(fingers, hand)	cavity, enclosure			idleness
xen1 "stab"		pointed thing	thing or person stabbed		quickly
pus2 "stab"					carefully and deliberately
jul1 "gore, inject"	pointed thing	thing or person gored			
bul1 "uproot"		attached object		where it's attached	
pitz "extract"		covered or attached object		excavated ground	
jok'1 "dig up"		ground where material is removed	or object so exposed		
luch2	tool with point or edge	superficially attached object			

Figure 5: "Insert" and "extract" with
stative adjectives

Several of the "insert" verbs here are clear converses of "extracting" verbs. For example, *t'ub* 'submerge, soak' is in some ways the converse of *tas1*, a root meaning 'pick off (a resisting medium--e.g., a liquid) or out of (an obstructed container).' This root appears in a narrative sequence that describes a little boy's falling into a pond with his dog.

```
(28) T9141b1
t'ubul    i-k'ot    ta  vo`    x-chi`uk y-ajval  un
submerged CP-arrive PREP water  3E-with  3E-owner CL
```
(The dog) ended up underwater with its master.

The verbal forms mean 'drop into water.'

The root *tz'aj* 'dunk' is similar, except that it suggests that something is stuck temporarily or partially into water; and that the intention is to affect the "insertee" in some way: to wet it, dirty it, or soften it for eating, for example.

```
(29) T110
i-`oc-ik      ta   y-ut       vo`   tz'aj-ajtik xa ta   vo`
CP-enter-PL PREP 3E-inside water dunked-PL   CL PREP water
```
They went right into the deep water, and were dunked in water.

Similarly, the following example describes a cornfield that was planted but which could not produce any corn because it had once been flooded and had therefore lost its fertility.

```
(30) T119
vo`ne    tz'aj,      takij   xa
long ago submerged dry out CL
```
It had been underwater, and it was dried out (infertile).

Unlike *-masmon* (from *mas2* 'remove from the surface of a liquid') which suggests, for example, ducks floating <u>on</u> water, the root *tz'aj* produces an affective verb *-tz'ajtz'on* which suggests ducks diving or dipping their heads <u>into</u> the water.

The verb *tz'un1* 'plant' is an "insert" verb that denotes a central human activity for most Tzotzil speakers: planting corn, beans, or flowers. The root also contains powerful positional imagery.

```
(31) chanovun
vo`on ch-ba        j-tz'un  li  ich-e     ut-o
I     ICP-go(AUX) 1E-plant ART chile-CL say-IMP
```
"I'm going to plant the chiles," tell him.

Here a farmer coaches his son how to reply to the joking banter of another farmer, who is offering to take the boy on as a son-in-law (see Haviland 1986). They have been discussing a chile farming venture, but the suggested challenge has to do less with chile fields than with the man's daughter. As a stative adjective, *tz'unul* means less 'planted' than in a position <u>as if</u> it had been planted, e.g., vertical, or upright, but firmly rooted in the supporting surface. (You can, for example, *tz'un* a post if you plant it solidly into position.) In the context, the intended message is unambiguously sexual.

Finally, the root *suk1* 'plug' specifies a highly restricted configuration for "insertee" and container. The latter must be a hole or opening, into which the former must be inserted tightly (but not, for example, puncturing it, or being twisted in).

```
(32) t9007a1
tey   xa ch-a-suk-ik    jutuk li  y-ok   xa likel
there CL ICP-2E-plug-PL little ART 3E-leg CL start(DIR)
```
Just start plug up the bottom {of a fence for horses} a little.

Thus is the root used to describe putting a cornhusk stopper in a bottle, or leaves in the mouth of a water jug. As an adjective, however, the root means 'jammed together' or 'tightly spaced.'

```
(33) Frog9a
te   yo`  suksuk          tz'i`lel
there where tightly spaced weed
```
Where the weeds grow thickly.

Positional roots with transitive cousins

The other two groups of morphologically mixed roots seem, formally, to have a basic positional character, which can be variously supplemented by transitive forms. My understanding of this combination of formal possibilities represents a tentative hypothesis: that the basic positional or configurational meaning of the root allows the production of transitive forms which denote actions which affect a transformation of their patients so as to produce the requisite position, shape, or what have you. The important thing to understand about such roots, accordingly, is what position, shape, or configuration is implied by the root itself.

