

# The role of semantic value in lexical comparison: motion and position roots in Yucatec Maya\*

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## *Abstract*

*Approaches to lexical semantics often rely on denotational overlap with English words (or their systematized scientific offspring) to establish the meanings and groupings of lexemes in other languages and typically ignore the local facts of morphosyntactic distribution and characteristic denotational range. By contrast, this paper illustrates the importance of morphosyntactic distributional patterns in assessing the semantics of "spatial" predicates in Yucatec Maya, a language spoken in southeastern Mexico. A sketch of portions of the morphology of the Yucatec verb complex and its implications for the meanings of lexical roots are first presented. Then two sets of "spatial" roots are analyzed to see how the overall Yucatec scheme informs their semantics. The first analysis shows that "spatial" predicates defined notionally do not form a unified root class in Yucatec and in particular that those dealing with basic "motions" are both morphologically distinct from other roots with spatial reference and indistinguishable from other roots referring to state changes. The second analysis shows that "positional" predicates do in fact form a unified root class in Yucatec, one which would not be constituted on the basis of the analysis of English "spatial" semantics. The concluding discussion stresses the importance of systematically attending to local structural facts in order to formulate an adequate formal-functional theory of lexical meaning.*

## **Introduction**

The recurrent challenge in all research on lexical semantics is to recognize both formal and substantive contributions to the referential meaning of a form. Distributional potential indicates the general meaning values of a form while its characteristic denotational range indicates its more specific qualities. Far too often in comparative research on lexical seman-

tics, conclusions are drawn simply on the basis of denotational overlap, ignoring both formal distributional facts and characteristic denotational range — what we might jointly call the *local “structural” facts*. Thus we have comparative studies of color terms, kin terms, body-part terms, emotion terms, and so forth, where the diagnostic for inclusion in a set is having a certain denotational capacity, regardless of the details of the morphosyntactic status of the items or their wider referential range. The significance of distinctions between verb and adjective, alienable and inalienable possession, and derived and underived stems, to name only a few well-known lapses, are ignored along with conflated meanings, full scope of reference, and contending paradigmatic alternatives.

This narrow focus on denotational overlap wreaks havoc with any attempt at an adequate scientific analysis. The problems are especially serious in the analysis of languages exotic to the analyst where both the grammatical structures and the denotational concerns are likely to vary considerably. Lexical items are grouped together and analyzed as a coherent set not because speakers of those languages group them together in a set as revealed, for example, by common grammatical treatment, but because the analyst so groups them. And meanings are assigned not on the basis of a close examination of actual usage, but on the basis of rough functional equivalence with forms in our own language. Thus an external framework is imposed on the language in place of a framework deriving from its native logic. And any subsequent analysis has more to do with the imposed frame than with the language itself.

The bases for these external frameworks can vary. Sometimes they derive from folk categories in the analyst's culture. So, for example, one takes the physical human body as a natural unit and groups together any linguistic term capable of denoting it or some part of it as a “body part” — ignoring what other referents the terms may have or any differences in derivational, combinatorial, inflectional, or syntactic potential. Even when such folk categories have scientific status as well, as in the case of “color,” this in no way alleviates the central analytic error of ignoring local structural facts in the analysis of languages. Indeed, such external frameworks need not have anything to do with the structure of any language in the sense that languages need not have morphosyntactic classes that stand in one-to-one correspondence with them. For example, probably no language groups all labels for body parts into a single grammatical form class.

At other times, the external framework may derive from the analyst's own language, as semantic intuitions from one language silently guide the investigation of another. For example, one may regard as “kin terms” those forms that translate our terms, even though another language does

not treat these as a set or does so in a way that differs from our own. Even the application of standard linguistic terminology can pose similar problems as, for example, when an “aspect” category is mistakenly labelled a “tense” because that is its effective value when translated.

In all such cases, the analyst unwittingly takes the categories of his or her own language and culture as a sure guide to reality against which the meanings of forms in other languages can be assessed (cf. Whorf 1956 [1938]; Lucy 1992b). If the exotic language happens to subdivide such a grouping, or include some unexpected items, or exclude some expected ones, or include an additional feature of meaning, or exclude an expected one, this information is ignored or perhaps conveniently noted as “irregularities” or even “deficiencies.” Scant attention is given to the possibility that languages (taken collectively) might segment reality in accordance with specifically linguistic criteria and not merely in terms of perceptual or cognitive demands, or that individual languages might segment reality in dramatically different ways despite overlap in denotation. Not surprisingly, the imposition of such external frameworks soon leads to the “discovery” that all languages look very similar and the related conclusion that these regularities are innate and/or “evolutionarily” inevitable in the course of the historical development of a language (e.g. Berlin and Kay 1969; for a further critique see Lucy i.p.).

Freeing ourselves and our analyses from such preconceptions requires careful attention to formal patterning in individual languages, that is, to the local facts of distributional potential — both morphosyntactic and referential. Such attention will force us to recognize the intrinsic logic of the system we are analyzing and not override it with our own. Although few would disagree with the value of such procedures in principle, they are usually ignored in comparative work oriented toward cognitive universals, often disregarded in broad-scale comparative linguistic research, and sometimes even neglected in descriptive studies because of the interest in fitting languages into currently available typological frameworks.

Recent attempts to develop a comparative analysis of “spatial language” by pulling from languages their sets of “spatial” terms have fallen into this pattern by being insensitive to the structural place of such terms in the individual languages or to their full denotational range (e.g. Pinxten et al. 1983). Even researchers explicitly committed to ethnolinguistic sensitivity (e.g. Levinson 1991, 1992; Pinxten 1991) or concerned with the formal criteria for distinguishing among spatial terms within or across languages (e.g. Talmy 1975, 1985; Jackendoff 1983) often fail to address explicitly the most basic issue, namely, how a class of spatial lexemes itself is to be distinguished from other classes in formal terms such that it constitutes a valid object of linguistic comparison.<sup>1</sup>

The present paper examines the structural position of two groups of verbs with "spatial" denotation in Yucatec Maya,<sup>2</sup> an indigenous language of southeastern Mexico. The aim is to show how attention to formal distribution criteria would affect our understanding of the referential semantics of such verbs.<sup>3</sup> The paper proceeds by first sketching that portion of Yucatec verb morphology that indicates that predicate roots have inherent lexical case and aspect values. Then two groups of lexical roots having to do with "spatial" predication are examined in light of these morphological patterns to see how our understanding of them would be transformed by this information. In order to avoid circularity, the case and aspect values are established independently of the two sets of lexical roots being evaluated.

The first group of lexical roots corresponds to the cross-linguistically, notionally defined set of basic "verbs of motion" (e.g. go, rise, leave, exit, etc.). The analysis will show that this set does not align with other "spatial" or even "motional" verb roots nor is it formally distinguished as a set from "nonspatial" verb roots in the same class (e.g. die, sleep, stop, learn, etc.). In their unmarked form as predicate stems, these roots describing basic change of location take a single argument construed as a patient and past perfective aspect. To construe the single argument as active, to involve an agent as a second argument, or to ascribe other aspectual values implying ongoing activity, these verb stems must be further derived and/or inflected. The need for such derivation conflicts with the usual common notional characterization of "motion verbs" as describing an ongoing, active process. The first analysis will suggest, therefore, that verbs with "spatial" denotation do not form a unified class in Yucatec, that those referring to "motion" cannot be formally separated from "nonspatial" verbs, and that their semantics are at variance with the usual semantic characterizations of such verbs. In short, it is misleading to speak of "the motion verbs" of Yucatec as if they constitute a well-defined morphological class in the language.

The second group of lexical roots known as positionals is formally defined by a distinct pattern of distributional morphology within Yucatec. The roots refer to a set of notions describing basic physical states, postures, or positions that objects can assume (e.g. standing, kneeling, hanging, leaning, etc.). These roots derive in a manner much like inchoative adjectives (e.g. redden, widen, etc.) to form verb stems that take a single argument construed as a patient and that describe the event of coming into the described position. The common meaning of this set centers on "spatial" relationships but in a way that is somewhat unfamiliar from the vantage of European languages such as English. Analysis of the distributional pattern characteristic of these roots gives important

clues to their underlying semantic logic. The second analysis will suggest, therefore, that careful attention to distributional facts can both reveal unexpected but locally meaningful linguistic classes having to do with "space" and contribute to their proper semantic characterization.

### Background on the verb complex

Yucatec is a head-marking language (Nichols 1986) in which the verbal complex can function on its own as a complete sentential proposition. The complex consists of a root (or compound root) that enters into a stem construction that takes one or more inflectional and pronominal affixes. The grammatical categories of central relevance in differentiating contemporary Yucatec verb roots and stems within this morphological complex are *case* and *aspect*. The usual characterization of Yucatec in recent years has been that it has a "split ergative" case-marking system at the morphological level in which aspect distinctions govern the "split" of case marking (Bricker 1978, 1979, 1981a, 1981b). Despite certain problems, this analysis correctly recognizes that case and aspect are formally interrelated in the language. The present description confines itself to those elements necessary to forming the arguments made here about spatial reference.

