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The Use of Body-Part Terms as Locatives in Chalcatongo Mixtec

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The expression of locational notions is achieved in a variety of ways in the languages of the world. European languages, for the most part, express locations through a system of cases and/or prepositions (for instance, *the box is in the room on the chair*). Another widely-used mechanism is to use extended meanings of body-part terms in locating expressions.¹

English exhibits one kind of semantic extension in its use of body-part terms to refer to parts of noncorporeal objects, as in *arm of a chair* or *pants leg*. The English case, however, is somewhat uninteresting since the extended uses occur through transparent metaphor (based on perceived similarity and perceived close association of the objects, e.g. the leg on a body and a pants leg). Additionally, the extended English uses still name objects rather than locations. English examples like these occur sporadically rather than systematically.

A more interesting and regular system of correlations between body-part terms and locating expressions occurs in Chalcatongo Mixtec.² In this language, body-part terms are used in at least four distinguishable ways: 1) to refer to parts of the body; 2) to refer to subparts of other objects, based on perceived similarities to the corresponding subparts of the body: these uses take the subpart of the object as an object; 3) again to refer to subparts of other objects, but taking the named subpart as a location rather than as an entity: these uses often express not only the shape of the location but also the particular type of locative relation (cf. *in v. on*); 4) to refer to areas outside the boundaries of the object, areas associated with the subpart named by the body-part term. These uses also often convey the type of locative relationship. As implied above, Mixtec body-part terms fill two sorts of roles in the language: the role of some "lexical" morphemes (cf. *pants leg*) and that of some morphemes which are arguably "grammatical" (cf. *on the table*). This fact suggests that the Mixtec

system of locative expression is quite different in kind from any European-type system of prepositions. Moreover, among the particular body-part terms themselves, some are more readily and regularly used in abstract, nonlexical locating expressions than are others. This broad range of variations in the level of abstraction achieved by each particular locative term can suggest which elements of meaning of a lexical morpheme are most amenable to extension or abstraction, that is, which semantic components are most likely to motivate the move to grammaticization of a morpheme.

Nominal Compounds in Mixtec

Body-part terms in their most literal uses exhibit all the semantic and syntactic behavior we would expect from true nouns. They name objects, can function as nuclear elements in a clause, can be modified, and so on. When used in either a literal, lexical manner or in their extended, grammatical meanings, they almost invariably occur as the first in a sequence of two nominals.³ It is important to establish the pervasiveness of the nominal compound construction in order to motivate some of the discussions to follow.

Macri (1981) has noted that in nominal compound constructions, "the second [noun] stands in a genitival relationship to the first." [p. 2]⁴ The concept "genitival", of course, needs to be explained, since the range of relationships that one could consider genitival have not all shown up in Chalcatongo Mixtec. I shall just define "genitival" here as being either a partitive or a possessive relationship, with the caveat that this definition will not prove completely adequate to characterize the data to follow. It is nevertheless an intuitive enough first approximation to allow us to proceed.

A definition of a "nominal" is also in order at this point, although, again, it is a definition that will prove troublesome with an exposition of the particular constructions under discussion here. I include as "nominals" here pronominal morphemes of both the full, unbound forms, and the greatly reduced, enclitic forms. The full forms occur syntactically just where

nouns can, i.e., as arguments of a predicate. The reduced, enclitic forms occur bound to verbs and predicate adjectives, indicating Subject; on prepositions which are not synchronically related to body-part terms, indicating the prepositional Object; and on nouns to indicate the possessor of the object named by the full nominal or the entire object whose part is named by the full nominal. Examples of each of these uses are given in (1)–(5).⁵

(1) ndukoo-rí'

be+seated - 1sg.

'I'm sitting down.'

(2) lúír-é

small-3sg.

'He is small.'

(3) ñá?á híí'-rí'

come+pot. with-1sg.

'Come with me.'

(4) s - ndoo bé?é-ro

cause-be left+pot. house-2sg.

'Leave your house!'

(5) ru?ú ni -nakača-ri' nda?á-ri

1sg. perfv.-wash - 1sg. hand-1sg.

'I washed my hands.'

The details of the distribution of the enclitic pronominal and that of the full-form pronominal are yet to be worked out; but what is at issue at this point is that the enclitics function in nearly identical syntagmatic positions as do nonpronominal nouns or full pronominals; thus to conclude that they are "nominals" for the purpose of the nominal compound construction is uncontroversial. Examples (5) and (6)–(9) demonstrate that including enclitics

as nominals in the context of nominal compounds allows a unified treatment of all constructions that express a genitive relationship between the two morphemes.

(6) soʔo-kʰf ni - kaččá tenddki
ear -horse perfv.-enter worm
'Our horse has worms in its ear.'

(7) ndaʔa-ydnu ka kaʔnú
hand -tree be big
'The tree's branch is big.'

(8) šini-rí ʔúʔú
head-1sg. hurt
'My head hurts.'

(9) nɪ - ndeʔe ini yúʔú-ńá
perfv.-look in mouth-3sg./m.
'He looked inside her mouth.'

Body-Part Terms in Nominal Compounds

An understanding of the productive capabilities of nominal compounds is necessary in order to understand the significance of the use of body-part terms in such constructions. When used in locative constructions, the body-part term is the first nominal in the compound, a position which invites an interpretation consistent with those of the nominal compounds we have seen so far, i.e. where the first noun denotes a subpart of the entity denoted by the second noun. The specification of a subarea of an object readily suggests a use as a locational. It is also a position relative to the second noun which is syntagmatically parallel to the position held by prepositions that are not synchronically related to body-part terms.⁸

Greenberg (1963) gives this syntagmatic parallelism as a universal: "In languages with prepositions, the genitive almost always follows the governing noun, while in languages with postpositions it almost always precedes." [p. 78] In the cases of a most literal partitive genitive relationship between the two nominals, the use of the body-part term itself is best motivated, since the extension of the body-part term is a metaphorical use applying a configuration of the human body to a similar configuration of another object. Example (7) above is a case in point. But this clear partitive case is not, strictly speaking, a location, at least in (7). It names what we can understand to be an entity rather than merely a place.⁷ A clearer locative noun phrase, and one again demonstrating the superimposition of a bodily configuration onto the configuration of another object, occurs in (10):

- (10) hiyaá - óe šini - yúku
 be+located-3sg.m. head-hill
 'He is on top of the hill.'

My claim that *šini-yúku* names a location is supported by the presence of the verb 'be located'.

Both (7) and (10) must be distinguished from (11), where the first nominal in the construction names not a subpart of the second, but an area in space associated with that subpart:

- (11) ni-ndečír ?n saá šihp-yúnu
 perfv.-fly one bird head-tree
 'The bird flew over the tree.'

This is the sort of case in which these nominal compounds begin to behave more like the preposition + nominal constructions that also occur in Mixtec. Here we have departed from the general schema outlined above in two ways: first, obviously, we are no longer naming a subpart of an object when using the nominal compound (although we are naming an area in space which is easily associated with the object named by the construction). Secondly, *šini-*

yunu, even in its new "relational"⁸ meaning, names only a single point in the path which is expressed in the verb. We shall also see that other locationally-derived notions such as source, extent, and goal are expressed via these constructions.

Thus the range of extensibility of use of body-part terms to locationals depends upon many variables. We can use transparent metaphorical association to refer to a subpart of an entity by using a term for a perceptually similar subpart of the human body. Or we can step outside the confines of the strict genitival relationship and exploit the construction by using it to refer to an area in space rather than an area of an object.⁹

The Role of Canonical Spatial Orientations

Each of the body-part terms under discussion has as one of its characteristics a location relative to the body as a whole in its canonical position. For instance, on the human body the head is the topmost tip. The back is vertically oriented and defines the dorsal surface of the body. The body and some other objects have inherent orientations: humans are canonically (though not unalterably) upright, with their faces and ventral surfaces determining their fronts. This is intuitively sensible, since our primary means of locomotion requires us to be upright and facing the direction of motion; our ventral side includes most of our perceptual and motor apparatus; and so on. Other objects have a front and back based on similar properties, such as direction of locomotion or perceived similarities to human fronts. Perceived similarities to human orientation also account for perceived uprightness of objects such as mountains and trees, which in Mixtec can be described as having "heads" (see Fillmore (1971) for more explication of these issues).

Some objects have no inherent orientations like those above: rocks and tables, for instance, have no inherent front or back. In Mixtec as in English, front/back orientation is assigned to such objects with the surface closest to the reference points being the front, and its further side being the back.¹⁰

So both inherent and assigned spatial orientations are important for the use of corresponding body-part terms to refer to subparts of objects. In some cases, e.g. (11) above, the body-part term does not refer to a subpart of an object, but is used in other more abstract situations. Canonical spatial orientation provides some of the links in the motivation of the use of some of these body-part terms. (12) is an example.

- (12) ni- ha?a - ri' ?n kiti nūū -se?e-ro
 perfv. pass-1sg. one horse face-son-2sg
 'I gave a horse to your son.'

Other evidence in the language indicates that nūū 'face' marks energy goals of all sorts, but this particular sentence is a well-motivated use of this convention. In the typical instance of giving exemplified in (12), the participants named as Subject and dative Object are facing each other so that the face is a salient subpart of each. In this case it is not merely the spatial orientation of the participants, which is inherent in the Subject and dative Object, which motivates the use of nūū. What is being exploited is the usual configuration of the participants with respect to each other, i.e. that they are facing.

The Data

The body-part terms whose use I will be discussing here are the following:

ĩini 'head'

cii 'belly'

nūū 'face'

yata 'back (human)'

nda?a 'hand'/'arm'

aiiki 'back (animal)'

ha?a 'foot'/'leg'

In addition, the element *ixi* 'road' plays an important part in the use of these terms and behaves in roughly the same way as the body-part words, so it will also be discussed. De Alvarado (1593), Pensinger (1974), and de los Reyes (1889) indicate that in other dialects of Mixtec the word *int*, which the consultant, Mr. Cortés, glossed only as 'inside' or 'into', can be translated variously as 'spleen', 'center of the emotions', 'stomach (the internal organ)', or 'heart', as well as with the prepositional use. This evidence suggests that *int* was extended into these locational uses relatively early, and, at least in the idiolect of my consultant, has lost its basic, literal meanings (he uses Spanish borrowings for 'heart' and 'stomach'). Similarly, Hills and Merrifield (1974) claim that the word for 'with' in Ayutla Mixtec is *ixi*, derived from the word for 'side'. Again, my consultant does not recognize a relationship between his word for 'with', *ixi* (cognate with the above Ayutla form) as being related to any body-part term. Note in example (18) below that he uses the word for 'hand' to express the area in space that we gloss as 'side'.

