VERBS AND SHAPES IN (ZINACANTEC) TZOTZIL: THE CASE OF "INSERT"

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Contents

1. Introduction

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 *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). 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 *formal* 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 *notional* 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

omfort from claims about "spatial relations which arise in primitive or udimentary 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 *nside* or *outside* (and their corresponding prepositions), and with notional nchoatives 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.

2. 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.

xul
ti' tix
ch'ik1 xen1 — pus2
'och tik' xij — paj1
baj1 tz'ap
k'eb tz'un1 k'at1
chuk til1 k'oj jul1
mas2 mul2 xoj vich2
tus luch2 chaj
ta2 vom1 suk1 pim
tas2 tz'aj totz1 sot2
tam ch'ot tz'ot
t'ub chik2 botz' tz'ot
sit' k'un ch'oj bul1
kaj t'ux muk2 p'ich tok' — nit'
mak jok' pitz petz — tek'
jotz' pej2 but
ch'op
jep
pul

one way connection

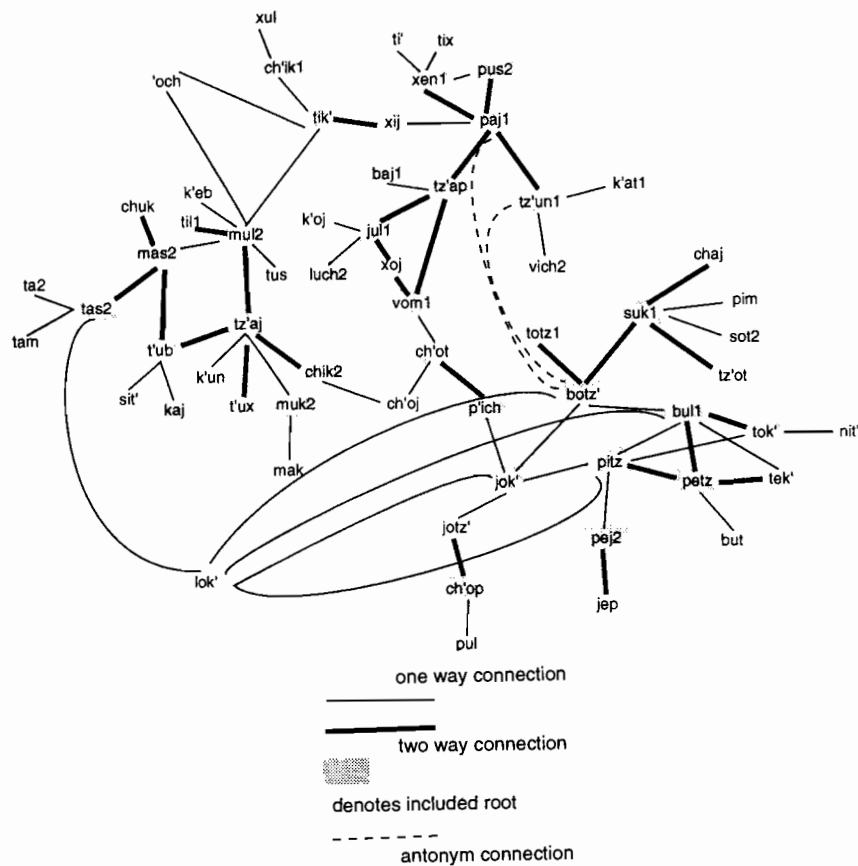two way connection

denotes included root

antonym connection

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

_____

[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.

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 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)'

_____

[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.

Mixed Transitive/Intransitive

ul2 `dip (in liquid, fire) (P = things moistened, pitch pine)´
uk2 `bury, hide´

Transitive with Positional extensions

ub `submerge, soak (P enters the medium fully)´
'aj `dunk (P is affected by the medium)´
'un1 `plant (firmly, vertically?)´
ik1 `plug, jammed together´

Positionals with Transitive extensions

ʔik1 `slip in (P = narrow thing?) (into small openings or cracks)´
'ap `pierce (P = pointed) (no prior hole in Ground)´
j `tamp, push in firmly (Ground resists)´
ej `insert-in-place, skewer (B,P = appropriate enclosure/ insertee)´
aj1 `jab in, fix (P = not pointed) (Ground already has place?)´
k' `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 "instrument" may also be involved. Making explicit appeal to a prior notion