### Case marking

The term *case marking* is used here to refer to the full array of formal devices and patterns used to regiment arguments with respect to predicates and to each other at the lexical, propositional, and discourse levels (Silverstein 1981; Foley and Van Valin 1984). As such, case marking is a product of the number and types of arguments in various morphological predicates (e.g. valence of lexicalized events), their function at the intraclausal level (e.g. transitive object), and their altered manifestations in discourse as part of various interclausal linkage and cross-clausal and reference-maintenance processes (e.g. voice, pivot). The present discussion will be confined to the subset of such devices and patterns that emerge in the morphology of the verb complex.

*Roots (inherent lexical case value).* Yucatec verbal roots implicate certain argument relations as part of their meanings and in this sense have inherent case or case-relevant meanings as part of their semantics.<sup>4</sup> The principal formal evidence for inherent case is regular asymmetries in

derivational morphology<sup>5</sup> — although the groupings also correspond roughly with well-recognized cross-linguistic notional categorizations of event types. When the inherent argument relations fit the higher levels of case marking that are applied, no morphological derivation is required. When they do not fit, roots must be derived in appropriate ways. The basic predicate classes are revealed most clearly in the different types of transitive stems (root plus derivational markers) that can be formed from these roots.

Examples of the three basic types of transitive stems, in past perfective aspect, follow in (1). Derivational affixes forming a stem from the root are connected by = and =∅ is used to indicate absence of overt morphological derivation for the root in question — what might be termed zero derivation (or zero relation — see Levin 1993: 3) — where other roots would take a derivational mark in a given structural position. Inflectional affixes forming a complex theme from the stem are connected by = and =∅ is used to indicate that a phonological zero occurs where in other constructions a different inflectional mark may occur with the stem in question. The various interlinear glosses will be explained in the text, but a full list is provided in the Appendix along with a table of phonemic values.

- (1) a. t- in- sñit' =t -ah -eč  
 NPFT INOM jump AFCT PPRF 2ABS  
 'I jumped (over) you'
- b. t- in- kuč =∅ -ah -eč  
 NPFT INOM carry ROOT PPRF 2ABS  
 'I carried you'
- c. t- in- kiim =s (-ah) -eč  
 NPFT INOM die CAUS PPRF 2ABS  
 'I killed you'

Roots of the first type, shown in (1a), require derivation with an *affective* (AFCT) suffix =*t* to produce a transitive stem. In their underived verbal form, these roots require a single argument and refer to actions or activities that some entity undertakes, often using an instrument the name of which is used to characterize the action. Hence, a single *agent* argument is salient in these predicates where the term *salient* will be used to characterize a set of default semantic values in a root or stem that influence an overt case marking in a construction. (Hence, to say certain semantic values in a root are salient for case marking is equivalent to saying that case marking is *sensitive* to these semantic values in the absence of any further derivational apparatus, constructional contrast, etc.) An affective derivation is required to form a transitive stem

from these roots by foregrounding a second argument, a *patient*, which is influenced (affected) by the agent's action. The terms *agent* and *patient* are used here as shorthand labels for sets of semantic values in the root or stem typically giving rise to these role assignments at the propositional level.<sup>6</sup> Well over 100 roots take the =*t* suffix to form a transitive predicate, but the exact number is difficult to determine because this derivational morphology constitutes the route whereby nominal roots form verbs and whereby foreign lexemes (principally Spanish infinitives) are made into Yucatec predicates. Although there are some exceptional cases, the claims made below about the intransitive stems formed from these roots apply to the vast majority of forms in the class. Other examples of roots of this type include *mñis* 'sweep', *čé'eh* 'smile', *č'iib'* 'write', and *páak* 'weed'.

Roots of the second type, shown in (1b), require no morphological derivation to form a transitive stem; a =∅ has been inserted in the verb complex after the root to indicate the absence of derivation, that is, that the *root* (ROOT) alone carries the necessary meaning values to support a transitive stem. These roots require two arguments and refer to events involving the action of one entity on another. Therefore both an agent and a patient are salient in these predicates and no derivation is required for these roots to form a transitive stem. Some 500 roots form a transitive in this way. Although there are some important subclasses, the claims made below about intransitive stems formed from these roots apply to the large subset of these roots that derive most freely. Other examples of roots of this type include *k'os* 'cut', *p'is* 'measure', *hač* 'whip', and *loš* 'punch'.

Roots of the third type, shown in (1c), require derivation with a *causative* (CAUS) suffix =*s* to produce a transitive stem. In their underived form, these roots require a single argument and refer to state changes that some entity undergoes more or less spontaneously as a result of unspecified outside forces. Hence, a patient is salient in these predicates and a causative derivation is required to form a transitive stem indicating that a second argument, an agent, is promoting (causing) the state change undergone by the patient. There are fewer than 75 roots in this form class. Because this class will be central to the discussion below, a somewhat larger sample of examples is presented in (2) along with their derived transitive stems.

(2) Patient-salient roots in Yucatec (examples)

Root		Causative stem	
'ah	(a)wake(n)	'ah=s	wake (someone)
wen	(fall a)sleep	wéen=s	put to sleep
siih	be born	siih=s	give birth, bear

kiim	die	kíim=s	kill
tú'ub'	forget	tú'ub'=s	distract, cause to forget
k'a'ah	remember	k'a'ah=s	remind, mention, invoke
čú'un	begin activity	čú'un=s	cause to begin
č'en	stop, cease	č'en=s	cause to stop, suspend
hó'op'	begin, start	hó'op'=s	cause to begin
háaw	stop, cease, heal	háaw=s	stop, revoke, medicate
hé'el	rest, stop at	hé'e(1)=s	rest
p'át	remain	p'át=s(?)	abandon

Inspection of the glosses suggests and systematic inquiry confirms that these predicates typically describe a state change by reference to the resulting state that is achieved by an entity. Not surprisingly, these roots often have a semantic mate that expresses the reverse state change, and such pairs have been listed in vertical adjacency to each other in (2).<sup>7</sup>

Thus, using this diagnostic of transitive stem type, Yucatec has three large *predicate root classes* that we can label *agent salient*, *agent-patient salient*, and *patient salient*. Just as the agent-patient roots do not need to be derived to appear in transitive stems, so too roots in the other two classes do not need to be derived to appear in one of the intransitive stem types. However, as we will see, these latter two root classes are not treated in the same fashion and constitute, therefore, two distinct classes of underived intransitive stems in Yucatec. The existence of two basic types of single-argument roots in the language is in accord with observations developed long ago by Sapir (1917), more recently by Fillmore (1968), and especially in connection with relational grammar (e.g. Perlmutter 1978; Rosen 1983; cf. Van Valin 1990) that intransitive predicates divide into two types.

*Stems (derivational propositional case).* Each root type can enter a variety of stem forms at the level of the proposition (clausal or sentential), which either maintain the root's inherent salience or alter it by derivation to produce one of the other types. Consequently, there are *three basic stem types* in Yucatec: *agent-patient focus*, *agent focus*, and *patient focus*.<sup>8</sup> These three types correspond respectively to transitives (with prefixed pronoun marking agent and suffixed pronoun marking patient), and to two distinct types of intransitive (each with a single pronoun marking agent or patient respectively). As will be explained below, these intransitive pronouns are drawn either from the prefixing (transitive agent) set or from the suffixing (transitive patient) set as a function of aspect. In essence then, propositional case role in intransitive stems is signalled by the stem form itself and not by pronoun form. (That is, whereas stem

form distinguishes presence of an intransitive agent from presence of an intransitive patient, pronominal form is not sensitive to this and marks only a single intransitive "subject." Which pronoun type is used for this neutral "subject" category depends on aspect. The usual characterization of Yucatec as "split" ergative according to aspect applies, then, only to these intransitive pronominal forms. There is no neutralization of overt case-role information in the stem itself as a function of aspect.)