Each body-part term has particular idiosyncratic limits on the extent of its usability in nonliteral senses. In each case, important elements of the meanings of the body-part term will be its overall shape and/or its location relative to the entire object named by the second noun in the compound, which implies that the shape of the object will select the body-part terms appropriate to it.

nda?a 'hand' / 'arm'

The Mixtec word for 'hand' / 'arm' is by far the most restricted term in its range of extended use. It can be used only to refer to subparts of an object where that subpart is a limblike structure: thus it exhibits the most transparently metaphorical type of extension. Some examples follow:

(13) *nda?á-yúčá*
arm - plant
'twig of a plant'

(14) *nda?á-yúku*
arm - river
'tributary of a river'

(15) *nda?á-yúru*
arm - tree
'branch of a tree'

As mentioned above, these subparts need not be construed as locations but may be considered to name objects in their usual relationships to a larger object. A case in point is in (16), where the nominal compound is in Subject position, acting as a patient rather than a location:

(16) *nda?a-yunu tá?nù*
arm - tree split+off
'The branches of the tree are splitting.'

But *nda?a* can express a subpart which marks a location:

(17) *ndukoo-ri'nda?a -yúru*
sit - 1sg arm - tree
'I'm sitting on the branch of the tree.'

Again, in (17) *nda?a* refers to a subpart of the tree. I could not elicit any sentences where *nda?a* refers to an area in space except those, like (18), where *nda?a* is preceded by *íč*:

'road', which itself usually suggests an interpretation of an extended location of motion rather than a stative location; and that interpretation requires a "relational" reading of *nda?ɑ*:

- (18) *i^hi-nda?á βá-ro*
road-arm right-2sg.
'to your right side'

In this case, as with most other relational uses of body-part locatives, the shape characteristics of the named body-part cannot be preserved, since what is being referred to is an area in space. But since that area in space is contiguous with the named body-part, something akin to the relative location component of the body-part term is preserved. I would guess that this preservation motivates what we would call nontransparent uses of the body-part terms as it does here, where I have translated *nda?ɑ* freely as 'side' (in the sense of "direction" rather than "flank"). Arms are located laterally with respect to the body and are often used to indicate direction. The relative location, then, cooccurs with a common function of this location (with respect to the body and to front/back orientation—see again Fillmore (1971)) to motivate the use of 'arm' to indicate direction.

In any event the most easily and commonly elicited extended uses of *nda?ɑ* were those exemplified by (13)–(15), which is the subarea type of extension: a linear subregion of the object which branches off from the main portion of that object can be referred to as *nda?ɑ*.

ha?ɑ 'leg'/'foot'

The term for 'leg'/'foot' appears to be extended only in the 'foot' sense, as *nda?ɑ* is extended only in the 'arm' sense. That is, both *nda?ɑ* and *ha?ɑ* can refer either to the limb or to the terminus of that limb, but, in its extended uses, *nda?ɑ* is regularly used to refer to limblike parts and *ha?ɑ* to the terminus. There are many possible reasons behind this, but at least it is a most efficient way of dividing the load of conventional extended senses. A consequence

of this division of labor is that the semantic component which serves as the basis for extension of each will be affected. As we can see in (13), the location of the limb relative to the whole object need not be analogous to the location of an arm relative to the body: that is, we cannot readily identify an upward extent of this river to which an arm would be appended. In the case of *nda?a* 'hand' the shape of the subpart is clearly more essential than the relative location.

ha?a 'foot', by contrast, does not take shape into account at all in its extended uses. Because *ha?a* encodes the relative location, any lowest extent of an object perceived as being upright can be expressed with *ha?a*, and the nominal compound with *ha?a* as its first nominal can be used to express areas in space as well for stative locations and extents or points in extents along which motion takes place:

- (19) *yuu wā hiyaá ha?a-mesa*
 stone det. be-loc. foot-table.
 'The stone is at the table leg.'

(English: "foot of the table" is not a suitable gloss for the expression given in Mixtec)

- (20) *ni - ndukoc-rí ha?a-yuru wā*
 perfv.-sit - 2sg. foot-tree det.
 'I sat at the foot of the tree.'

- (21) *kí?í- ri iči-ha?a - yúku^h*
 go+pot.-1sg. road-foot-mountain.
 'I am going around the base of the mountain.'

grammatical while (27) is not:

- (26) *sáá wá ni - ndeči čil-yúnu wáá*
bird det. perfv.-fly belly-tree det.
'The bird flew under the tree.'

- (27) **sáá wá ni - ndeči ha?a-yúnu wáá*
bird det. perfv.-fly foot-tree det.
'*The bird flew under the tree.'

This fits intuition since, as noted before, the area in space associated with a foot is most probably the surface on which it is resting, but flying cannot take place on a solid surface of that sort.

However, the use of *čii* as 'under' in (26) is not simply a conventionalization of the use of *čii* as 'under' as exemplified in (23). That is, *čii* does not mean 'under' independent of the shape of the object: *čii-yunu* in (26) really names a space associated with a "belly" subpart of the tree trunk:

- (28) *isu wáá sa?a ?n yáw čil-yúnu wáá*
rabbit det. make one hole belly-tree det.
'The rabbit is digging a hole in the tree trunk.'

This certainly refers to a space in the tree itself, and names a subpart different from that named in (29), in which *ha?a* names the subpart expressing the location:

- (29) *isu wá sa?a ?n yáw ha?a-yunu wá*
rabbit det. make one hole foot-tree det.
'The rabbit is digging a hole {at the base of/under} the tree.'

Here, *ha?a-yunu* refers to a location in the ground. In contrast to both of these situations,

(22) yóó ?n iči ká?nú te tš?nú ?n iči lúir ha há?á iči-ha?a-yúku

there+is one road large and split+off one road small compl. pass road-foot-mountain

'There's a big road and branching off from it

a little one that crosses the foot of the mountain.'

Unlike *nda?a*, which cannot by itself be used to indicate an area in space, (20) shows that an area outside of the object itself can be referred to with *ha?a*. We must understand the location referred to in that sentence to be a place on the ground rather than a subpart of the tree (a predictable extension, since a lower extent of an object is usually contiguous with a surface on which it rests). But to provide another parameter of extended use, a "locational extent" reading requires *iči* preposed to *ha?a*, as evidenced by (21) and (22).

ha?a exhibits transparent analogy with the body insofar as it cannot be used for the lowest extent of just any object. It must be an object that is relatively upright, or one that has a substructure similar to a leg. The use of *ha?a* interacts with that of *čii* 'belly', sometimes overlapping in use with it, sometimes occurring in semantic contrast with it.

čii 'belly'

We have seen that *ha?a* regularly gets extended on basis of its location relative to the entire object, with no concern given as to whether the location named by *ha?a* + noun resembles a foot or a leg in its shape. *čii* 'belly' is extended rather as *ha?a* is in the respect that the shape of the named area is again not so important as its relative location, but there are two canonical body positions on basis of which the location of *čii* apparently is extended: that of a person and that of a four-footed animal. Both allow a "relational (i.e. area-in-space)" use of *čii* as well as a strict partitive reading. Most commonly the relational use can be glossed in English as 'under'. In (23) the use of *čii* is apparently on analogy with a quadruped and the location of its belly:

- (23) yuú wá^á híyáá čí^á-mesá
 stone det. be+loc. belly-table
 'The stone is under the table.'

This describes a situation in which the stone is lying on the same surface on which the table is resting (e.g., a floor), but is directly beneath the table top. By contrast, (19) describes a situation in which the stone is again resting on the same surface as the table, but is beside one of the legs. (19) is repeated here.

- (19) yuu wá^á híyáá ha?a-mesá
 stone det. be+loc. foot-table
 'The stone is at the table leg.'

Here, because of the shape of a table and the transparent analogy with quadrupeds, čí^á and ha?a name quite different subparts and associated areas in space. (24) and (25) give a case where čí^á and ha?a name roughly the same area:

- (24) kwá?á čí^á-yúnu wá^á
 go+pot. belly-tree det.
 'Go under the tree.'
- (25) kwá?á ha?a-yúnu wá^á
 go+pot. foot-tree det.
 'Go to the foot of the tree.'

These are both grammatical sentences, and they denote about the same location, since the base of the tree is under its trunk and branches. However, even when referring to trees these two terms do not always name the same area, since there are various verbs that require or prefer the use of one or the other of the body-part terms. For instance, (26) is

(26) can be used to describe the situation in which the tree being referred to is fallen and the rabbit is digging in the ground under the fallen trunk. Here, as was the case in (23), the analogy of a quadrupedal animal is being taken as the basis of extension for *čiti* and an associated area in space is being referred to. The ambiguity of (26) is therefore consistent with regular principles by which *čiti* is extended.

čiti provides very strong support for an analysis of these locative morphemes being based in body-parts. If we were to take the locative *čiti* and its corresponding body-part term *čiti* as (synchronically) separate, homonymous words, we could not provide a coherent account of uses of the locative *čiti* which includes reference either to the middle of the front surface of a vertically-oriented object or to the underside of a horizontally-oriented object, and to areas in space associated with each kind of subpart. The locative *čiti* would have to have two separate definitions, and each would have to have selectional restrictions stating the required shape of the object named by the noun following *čiti*. If one takes the body-part term as a basic sense, synchronically related to the locative uses, then we can apply the same general principles required by the rest of the system, and produce the two distinct locating areas for *čiti*: analogy with either a bipedal or a quadrupedal animal's body, and allowing the usual place for extension to associated space (as in (23) and (26)). We are not required to postulate complex selectional restrictions for the second noun (not to mention for the verbs and other elements in the sentence which would affect selection). Positing the analogy and recognizing the two types of body configuration which serve as bases for the analogy provides a more elegant and coherent means of capturing the phenomena.