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

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.
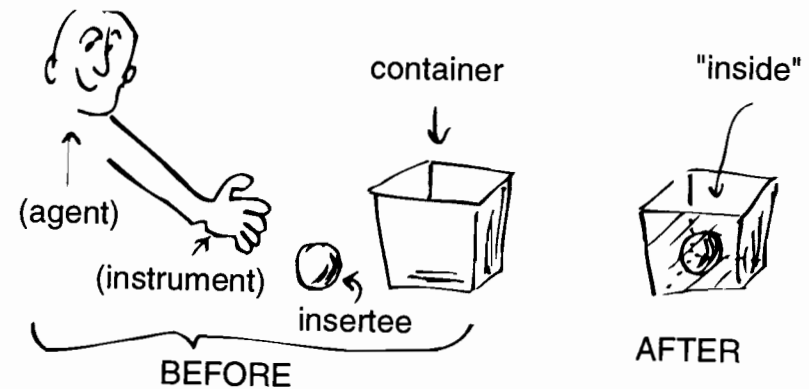

Figure 2: an abstract "insertion event"

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 *absolutive* affixes (zero in third person), and transitive subjects are cross-indexed by *ergative* 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.)

ially, in a ditransitive clause--signalled by the verbal suffix *-be*--the
logical" patient, if expressed, follows the verb directly in syntactic *chômage*
issen 1987); the agent or ergator, cross-indexed by an ergative prefix on the
rb, again comes clause finally; and a logical "beneficiary" argument
ervenes, now itself cross-indexed by absolutive affixes on the verb. Note
at in the sorts of examples involved here, the patient *chômeur* may often be
e Figure, whereas the "beneficiary" may correspond to the Ground. (An
ample ditransitive clause is shown in 4.)

)
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.´   (T78) [5]

)
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.´   (T176)

4)
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´   (PV)

The various participant entities in any "insertion" event must be realized
s clausal arguments, of which Tzotzil thus permits basically five types:

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, 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.

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).
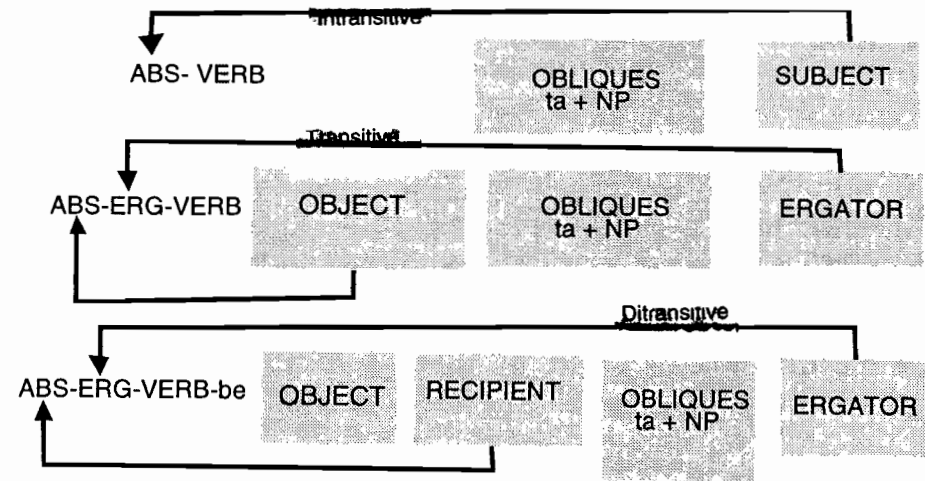
Figure 3: Argument structure of Tzotzil clauses

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.

4. 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) 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.´   (MA)

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) 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).   (T49)

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

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) *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**.´   (T176)

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.

5. 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:

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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.

(10) **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).´
                                                              (CV)

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) *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.´   (PV)

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) *ma`uk batz'i*  *l-i-s-jul-e*         *p'ichu-bil*  *no`ox*
    NEG   real   CP-1A-3E-**gore**-CL graze-PF   only
    `It didn't really gore me, I was just grazed.´   (PV)

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

ngle row of corn from a dried ear to facilitate shelling the remainder of the
n.)