Examples are given in Table 1 of the stem derivations for each root type in past perfective aspect. Section (a) in column one shows how agent-salient roots can be derived to form agent-patient-focus stems by means of the *affective* (AFCT) derivational suffix =*t*. It is not possible in general to further derive these constructions to produce a patient-focus stem except by using a passivelike construction.<sup>9</sup> Section (b) shows how agent-patient-salient roots can be derived to form agent-focus and patient-focus stems by *deffective* (DEAF) and *decausative* (DECS) derivations signalled by infixed low and high tones respectively (marked here by =*L* and =*H* in the suffix sequence to indicate that derivation of a type elsewhere accomplished by suffixation has here been accomplished by tone shift). And section (c) shows how patient-salient roots can be derived to produce agent-patient-focus stems by means of the *causative* (CAUS) suffix =*s* and how these causative constructions can then be further derived to produce agent-focus stems with a *deffective* (DEAF) derivational suffix =*ah*. Thus, the salient argument structure of a root can be altered by derivational processes to produce (signal) a different argument-structure focus in the stem. These are only the most common and basic patterns; a variety of other derivational patterns can be used to define further classes and subclasses of roots and stems.<sup>10</sup> A final case-marking element occurs in Table 1, namely, the suffix -*n* following the agent-focus stems. This mark appears in those aspects where there is a MISMATCH between the stem argument, which is *agent-focused* (AGTF), and the suffixed pronoun, which takes the form usually used to mark transitive patients. Since the application of this form varies with aspect marking, a fuller account of it will be postponed until after the discussion of that topic.

*Clauses (inflectional discursive case).* Clauses involving transitive stems can have their case marking altered ("packaged") for discourse purposes by a *passivelike voice*. It demotes the transitive agent (by omission or movement out of the verb complex) and promotes the transitive patient to intransitive subject status where the pronominal marking follows the pattern for patient-focus stems. The voice is inflectionlike because it applies to all agent-patient stems and leaves the underlying argument

Table 1. Examples of stem derivations in Yucatec

ROOT TYPE	STEM TYPE: Agent focus	Agent-patient focus	Patient focus
a. Agent salient	sít' = $\emptyset$ = $\emptyset$ ROOT ROOT AGTF PPRF IABS jump ROOT ROOT AGTF PPRF IABS 'I jumped'	> AFFECTIVE (=t) >>> t- in- sít' = t NPFT INOM jump AFCT PPRF 2ABS 'I jumped (over) you'	-
b. Agent-patient salient	kúuc = $\emptyset$ = L = L ROOT DEAF AGTF PPRF IABS carry ROOT DEAF AGTF PPRF IABS 'I carried'	<<< DEAFFECTIVE (=L) <<< t- in- kúuc = $\emptyset$ NPFT INOM carry ROOT PPRF 2ABS 'I carried you'	> DECAUSATIVE (=H) >>> h kúuc = $\emptyset$ = H NPFT carry ROOT DECS 2ABS 'you got carried'
c. Patient salient	kiim = s = ah -n = ah -n AGTF PPRF IABS die CAUS DEAF AGTF PPRF IABS 'I killed'	<<< DEAFFECTIVE (=ah) <<< t- in- kiim = s NPFT INOM die CAUS PPRF 2ABS 'I killed you'	< CAUSATIVE (=s) <<< h kiim = $\emptyset$ = $\emptyset$ NPFT die ROOT ROOT 2ABS 'you died'

structure of the stem intact. But, it is derivationlike in that its formal marking is sensitive in some cases to underlying root salience. Not surprisingly, it occupies an intermediate formal position at the juncture of the derivational and inflectional affixes. It is the only discourse-level case-marking device to affect stem form.

*Summary.* We can summarize the case-marking situation, insofar as it is formally manifest in the morphology of the verbal complex, as involving three strata: an inherent (or root) level having to do with the saliency for participant roles of "lexicalized" events of various types, a derivational (or stem) level having to do with the particular construal of argument relations in such events in the formation of a proposition, and an inflectional (or predicate-linking) level having to do with the adjustment of point of view in order to facilitate emphasis and discursive cohesion. The final case marking in any utterance is a function of all three. Perhaps the most striking feature of Yucatec is the presence of two single argument root types, which then give rise to two underived intransitive stem types.

#### Aspect marking

The term *aspect marking* is used here to refer to the full array of devices and patterns used to signal the logical or configurational structure of events at the lexical, propositional, and discourse levels (cf. Comrie 1976). As such, aspect marking encompasses the inherent character of the underlying events (e.g. telic vs. atelic), their logical interpretation at the clausal level (e.g. perfective vs. imperfective), and their use in discourse to establish relations among events (e.g. relative presupposition). As with the case-marking patterns described above, the discussion of Yucatec aspect in this context will be confined to the subset of devices and patterns that emerge in the morphology of the Yucatec verb complex.

*Aspect categories.* Aspect markers are applied to predicate stems in a variety of ways. All stems are marked for aspect at three different levels: by a set of bound suffixes to the stem that signal primary aspect, by a set of one or more preverbal forms (some bound, some not) that express finer, secondary tense-aspect distinctions, and by a set of tertiary deictic forms that frame whole utterances.<sup>11</sup> We will be concerned here with the three primary-aspect classes because they interact with stem form and therefore have the most direct implications for the analysis of root classes given above.

The three primary aspect categories of Yucatec have been variously labelled in the literature but will here be called imperfective, past perfective, and gnomic perfective. Although these labels will be sufficient for present purposes, they should be regarded as tentative because the semantics of Yucatec aspect is as yet poorly understood.

The *imperfective* aspect (IMPF) indicates that the situation<sup>12</sup> described by the predicate is construed as having internal structure with distinct contours that may be foregrounded by the various preverbal modifiers. Some of the more common preverbal forms in use suggest the semantic range of this aspect: *k-* 'habitual', *táan* 'progressive', *k'ó'ok* 'terminative (completive)', etc. Use of this aspect implies that the event is incomplete, unfolding at (or around) the moment of speaking, and therefore suggests present tense and ongoing activity.

The *past perfective* aspect (PPRF) indicates that the given situation described by the predicate is construed as an existent whole without salient internal structure. Unlike a simple perfective (see Comrie 1976: 18–21), it cannot be applied to ongoing or future events but emphasizes the actual completion of the event and thus suggests past tense<sup>13</sup> and a focus on result.

The *gnomic perfective* aspect (GNOM) indicates that the situation described by the predicate is construed as a whole without salient internal structure. It can be used to describe events in the past or future and also hypothetical events. It cannot, however, be used for events actually simultaneous with or overlapping with the event of speaking since this apparently precludes seeing the event as a totality. It has frequently been labelled the subjunctive aspect because of its characteristic use in subjunctive constructions, but the label is misleading since the forms can be used in a variety of main and subordinate constructions to refer to past and future events.

*Aspect markers.* Regardless of the underlying root, once a stem with a certain focus has been formed, it is always inflected for aspect in the same way. Each stem type can take each primary aspect category, but there are important asymmetries in marking that suggest that each stem type is associated with a preferred aspect. The asymmetries can be seen in Table 2, which displays examples of the aspect marking used for each stem type, and in (3), which displays the relevant suffixes schematically.

(3) Schematic presentation of aspect markers illustrated in Table 2:

Aspect	Stem focus	Agent	Agent-patient	Patient
Imperfective	- $\emptyset$ - $\emptyset$	- $\emptyset$ - $\emptyset$	- $\emptyset$ -ik	- $\emptyset$ -VI
Gnomic perfective	-n-ak	- $\emptyset$ - $\emptyset$	- $\emptyset$ - $\emptyset$	- $\emptyset$ -Vk
Past perfective	-n-ah	- $\emptyset$ - $\emptyset$	- $\emptyset$ -ah	- $\emptyset$ - $\emptyset$

Table 2. Interaction of case and aspect in Yucatec

ROOT SALIENCE	STEM FOCUS:			
	Agent (pr- root = stem -pr)	Agent-patient (pr- root = stem -asp -pr)	Patient (pr- root = stem -asp -pr)	Patient (pr- root = stem -asp -pr)
Imperfective agent	in- siit' = $\emptyset$ = $\emptyset$ - $\emptyset$ - $\emptyset$	in- siit' = t = $\emptyset$ - $\emptyset$ -ik -eč	-	-
agent-patient	in- kúuč = $\emptyset$ = L - $\emptyset$ - $\emptyset$	in- kuč = $\emptyset$ = $\emptyset$ - $\emptyset$ -ik -eč	a- kúuč = $\emptyset$ = H - $\emptyset$ -ul	-
patient	in- kúim = s = ah - $\emptyset$ - $\emptyset$	in- kúim = s = $\emptyset$ - $\emptyset$ -ik -eč	a- kúim = $\emptyset$ = $\emptyset$ - $\emptyset$ -il	-
Gnomic perfective agent	siit' = $\emptyset$ = $\emptyset$ -n-ak -en	in- siit' = t = $\emptyset$ - $\emptyset$ - $\emptyset$ -eč	-	-
agent-patient	kúuč = $\emptyset$ = L -n-ak -en	in- kuč = $\emptyset$ = $\emptyset$ - $\emptyset$ - $\emptyset$ -eč	kúuč = $\emptyset$ = H - $\emptyset$ -uk	-eč
patient	kúim = s = ah -n-ak -en	in- kúim = s = $\emptyset$ - $\emptyset$ - $\emptyset$ -eč	kúim = $\emptyset$ = $\emptyset$ - $\emptyset$ -ik	-eč
Past perfective agent	siit' = $\emptyset$ = $\emptyset$ -n-ah -en	in- siit' = t = $\emptyset$ - $\emptyset$ -ah -eč	-	-
agent-patient	kúuč = $\emptyset$ = L -n-ah -en	in- kuč = $\emptyset$ = $\emptyset$ - $\emptyset$ -ah -eč	kúuč = $\emptyset$ = H - $\emptyset$ - $\emptyset$	-eč
patient	kúim = s = ah -n-ah -en	in- kúim = s = $\emptyset$ - $\emptyset$ -ah -eč	kúim = $\emptyset$ = $\emptyset$ - $\emptyset$ - $\emptyset$	-eč

Notes: For stem glosses, see Table 1. Pronouns: *in-* is 1NOM, *-en* is 1ABS, *a-* is 2NOM, *-eč* is 2ABS. Derivations: =  $\emptyset$  signals zero derivation, = H signals derivation by high tone, = L signals derivation by low tone.