There is independent support in the language for postulating the two types of body configuration as a basic parameter for extending body-part term usage. As we shall see below, the human-versus-animal distinction arises again in the lexical distinction made in *yata* and *siti*: both translate as 'back' in English, but the first refers only to backs of humans and the second to backs of animals, and in their locative senses the analogous areas of inanimate objects are referred to by the two morphemes. While there is no corresponding lexical distinction made between the bellies of humans and those of animals, the single available word *čiti* seems to perform in the way *siti* and *yata* together do for backs.

č̣i can be used as a locational extent or goal freely and without any further specification such as the use of *ič̣i* 'road'. (30) and (31) give examples of this use of *č̣i*.

(30) *č̣uku wá ni -ha?a č̣r-yánu wá*
fly det. perfv.-pass belly-tree det.
'The fly flew under the tree.'

(31) *č̣uku wá ni -ndeč̣i č̣i- yánu wá*
fly det. perfv.-fly belly-tree det.
'The flew flew around under the tree.'

The idiomatic translation of (31) is intended to provide the contrast between the interpretations of the two sentences. In (30) *č̣i-yánu* names a point in a linear path. In (31) the same nominal compound names an extended location over which the entire activity takes place. Notice that no change in the nominal compound has occurred: the informational status of the locative expression is recovered from information given in the verb. Kuiper and Merrifield (1975) and Macaulay (1982) have studied verbs of motion such as the *ha?a* of (30) and have noted that relative location of three anchoring points is encoded into many of these verbs. *ha?a* requires that the nominal compound name a location which exists on or near the linear path which the verb itself gives. There is no similar restriction on the locative expression following *ndeč̣i*, which encodes manner rather than direction of locomotion, and in this case information given by the subject is helpful too, since a fly is small enough that a relatively small area in space like that named by *č̣i-yánu* could still be large enough to accommodate an entire act of flying (by contrast, Mr. Cortés told me that replacing 'fly' with 'bird' in (31), if grammatical at all, would force an interpretation of the locative expression given in (30) (i.e. "flew in a path under the tree").

There are some cases of *č̣i* which are glossed as 'because'. Phonologically this morpheme is identical to the recognizably locative *č̣i*. Syntactically, it behaves entirely unlike the body-part locative elements under discussion here, since it can appear in a sentence before words of many lexical classes, e.g.:

(32) čīl̄ ká-indatu-θ róʔó
 because pl.-wait-3 2sg.
 'Because they are waiting for you.'

(33) čīl̄ kuni-ndeʔe-θ tatañúú
 because want-see-3 grandparent
 'Because she wants to see her grandparents.'

(34) čīl̄ βiha kīl̄-na
 because now go+pot.-1sg.
 'Because I have to go now.'

These sentences show that the čīl̄ of 'because' is not subject to the same morphosyntactic restriction as the čīl̄ of 'under', etc., since none of the words following čīl̄ in (32)–(34) are nouns; and even in the case that a noun does follow this sense of čīl̄, it cannot be interpreted as naming an object of which čīl̄ names a subpart. It is included here because of the possibility that this word is historically related to the body-part and locative uses. One possibility is that via the use as "under", čīl̄ came to signify supporting material, underwent a semantic shift (a shift in domain) and a reassignment of lexical category, with the corresponding syntactic behavior. Synchronically it seems clear that the word meaning 'because' is a homonym of the body-part locative term.

yata 'back (human)'

yata contrasts with one sense of čīl̄ in that they both refer to a subpart of an object of the same general shape. If čīl̄ refers to a subpart of an object that is closest to the speaker or other reference point (i.e. its "front"), *yata* is the corresponding area of that object that is furthest from the point of reference (i.e. its "back" surface). This again is a consequence

of the general principles by which front/back orientation is assigned to objects without inherent orientation.

The commonest occurrence of the locative *yata* is in the relational uses. Mr. Cortés was usually unwilling to assign a *yata* to an object without an inherent, upright back surface; but he freely produced many sentences in which *yata* is best glossed in English as 'behind'-- i.e. cases where *yata* referred to an associated area rather than an object--but which, in a sense, presupposed that the corresponding subpart existed as such and thus could be used to refer to an area in space. This suggests that, while the appropriate use of *yata* does depend upon a recognizable analogy with the human body, the relational meaning has achieved a level of independence from the question of whether the named object has a *yata* or not.

In this sense of 'behind', *yata* is freely used as a stative location, locational extent, and goal:

(35) *nde?e čád ha hindi yatá - hási?i wá*
look-pot. man compl. stand back-woman det.
'Look at the man who is standing behind the woman.'

(36) *ha?a - ró yátá - ße?e uni*
pass+pot.-1sg. back-house three
'You go (to a place) behind the third house.'

(37) *kwá?á (iči-)yata-yúnu*
go+pot. (road-)back-tree
'Go behind the tree.'

(38) *čódá kendá yata -ßé?e*
go+hortatory exit+pot. back-house
'Let's go [in back of/outside] the house.'

When using *yata* as a locational goal, it is preferable to have *iči* before *yata*, as in (37). *iči* is

also optional and occurs frequently with *yata* when expressing stative locations (this is a mystery which will be touched on again briefly in a future section).

(38) exhibits a further level of extension, from analogical spatial configurations to a more general location. The sentence is ambiguous over the two glosses provided. This is another case in which the deictic anchoring of the verb is illuminating, since in all attestations of *yata* where it was used for 'outside', the verb encoding the activity of which *yata* + noun is the goal indicates that the speaker is inside the named location at the time of the utterance. For instance in (38) *konda* can be glossed as 'exit' or 'move out' (after Macaulay (1982)), which, along with the hortatory verb *č'o?o*, places the speaker and hearer inside the house. If in fact my attestations constitute an accurate sample, this deictic anchoring of the verbs motivates the use of *yata* as 'outside', since from the inside of, e.g., a house, the outside is on the other side of the wall from the speaker--a location which could easily be seen, as an instantiation of 'behind'. This seems to be another case of a conventionalization of use, since it does not strictly fit the pattern of *yata* we have seen: if *yata* still meant just 'behind' here, we would expect 'wall' to be the second nominal in the compound instead of 'house', since houses have recognized fronts and backs not dependent upon the location of the speaker. It is a conventionalization which is nonetheless consistent with the processes of analogy and deixis otherwise exhibited.

siki 'back (animal)'

siki corresponds to one sense of *č'iti* in just the way that *yata* corresponds to the other: it specifies a top horizontal surface as *č'iti* specifies the underside of a horizontal surface. *siki* overlaps in function with two other terms discussed below, *š'ini* 'head' and *nini* 'face'. All three of these terms can be used in the partitive sense in a way we would gloss as "on", and in those situations the shape of the locational object plays a large role in the choice of locative term. Other factors are conventions of the language and pragmatic considerations, both of which will be mentioned below. The body configuration that is relevant when using *siki* is more than just the presence of a horizontal back as of an animal. Either horizontal or

sloping surfaces can be considered as instances of *siki*, and the surface can be almost linear (as in (39) below) or can be planar. The object itself, however, must be three-dimensional-- that is, *siki* cannot name part of a planar object (cf. (40)).

- (39) ni -nddkod-ri'sfik'hika-βé'e
 perfv. -sit - 1sg. back - wall - house
 'I sat down on top of the wall of the house.'

- (40) se?e-ri' hitú $\left\{ \begin{array}{l} *siki \\ *back \\ nũũ \\ face \end{array} \right\} -ydu$
 son-1sg. lie $\left\{ \begin{array}{l} \\ \\ \\ -mat \end{array} \right\}$

'My son is lying on the mat.'

nũũ 'face', discussed below, is regularly used for naming the top surface of a two-dimensional object. When the object is three-dimensional and planar, either *siki* or *nũũ* is acceptable (although there appear to be pragmatic differences between the two forms):

- (41) nukoo-ri' $\left\{ \begin{array}{l} siki \\ back \\ nũũ \\ face \end{array} \right\} -ydu$
 sit-1sg. $\left\{ \begin{array}{l} \\ \\ \\ -rock \end{array} \right\}$

'I am sitting on a rock.'

- (42) ni-kaa-ri'siki-βe'e
 perfv.-be-1sg. back-house
 'I was on the roof of the house.'

(42) illustrates an important subsidiary point. It is clear from this sentence and others like it that the Mixtecs do not impose a single, unified model of body configuration on the object named in the locative expression. A house can be given relative subparts on analogy

with a human body model, resulting in *yafa* 'back' expressing "behind", and, by implication, a front/back assignment; or, as in (42), it can be assigned subparts on analogy with an animal body, in which case *siki* 'back' designates, roughly, the roof. So the associations made with actual bodies are far from fixed; subpart relations are exploited to their fullest by being applied selectively rather than all at once in a kind of superimposition of an entire body model.

Another interesting case of this principle also points up the abstraction under conventions of use that can be a consequence of selective analogy. Notice (43):

- (43) haʔa siki-ri'
 pass→pot. back-1sg
 'Climb over me.'

(43) was uttered within a scenario in which the speaker was lying down and the (imagined) addressee was lying next to him at the time of the utterance. The use of *siki* here is regular in many respects: it expresses a relational use of the body-part, referring to an area in space directly contiguous with the location named by the body-part term, and the spatial information encoded into the verb allows the interpretation of the locative expression as a path. What is interesting about (43) is that we are reinterpreting a human body, based on its configuration and position in the context of the utterance, relative to the canonical configuration of an animal body. If the language were merely using the appropriate body-part term to refer to an area in space closest to that named body-part, we would hardly expect *siki* to be grammatical here, since *siki* by definition cannot name part of a person. This indicates again that a level of grammaticization is entering into the use of *siki*, by which it is coming to have a meaning independent of the appropriateness of referring to an actual part of the object with *siki*. At the same time, it preserves attention to the particular shape taken by the object, since it is that shape, of which the animal is recognized to be an instance, which allows the use of the locative term.