The crucial diagnostic test to distinguish the two groups is the possibility (or perhaps one should say the semantic naturalness[8]) of a positional inchoative verb in -*i*, which suggests an element of self-motivation or agency in assuming or entering the state denoted by a positional root. There are thus those roots which allow a Positional-type transitive stem with the suffix -*an*, and others which additionally allow the inchoative stem in -*i*.

The first of these groups is relatively small, including just two "insert" roots. The root *ch'ik1* 'slip in' suggests that its "insertee" is thin, perhaps pointed; more important it requires that the "container" be a surface that is already perforated, that it has openings or narrow gaps available. It is a verb appropriate to sticking something into a crevice, or repairing a small hole in a fence, or even carrying something in one's belt, as in the following example.

```
(34) T131
xi    ch-a-ch'ik     ech'el    ta   a-ch'ut  une.
thus ICP-2E-slip in away(DIR) PREP 2E-belly CL
```
Slip it thus into your belt (to take it away).

The verb thus mirrors the imagery of the corresponding stative adjective *ch'ikil* which means slipped in, or cramped, or filled tightly--a good way to describe, for example, a splinter.

The root *tz'ap*[9] 'pierce' is also frequently used to mean "insert" but the preconditions on Figure and Ground are rather different. The inserted object must be pointed, sharp enough to enter the Ground without requiring a prior hole.

```
(35) T124
te    no`ox i-s-tz'ap-be        s-moton
there only  CP-3E-stick in-BEN 3E-gift
```
He just stuck a gift in on him (i.e., stabbed him).

---

[8] As is, I expect, often the case with complex derivational morphology, the intuitions of even the most confident speakers are soon muddled by what one might call interference from the real world: impossibilities of form are often inseparable from absurdities of circumstance, and the standard "Martian" test ("Imagine that on Mars there was a race of talking bananas . . .") is not always possible to impose on down-to-earth Mayan cornfarmers.

[9] In the catalogue of forms for *tz'ap* I do actually have an intransitive *tz'api-* attested, but only by a speaker who says "possible, but strange"--perhaps even on Mars.

Here the adjective provides the central clue. It can mean both 'sticking in' and simply 'pointed.' Indeed, a machete thrown to the ground and landing point down is a perfect example.

```
(36) PV
k'usi ch-a-jip,    s-tz'ak onox s-tuk,   tz'apal  i-k'ot
what  ICP-2E-throw 3E-grab CL   3E-alone stuck in CP-arrive
```
If you throw something down and it grabs by itself, it lands "stuck in."

Compound color terms formed with this root denote the colors of the tips or exposed ends of things. Thus, Laughlin glosses the term *sak-tz'ap-an* (where *sak* means 'white') as "gleaming (needle), white (tip of digging stick)."

Tz'ap thus presents a characteristic model of conflation, with topology, shape, anatomy, and geometric configuration all packaged together in a single CVC root. It involves

(37)

1. that the "end" of the Figure be "inside" the Ground;

2. that the Ground need not be three-deminesional or, as one says in Tzotzil, have a *yut* 'inside' ; perhaps it <u>must</u> not be so structured, conceived of instead as a mere surface;

3. that the Figure have a "pointed" "end" (in Tzotzil, *sni`* 'nose');

4. that typically the Figure is "stuck" into the Ground, i.e., attached somehow; and

5. that typically it is vertically oriented.

The components are arranged in a characteristic "cluster" with canonical or expected features, some of which are cancellable. (See Cruse on Fillmore's classic example 'climb.') Thus, for example, other things being equal one will imagine something *tz'apal* as vertical, although a nail <u>can</u> be horizontally *tz'apal* in a wall. Similarly, there is something peculiar about a sharp pointed object being called *tz'apal* if its butt-end is what is stuck into something. Thus, if a machete falls into soft ground and sticks on its handle (*yok* 'leg'), one could say

```
(38) XPV
xojol   y-ok
impaled 3E-leg
```

or
```
(39) XPV
tz'apal y-ok
stuck   3E-leg
```
It's leg is stuck/impaled.