(In [3], uppercase *V* indicates that the vowel harmonizes with the adjacent root. If there is intervening material, vowel *a* emerges instead. Hence, gnomic perfective *-Vk* here is equivalent to *-ak* in the agent-focus constructions, etc.)

Looking first at agent-patient-focus stems, we see that the imperfective is marked with *-ik*, the gnomic perfective with  $\emptyset$ , and the past perfective with *-ah*. The pronoun-marking agent (*in-* '[1st pers]') is prefixed to the verb stem and the pronoun-marking patient (*-eč* '[2nd pers]') is suffixed to the aspectual marker. Notice that the gnomic perfective aspect is indicated by zero marking in these forms, suggesting that the gnomic is the unmarked (or "natural") aspect category for these agent-patient-focus stems.<sup>14</sup> The *-ik* and *-ah* suffixes then signal a departure from this presupposed situation, reconfiguring the "natural" aspect to imperfective and past perfective aspects respectively.

For agent-focus stems, the imperfective is marked with  $\emptyset$ , the gnomic perfective with *-ak*, and the past perfective with *-ah*. This suggests that the imperfective is the unmarked (or "natural") aspect category for these agent-focus stems. Notice here that the pronoun form also shifts with aspect. In the imperfective aspect, the intransitive argument emerges as a prefixed pronoun (*in-* '[1st pers]'), just as the agent does in a transitive. Since these intransitive stems are agent-focused, marking them with the pronoun forms used for transitive agents is quite harmonious and requires no special formal apparatus. But in the perfective aspects, the intransitive argument emerges as a suffixed pronoun (*-en* 'I') just as the patient does in a transitive. Since there are agent-focus stems, marking them with transitive patient pronouns in this way is somewhat incongruous — especially given that an agent pronominal form is in use for the same stems in imperfective aspect. Additional morphological marking helps clarify the situation: the *-n* suffix positively marks the discrepancy.

For patient-focus stems, the imperfective is marked with *-Vi*, gnomic perfective with *-Vk*, and past perfective with  $\emptyset$ . This pattern suggests that past perfective aspect is the unmarked (or "natural") aspect category for these patient-focus stems. Notice again that pronoun form also shifts with aspect in the same way as for the agent-focus stems. However, in this situation, it is the signalling of a patient with the prefixed pronoun used for transitive agents (*a-* '[2nd pers]') that is anomalous. One might expect additional morphological marking to signal this mismatch on analogy with the *-n* discussed above for the inverse situation; however, none appears. The reasons for this are not entirely clear, but it is likely that it has to do with the relatively unmarked or neutral status of patient role with regard to semantic animacy — that is, such predicates are open to a wide array of argument types and hence no incongruity is felt (cf.

Merlan 1985: 328). The animacy status of the referent would have to be inferred from the discourse context rather than from verb semantics.<sup>15</sup>

In sum, primary aspect is signalled by inflectional suffixes attached to verbal stems; for intransitives, pronoun type also redundantly distinguishes the imperfective from the perfective aspects. Significantly, for each primary aspect there is one stem type for which no inflectional suffix (or zero  $\emptyset$  suffix) is required; in this circumstance, the case configuration of the stem alone appears sufficient to signal the relevant aspect. We can say that one aspect is unmarked (or "natural") for each stem type and need not be further signalled. When there is a mismatch of stem with aspect, additional morphological marking signals the relevant aspect. The agent-focus stems are associated with the imperfective aspect, the agent-patient-focus stems with the gnomic perfective aspect, and the patient-focus stems with the past perfective aspect.

The intertwining of stem type and aspect marking has implications for the interpretation of Yucatec root semantics as well. To the extent that individual roots show an affinity for certain stem forms, we were able to deduce that individual roots have *inherent case values*. To the extent that these stem forms in turn show an affinity for certain aspect markings, then verbal roots also have *inherent aspect values*.<sup>16</sup> That is, because case and aspect are so closely bound, when we say that a given verbal root takes a characteristic argument structure (case pattern) we are necessarily also predicting its unmarked aspectual value. This pattern is highlighted in Table 2, where examples of each root type in maximally unmarked form are shown in italics. For example, the patient-salient root *kiim* forms a patient-focus stem without derivation and this patient-focus stem takes the past perfective aspect without inflection, so that the subject pronoun is attached directly to the root. The root *kiim* is then doubly unmarked in this position. A change in aspect will require marking. A derivational change from patient focus will automatically engage a different set of aspect markers including a new default aspect. So the case derivation also necessarily alters aspect marking. In a similar vein, the agent-salient roots are associated with imperfective and the agent-patient-salient roots are associated with gnomic perfective. So the interdependence of case and aspect marking at the stem level in Yucatec appears to originate in a fusion or conflation of case- and aspect-relevant semantic values in the lexical roots themselves.

#### *The interaction of case and aspect*

The interaction of case and aspect marking in Yucatec is perhaps best thought of as a reflex of a deeper three-way categorization of verbal



roots. A number of schemas for classifying primitive event types have been proposed (e.g. Vendler 1957; Comrie 1976; Lyons 1977; Dowty 1979; Mourelatos 1981; Foley and Van Valin 1984; Van Valin 1990). Despite some attempts to reregiment Vendler's (1957) early treatment into purely aspectual distinctions, most current approaches continue to make significant if tacit appeal to characteristic argument structure to define these primitives. The Yucatec pattern suggests that the conflation of aspectual and argument-structure relevant meanings is motivated and that an explicit exploration of the interrelation of these two would prove illuminating (cf. Silverstein 1986: 511; Talmy 1985: 85-93; Van Valin 1993: 34-43). A tentative formulation using some of these distinctions will be made in order to indicate the utility of this approach, but it will not be possible to give further evidence here for the semantic interpretations proposed or to discuss fully how well the Yucatec particulars actually fit the various proposed classifications in the literature.

One class of Yucatec predicates denotes *activities* (cf. Vendler 1957: 146; Dowty 1979; Mourelatos 1981: 201). They are actions that are undertaken by individuals and endure in time without inherent end state. The term *activity* as used here implies both the presence of a source of energy (usually animate) and absence of any specific marking for telicity (i.e. atelic). Hence, these events readily fit into agent-focus, imperfective constructions. If the speaker wishes, temporal boundedness or telicity of the activity can be signalled by an aspectual shift to one of the perfectives (-*ak*, -*ah*). If the speaker wishes, the involvement of a patient can be signalled. The source of energy cannot itself become a patient and have the verb still remain an activity (hence this derivation is blocked), but the activity can be directed at a patient — indeed, other nonsalient arguments are usually implicated in these roots — and this patient can itself become a focus in a “passive.” The involvement of a patient tends to suggest that an end product or result of the activity is also present — a telicity of sorts — and so the default aspectual reading of the derived form now shifts to the gnomic perfective, which construes the event as a whole with a balance between focus on the source of energy and the end product or results. Recapturing the sense of imperfective will now require an aspect shift within the relevant set of suffixes for the agent-patient stem.

The second class denotes *accomplishments* (cf. Vendler 1957: 146; Dowty 1979; Van Valin 1990; Mourelatos 1981: 201, “performances”). They are actions undertaken by individuals that affect objects or achieve goals. The term *accomplishment* as used here implies that the event taken as a whole implicates the presence of a source of energy that produces an effect on some entity. Since two arguments are salient — one as source of energy and the other as affected by its application — these roots fit

readily into the Yucatec two-argument, agent-patient-focus constructions with balanced focus on source and result. Shifting from gnomic perfective aspect to stress the continuing nature of the event or the actual accomplishment of its result will require different aspect marking (-*ik*, -*ah*). If either agent or patient is omitted, this must be explicitly signalled by derivation. And since such omission will imply a shift in focus to the outcome or to the ongoing activity of a source of energy, the change will alter the default aspect readings.