šini 'head'

Because šini names the topmost extent of an object perceived as upright, it will overlap in function with the other terms siki and niš, both of which name top surfaces that are horizontal and planar. The usual subpart named as the šini of an object is something like the "tip" of that object, i.e. a part that is smaller along all dimensions than is the object as a whole (by contrast with siki, which can be identical in two dimensions with the object as a whole). This general restriction is intuitively comfortable, based on the size and shape of a head relative to the whole body of which it is a part, and occurs in partitive constructions, notably (44) and (45), which go unanalyzed synchronically (and express not locations but objects) but which are nonetheless consistent with the other data:

(44) šini-ha?a
head-foot
'toe'

(45) šini-rda?a
head-hand
'finger'

These uses of šini are clearly partitive, expressing objects rather than mere locations.

Another subpart use of šini occurs as a locative element in (46):

(46) hiyaá-šé šini-yúku
be+loc.-3sg. head-hill
'He is on top of the hill.'

This contrasts with (39), where siki is required, in conformance with the above restriction on the shape of the subpart:

- (39) a. ni-ndúkoo-rí $\left. \begin{array}{l} \text{sí}^{\text{h}}\text{kí} \\ \text{back} \\ \text{*šini} \\ \text{*head} \end{array} \right\} \text{-hika-βé?e}$
 b. perfv.-sit-1sg. -wall-house

'I sat down on top of the wall of the house.'

When used in relational senses, *šini* can be glossed as 'above' or 'over', and can occur whether the location is stative or not. In any case, the shape of the locational object decides the grammaticality of *šini* as it is used like 'above': recall that *siti*, too, is used like 'over' when the object is horizontally oriented.

- (47) ndesa hiyaá yóó šini-yúnu wã

how be+loc. moon head-tree det.

'How is it that the moon is over the tree?'

Both the partitive and the prepositional uses of *šini* can be used to express locational path. Again, *iči* 'road' placed before *šini* often specifies path or disambiguates between a path reading and a goal reading, as in (48); whereas (49) gives a case wherein *šini* is clearly a goal:

- (48) kí?í- ri' ičí-šini-yúku

go+part.-1sg. road-head-mountain

'I'm going along the top of the mountain.'

- (49) ni - kaa - ri' šini-yúku iku

perfv.-climb-1sg. head-tree yesterday

'Yesterday I climbed to the top of the tree.'

(50) is predictably ambiguous between the path and goal interpretations of the locative:

- (50) ni-ndeč' ?n sãã šini-ydnu
 perfv.-fly one bird head-tree
 a. 'A bird flew over the tree.'
 b. 'A bird flew to the top of the tree.'

The lack of information about the direction of motion, as well as other characteristics of the semantics of the verb *ndeč'*, allows for the ambiguity of (50). (49) and (50) demonstrate that *šini* can encode the location of an activity verb without requiring *tč'*.

nũũ 'face'

The word for 'face' in Mixtec is by far the most interesting of the body-part terms. It exhibits the largest number of clearly distinguishable uses, and in some of those uses, the greatest degree of abstraction from the basic meaning. These abstract uses can be classed as grammatical rather than lexical uses, and this grammaticization is a result of extensions from the basic meaning which are highly conventionalized.

nũũ is the term whose extensions depend most heavily on an understanding of the application of canonical spatial orientations and their place in more general situations. For example, in (12), repeated here, we can understand why *nũũ* marks the dative goal if we take into account the usual situation of interactions—that the participants are face-to-face—and further extrapolate as to why this situation is the usual one—that the face is the part of the body by which people are most easily identified; that it is the location of most of the perceptual organs by which we gather information; that it is oriented in the same direction in which we are most agile in movement and locomotion.

- (12) ni - xda'-ri' ?n kiti nuu-se'e-ro
 perfv.-pass-1sg. one horse face - son. - 2sg.
 'I gave a horse to your son.'

Most situations which involve a goal, either dative or locative, will require the encoding of some or all of these cooccurring elements of the interactional scene, and apparently the way this is done in Mixtec is, in a manner completely consistent with the general phenomenon of using body-part terms, by naming the body-part which has all these experientially based characteristics associated with it.

The shape and relative location of a face are, of course, still different bases for extensions to locating expressions. In the case of *nuu*, unlike the other body-part terms, one or both of these components may be disregarded when the extension is based on the situational characteristics instead (recall that a similar situation obtains for *ha?a* and *nda?a*, except that in each, one component is consistently disregarded). So, for instance, while a location described with *siti* – noun must maintain both the shape of the *siti* (i.e. a horizontal or sloped two-dimensional surface) and its position relative to the object as a whole (i.e. the top-most surface of the object), the *nuu* of (51) does not refer either to a front-top surface or to a roughly planar surface:

- (51) ni - ha?a - ri' nuu - be'e
 perfv.-pass-1sg. face-house
 'I went to his house.'

Looking at *nuu* a little more systematically now, we can find several cases of the partitive type in which the shape and relative location components are preserved, as in (52):

- (62) ni-ndukoo- \emptyset nu \dot{u} -yuku
 perfv.-sit - 3sg. face-hill
 'He sat down on the hill.'

'On' here is far too general a gloss to suggest the real distribution of this use. $n\ddot{u}\ddot{u}$ here designates a subsurface of the hill which is closest to the speaker (or other deictic anchoring point) and is therefore the front of the hill by convention. However, (53) and (54) maintain only the roughly planar shape of the face, but not its location or size relative to the entire body:

- (53) nukoo -ri $\left. \begin{array}{l} n\ddot{u}\ddot{u} \\ \text{face} \\ siki \\ \text{back} \end{array} \right\} -y\acute{u}\acute{u}$
 be+seated-1sg. } -rock

'I am sitting on a rock.'

- (54) ni -hi \acute{k} a -ri' i \acute{c} i - $n\ddot{u}\ddot{u}$ - $\ddot{n}\acute{d}$ u-r \acute{o}
 perfv.-walk-1sg. road-face -town-2sg.
 'I walked around in your town.'

- (55) ni -nde \acute{e} - \emptyset $n\ddot{u}\ddot{u}$ - β alse
 perfv.-look - 3sg. face-purse
 'He looked all over the surface of the purse.'

These sentences show that $n\ddot{u}\ddot{u}$ can refer to a stative location or the extended location of an activity, as long as that area is two-dimensional.

By contrast, $n\ddot{u}\ddot{u}$ can also be used in a sense which preserves the relative location of a face, in the front of a body, but with no regard for shape or relative size. In these uses it can be glossed 'in front of':

- (56) *kwa kɔndi nũũ -mesá*
 go+pot. stand face-table
 'Go stand in front of the table.'

In this use, there seems to be no restriction whatsoever on the shape of the object given in the locating expression: it can be upright, as a person, completely flat, as a rug, or ambiguously interpretable, as a table. The last case often leads to an ambiguity in the sentence, since *nũũ* can be interpreted as referring to the planar top surface or to the area in space in front:

- (57) *yɔ̀ɔ wá hiyaá iči - nɔ̀ɔ - mesa*
 rock det. be+loc. road-face-table
 a. 'The rock is in front of the table.'
 b. 'The rock is on the table.'

(I do not understand why the (b) reading is possible when *ɔ̀ɔ* is present. I would expect that *ɔ̀ɔ* would be used to disambiguate between the two readings, being present to indicate an implicit directionality and being absent in the case of a non-directional reading. This proves not to be the case here, although it does work this way in other sentences.)

Because of the conventional assignment of front/back orientation on spatial deixis principles, *nũũ* has acquired a pair of meanings that have become quite grammaticized, meanings that would seem to be almost entirely devoid of any active principle of analogy based on properties of the face. These two uses are in the marking of sources and goals. Examples of dative and locational goals are given in (12) and (41) above, but both of those examples involve nouns which name objects considered to have fixed fronts (in the case of a house, the front is the wall in which the door is cut). (58) and (59) provide cases of a front surface that is completely dependent upon the situational context, as well as demonstrating how the language linguistically distinguishes between sources and goals:

(58) *sāā wā ni -ndeči nuū-yđnu*
 bird det. perfv.-fly face-tree
 'The bird flew to the tree.'

(59) *sāā-wā ni'- kenda nuū-yđnu*
 bird det. perfv.-exit face-tree
 'The bird flew out of the tree.'

As noted earlier, deictic information about directionality encoded into the verb gives the path of motion in (59) and allows *nuū-yđnu* to be interpreted as source. As in (58), when there is no information to the contrary, *nūū* + noun is interpreted as source when the ambiguity is between source and goal. The contrast between (58) and (59) demonstrates a series of compromises made in the language. Using *nūū* to indicate both source and goal is consonant both with the basis for extending body-part terms and with the assignment of front/back orientation based on the situation. But this double duty of *nūū* leads to the possibility of serious ambiguities in particular instances. Having a lot of spatial information encoded into the verb, as it is in *kenda*, *ha?ə* and other verbs of motion serves to disambiguate the meaning of *nūū*, but at the expense of the expression of manner of motion, which is indicated by *ndeči* in (58) but is lost in favor of directional information given by *kenda* in (59).¹²

A similar set of compromises is demonstrated below. English distinguishes source from goal by means of two different prepositions, so understanding the semantic role of the locative element is independent of the deictic anchoring of the verb, so long as the information is consistent. For this reason, in English one can use both *bring* and *take* with either source or goal phrases, since the verbs differ only in deictic anchoring.

(60) I { brought } the bread from my uncle.
 { took }

(61) I $\left\{ \begin{array}{l} \text{brought} \\ \text{took} \end{array} \right\}$ the bread to my uncle.

The variability in deictic anchoring shown above for English is impossible in Mixtec, since it is deictic information in the verb that identifies the locating expression as either source or goal—the locating expressions themselves are marked the same in either case. Only the following versions of the possibilities given in (60) and (61) are possible in Mixtec:

(62) ni - hi - ndá?é - ri' tástíla nuú - stóo - ri'
 perfv.-with-hand-1sg. bread face-uncle-1sg.
 'I took the bread to my uncle.'

(63) ni - kî?î̃ - ri tástíla nuú - stóo - ri'
 perfv.-move+from+PLA-1sg. bread face-uncle-1sg.
 'I took the bread from my uncle.'

