SEMANTIC EXTENSIONS

FROM SPACE TO TIME

IN COPALA TRIQUE

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0. The thesis on which this paper is based is the primacy of spatial relations in human experience and the existence in every natural language of some kind of metaphorical extension from the spatial domain to the temporal (and probably to other domains as well, such as the logical and psychological). As an illustration of this thesis consider the words based, relations, existence, meta-phorical, extension, domain, and (probably) temporal, all of which have an essentially spatial etymology,[1] and all of which are used in the preceding sentence in nonspatial ways!

The thesis that spatial relations are primary is based on a number of assumptions, two of which I will attempt to make explicit. First of all, I assume that metaphor is not limited to literary creation, but is rather the basic stuff of our day-to-day use of language. Every time the available resources of a language are extended to describe some new experience, we are creating a meta-phor, albeit usually a low-level and rather prosaic one. Metaphor, in this broad sense of semantic extension, is one of the chief ways in which the finite resources of a language are used to communicate about the near infinite variety of experience.[2]

A second assumption is the primacy of sensory experience in human thought and language. Even if we reject the extremes of naive empiricism in favor of a considerable degree of innateness in perceptual processing (see, for example, Fodor, 1981), data from the five senses give us virtually all our input concerning our environment.

The relation between the traditional five senses and such real-world domains as spatial, temporal, and logical is, of course, not one-to-one. Experience about spatial relations comes through two senses, visual and tactile. Color experience is solely visual, temperature and weight are tactile, chemical composition is largely gustatory and olfactory, sound is auditory, and such domains as the logical and social go far beyond direct sensory experience.

Of all these domains, the spatial is, in some sense, the most basic, and I claim that all languages will have a sizable number of spatial metaphors in their lexicon. This should not, however, be taken in an evolutionary sense. 1 am not claiming that our primitive ancestors had terms only for spatial concepts, and that as their thinking grew more complex, these terms were pressed into service for other domains in what was essentially a one-time process. My claim is rather that the creation of metaphors based on space is a continuous process. Old terms die out for a variety of reasons, and new ones are constantly created from the pool of spatial expressions. They start out as live metaphors, then become frozen, and often lose their source in the mental lexicon of the native speaker.[3]

Temporal concepts are a natural target for spatial analogies because of the similarities between the two domains. Both have, for example, extension, units, placement, movement, and deictic anchoring. There are, of course, also many differences. Two of the most important ones are that time is unidimensional and unidirec-

tional, while space has three dimensions and movement in either direction along any dimension or combination of dimensions.

In this paper I describe extensions from the spatial domain to the temporal domain in Copala Trique, an Otomanguean language spoken in Oaxaca, Mexico.[4] Various kinds of temporal expressions are examined to see which are spatial metaphors and which seem to be purely temporal. First, expressions for the passage of time are considered, followed by expressions for the phases of events, their duration, their placement, their number, and their frequency. The spatial extensions prove to be quite extensive, but not always parallel to English spatial extensions for the same temporal concepts. Before considering extensions from spatial to temporal, however, some extensions of body-part nouns within the spatial domain must be explained.

1.   Body-part nouns play a central role in Copala Trique syntax because of the way they are extended, not only within the class of nouns, but also to form prepositions, conjunctions, and adverbs. These extensions are described briefly because many of them enter into temporal expressions.

Body-part nouns are used as nouns for parts of inanimate objects in much the same fashion as in English (foot of the mountain, nose of the airplane) and many other languages (see, for example, Friedrich's study of Tarascan, 1969). Some examples of Trique extensions that differ from English are:[5]

(1) takũũ⁵ mi⁴šte⁴   'handle of machete'

nose-of machete

(2) šee⁵ šuh³   'handle of clay pot'

ear-of pot

(3) šaa⁵ we?³   'roof of house'

back-of house

(4) šia⁴ we?³   'place under eaves of house'

neck-of house

(5) tu?wa³ čaa⁵   'riverbank'

mouth-of river

The first two examples seem to be based roughly on the shape of a projection, but this is far easier to see in the case of (2), where the two handles on the sides of a clay pot are very much like the ears on a head, than it is in the case of (1). Example (3) seems to be based on an analogy with a quadruped rather than with a human being, whereas (4) seems to be based on a human analogy.[6] In (5) the basic extension of <u>mouth</u> in Trique seems to be 'edge', and a riverbank is one kind of edge.

A more radical extension of these nouns is their use as prepositions. In fact, the majority of Trique prepositions are body-part nouns, and the same is true of most Otomanguean languages.[7] Some Trique examples are:

(6) riãã³² yana³²

face-of counter

'on the counter'

(7)   riãã^{32} gwaa^4

       face-of John

       'in front of John' or 'to John'

(8)   rike^3 čũũ^5

       stomach-of box

       'in the box' or 'under the box'

(9)   šaa^5 čũũ^5

       back-of box

       'above the box'

(10)   ra$^{\scriptstyle ?}$a^3 gwaa^4

       hand-of John

       'from John'

(11)   rike^3 nih^3 šnii^3

       stomach-of the-plural boy

       'among the boys'

(12)   ši$^{\scriptstyle ?}$nuu^5 čii^3

       side-of man

       'next to the man'

(13)   ško^4 kih^{32}

       beyond mountain

       'beyond the mountain'; cf. škoo^5 'shoulder-of'

In that prepositions indicate relations rather than things, these
extensions are one degree further removed from the basic meaning
of the noun than the extensions within the noun class are. Some of
the extensions involved are intuitively obvious, such as from 'side

of' to 'next to', and others less so, such as from 'hand of' to
'from'. The use of 'back of' and 'stomach of' for 'above' and
'under', respectively, appears to involve a comparison with a
quadruped.