The third class denotes *state changes*, punctual occurrences in which some argument achieves a new state (cf. Vendler 1957: 146, “achievement terms”; Dowty 1979, “achievements”; Mourelatos 1981: 201, “punctual occurrences”; Nedjalkov and Jaxontov 1988: 5, “terminative predications”; Sil'nickij 1988: 87, “extended or consecutive state meaning”; and also Leech 1971: 19, “transitional events”). The term *state change* as used here implies that some entity enters a new state without reference to any specific motive force for the transition. Hence, these events fit readily into patient-focus (or neutral) stem focus with its emphasis on telicity or result. Focus on the patient's occupation of the new state rather than the state entrance itself, whether the new state is conceived of generically or in terms of its internal contours, will require specific marking of this aspectual shift. An agent can be invoked and even focused on as producing the state change, but this will shift the default aspect toward a balance between the two arguments (source and result) with gnomic perfective aspect as the default. Explicit marking will now be required to change from the new default aspect.

*Stative* predications, which are commonly included in these sorts of typologies, appear in Yucatec as adjectival roots rather than as true predicates. To occupy the verbal paradigm, these roots must be first derived into true predicate stems, for example, into state changes via an inchoative derivation. These inchoative constructions will be illustrated in passing later in the paper.

#### Intransitive motion and positional roots

The foregoing analysis of the basic predicate categories of Yucatec provides the necessary backdrop for any semantic analysis of “spatial” predication in the language. The focus here will be on events falling into the state-change class, that is, those stems whose “natural” predicate form takes patient-focus stem and past perfective aspectual inflection. Included here are a number of roots forming “inotion” verbs directly and a set of roots forming “positional” verbs via a derivational process.

## "Motion" roots

Yucatec has a small number of roots referring to motion in space in the sense of implicating a change of location. Many of these fall into the Yucatec state-change class. A list of these roots is given in (4) along with brief English glosses. The items marked with # are distinguished from other roots in the class in that they do not — and CANNOT — take the *-VI* suffix in the imperfective, although historically they did (see entries in Barrera 1980).<sup>17</sup>

## (4) Locational-spatial state-change predicates in Yucatec:

Root		Causative stem	
máan #	pass by	máan-s	pass, transfer, transport
peék #	move, vibrate	pek-s	cause to move, vibrate
b'in #	go	bi(n)-s	take
táal #	come (here)	táa(l)-s	bring
ú'ul #	arrive (here)	ú'uh-s	bring it to here
k'uč	arrive at/get to	k'uh-s	deliver
k'ub'	arrive, surrender	k'úuh-s	deliver, transfer
náak	arrive, reach, hit	náak-s	cause to reach
luk'	leave	lu(k)'-s	to leave something, put aside, throw out
'ok	enter, intrude	'òok-s	move it in(to)
hóok'	exit, move out	hóo(k)'-s	move it out (of)
lúub'	fall	lúub'-s	fell
líik'	(a)rise, ascend	líi(k)'-s	raise, lift, put away
'éem	descend, get down	'éem-s	lower, pick, harvest
háay	descend	—	
ná'ak	(a)rise, ascend	ná'ak-s	raise

Any comparative analysis of "motion" predicates would have to take account of the formal facts that these roots have, on the one hand, been separated from other root predicates implicating change of location (e.g. *b'áab'* 'swim', *sut* 'return', *síit'* 'jump', etc.) and, on the other hand, been joined with the predicates involving state changes listed in (2). Change of spatial location as such is not formally distinguished at the morphological level.<sup>18</sup> The formal separation from other predicates denoting events involving motion signals that they are semantically different and raises questions about the validity of a unified notional category "spatial predicates" or "motion verbs" — at least in Yucatec. And, since these roots are not morphologically distinguishable from other state-change roots,

there are no formal grounds for postulating a distinct, comprehensive subset within the state-change set (cf. note 1). In short, there is no general morphological class of "motion verbs" in Yucatec. At best, only the small set marked with terminal # can be regarded as constituting a formal class of "motion verbs" in the language, and their distinctiveness from the larger state-change set is itself a relatively recent innovation. Although this set includes the most general change-of-location descriptors, glossed here as 'go' and 'come', which are often considered diagnostic of a class of motion verbs, in Yucatec they do not serve as the core of a larger class of verbs. (For problems with 'go' and 'come' as diagnostics see Wilkins and Hill 1994.)

These various formal facts have semantic implications. Inclusion of all these verbs denoting motion in this state-change class (whose formal properties and notional content have been independently established) suggests that a change in location or spatial arrangement is treated as undergoing a change of state, which is to say, that being in a location or spatial arrangement is treated as being in a state.<sup>19</sup> Although the association of motion with state change has been noted before by linguists (e.g. Talmy 1975: 234), psychologists (e.g. Piaget and Inhelder 1967), and psycholinguists (Klein 1993), motion verbs are often thought of in more processual terms with almost an agentive flavor, as in the following typical characterization: "Verbs-of-motion — i.e. verbs denoting a process in the course of which some entity changes its physical location — constitute another important subclass of dynamic bivalent verbs" (Lyons 1977: 494). And Dowty (1979) classifies such verbs that require motion (i.e. change of location over time) or movement of some kind as "activities."

These Yucatec "motion" roots in their unmarked use do not focus on "motion" in the sense of a process of changing location or position, or of defining a spatial trajectory, but only in the sense of the FACT of having achieved changed location or position at a certain instant. And there is no necessary implication of dynamic activity: given the patient-salient status of the root class as a whole, there is rather the suggestion that the activity of the argument is not salient in the root (or unmarked stem) semantics. To achieve the sense of process or trajectory toward the state change, the imperfective aspect must be applied and, in so doing, a semantic construal of active agency or control becomes more plausible but still not necessary. To directly implicate an agent one can use a causative, perhaps in a reflexive construction.

In this context, the English glosses typically applied can be misleading in several ways, creating an illusory match with the standard notional content used in comparative work. The English inchoative would provide

a better, if still flawed, gloss in terms of carrying some of the inherent case and aspect information implied by the morphosyntax: so 'ok 'enter' might better be glossed as 'to become inside', *k'uč* 'arrive' as 'to become at', etc.<sup>20</sup> Were we to look at denotational range, we would find other significant departures from the individual English glosses that are consistent with the insight that the key issue is the change of state undergone by a patient and not some action (or even a true change of location). For example 'em 'descend, get down'<sup>21</sup> would also be used for things that have deflated (e.g. a tire, a swollen foot) or calmed down (e.g. a swarm of bees), and *lik* '(a)rise, ascend' for things that have inflated (e.g. a hot puffed-up tortilla; cf. English "the bread is rising"). Agency, manner, duration, etc., are not focused upon. The root meaning, then, has to do with "what" happened, not "how" or "why" it happened.

In short, the formal analysis leads to a sharpened semantic analysis that reinforces the claim that there are problems with identifying and characterizing a unified category of "motion verbs" in Yucatec that have to do with a dynamic process of change of physical location.

#### Positional roots

In addition to those roots that enter directly into patient-focus stems or derive from other verbal root forms, Yucatec has other derivational processes to generate such stems. The stem can then take the usual aspect markers associated with it. One such process derives patient-focus stems that describe orientations, postures, or positions that objects assume (e.g. stand, kneel, hang, lean, etc.). We can follow traditional Mayanist terminology and call the roots permitting such *positional* (POS) derivation *positional roots*.

The technique for forming positional stems is shown in (5).

- (5) a. k- a- čin =tal #  
 HAB 2NOM bend POS IMPF  
 'you bow (become bent down)'  
 b. sáam čin =lah-(a)k -eč  
 PRPR bend POS GNOM 2ABS  
 'you already became bent down'  
 c. (h) čin =lah-0 -eč  
 NPFR bend POS PPRF 2ABS  
 'you became bent down'

Here the root *cin* 'to bend by social, biological, or physical force' is derived to generate positional stem forms meaning 'bow down, become

bent down/over'. Overall, the notional semantics and the formal pattern of aspectual inflection (#, -ak, -Ø) leave little doubt that this is a patient-focus stem form. The imperfective is odd, however, in that one would expect =lah-al instead of =tal #. This imperfective stem form is apparently a compound of the root with the verb *tàal* '(be)come'. The absence of the imperfective aspect marker -V1 may be due to the fact that *tàal* is one of the special set of patient-salient roots discussed above that does not itself take a -V1 suffix. That the stem form itself should alter in order to enable a certain aspect suggests once again how intimately case and aspect are bound in Yucatec.

Many of these roots can also form verb stems in one or another of the ways described in the first section of this paper, in which case they denote processes characterized by the state they yield but without a particular focus on it. So, for example, *čín* 'bend' can directly enter agent-patient-focus stem type as shown in (6).