Again, as we saw with *ndéçtí* and *kenda*, *sinda?á* 'with the hand' / 'carry' and *kî?î̃* 'move away from Place of Locutionary Act' (after Kuiper and Merrifield and Macaulay) encode different kinds of information: one gives manner, while other gives directionality, and the directionality given by *kî?î̃* requires the source to be specified, thereby allowing the locating expression to be interpreted as source.

While the face-to-face interaction scene exemplified in (12) is evidently the basis on which *nũũ* is used as a goal marker, synchronically *nũũ* marks abstract goals as well as goals of location or transfer:

(64) ni - s - na?á - ri' nuu - sé?é - ri' ha sdtíũ
 perfv.-cause-know-1sg. face-son-1sg. compl. work
 'I taught my son to work.'

The use of *síti* in (43) indicates that these body-part terms were not being used purely

metaphorically and associationally every time, because the (human) object in (43) does not have a body-part named *siki*. Here is another graphic counterexample to the claim that body-part terms are pure nouns--purely lexical morphemes--which are used associationally. (65) is ambiguous over the two readings given, though (a) is the preferred reading:

- (65) nuù-hási?i ha pedrú ni - ha?a kuñu ka kd?nú
 face-woman compl. Pedro perfv.-pass meat be fat
 a. 'The woman that Pedro gave the meat to is fat.'
 b. 'The face of the woman that Pedro gave the meat to is fat.'¹³

It seems to me that if the goal reading in simple clauses were merely a consequence of an extension from the face onto an associated area, placing *nũũ-hast?i* in Subject position would result in a preferential reading of (b), if not a downright exclusion of (a). That is, the straight partitive reading should be preferred when the nominal compound occurs in Subject position, if no conventionalization of the function of *nũũ* is involved. The fact that the (a) reading is preferred suggests to me that, on the contrary, *nũũ* + noun has achieved an easily recognized status as a goal phrase, and that in the sentence context, that is the most easily recoverable interpretation of the construction. On the other hand, the fact that the *nũũ* gets pushed up front from its place in the lower clause suggests that Mixtec speakers would do something as strange as putting an apparent goal in Subject position rather than break up what is obviously a very tightly-knit construction--as tightly-knit a construction as a clear case of a partitive or possessive nominal compound would be (note that a version of (65) in which the *nũũ* were "stranded" before the copula of the higher clause would be ungrammatical--*nũũ* and *hast?i* have to stay together).

To return to the more general issue of the distribution of *nũũ*: it is used as a goal in such a variety of situations that it seems to have established itself as a marker of goals of all sorts. This wide application of a body-part term to such an abstract semantic role exhibits a level of grammaticization that has so far not arisen in these data. The body-part term *nũũ* has lost virtually all of its function as an indicator of a subarea of an object, since in the sentence above *nũũ* marks the semantic role of the named object as a whole.

I have mentioned that when *nũũ* is used as 'on' it often refers to a two-dimensional space that can be either vertically or horizontally oriented. This seems to be the most neutral locative function in the Mixtec system, since it makes no restriction on orientation, shape of the object as a whole or of the subpart being referred to, or relative size. It is not the least marked means of expressing a locative, since one can place some location names directly after the verb without using a body-part term at all,¹⁴ e.g.:

- (66) *kiʔiʔθ skwela*
 go+pot.- 3sg school
 'He will go to school.'

That *nũũ* is the most neutral locative expression with respect to the parameters discussed here is consistent with its use as source and goal, whereby it refers to a general place. Sources and goals usually have a salient surface--either horizontal, as in a locative goal like a city, or the front, vertical surface, as in a dative goal like a person, or both, like a location at a table. Thus it is easy to see how *nũũ* could become abstracted--less specified in terms of its semantic components--to designate simply the relevant location in an activity or state. In (67), this general meaning of 'place' or 'location' gets applied metaphorically:

- (67) *ni - satũũ - ni' nuu - monika*
 perfv.-work -1sg. face-Monica
 'I worked instead of Monica'

Mr. Cortés informed us that this use of *nũũ* is highly restricted, occurring only with the word for 'work' and with semantically related words. This is understandable, since the space that *nũũ* ostensibly refers to is not even a physical space associated with Monica or some part of Monica, but is a position of activity and responsibility associated with Monica. Here *nũũ* literally refers not to a space at all, but rather to a position within a non-spatial domain--a further abstraction away from those occurring within the spatial domain.

iči 'road'

While not a body-part term, *iči* behaves enough like the body-part locatives and is frequent enough as an indicator of location to warrant some attention here. *iči*, when used in locating expressions, always occurs before a body-part term—never simply with a locational object. Using this fact and applying to *iči* the general principles of abstracting locational elements from the semantic components of body-parts, one would expect that the locative use of *iči* would exploit the implicit motion and directionality characteristic of roads, and that the use of *iči* would indicate a locational path or implied directionality to locational expressions. In the contrast between (68) and (69) *iči* behaves in this nice way:

(68) *hirdi-ri nuð-mariá*

stand-1sg. face-Maria

'I am standing in front of (facing) Maria.'

(69) *hindi-ri iči-nčù-mariá*

stand-1sg. road-face-Maria

'I am standing ahead of Maria.'

The addition of *iči* in (69) gives a direction or implied path relating the speaker to Maria. The directionality of 'road' is, reasonably enough, the road ahead of Maria, and the speaker standing in that path is facing the direction of the path as well. (68) describes a simpler situation which instantiates the usual configuration of two people interacting (and resembles in that way the sentences with *nũũ* marking goal). One can give several cases in which *iči* serves this predictable purpose of naming a path or linear extent associated with the point named by the body-part locative + Object. (55) is such a case: where the sentence without *iči* would probably be interpreted as including a goal phrase, inclusion of *iči* allows the locating expression to be interpreted as an extended area over which the activity of motion takes place.

However, *tʰi* also occurs where one would not expect it to under this analysis. For instance in (57), the (a) reading indicates a nonpartitive space associated with the *nũũ* (front surface) of the table. 'In front of' is a natural consequence. But the (b) reading of (57) is just as acceptable to the consultant, and the location there is purely stative and partitive with no implication of either a front-directed surface or of a nonpartitive space. The fact that the two readings are possible for this single sentence indicates that it is not simply that I have missed some feature of shape or position that requires or prevents the occurrence of *tʰi*. Mr. Cortés told me that he uses *tʰi* often just to emphasize, further specify or make more precise the location being referred to in the body-part + noun compound, irrespective of whether the locative is stative or active or extended or otherwise oriented. This explanation works for some of the cases, but even if one could be satisfied with such a disjunctive definition of *tʰi*, it would not easily account for all the cases in which *tʰi* changes the meaning of the locative and those in which it does not.

Some Issues Suggested by the Data

Up to this point I have been assuming that the locating expressions discussed here are derived from the nominal compounds used so productively in Mixtec to signify genitive relations. While I believe the data to have demonstrated this position, it may yet be subject to dispute. There are also other implications and difficulties of this position that require exposition.

Summary of the Principles of Extension from Body-Part to Locative

It might be possible to give an accurate representation of relational expressions without having to postulate a synchronic or diachronic relationship between the obviously nounlike body-part terms and the clearly relational locative expressions. It would require something like strict subcategorization and selectional restrictions, in order, for instance, to prevent (39b) from being predicted as *grammatical*, which it is not:

(39)	a.	ni-ndukoo-rɪ	}	sɪkɪ	-hika-βe?e
		perfv.-sil-1sg.		back	
	b.			*sini	-wall-house
				head	

'I sat down on top of the wall of the house.'

Furthermore, building into the lexicon the constraints for particular senses of particular locational objects would be extremely complicated. For instance, *nũũ* in the sense of 'in front of' can take an object of any shape, but in the sense of 'all over' (cf. (55)) requires a horizontal, planar object, and in the sense of 'from' also requires verbs of exiting.

This is information which can be coded more easily and in an intuitively more pleasing way by positing the body-part as the basic sense, explicating principles of canonical orientation and deixis that are independently required in the language, and determining which semantic components of the basic body-part terms serve as bases of extension to more abstract uses.

Another advantage to positing body-part meanings as the bases for the relational uses is that the principle of extension from the body-part meanings accounts for both partitive and relational uses of the terms, which cannot be given a consistent or unified treatment if there is no motivation for a synchronic relationship among the senses. If the body-part terms were not taken to be the basic senses from which are derived both partitive and relational locatives there would be no justification for calling the relational elements "nominal" to any

extent and we would lose the availability of the already-existing nominal compound to characterize the relational uses of the construction.

There are several other advantages to viewing the body-part terms as semantically basic and the locational senses as historically derived and synchronically related. The most general advantage is that of economy: by this analysis one can substantially decrease the number of rules and constraints on rules in the grammar required for descriptive adequacy. Rather than having just lexically-specified constraints as suggested above, we can give general principles in which all the body-part terms behave in a similar fashion, when extended and abstracted, after which we can specify the boundaries of extension peculiar to each term. We can thus provide a unified account of the literal uses of the body-part term, the partitive uses by which the subareas of inanimate objects are referred to, and the relational uses by which areas in space are referred to, thereby capturing an important generalization about the systems in the language.

Body-part terms as they are used literally provide most of the information that allows for the abstract uses of the terms. Since canonical body structure and orientation are such important notions in the extended uses of these terms, it is necessary to recognize that body-parts themselves are relational in an important way. For example, *head* cannot be fully understood without making reference to an entire body of which it is an integral part. Similarly, part of what we know about a foot—aside from its characteristic shape—is where it belongs on the body. Shape of the object as a whole, shape of the subparts referred to, and location of the subpart all serve as semantic components by which objects are perceived as resembling the body-part whose name is used in the reference.

Nevertheless, each body-part term exploits its possible range of extensions to a different degree. *haʔa* 'foot', for example, extends both to partitive and to relational uses almost exclusively on basis of the relative location aspect of its literal meaning. By contrast, the correct use of *ʔini* for partitive and relational uses relies heavily on the shape and size of the subpart as well as its relative location.