The other roots in this transitive "inserting" subgroup have more
cialized meanings, centering around either the logical Figure (the thing that
inserted) or the logical Ground (the receiving enclosure). Once again, the
act details of argument structure are important. Thus, both *chik'2* and
uch2 have heavily restricted unmarked Grounds. The former means stick
mething (presumably foodstuff) into water or broth, in order either to cook,
ften, or otherwise render it edible, or to sop up the liquid itself.

3)   *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).´   (CV)

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

14)   *ta   j-**chik'**   k-ot   ta   kalto*
       ICP   1E-**dip**   1E-tortilla PREP   broth   (XPV 930421)
       `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)   **chuch**-*o*   *li   si`-e*
       stoke-IMP   ART firewood-CL   (XPV 930421)
       `Poke the wood into the fire!´

(16)   *lek   x-**chuch**-oj   k'ak'al*
       good   3E-**push**-PF   fire
       `She has pushed (firewood) into the fire (so it's burning) well.´ (PV)

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)   *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).´   (T81)

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 *both*
the meanings of 'insert' and 'extract.')

(18)   ***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.´
                                                             (XPV 930427)

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

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.

y are not actions that an inanimate object, say, would typically perform on
lf.

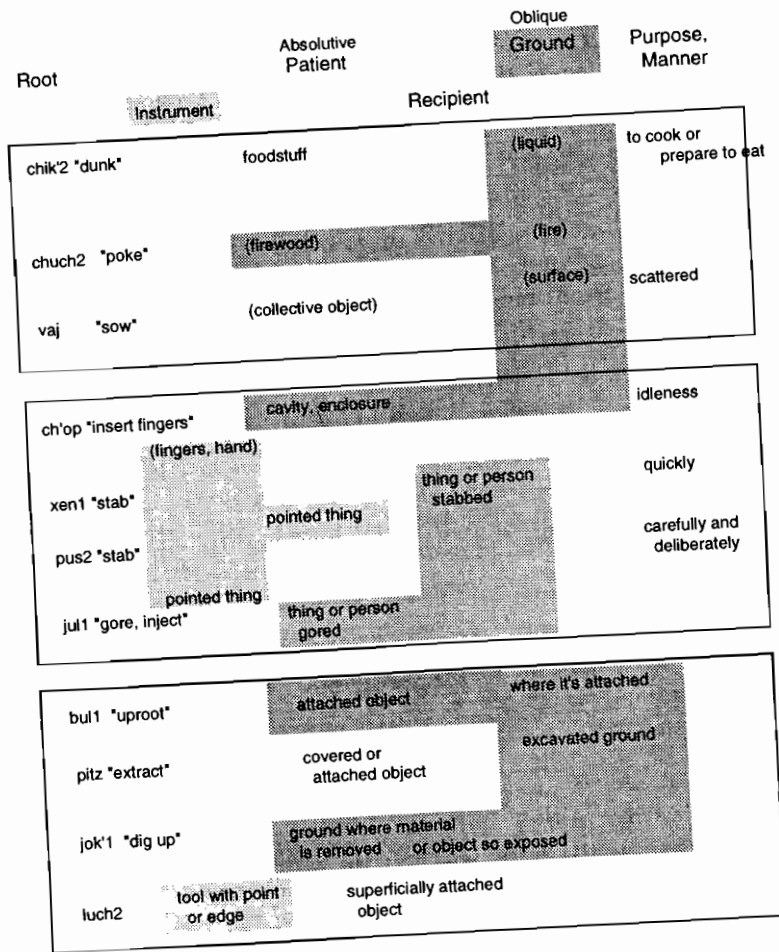

Figure 4: Transitive verbs of inserting and extracting

6. 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

ausative derivatives thus project an image in which an object *itself* might ink, or poke around 'in the fire.'

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

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

The root in adjectival form denotes a feverish condition, invoking again the magery 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 he 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)   *i-s-muk*   *s-tak'in*   *li*   *jk'uleje*
    CP-3E-bury 3E-money ART rich.person
    `The rich man buried his money.´   (constructed)

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)   *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   (constructed)

(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)   *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.´   (T78)

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)   *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.´   (PV)

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 *preconditions* on figure, or *resulting* mutual configurations of Figure and Ground. I have diagrammed these verbs in Figure 5.