- (6) t- in- čin =Ø -ah -Ø  
 NPFT INOM bend ROOT PPRF 3ABS  
 'I bent it'

In the positional construction, however, in harmony with the patient-focus status of the stem, the state latent in the root is taken as a point of departure and the emphasis is on the fact of an object entering or having entered the state without reference to how it did so and with the implication that the involvement of an agent was of little concern.

Examples of roots fitting the positional stem frame are given in (7). Notice that almost every item in this list, as in the larger set of over 100 positional roots in Yucatec, can be seen as RELATIONAL IN SPACE. That is, the formal analysis in this instance does precipitate a set where notional spatial relations such as orientation, postures, position, or shape seem to characterize the set semantically.

- (7) Roots deriving patient-focus stems using -tal/-lah with their positional meanings indicated:  
 b'oč' open wound  
 č'e(b)' lean to one side  
 č'ik pin, fix in place, stuck into  
 č'uy hang, suspend (e.g. by a string)  
 čil lie down, lying down  
 čin bow, bend down, bend over  
 haw lie face up, supine  
 hay stretch out, scatter, disseminate  
 hek straddle, be on top of

hot	bent over to ground
kah	reside
kap	be between things
nik	pile up
nok	lie face down, tipped over, prone; brood
p'uk	stoop, squat, crouch
pač	hang over (e.g. a stick)
pak	rest on something
tak	fasten, stick to, adhere, leaning against
wak	swell up
šak	bend over, fall on hands and feet

To clarify the formal and notional place of these positional constructions in Yucatec, it is essential to contrast them briefly with the closely related *inchoative* (INCH) derivation, the other major technique for producing patient-focus stems. The inchoative derivation derives patient-focus predicate stems from adjectival (statal) roots (e.g. *čak* 'red', *kóoč* 'wide', *č'uy* 'hard', *síis* 'cool', etc.). Adjectival roots describe basic states but lack the corresponding sense of change into those states. An adjective with a noun or pronoun simply attributes the state to an object as an enduring condition either in a nominal as in (8a) or as an equational as in (8b) and (8c):

- (8) a. le- čak bá'al -o'  
DEF red thing PROX  
'the red thing'
- b. čak -eč  
red 2ABS  
'you are red'
- c. čak -0 le- bá'al -o'  
red 3ABS DEF thing PROX  
'the thing is red'

The equational constructions in (8b) and (8c) are formally identical to the patient-focus stems in past perfective aspect, and their semantics are broadly consistent with this assignment (cf. Danziger 1992), but they do not take any of the other stem derivations and aspectual inflections associated with predicates and therefore cannot be regarded as full predicate roots.

These roots can enter the verbal paradigm via an inchoative derivation as shown in (9).

- (9) a. k- a- čak =čah -al (or k- a- čak =tal #)  
HAB 2NOM red INCH IMPF  
'you become red'

- b. sám čak =čah -(a)k -eč<sup>22</sup>  
PRPR red INCH GNOM 2ABS  
'you already became red'
- c. (h) čak =čah -0 -eč  
NPFR red INCH PPRF 2ABS  
'you became red'

Here once again, the notional semantics and the set of aspectual suffixes (-al, -ak, -0) are as expected for patient-focus stems. For the imperfective, there is an optional form with =tal, and in some dialects this is the only form used.<sup>23</sup> The presence of this form here suggests, and the derivational pattern in other stem types would further confirm, the close notional and formal affinity of the inchoative derivation with the positional one.

The inchoative and positional derivations both serve to round out the semantics of roots (or complex compounds) that lack some of the properties required of a Yucatec state-change verb. The two root classes both denote states but differ in their underlying semantics, as shown by their typical denotational values. Adjective roots denote qualitative states and assume one argument to which that state will be assigned as an enduring attribute; the inchoative then construes the argument as entering the state. Notionally, positional roots denote relational states and assume two arguments that are in the relation; the inchoative then construes the two arguments as having entered the relation. The two arguments can be two separate objects (e.g. *kul* 'sit')<sup>24</sup> or aspects of a single object in some noncanonical orientation or arrangement (e.g. *čín* 'bend'). In either case, what is essential is that for the purposes of forming the positional stem, the relation, which may even be dynamic (e.g. 'x sits [on y]'; 'x leans [on y]'), is taken as a state characterizing the entire predicate-plus-its-arguments (e.g. 'x is-seated [on y]'; 'x is-leaned [on y]'). It is then THAT relational state to which is added the sense of 'becoming' (e.g. 'x becomes is-seated [on y]'; 'x becomes is-leaned [on y]').

In being relational states in this way, positional roots are notionally interstitial between verbal and adjectival roots. When we recall that many such roots can enter directly into verb stems as well as into this inchoativelike construction, we see that the roots are also formally interstitial between verbs and adjectives. Other languages have predicates with similar qualities, although it is not clear that they routinely constitute a formal class in this way (see Talmy 1985: 85–93 and footnotes thereto, as well as the discussion below). What is interesting in this instance is that the set of relational states that apparently presents the language with a classification problem requiring the precipitation of a distinct class is notionally centered on a set of spatial relations. In other words, in this

context, an aspect of "space" has indeed become a language-relevant category. And when we say Yucatec has a set of "positional predicates," this statement expresses a formal-functional fact about the language.

### Implications for research on "spatial language"

The first portion of this paper sketched the central morphological apparatus of the Yucatec verb and interpreted it semantically. The essential claim was that Yucatec verbal roots fall into three classes with inherently salient case and aspectual values. Regular derivational and inflectional processes allow refocusing or conversion of these values as needed. The second portion of the paper illustrated how an understanding of these patterns would be relevant to an analysis of spatial predicates in Yucatec. The examples are intended to show what is lost by restricting the analysis to denotational overlap and what is gained by incorporating more structural information. This section details some of the implications of these examples for research on "spatial language."

First, there is no unified set of "spatial" predicates in Yucatec that would subsume everything "spatial" or even "motional" into a single morphological class. In particular, roots denoting many basic motions fall into a distinct state-change class separate from other predicates with "spatial" or "motional" reference. Within this state-change class, however, these roots are not systematically distinguished from other non-spatial predicates, that is, they do not form a category of Yucatec morphology with the exception of a handful of irregular roots. Yucatec has roots referring to "spatial" notions, but this is not an aspect of their meaning that is seized upon by the grammar in a significant way for formal morphological marking. Similar arguments could be made about the predicates with "spatial" reference falling into other classes. They have unity as a set only in the eye of a beholder working with a language-external denotational criterion. Further, the inclusion of the verbs denoting basic motions in the patient-focus stem set with its preference for past perfective aspect suggests that these roots do not describe active processes but rather the results of undergone state changes. In this respect, even our glosses of the individual root semantics using English present tense agentive forms are very misleading.

None of this implies that coherent categories such as "verb of motion" with meanings similar to our own forms cannot exist in languages, nor even that some subsets of these verbs might not eventually be found to have some peculiar reflexes in Yucatec grammar (cf. note 18), nor finally that the placement with state-change predicates is not itself cross-linguisti-

cally interesting or expectable (cf. notes 19 and 20). It only says that the most important surface morphology associated with verb derivation and inflection does not support treating them as a formal lexical set. Without such support, speaking about Yucatec "verbs of motion" as if they formed a well-defined set remains an external imposition on the local facts, an imposition of little relevance to the description of Yucatec morphological processes.

Recently, in the context of work on unaccusative mismatches in English, Levin and Rappaport Hovav have taken a similar approach to verbs of motion<sup>25</sup> by allowing "the syntax itself to impose a classification on the verbs" (1992: 252), and they reach similar conclusions: "We suggest that verbs of motion have proved recalcitrant [to analysis] because it is a mistake to think of them as constituting a linguistically significant natural class" (1992: 251). They argue for recognizing at least three distinct types of motion verbs in English, which each receives distinct grammatical treatment as a function of whether or not it codes manner and external causation. In this respect, the logic of their approach is formally parallel to the one advocated here.

However, they do not explicitly examine other verbs that pattern in the same way and consider whether within each such class there are any morphosyntactic diagnostics that warrant separating verbs of motion from other verbs that code manner and external causation. Notably, one of their two principal generalizations predicting the case relations of motion verbs does not make any reference to motion, direction, or space whatsoever (1992: 254). And they later argue that "the correlations between components of meaning and unaccusativity that we have presented ... will ultimately be subsumed under more general conventions that cover the entire lexicon" (1992: 261). In establishing this, they focus on the strong correlation between the aspectual status of a verb and its unaccusativity (which they are inclined to interpret in causal terms). They cite evidence that "verbs of removal" and "verbs of combining" partition in similar ways. So while they establish that "verb of motion" is not a unitary set, but rather a fusion of three distinct classes, they do not establish that any of these classes constitute syntactically interesting categories in English. Rather, their evidence suggests that a full formal analysis of the case and aspect categories of English and their implications for lexical semantics would, as in the Yucatec case, cross-cut the languages-independent notional category of "motion." More generally, establishing that "verb of motion" is a useful concept in linguistic description and typology will require just such attention to formal as well as notional criteria (Wilkins and Hill 1994).