Sometimes the extension on basis of one semantic component requires that another semantic component of the body-part term is not preserved. For instance, *nūū* 'face' is

regularly used to refer to various locations with respect to a planar surface ('on', or 'all over', etc. Cf. (55)–(57)). This usually requires that the surface referred to with *nūū* is not toward the top of the front surface of an upright object, as a face is with respect to a body (cf. (58)). When *nūū* is used in the sense of 'in front of', canonical body position, i.e. upright-ness, and part of the relative position, i.e. frontness, are preserved, but relative size is not.

A different parameter of extension along which these body-part terms exhibit individual differences is the kinds of locations they can be used to express. All of them exhibit some uses as partitive locatives, e.g. (17), (28), (42), (46), (65b). In these cases the nominal compound functions as usual by referring to a part of an object and then to the object as a whole. I have also given some examples where the nominal compound does not refer to the expected partitive relation—what I have referred to as the "relational" uses. They are semantically related to the partitive uses, but some ambiguities, such as that below, show that they must be distinguished.

- (50) ni - ndeč'i?n sãã šini-yúnu
 perfv.- fly one bird head-tree
 a. 'The bird flew over the tree.'
 b. 'The bird flew to the top of the tree.'

(50) gives an example in which the relational meaning is easily recovered from a partitive meaning. Given the compound 'head-tree' and the partitive meaning 'top of the tree', we can easily make the extension from the top part of the tree, the partitive meaning, to the relational meaning--'above the tree'. Below I will summarize some of the cases where one cannot so easily recover a relational reading of the locative from just observing the partitive use and its associated space.

But (50) exhibits another point important for describing the range of distinguishable meanings of the nominal compounds used as locatives. Notice that the ambiguity of (50) between a partitive and a relational reading of the locative is contingent upon the fact that either activity goal or locational path can occur directly after the verb. Of course, this depends greatly also on contextual information, since many verbs require either source or

goal to be specified, in which case there is no possible ambiguity. Here, the semantics of *fty* allows either a goal or a path interpretation for the locating expression, and that semantic role will determine whether it is taken as a partitive or a relational locative.¹⁵

Shift in Status: The Move from Lexical to Grammatical

Most people would agree that the process of extending a body-part term to apply to a corresponding subpart of an inanimate object involves a productive process of recognizing and exploiting perceived similarities between the body and the object named. Most would also agree that this is a creative process rather than a simple one of correct semantic combination, and that even in the event that the extended use of the term becomes fixed, as it does in English with the *leg* of *pants leg*, that word remains a lexical morpheme, though probably a synchronically polysemous one.

A grammatical morpheme, on the other hand, is defined as being a member of an essentially closed class whose function is not to provide semantic information but rather to give information about how the lexical morphemes in a sentence are to be understood as relating to one another. Under this definition, one could consider English prepositions as being in the class of grammatical morphemes. Prepositions serve to mark semantic or case relations like instrument, source, goal, location, accompaniment, and so on. Some further specify these general relationships, including some lexical information of their own (compare English *on* and *in*); but at least a subset of them can be considered straightforward grammatical morphemes. The same could be said for some uses of Mixtec body-part terms. Given general meanings of certain of them, as, for instance, marking location or goal, one could consider them to be "function words"—grammatical morphemes. Their basic relational meanings paired with the fact that the expressions are not referential in the way nouns usually are, leads to a conclusion that they are not in fact totally nominal elements and therefore absolutely lexical morphemes.

An example of this is in sentence (43), in which, as noted before, *sibi* cannot possibly be

being used referentially.

- (43) ha?a sɪkʰ-rɪ
pass+pot. back-1sg.
'Climb over me.'

(43) demonstrates that *sɪkɪ* is first extended in the expected way from animal backs to roughly horizontal, planar surfaces of objects, and then gets extended further to the space associated with the planar surface, what we would translate as 'over'. This relational use relies upon the already abstract partitive use, rather than being a projection directly from the animal back to the associated space.

A clearer case of an obviously grammatical morpheme deriving from an obviously lexical morpheme is when *nũũ* marks a goal. This is least controversial as a marker rather than a partitive locational, since it marks energy goals that are not always goals of direction of motion, as in (70):

- (70) ina wá nde?e nù -be?e wã
dog det. look face-house det.
'The dog is looking at the house.'

- (84) ni- s - na?a- ri' nuù - sé?é - ri' ha sátiũ
perfv.-cause-know-1sg. face-son-1sg. compl. work
'I taught my son to work.'

These are cases of marking a semantic role rather than anything faintly resembling a location, so it is a departure from those uses more readily called lexical. Nevertheless, given assignment of front/back orientation done regularly in the language, and the normal configurations of participants in these activities, we can easily understand what motivates the use here of the word for 'face'. Energy or activity is directed toward the object; the goal Object either has an inherent front, canonically closest to the source, or is assigned as front

that surface which is closest to the source, so that the surface of a goal Object nearest to the source of the energy is, one way or another, its front. Faces are a highly salient part of the front surface of people, besides being important for other reasons. Therefore it is sensible to mark a goal whose front surface marks the endpoint of the activity or energy with the body-part term (namely, 'face') that invokes both the appropriate relative location in front/back orientation and other important information about the interactional setting as a whole.

The point of this discussion is not to place particular uses of body-part terms on one side or the other of the lexical/grammatical split, since it is clear that such a dichotomy would run counter to the very processes by which Mixtec speakers encode spatial (as well as more abstract) relationships. The fact that convention plays a big role in determining exactly how body-part terms get abstracted to locatives implies that there were semantic components in the first place to be conventionalized, which itself makes a lexical/grammatical dichotomy arbitrary. It is just as important to recognize that conventionalizations of use are there in the abstract sense, which amounts to saying that there are uses of the terms on the pole that we would call "grammatical". The system shows that there is an entire continuum existing synchronically in the language and that on the level of the behavior of individual terms there are varying degrees of movement toward the grammatical end of the continuum.

The fact that the consultant does not recognize a body-part reference of *ini* 'in', while as late as 1974 Pensinger lists both body-part and relational uses, indicates that for youngest speakers of the language, the movement is fairly far advanced for that lexical item. It is unlikely that all of the terms will lose their literal meanings, but *ini* represents the furthest stage of the same process of grammaticization that seems to be taking place in all the terms, at least in the idiolect of the consultant.

Problems with Lexical Categorization

On the lexicosyntactic level the same point about category shift needs to be made. As far as I have been able to determine, previous references to this phenomenon in the Mixtec literature (e.g. Dyk and Stoudt (1965), Pensinger (1974), Bradley (1970), Reyes (1889), Alvarado (1953)) have categorized these terms simply as nouns. In a representative quotation, Dyk and Stoudt state:

Los conceptos de tiempo, posición o localidad se expresan comúnmente en Español por frases preposicionales. En Mixteco estos conceptos se expresan por un tipo de frase en que unos nombres, principalmente de las partes de cuerpo humano, se unen con otros nombres para modificarlos para expresar estos conceptos.

None of the descriptions I have found have made reference to the range of extensibility shown here. The examples contained therein make it impossible for the reader to realize that this is a problematical characterization, though throughout, the functions of the body-part "nouns" are compared with English or Spanish prepositions.

Daly (1973) recognized the distinction between what I have called "partitive" and "relational" uses, but in his generative grammar he distinguishes them only formally, simply calling the first element in what I have called the "partitive" type of construction the "head", so that the meaning of the first noun is referential when that noun is the head, and abstract when it is not. But since he gives no independent criteria for defining "head", this is a circular definition. He also confuses the issue by classifying formally the body-part terms with the feature \checkmark_{loc} ([+loc] in more usual notation). This forces him into one of two implausible positions: on one hand he might say that the body-part terms used as locatives are not in the same lexical class as those not used as locatives (while I am arguing that such a distinction is artificial, despite there being clear cases of each). On the other, he might say that a body-part term was the same word whether or not it is used in a locative phrase, in which case he would also be saying that on both readings of (65), *nunu-hast?* is a locative, even though its

(b) reading is purely literal and is grammatical Subject. And like the others, Daly seems to consider it an unproblematic task to classify these elements as nouns, despite the opposite being indicated by the (a) reading of (65). In short, Daly's formal classification does nothing to suggest all the interesting issues involved in the system.

Throughout the discussions cited here, descriptions and examples have been such as to obscure the complexities and variations in usage. They have especially omitted any reference to the most grammaticized or abstracted uses of these terms such as the use of *yata* for 'outside'. All examples are given with glosses exemplifying only the partitive senses or relational senses which are the clearest cases of naming associated space from actual partitive use--the most recoverable of the range of uses. In the earliest of these studies, such shortcomings are probably attributable to an understandable lack of linguistic expertise, as well as to an actual difference in the data: it being nearly 400 years ago, it is likely that the most abstract of the uses found in contemporary speech were not in use then. However, four of the grammars and dictionaries I looked at were written within the last twenty years, which is recent enough that at least some of the more abstract uses must have been appearing. In fact, Pensinger, in her dictionary, gives prepositions as glosses for the relational uses, but in her grammatical sketch gives mostly examples of partitive uses, and does not relate her two descriptions in any way, even as much as to mention whether she considers any pair of forms a case of homonymy or polysemy. Needless to say, none of these studies mentions the fact that there is variation across the set of terms in exactly how abstract the meaning can get.

The omission of these details is excusable, given the fact that in every case the description of locative expressions was embedded in an all-encompassing and very general description of the language as a whole. But the theoretical conclusions made in each of these cases seem drawn on the very limited range of data mentioned, rather than on the enormously varying range that these linguists must have encountered. I think it is misleading simply to label body-part terms as nouns and mention, as in the quotation above, that Mixtecs use nouns where Spanish- or English- speakers would use prepositions.

There are many justifications for such conclusions. As mentioned, these locative expressions function syntactically as nouns in both their internal structure and their

syntagmatic relationships within a sentence. Syntactically, the body-part terms, which in many cases are clearly recognizable as nouns (being obviously referential), always occur in the nominal compound. This construction is characterized semantically as involving a genitive relationship between the two nouns, and while it is clear that the "genitive" characterization does not quite work for relational meanings of the construction, it is similar enough to a true genitive relationship to warrant our taking the semantic and syntactic resemblance to clear nominal compounds as significant.