But one is likely to note the oddness of the configuration by selecting a verb with a very different, almost bodily (Haviland 1992) set of semantic resonances, e.g.,

```
(40) XPV
va`al,  bechel        i-k'ot
standing limb extended CP-arrive
```

It's standing, (with its blade) sticking out.

Those roots which combine the possibility of a bare transitive stem with the full range of positional forms seem to denote complex configurations of Figure and Ground, which are typically compatible with four possible schematic frames: a bare transitive stem ('affect an object so as to bring about state X'), a Positional type transitive stem in *-an* ('put some object in the configuration or state X, with no necessity of change in the object'), a Positional type inchoative in *-i* ('come into the state X, perhaps by spontaneous agency'), and a stative adjective in *-Vl* ('be in state X, end up in state X').

There are, in this final class, four "insert" verbs. The first, *xij* 'tamp' means to push or force something into a space, packing it firmly or tightly. This firmness is the notable feature of the stative adjective.

```
(41) MA
lek  xa xijil i-bat  s-bel       li  nuti`, t'isil
good CL firm  CP-go 3E-content ART netbag distended
```
The contents of the net bag are tightly packed in, it's bloated-looking.

One can use the same expression--*xijbe ocel* 'tamp [something] in'--to describe such disparate actions as, say, pushing on and adding to the loosely packed contents of a bag so as to fill it more completely, or inserting a blunt object into a surface.

The root *xoj* typically inverts the argument structure of other "insert" verbs by making the "container" the syntactic object but explicitly encoding the "insertee" as an oblique argument. (It thus reminds us of the choice in English to put a ring "on" a finger, rather than a finger "in" a ring.) Thus, in example 42, the ring ("container") is the syntactic direct object, and the finger ("insertee") is marked as an oblique location.

```
(42) T103
li  aniyo une, i-x-xoj        tz-k'ob      la un
ART ring  CL   CP-3E-impale PREP+3E-hand CL CL
```
They say he put the ring on his finger.

```
43) PV
a.  ch-a-xoj-be        y-ak'il    a-k'u`,
    ICP-2E-impale-BEN 3E-string 2E-garment

b.  ja` to mi oy    y-av-e
    !   CL ! exist 3E-place-CL

c.  ta j-vom-be-tik          ba`yi ta    akuxa
    ICP 1E-puncture-BEN-1PL first PREP needle
```
(a) When you insert a string into your shirt, (b) there must be a hole for it, (c) so you perforate it first with a needle.

In (43) the root *xoj* appears in a ditransitive stem, with the the "insertee" the (chômeur) patient, and the Ground the syntactic "recipient."

However, this Figure/Ground relationship can be syntactically reversed, as in example 44, where one person sticks the tail of a lizard into another person's nose to make him sneeze.

```
(44) T158
ja` la s-bitzulan-be  ta   s-ni`  un x-{xoj}-be      ochel
```

```
!   CL 3E-wiggle-BEN  PREP 3E-nose CL 3E-impale-BEN
DIR(entering)
```
He wiggled it into his nose, he stuck it in.

The "container" for *xoj* must be something with an opening appropriate to being spitted. The adjective form describes a "container" (in this case, a ghoul) so pierced.
(45) T127
xojol   la ta   te`  i-s-ta      ta   ti`   na   un
impaled CL PREP wood CP-3E-find PREP mouth house CL
They found it by the door, impaled on a stick.

Even the adjective displays the familiar diathesis. The syntactic subject of *xojol* can be the thing skewered, as in the previous example, or the thing skewering, as in
(46) T71
i-s-ta   te`   ta   ti`-na,   **xoj**ol   i-k'ot   ta   x-chak
CP-3E-find stick PREP door-house **impaled** CP-arrive PREP 3E-ass
He was caught on a stake by the door. His ass was impaled. [Lit., it was impaled in his ass {JBH}.] (CK: 191)

The root *paj1* 'jab in, fix' is appropriate when it is necessary to apply a certain force to insert an object. The verb thus contrasts with *tz'ap* which describes inserting a sharp pointed object that goes in as it were of its own accord. It also contrasts with *tz'un1* above, because when one 'plants' an object one first prepares the hole, then firms up the earth around the planted thing; when one *paj*s an object one simply pushes it into place, where it sticks tight. Thus *paj1* suggests an "insertee" that is perhaps long but not necessarily pointed, and a "container" that resists, that requires inserting force. Here is advice from a mother to her son, who "doesn't know how."
(47) T138
ch-a-**paj**-be   ochel   l-av-at   une
ICP-2E-**insert**-BEN enter(DIR) ART-2E-penis CL
You stick your penis into [her].