The positional class provides a somewhat different lesson. Here a

pattern of derivation groups roots in a way that is somewhat unfamiliar from the vantage of European languages such as English. The analysis indicates that these roots can form predicate stems much like adjectives, suggesting that like adjectives they too refer to states. But unlike adjectives they can often enter directly into verbal stems, and they have reference to complex relations among two or more arguments. The relational state encoded in the root can be foregrounded by the positional derivation that takes it as the basis of a patient-focus stem. The common semantics of this set does indeed seem to center on specifically spatial relationships and suggests that such relationships are treated by Yucatec speakers as interstitial between adjectives and verbs and have therefore been singled out for special treatment. Thus, in this second example, close attention to the "local facts" defines a set of patently "spatial" forms, gives important clues to their proper semantic analysis, and suggests exactly where "spatial" notions require distinctive recognition in a grammar.

In the context of a general discussion of lexicalization processes showing an interaction of aspect and causation, Talmy (1985: 85-93) examines similar sets of lexical items referring to postures (e.g. English *lie*, *sit*, *stand*, etc.). Two of his conclusions are relevant in the present context. First, this set of forms need not fall into a unified syntactic class within a single language; he provides Latin as an example of the splitting up of this notional category into different formal classes. Second, even where lexemes of this type do tend to cluster into a single formal class, they can fall into significantly different classes in different languages. So whereas English lexicalizes these notions as statives, Japanese lexicalizes them as inchoatives, and Spanish as agentives. In one respect, the logic of his approach is formally parallel to the one advocated here: it emphasizes that the semantic value of a lexeme depends on its position in the grammar.

In other ways, however, Talmy's approach differs. Although his immediate goal was only to illustrate his arguments about the lexicalization of states in languages, it is worth questioning the status of the notional criterion he uses. At no point does he indicate that this set of notions coheres as a set in the grammars of languages. In fact, his examples indicate quite clearly that in many languages they do not. Nor does he indicate, for the languages where they do cohere as a set, that there are diagnostics that warrant treating these as a set apart from other verbs. Since he is discussing the derivation of verbs across broad category types such as stative, inchoative, and agentive, it is clear that many other verbs partake of these alternations. In Yucatec there is a clear formal demarcation of this notional set, a demarcation that can potentially provide insight into both the potential range of the set and its characteristic

properties vis-à-vis other lexical sets. This is especially true given the relative transparency of Yucatec roots with respect to case and aspect values. It is from such clear cases that we get the justification for calling a notional category A NOTIONAL CATEGORY OF LANGUAGE (cf. Silverstein 1986).

Together, the two examples developed in this paper indicate the importance of incorporating structural contributions to meaning, that is, *semantic value*, into the analysis of referential semantics. On the one hand, if structural factors are ignored, we will be attributing to languages categories they do not have and misconstruing their semantics as well. On the other hand, careful attention to structural factors can reveal categories whose denotational unity and distinctiveness we might not otherwise have seen or been able to establish, and at the same time give clues to their proper analysis in languages generally. What we want, ultimately, is to build generalizations, not simply project them.

It has long been taken as a truism in linguistics that meaning and form class are not usually in perfect one-to-one relationship. There will always be exceptional cases because of the historical and situationally contingent nature of linguistic structures. However, this does not license us to ignore the general association of certain form classes with semantic value in our analysis of referential semantics, an association of obvious utility to both learners and adult speakers. Moreover, in the comparative case, if we are to avoid projecting our own analytical categories upon the data, our only recourse is to pay careful attention to the local structural facts and apply our notional understandings only in light of them. That is, notional criteria alone (operationalized in terms of denotational overlap with our own forms) cannot suffice for the identification or description of linguistic categories. Rather, the patterns of formal distribution and the characteristic denotational range of forms in a language need to be assessed before or in conjunction with the application of notional judgments. Such a procedure, attentive to such local facts in a context of serious concern with typology and generalization, will provide the surest approach to identifying those form-functional regularities that seem to lie at the heart of language.

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## Appendix

## Yucatec phonology

Modern Yucatec (Blair 1964) has five vowels that each occur in four phonemic length-tone combinations — short-neutral: *i, e, a, o, u*; long-low: *ii, ee, aa, oo, uu*; long-high: *i:, e:, a:, o:, u:* and long-[high] broken (or glottalized): *i'i, e'e, a'a, o'o, u'u*. It has the consonantal phonemes as follows — plain stops: *p, t, k*; glottalized stops: *p', t', k'*; voiced stops: *b', d, g*; plain affricates: *č, č'*; glottalized affricates: *č', č'*; fricatives: *f, s, š, h*; nasals: *m, n, ñ*; frictionless continuents: *l, w, r, y*. Of these, *d, g, f*, and *ñ* have been brought in from Spanish and are used primarily for loan words.

## Interlinear transcription conventions

## Pronominal distinctions

1ABS	first person absolutive
1NOM	first person nominative
1OBL	first person oblique
2ABS	second person absolutive
2NOM	second person nominative
3ABS	third person absolutive
3NOM	third person nominative

## Aspectual distinctions

IMPF	imperfective
GNOM	gnomic perfective
PPRF	past perfective
HAB	habitual
NPFT	nonperfect
PRPR	proximate perfect

## Case distinctions

AFCT	affective
CAUS	causative
DEAF	deaffective
DECS	decausative
AGTF	agent focus
PASS	passive
ROOT	root ([=θ] derivation)
L/H/G	low/high/glottal tone appears in the root vowel

## Other forms

PREP	preposition
INCH	adjectival inchoative
POS	positional inchoative
DEF	definite
PROX	proximal

## Notes

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paper owes to prior research on Yucatec by Victoria Bricker — even where it departs from some of her formulations. Correspondence address: Department of Anthropology, University Museum, University of Pennsylvania, 33rd and Spruce Street, Philadelphia, PA 19104-6398, USA.

1. Talmy's (1975: 183) two basic "motion" predicates BE<sub>loc</sub> and MOVE could as well be the much more general BE [state] and CHANGE [state] with the spatial content deriving entirely from the PATH, MANNER, and FIGURE constituents. Talmy's (1985: 126–127) later formulations seem to tacitly acknowledge this: the identification of an event as having to do with "motion" is based on aspects of the verb complex other than the main predication itself. Jackendoff's (1983: 174) defense of a distinction similar to Talmy's depends, ultimately, on an appeal to the semantics of the English verb *go* (which tacitly underlies his function GO) and on the intuitions of English speakers. (For exemplification of the diversity of semantic values that can be subsumed under a term glossed with English 'go' see Wilkins and Hill 1994.) It is precisely these sorts of appeals to intuitions about or denotational overlap with English forms as criteria for isolating descriptive sets that are being questioned here. This inattention to traditional linguistic concerns arises in part from disciplinary orientation since the greatest interest in "spatial reference" comes not from structural linguists but from those interested in the relation of language to human cognition (Klein 1993: 191–192).
2. Yucatec Maya is spoken by approximately 300,000 speakers in the states of Campeche, Yucatan, and Quintana Roo in southeastern Mexico and in adjacent areas in Belize. Data reported here derive from fieldwork in the Chemax area of Yucatan.
3. Lucy (i.p.) provides a complementary case study wherein attention to full referential range can affect our understanding of lexical semantics.
4. Straight (1976) developed an analysis similar to the one made here for Yucatec, but it failed to recognize the role of tone in filling out the derivational paradigm.
5. The distinction between derivation and inflection is a subtle one in languages like Yucatec where an entire free-standing proposition can be packaged into a "lexical" item. Here, affixes or infixes will be regarded as *derivational* if they operate on a restricted set of root forms (i.e. they are contingent on the lexical root) in order to produce a stem corresponding to a certain part of speech. Hence, in the present paper, stem formation is emphasized over word formation (cf. Lyons 1977: 522), and production of, rather than alteration of, a part of speech is the requirement (cf. Kurylowicz 1966-[1936]). Zero derivations are recognized and justified by the overall configurational pattern for the root. When a root achieves a certain semantic meaning without derivation, this implies that meaning is already resident in the root. *Inflections* are obligatory affixes applied to a given stem type. In Yucatec, this approach produces results consistent with the generalizations that derivational affixes are more central (i.e. are closer to the root) than inflectional affixes and that markers for case tend to be more central than those for aspect (Bybee 1985: 17, 24–28; Anderson 1988: 180).
6. In terms of analytic level, the terms *agent salient* and *patient salient* are being used as a shorthand here for one or more semantic features (such as [ $\pm$ animate]) in the root that, in conjunction with other semantic values, routinely lead to agent or patient case-role assignment at the propositional (or stem) level (cf. Fillmore 1968: 3–5, 24–25). Agent and patient case-role assignment at the propositional level correspond roughly to the "macroroles" *actor* and *undergoer* as defined in role and reference grammar (Van Valin 1993: 43–44) or the "hyperroles" *actor* and *factitive* as defined by Kibrik (1985). They are not thematic roles. Nor is a feature [+agent] written into the root, but rather there are semantic values in the root that will produce such an interpretation in the default case. Other arguments may be implicated in the root semantics but are not salient in the default usage.