What then are arguments against unequivocally calling body-part locatives full-fledged nouns? My major argument against it has been the semantic one. There are very clear cases in which the relationship of the relational usage to the partitive one is perfectly transparent: the relational meaning is taken just from interpreting the reference of the body-part term as an area that preserves at least some of the locational components that the body-part referent has relative to the object.

Less clearly associational readings, however, are much less nounlike in their semantics, since they do not refer to a subpart of an object. Taking again the example of *nũũ* designating source or goal in the environment of the appropriate verb, it is not merely that the conventional front surface of the goal or source is named, but that that naming process is exploited in order to specify the semantic role being played by the object. The process of abstraction occurring in this phenomenon as a whole goes in several different directions. In the case of *nũũ*, where what is marked is not necessarily the goal of a physical path (cf. (65)), the abstraction seems to have extended beyond the spatial domain. The least transparently metaphorical uses of *yata* and *siki* (those glossed as 'outside' and 'over', respectively) are still within the spatial domain despite the fact that both have gone fairly far afield of the most obvious partitive meaning. Both have achieved an abstraction from the body model to a more general physical model which then provides the basis for further extension.

Yet I think previous investigators of this phenomenon in Mixtec erred on the other side of the noun/preposition classification dilemma by simply equating these "nouns" with Spanish or English prepositions. Characterizing the semantics of these terms as prepositional while classifying them lexically as nouns hides the fact that these terms express the

relations between objects and between activities and objects in a way that is fundamentally different, in many cases, from the way it is done with prepositions. While in English, for instance, the grammaticality of a preposition may depend upon the shape of the prepositional Object (cf. *Put the dishes in the table'), as it does in Mixtec for body-part locatives, English prepositions give details of the nature of the relationships between objects in a way that Mixtec locatives do not. Both systems can describe both "partitive" and "relational" kinds of locations in a broad sense of those terms; but as I have argued that in Mixtec the partitive senses are basic and the relational ones are derived,¹⁶ so in English the basic uses of prepositional phrases are relational though one can get a subpart reading from them.

It is oversimplifying the issue somewhat to say that English prepositions contain relational information while Mixtec body-part terms do not. But when given in isolation, and English prepositional phrase is pretty much unambiguous over a partitive or a relational interpretation, while a Mixtec locative is ambiguous:¹⁷

(71) sik̄-mesá

back - table

(72) a. on the table

b. over the table

(71) gives an isolated nominal compound potentially interpretable as a locative element, two English glosses of which are given in (72).¹⁸ Notice that (71), when given without the usual information occurring in a full sentence to disambiguate it, could be given either interpretation in (72) and at least one other distinct interpretation ('top of the table'). The fact that in previous descriptions (72a) was the only gloss given does not mean necessarily that that is the most basic interpretation of (71), especially given the level of generality with which this phenomenon has been described.

By contrast, the English prepositional phrases are unambiguous in their reference. (72a) unambiguously corresponds to a Mixtec partitive reading (since it designates a location which is properly a part of the named object, the table). (72b) most readily corresponds to the Mixtec relational interpretation since it refers to an area in space not part of the named

object.

If this demonstration does point to a substantial difference in the way Mixtec and English speakers express such locational concepts, it is still the case that both languages can do both kinds. This paper has been devoted to showing that Mixtec can do both, and one or two examples should be sufficient to suggest the same conclusion about English to a native speaker:

(73) We flew over the hill.

(74) He lives over the hill.

Without attending here to details like pathhood versus stative location, we can see that (74) refers to a location by means of the relation called "over"--exploiting relations to name a location (see Brugman (1981)).

This is not to say that Mixtec and English work in exactly the same way, however, merely with the directionality reversed, for I think that in detail the two kinds of processes are rather dissimilar. The point here is just that while Mixtec and English can both describe a large range of locational configurations, the English system works basically by coding spatial relationships in prepositions. Mixtec, however, makes the spatial relationships inferrable from the semantics of the verb, while the locative expression names only the relevant area in or around the locational object. So Mixtec locatives are not merely prepositions.

As mentioned above (fn. 6), it may be that there was no category of preposition in earlier stages of the language, since all morphemes serving prepositionlike functions seem to be historically derived from other words (though not all of them body part words--cf. fn. 6). Possibly under the influence of European languages, and for whatever reason motivates Greenberg's universal, the process of grammaticization of these morphemes is such that once obviously full nouns in a particular construction became increasingly abstracted in meaning as their ranges of grammaticality broadened correspondingly. These considerations taken together make tenuous the position taken by those who have described these Mixtec data previously: the status of body-part locatives either as nouns--lexically--or as

prepositions--functionally--is subject to question:

Ross' Proposal: Nominal Decay

In various publications (e.g., Ross 1973), Ross has proposed that lexical categories such as "noun" and "auxiliary verb" are not discrete categories, but are fuzzy-bordered; in his terms, "squishy". In these papers he has given substantial syntactic evidence from English for his claim that nominals can be "nouny" just to the extent that they allow certain syntactic rules, characteristic of nouns, to apply. In "Nouniness" (1973a), he gives a continuum of nounhood for English: from *that*-clauses to monolexemic nominals, the former (e.g. *that Mary gave the letter to Frieda*) being the least nouny, and the latter (e.g. *spatula*) being most nouny. While the particulars are not relevant for present purposes, the general point of these papers was to demonstrate *degrees* of nounhood, an issue which it seems important to consider here.

A later paper of Ross' (1981) bears some interesting similarities to these these Mixtec data. It is most generally concerned with the syntactic properties of "fake NP's" (after Ross (1973b))--the *toe* of "stub one's toe," for example. But he remarks in passing that he considers the fake-NP facts to be a special case of a more general phenomenon of "ego-loss" among nouns that appear often in conventionalized phrases. The following examples from that paper demonstrate this point, and resemble the Mixtec facts insofar as they too suggest a diachronic shift from nounhood to prepositionhood:

(75) It is $\left. \begin{array}{l} \text{or: the top of} \\ \text{or: top of} \\ \text{*or: top} \\ \text{*ontop} \\ \text{atop} \end{array} \right\} \text{the box.}$

(76) It is $\left\{ \begin{array}{l} \uparrow \text{in the front of} \\ \text{in front of} \\ * \text{in front} \\ * \text{afrent} \end{array} \right\}$ the box.

(ungrammatical with the meaning of *before the box*)

(77) It is $\left\{ \begin{array}{l} \uparrow \text{in the side of} \\ * \text{in side of} \\ \text{inside of} \\ \text{inside} \end{array} \right\}$ the box.

(ungrammatical with the meaning of *within the box*)

(78) It is $\left\{ \begin{array}{l} \uparrow \text{by the side of} \\ * \text{by side of} \\ * \text{beside of} \\ \text{beside} \end{array} \right\}$ the box.

(ungrammatical with the desired meaning of *next to the box*)

What Ross refers to as "ego-loss" is the loss of the usual characteristics of nouns: unbound-
edness of the morpheme, presence of an article, and presence of the following *of* (which, it
should be noted, marks genitive relations in English). In some cases the nominals are almost
fully nounlike (as in *on top of*); in others fully prepositionlike (as in *beside*); and in other
cases there is variability in how nounlike or prepositionlike the locative expression can be.
These seem to be relics, frozen in various stages of the process, of some historical shift from
noun to preposition.

The syntactic cues for loss of nounhood in English have no correspondents in Mixtec. As
we have seen, body-part locatives behave syntactically like full nouns. In fact the change
itself seems to depend upon their exploiting the syntactic environments of nouns, since
without the nominal compound construction it could not take place at all.

My arguments for the reduced nounhood of the body-part terms are three: 1) the wide
variation among individual terms as to the range of syntactic and semantic roles in which
they can appear unaided (i.e. without *ixi* to mark, for instance, locational paths); this fact
should also answer any claims that there may be no real conceptual or semantic distinction

between partitive and relational uses of the terms in Mixtec, since if that were the case one should be able to find broad relational uses for all the terms, which I cannot; 2) that the terms do not always refer to the object they name, as when *ʔini* 'head' is used to mean "space above"; 3) the two clear cases from Mr. Cortés where he has only "prepositional" or "relational" uses for terms which other studies indicate are derived historically from body-part terms.

Although Ross does not mention this fact outright, it is clear that only in the least decayed of the sets of locating expressions given in (75)--(78) above is the full prepositional phrase (truth-conditionally) synonymous with the decayed version, the one without the article (the contrast in (75)--and there, there seems to be a slight semantic difference). In all other cases the full prepositional phrase designates an area different from the one designated by the phrase which has lost its article (e.g. *in the front of the box* vs. *in front of the box*). English uses the reduced forms of locative prepositional phrases to give "relational" locative meanings, as opposed to the partitive meanings given in the full prepositional phrases (with the exception of the first version of (78), where the semantics of *by* prevents a partitive reading). Ross distinguishes the degree of ego-loss achieved by the examples in (75)--(78) from those in which the once-referential and free morphemes appear synchronically only as bound forms, e.g. *beneath* and *underneath*, *behind*, *between*. Even the form in his examples which has undergone the most decay, *beside*, still has within it a morpheme which is easily recognized as being related, if not identical, to the free morpheme *side*. And in the best case, *on the top of*, we can recognize *top* as referring to an actual subpart even in the most decayed version, *atop*.

Ross' short-term aim in discussing these phenomena was to correlate loss of pluralizability in fake NP's with the loss of the definite articles in these locating expressions and to demonstrate how variable the degree of loss of nouniness is at a particular stage in the history of a language. His fortuitous use of quasi-nominal locating expressions in English suggests that loss of nounhood among names of physical objects--in terms of their syntactic signals--correlates with loss of referentiality to the designated object, which in turn correlates with increased levels of abstraction and increase in grammaticization.

The totality of the Mixtec data coupled with Ross' observations about English and Greenberg's stated universal suggest to me that these Mixtec body-part terms in their participial uses are completely nounlike, while in their relational uses they are in various stages of "decay". For Mr. Cortés' idiolect, in the cases in which words have completely lost their ability to refer to objects, one could argue that synchronically these terms count as prepositions, while still recognizing the degree of nounhood that the other words exhibit.