	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 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)   **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.´   (T9141b1)

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

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

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

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.   (chanovun)

e a farmer coaches his son how to reply to the joking banter of another
ner, who is offering to take the boy on as a son-in-law (see Haviland
6). They have been discussing a chile farming venture, but the suggested
llenge has to do less with chile fields than with the man's daughter. As a
ive adjective, *tz'unul* means less 'planted' than in a position *as if* it had
n planted, e.g., vertical, or upright, but firmly rooted in the supporting
face. (You can, for example, *tz'un* a post if you plant it solidly into
ition.) In the context, the intended message is unambiguously sexual.
    Finally, the root *sukl* 'plug' specifies a highly restricted configuration for
isertee" and container. The latter must be a hole or opening, into which the
mer must be inserted tightly (but not, for example, puncturing it, or being
isted in).

2)   *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.´
                                                              (t9007a1)

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

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

8. 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'ikl* '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)   *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).´   (T131)

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.

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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.

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

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).´   (T124)

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

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." ´   (PV)

bound color terms formed with this root denote the colors of the tips or
sed ends of things. Thus, Laughlin glosses the term *sak-tz'ap-an* (where
ieans 'white') as "gleaming (needle), white (tip of digging stick)."
Tz'ap* thus presents a characteristic model of conflation, with topology,
:, anatomy, and geometric configuration all packaged together in a single
root. It involves

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');

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

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)   **xojol**   y-ok
        impaled 3E-leg

                                                      (XPV)
or

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

                                                      (XPV)

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)   va`al,   bechel   i-k'ot
        standing.limb extended CP-arrive
        `It's standing, (with its blade) sticking out.´

                                                      (XPV)

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

aneous agency'), and a stative adjective in -*Vl* ('be in state X, end up in X').

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

> *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.´   (MA)

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

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

> *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.´   (T103)

> 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.´   (PV)

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) *ja`  la   s-bitzulan-be      ta      s-ni`   un   x-{xoj}-be*
>   !   CL   3E-wiggle-BEN   PREP   3E-nose CL   3E-impale-BEN
>   *ochel*
>   DIR(entering)
>   `He wiggled it into his nose, he stuck it in.´   (T158)

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) *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.´   (T127)

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) *i-s-ta   te`  ta   ti`-na,   xojol   i-k'ot   ta*
>   CP-3E-find   stick PREP door-house **impaled** CP-arrive   PREP
>   *x-chak*
>   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)   (T71)

The root *pajl* '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'unl* above, because when one 'plants' an object one first prepares the hole, then firms up the earth around the planted

when one *paj*s an object one simply pushes it into place, where it sticks

Thus *paj1* suggests an "insertee" that is perhaps long but not ~~nec~~sarily pointed, and a "container" that resists, that requires inserting ~~it~~. Here is advice from a mother to her son, who "doesn't know how."

*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].   (T138)

~~An~~ affective verb in the following example also conveys the imagery of an ~~old~~ woman walking around, leaning on her cane.

*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].   (T119)

Finally we come to the root *tik'* 'insert, stick in' by its gloss the most ~~gen~~eral of all the roots I have grouped here, and one that therefore raises the ~~que~~stion of semantic generality and a schematic notion of "insideness" most ~~acut~~ely. *Tik'il* means, according to Laughlin's gloss, simply "be inside." ~~Mo~~reover, the verbal forms of the root seem to be used interchangably with ~~form~~s derived from several of the other roots I have been considering.

~~(49~~)   *oy*   *la*   *jun*   *y-espara*   *ta*   *la*   *x-**tik'**-b-at*   *ta*
     exist   CL   one   3E-sword   ICP   CL   NT-**insert**-BEN-PASS   PREP
      s-jol   *ti*   *vinike*
      3E-head   ART   man
      `He had a sword, and it was stuck into the man's head.´   (T104)

~~(50~~)   *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.´   (T11)

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

(52)   ***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.
                                            (T121)

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

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

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

9. Summary

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

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.

t displays patterns of diathesis which complicate the facile postulation of a *natural* or given allocation of possible entities between (syntactically distinguishable) Figure and Ground.

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

e observations raise pressing questions about how Tzotzil-speaking ren acquire these complex semantic portmanteaux, and whether they do so after first acquiring a more "natural" notion of interiority--perhaps sponding more directly to other simpler items of the Tzotzil lexicon-- must then be tailored to the specifics of Tzotzil spatial representation. ing work on the acquisition of Zinacantec Tzotzil (see, for example, de 1994) will hopefully begin to shed light on such matters.

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