7. As Talmy (1985: 92–93) notes, departure from a state seems to be infrequently lexicalized in languages, in contrast to entry into a state. Sil'nickij (1988: 89) provides the term *conclusive* (in contrast to *inchoative*) for the departure-from-state option and gives *burn out* as an example; cf. Talmy (1985: 146, note 31). The use of "pairs" of opposing state-change verbs, what Sil'nickij calls *complementary* (antonymous) state relations, represents a solution to this general limitation. Of the forms given here, *wen* 'fall asleep' is anomalous in that it also denotes continuation in the state, rather than merely entrance into it, hence it is not a precise complement to *'ah* '(a)wake(n)' (cf. Sil'nickij 1988: 87).
8. Bricker (1978, 1981a, 1981b) calls these *active*, *antipassive*, and *middle* voice respectively. However, such labels are problematic because they categorize completely undervived intransitives as voice transformations and because they treat certain derived intransitives as voice transformations even when a given argument shows no change in overt case marking as it is defined in her analysis.
9. For a few agent-salient roots, it is possible to derive a patient-focus stem by a suffix = *pah* that conveys the sense that the event described by the root 'happened by itself' — effectively suspending reference to agency. These stems then inflect like the inchoatives described further below in the discussion.
10. In these past perfect examples, the subsequent derivation of the causative stem to delete mention of the patient looks superficially like an antipassive voice shift (cf. note 8). However, this interpretation would require construing agent-focus intransitive stems built on agent-salient roots as in Table 1, section (a) as derived or inflected despite their unmarked morphological status. Also, in the imperfective, as will be shown below, the agent pronoun is already in the formally least marked case and therefore cannot be further unmarked in this aspect. Second, in the terms used here (cf. note 5) the relevant change is derivational, not inflectional, both in that the role relations of the stem itself are altered, not merely their surface syntactic appearance, and in that the same derivation clearly does not apply to transitive stems formed with = *t* and seems doubtful with transitive stems formed with =  $\emptyset$  as well — so it is root-specific. In short, Yucatec does not have a true antipassive, and the *-n* suffix, which does indeed mark this form in some other Mayan languages, now has a different function in Yucatec.
11. Excluded from the present analysis for the sake of simplicity are two other suffixes (*-m* and *-á'am*), which signal the perfect within one of the primary aspects (the past perfective). Their omission does not affect the present analysis.
12. The expression *situation* is used here as a neutral cover term for events, states, processes, activities, etc., as these distinctions have been developed by Vendler (1957), Lyons (1977: 483), Mourelatos (1981), and others.
13. Although historically the form may have been a proximate past form (Robertson 1992: 208), the contemporary past tense implication seems to emerge from a cross-cutting of a [ $\pm$ continuative] distinction with a [ $\pm$ realis] distinction: imperfective = +continuative (+realis), past perfective = –continuative +realis, gnomic perfective = –continuative –realis, where the – signs indicate unmarked values.
14. Although formal marking and semantic marking need not correspond, they usually do, and the most fruitful procedure in the description of a language is to assume that they do until some conflicting evidence arises from another part of the analysis (typically from the cross-cutting of two or more markedness relations). In the present case, the patterns for the various stem types reinforce the view that formal and semantic marking are in harmony.
15. It is possible that the *-l'* suffix is in fact a marker of case mismatch. However, this view requires viewing an item in the aspect slot as a signal of case and an item in the case slot as a signal of aspect and breaking what is an otherwise straightforward correlation of stem type with preferred aspect.
16. By inherent aspect values are meant semantic values of roots to which aspect marking is sensitive. This is similar to Aktionsart in the emphasis on the lexical status of these values but without any suggestion that the actual aspect distinctions marked at higher levels (e.g. [ $\pm$  perfective]) are themselves written into the roots (cf. Comrie 1976: 6–7, note 4).
17. One possible interpretation for the missing *-l'* is that imperfective aspect is equally unmarked, for such verbs readily take an agentive interpretation. Significantly *péek* and *'ú'ul* are also irregular in their agent-focused perfective forms, where they pattern like agent-salient roots. Two items, *táal* and *'ú'ul*, have a deictic component to their meaning; that is, in the absence of any specification of goal location or state they are calibrated to the speech event itself. *B'in* and *táal* are also often employed in double verb constructions in which the second verb specifies the goal state. And the other two exceptional verbs tend to occur without any explicit reference to source or goal. So it may be that the *-l'* suffix resumptively signals the semantic presence of an underlying goal state or terminus when these state-change roots are put in imperfective aspect, which suspends their normal past perfective implications. Much like the *-n* suffix in the perfectives, then, the *-l'* may help keep the underlying root semantics clear when subsequent morphological processes might obscure it. Such a marker is simply not necessary in these roots where the goal is pragmatically specified, syntactically present, or semantically irrelevant.
18. It is likely that there are some more global syntactic patterns that would be sensitive to the common notional semantics of these verbs (cf. Haviland 1991 on Tzotzil), although they certainly do not form anything like a cohesive set of auxiliaries as in certain highland Mayan languages (e.g. Mam; see England 1976). I say "global" patterns will be required because the single true locative relator *ti* 'to, at' is indifferent to direction versus location and also interacts differently with the various verbs implicating motion. The existence of such higher-order subdivisions would not negate the significance of formal inclusion in the state-change root class.
19. This formulation assumes that it is more appropriate to characterize the more specific type of situation in terms of the more general. It is of course logically possible to regard a change of state as being like a change of location (cf. various "localist" theories such as Anderson 1971) where a narrower meaning is used as a model for a more general category — hence the analysis of *die* as 'move to death'. This then raises the question of whether there is any evidence for such modeling either historically or synchronically. There does not seem to be any for the Yucatec case. A third alternative that remains a possibility is to regard both as specific variants of something still more general.
20. It is worth noting that many of the English verbs used in the glosses in (5) (that is, those which in Talmy's [1975] terminology merge path information rather than manner or cause information with the main predication) are, in fact, themselves atypical of English spatial predicates and have apparently been borrowed from Romance (see Talmy 1985: 72). In Yucatec, this is the most important class in terms of both number of roots and frequency of usage. Predicates equivalent to English manner-of-motion expressions (e.g. 'walk') tend not to be simple roots in Yucatec but rather derived forms.
21. A reviewer notes that an English gloss of 'go down' would be compatible with the two deflation examples. A full gloss of the semantics of this item would reveal that the object is usually understood to end up in its natural or normal position (as opposed to 'fall', which implies a departure from natural or normal position). The gloss of 'descend, get down' was designed to capture this sense, which 'go down' does not entail. Even accepting the alternative gloss, the main point that customary usage confirms the change-of-state reading still holds, and the same interpretation would then be applicable to English *go (down)*.



22. In the gnomic aspect, the full suffixal combination =*əh-ak* emerges regularly only in the third person singular where the following suffixed pronoun is -*Ø*. Elsewhere, =*əh-k* is usual (or, more rarely, =*ə-k*). Bricker (1981a: xv, xlv) also describes these contracted forms.
23. So far as I am aware, the =*tal* form is the only one in use in my field area. Bricker (1981a: xv; 1986: 29–30) and Blair and Vermont-Salas (1967: 565), who have worked in different regions of Yucatan, report the presence of the =*əh-al* alternate for the imperfective. Bricker (1986: 29–30) also suggests that =*tal* (at least in the case of the inchoatives) is from the verb *təal*. Danziger (1992) reaches a similar conclusion for Mopan, a sister language to Yucatec, and regards it as a grammaticalization process rather than a compound. Bricker also cites a personal communication from Kathleen Carlin suggesting that =*əh-al* and =*tal* are in productive alternation, with the former suggesting that the state change is permanent.
24. Talmy (1985: 146, note 30) argues that postures are lexicalized as nonrelational, illustrating this with English verbs. This seems untenable on the face of it. Even in English something always stands, lies, sits, leans, etc., in relation to something else, and, if anything, it is the posture, not the orientation, that is more readily neutralized.
25. The present analysis was developed without awareness of Levin and Rappaport Hovav's research. I thank Melissa Bowerman for drawing it to my attention.

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