I feel comfortable calling "nouns" the body-part terms that I have discussed in detail here, doing so with the understanding that they are not fully nounlike and that they are undergoing a process of abstraction and grammaticization. Even in a synchronic analysis this historical process must be recognized, since simply to lump these words unproblematically into the category "noun" without attention to the historical process suggested here would be to ignore the intricacies of the system and would give no insight about the probable future direction of semantic shift.

Motivation and Prediction

Linguistic theories have traditionally relied on the assumption that there is a dichotomy between complete arbitrariness and complete predictability. For instance, the semantic association between the phonological string [k^haet] and the concept CAT is a completely arbitrary one. Nothing within the concept itself predicts what the phonological shape of the word representing that concept should be. The converse is also true. This is an example of complete arbitrariness. On the other hand, the meaning of the expression "The cat is on the mat" is completely predictable from the meanings of *cat*, *mat*, *the*, *is*, and *on*. This kind of association between semantic and phonological chunks is completely predictable. It is from the presence of cases of these two types that it has been common to bifurcate linguistics. However, among others, Fillmore (1982), Lakoff (1980), Langacker, (1982), and Haiman (1980) have argued on various grounds and for quite different realms of language that the apparent dichotomy represents merely the two endpoints of a continuous scale. Intervening cases on that scale include linguistic structures whose meanings are fully or partially predictable

from the meanings of the component parts, but for which there is still some linguistic convention involved in the structure.

The Mixtec locative phenomena represent another area on this scale. These constructions are highly motivated from extralinguistic convention: about orientation and directionality and by principles of extension of sense already existing in the language. Semantic components of the basic, literal meanings of the terms always serve as the sources for extension of the usage of the term. In that respect, the abstract locatives are motivated by the literal meanings of the terms. But we have also seen that the extension on basis of one semantic element or another is a result of some conventionalization.

As the semantic components are more abstract, they require greater degrees of conventionalization in order to be understood in a nonliteral use. The case of $\tilde{n}\tilde{u}\tilde{u}$ in particular has both the greatest number of distinct senses and the highest degree of abstractness in several of its distinct uses, since it is extended on basis of several (mutually conflicting) semantic components of the face. In these cases the meaning has become highly conventionalized (as when $\tilde{n}\tilde{u}\tilde{u}$ marks sources of highly abstract as well as highly physical sorts) and in places highly context-dependent (as when $\tilde{n}\tilde{u}\tilde{u}$ can mean "instead of").

The degree of motivatedness and conventionalization involved in an individual locative use of a body-part term varies highly across the individual cases, as we have seen. Only a theoretical stance which allows a continuous scale from full arbitrariness to complete predictability can even address the question of where each use of a term occurs on that scale. Thus the idea of motivated convention makes possible the synchronic and diachronic claim of relatedness between literal and extended uses of body-part terms. It also justifies the claim that some of the extended uses are more easily recognized as "metaphorical" extensions of the basic senses than do others.

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Footnotes

¹For detailed expositions of similar phenomena in Zapotec and Tarascan, see MacLaury (1976) and Friedrich (1969).

²Mixtec is an Otomanguean language comprised of over thirty mutually-indistinguishable dialects. It is spoken largely in the state of Oaxaca. Chalcatongo Mixtec, the language on which the present study is based, is spoken in the village of Chalcatongo in the Oaxaca highlands.

This study is based on elicitations from a single, young, and strongly bilingual (in Spanish) consultant, and is subject to the restrictions that naturally result from such a limited corpus; so while my description of this phenomenon should characterize the present state of a process which developed over time, this description is in its details basically synchronic and descriptive of an idiolect more than of the language or dialect as a whole. There can be no discussion of individual speakers' variations that would suggest diachronic processes. Likewise the comparison of Chalcatongo Mixtec with other dialects of the language will be minimal, since the literature on this topic is so limited.

³There are interesting cases where both nominals in the construction are body-part terms, as in examples (44) and (45). In those cases the second body-part is the object of which the first term can be understood as naming a subpart.

⁴Macri also mentions (1981 and this volume) the possibility that an earlier stage of Mixtec included proclitic, nominal classifier-like elements which were derived from full nouns. While her data do allow that interpretation, thereby providing a set of nominal compounds that do not fit my definition of "genitival", I am deliberately excluding them from consideration for now. There is some justification for this, since synchronically they are far less analyzable as compounds than the ones I am studying, and are synchronically quite idiomatic in their meaning (see Daly (1973) on this point, and Macri's criticism). Nevertheless one would still have to construct diachronically-explanatory definitions of "genitival" and of "nominal", since the "classifier" proclitics have fewer of the characteristics of nouns than do the already borderline ones I discuss.

⁵All transcription of Mixtec phrases are written phonemically in APA, except for the tones, which are recorded here as originally transcribed (there are complex morphotonic processes in Mixtec which are beyond my understanding, and which should account for apparent inconsistencies in tone marking across several occurrences of the same word. See Faracis, this volume). The three postulated tones of this dialect are transcribed as follows: high ' , low, ` , with mid tone left unmarked. Chalcatongo Mixtec distinguishes two and sometimes three stem forms of verbs. All of the three arise here, but one of them, the "hortatory" mood stem, occurs only once, and is so marked in the gloss. The other two occur much more frequently. Of these I have marked "pot." the "potential" form, the stem used for future tense and imperative and subjunctive moods. The "realized" stem form, used in past and present tense meanings, is unmarked in my glosses.

Sometimes Mixtec monolexemes have had to be glossed with more than one word. An example is an exposition of stem form as described above, e.g. 'go+pot.'. In such cases the plus sign indicates that both words of the gloss refer to the single Mixtec word. Hyphens are used both in the Mixtec and in the English gloss to mark the bound morphemes which form a single word, e.g. *ni-ha?a* 'perfv.-give'. Spaces indicate word boundaries.

⁶It is possible that in Mixtec there are actually no prepositions that are not derived historically from lexical morphemes. Locative elements which are not recognized by my consultant as body-part terms, i.e. *ini* 'in' and *hñ* 'with', seem to be derived from 'heart'/'center of the emotions' and 'side', respectively, according to Pensinger (1973) and Hills and Merrifield (1974). The other prepositionlike element I have discovered, and the only one seemingly not derived from body-part terms, is *haku* 'for (benefactive)'. But it does not have the canonical form of monolexemic words in the language, since almost invariably the two vowels in a monolexemic word are identical. My suspicion is that *haku* derives historically from *ha* + *ku*, complementizer + copula, to mean something like "such that it is", and that there are no primary prepositions in Mixtec.

⁷MacLaury (1976) claims that the Zapotec conceive of their body parts as locations rather than as entities, so that no transition is involved between naming body parts and naming locations outside the body. I have not determined whether the same conceptualizations hold for the Mixtecs.

⁸The use of this term reflects less linguistic chauvinism than terminological desperation. MacLaury (1976) uses "direct" and "positional" to make roughly the same distinction, but I have not found these to be mnemonic terms. I beg the reader's indulgence in this matter and ask him to translate "relational" as "with an 'area-in-space' interpretation", until I can find a better set of terms.

⁹Although I strive for my analysis to represent conceptual realities, I do not have enough support for a claim that Mixtec speakers conceptually make this distinction. There are cases later where the high level of grammaticization--conventionalization of use--would suggest the necessity for such a distinction in their minds; but there may be subtle constraints on the use of these conventionalized meanings of the terms which elude me.

¹⁰Not all languages perform the assignment in this way: see e.g. Hill (1975) for a discussion of other language-specific conventions of orientation and some variations among individual users.

¹¹It should be noticed here that there are three nominals in sequence in this sentence. This is an instance of the nominal compound described before, except that the construction

is recursive—theoretically, one can embed an indefinite number of possessives in such a compound. Here the sequence is loosely translated as "road of the face of the mountain". The construction is not confined to body-part terms or to locating expressions as it is in this example: note also *kitt-ñant-ri* 'horse-brother-1sg.', "my brother's horse". Any of the details noted for two-noun compounds including locative elements apply to more deeply embedded compounds as well.

¹²Hills and Merrifield (1975) present a slightly different analysis of these verb + *nũũ* – noun sequences for Ayutla Mixtec which may be applicable to the Chalcatongo dialect as well. They claim that deictic information doesn't completely disambiguate the interpretation of *nũũ* in such sentences as (59); rather, the verb forces a preference for one semantic role (in their examples, goal), but that in the appropriate context the locative expression could be interpreted the other way.

¹³George Lakoff has pointed out to me that this sentence is interesting for two reasons not within the scope of this paper: in the (a) reading, the Subject of the higher clause is marked for the semantic role it fills in the clause it was complementized out of. That is, the woman who is Subject of *be fat* is the dative goal of *Pedro gave the meat* . . . But the noun in Subject position is marked as goal of the lower clause. This poses problems for a claim that the higher Subject exists in a deep structure and the goal phrase in the lower clause is deleted under identity with it. The nominal compound in Subject position cannot have been in a deep structure, since goals cannot be Subjects. The (b) reading of this sentence is interesting because the Subject of the higher clause is *face*, but the noun deleted under identity in the lower clause is identical not with *face* but with the modifier of *face*—that is, *woman*, in apparent violation of the spirit of the Left Branch Constraint (Ross 1967).

¹⁴Kuiper and Merrifield (1974) claim for Duixi Mixtec that each verb chooses whether to mark its goal with *nũũ* or to leave it morphologically unmarked. This is not the case in Chalcatongo Mixtec, where there are attested cases of a single verb taking an unmarked goal in one case and a goal marked with *nũũ* in another, with no semantic difference in the two discernible to me. I have not discovered any principle according to which one could determine whether or not to use *nũũ* in a particular goal expression.

¹⁶This seems to me to be just the same phenomenon as discussed by Langacker (1982) as "active zones". In his terms, the verb requires an active zone of the area specified by the nominal compound.

¹⁶I use the term "derived" metaphorically: I do not intend to suggest that there is a rule to which one form serves as input and the other output.

¹⁷Since I do not have the intuitions of a native speaker for the Mixtec data, I am extrapolating from the judgments of my consultant.

¹⁸'Over' here is in some respects an unfortunate choice for my purposes, since it has senses, related to but distinguishable from this one, in which it could be argued that it is basically a "partitive" sort of locational (see (74)).

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