The affective verb in the following example also conveys the imagery of an old woman walking around, leaning on her cane.
(48) T119
x-**paj**pon   s-namte` j-muk'ta me`
NT-**inserting** moving 3E-cane 1E-great mother
[My grandmother] poking along with her walking stick [CK:127].

Finally we come to the root *tik'* 'insert, stick in' by its gloss the most general of all the roots I have grouped here, and one that therefore raises the question of semantic generality and a schematic notion of "insideness" most acutely. *Tik'il* means, according to Laughlin's gloss, simply "be inside." Moreover, the verbal forms of the root seem to be used interchangably with verbs derived from several of the other roots I have been considering.
(49) T104
oy   la jun y-espara ta la **x-tik'**-b-at   ta   s-jol ti
exist CL one 3E-sword ICP CL NT-**insert**-BEN-PASS PREP 3E-head ART
      vinike
      man
He had a sword, and it was stuck into the man's head.

```
(50) T11
i-s-tik`      s-ne    ta   s-ni`   ti tzeb-e
CP-3E-insert 3E-tail PREP 3E-nose ART girl-CL
```
He stuck his tail into the girl's nose.

```
(51) T110
ti  buch'u tik'-ajtik ta   vo`   une, ja` mu  s-tak'     milel
ART who    inside-PL  PREP water CL   !   NEG 3E-answer killing
```
The ones who were (stuck) in the water couldn't be killed.

```
(52) T121
tik'   xi  ta   koxtal jip  xi   ta   jol xila.
insert thus PREP bag    throw thus PREP head chair
```
(They just) stuck it in a bag and hung it on the top of the chair.

Yet when confronted with specific situations, Zinacantecs resist applying the verb *tik'* when a more appropriate (which is to say, more explicit) *mot juste* can be found. The root *tik'* seems to require what we might call canonical interiority: something *tik'il* must be fully enclosed in its container, and the container must be basically closed or enclosing. These, at least, are the folk-semantic intuitions of speakers who try to articulate the specific felicity conditions of the root's use. You could only use it of a pencil in a can, for example, if . . .

```
(53) XVP
ch-`och     s-junlej,     bajal  ch-kom
ICP-enter 3E-wholeness closed ICP-remain
```
it enters entirely, and it's closed in.

Similarly, you couldn't *tik'* a tortilla into a bowl because the verb is only appropriate to something . . .

```
(54) XPV
`oy   y-ut,      ma`uk xekel         no`ox
EXIST 3E-inside, not   wide-mouthed only
```
that has an "inside," not something just wide mouthed.

Summary

I have presented a few Tzotzil "inserting" verbs to illustrate the following claims:

1. Tzotzil conflates shape, anatomy, and complex spatial gestalts not only in positional roots and "body-part" expressions (see Haviland 1992), but also throughout its verbal repertoire.

2. It displays patterns of diathesis which complicate the facile postulation of a <u>natural</u> or given allocation of possible entities between (syntactically distinguishable) Figure and Ground.

3. It systematically conflates the alleged topological (cognitive?) prime of "interiority" with other features of the arguments and logical structure of predicates.

These observations raise pressing questions about how Tzotzil-speaking children acquire these complex semantic portmanteaux, and whether they do so only after first

acquiring a more "natural" notion of interiority--perhaps corresponding more directly to other simpler items of the Tzotzil lexicon--which must then be tailored to the specifics of Tzotzil spatial representation. Ongoing work on the acquisition of Zinacantec Tzotzil (see, for example, de León 1994) will hopefully begin to shed light on such matters.

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