The extension of a body-part noun to a conjunction is based on
a prepositional extension of one body part, $\underline{\check{s}e^{?}e}^4$, which refers to
the feet and lower legs, but is obsolescent in this use. Its ex-
tensions, however, are extremely common:

(14) $\check{s}e^{?}e^4$ $\check{c}ii^3$

base-of man

'about the man' or 'for the man' or 'because of the man'
The range of meanings of this word can perhaps be best grasped by
comparing the Trique word with the English noun **base** and the related
form **based** **on**, which have similar extensions. By combining this
preposition with a complementizer, a conjunction is formed:

(15) $\check{s}e^{?}e^4$ ze^{32} $ka^{?}\tilde{a}h^{32}$ $\check{c}ii^3$

base-of that went man

'because the man went'

By combining this **preposition** with a demonstrative, a sentential
adverb is formed:

(16) $\check{s}e^{?}e^4$ $d\tilde{a}^{32}$ $ka^{?}\tilde{a}h^{32}$ $\check{c}ii^3$ a^{32}

base-of that went man declarative

'Therefore the man went.'

Other extensions of body-part nouns to adverbs involve **lowering**
the tone of body-part prepositions; three important examples are:

(17) rike^{13} 'downhill'

      stomach

(18) šah^1 'uphill'
        .

      back

(19) ško^1 'beyond'; cf. škoo^5 'shoulder of'

      beyond

2. Time, t̶h̶e̶ the words of the proverb, flies, and perhaps

the most pervasive feature of time is the fact that it constantly

elapses. The most obvious spatial analogy for such temporal elap-

sing is movement, in spite of the fact that spatial movement is

sporadic and multidirectional. Fillmore (1975:28) notes that

there are two ways to view such movement, both employed in English:

we can view the world as moving through time, or time as passing by

a stationary world. In Copala Trique also, both are used. The

Trique verb a̱c̱ẽ^4 'to pass' is used to express elapsing, just as the

English verb pass is; this is an example of the second view. The

first view is expressed less directly, but nevertheless occurs, as

seen in expressions like example (21):

(20) kačẽ^4 ʔo^2 sema^{4}na^4 a^{32} 'A week passed.'

      passed one week   declarative

(21) reh^{32} riãã^{32} niʔ^4 'in the future'

      place face-of us-inclusive

3. Phase refers to the different stages in the progress of a

unit or event, such as the beginning, middle, and end. Copala

Trique terms for phase reveal various spatial extensions.

Nouns for the various phases are extensions of body-part

nouns, as seen in the following examples:

(22) takoo^5 yawii^{32} 'beginning of the month'

     foot-of month

(23) ta^{4}nuu^2 yawii^{32} 'middle of the month'

     center-of month

(24) raa^{31} yawii^{32} 'end of the month'

     head-of month

The analogy here seems to involve piling up the parts of a unit

from the ground up; nothing parallel to it appears to occur in

English.

Verbs for phases also involve spatial extensions. ~~Though they~~

~~are related to the four that were discussed, they are not consistent within them~~

~~selves.~~ The verb for 'begin' is a compound that combines ũũ^3 'to

become' with še$^?$e^1, the adjectival form of še$^?$e^4 'legs and feet of'.

In certain contexts the verb atuh^5 'to enter' is also used for

'begin'. There are no forms for 'continue' or 'end', however, that

employ related metaphors. Examples:

(25) gũũ^3 še$^?$e^1 ša$^?$ãh^{32} a^{32}

     became based fiesta declarative

     'The fiesta began.'

(26) a$^?$yoh^3 gũũ^{13} še$^?$e^1 ki$^?$yah^{13} gwaa^4 we$^?$^{3} a^{32}

     tomorrow will-become based will-make John house declarative

     'John will start to build the house tomorrow.'

(27) katuh^5 takoo^5 yawii^{32} sa^{4}ryo^4 kii^3 a^{32}

entered foot-of month rosary yesterday declarative

'Yesterday' was the first of October.'

The verbs that signal the end of a unit are zih^5 'to arrive', 'to

reach', 'to total' and nawih^3 'to be used up', 'to finish'. It is

clear that zih^5 is a spatial metaphor, but it is not clear whether

nawih^3 is basically temporal or spatial. Examples (28)-(31) show

spatial uses of these verbs, and examples (32) and (33) show tem-

poral uses.

(28) kizih^5 gwaa^4 çeh^{32} ka$^{?}$ãã^1 a^{32}

arrived John trail important declarative

'John arrived at the highway.'

(29) ne^3 kizih^2 ma^{4}nda^4 ki$^{?}$yah^{13} li^{4}na^4 kotoo^4 a^{32}

not totaled cloth will-make Kathleen shirt declarative

'There wasn't enough cloth for Kathleen to make the shirt.'

(30) nawih^3 kãh^3 a^{32}

were-used-up sandal declarative

'The sandals wore out.'

(31) kii^3 nawih^3 yãã^{32} riãã^{32} te^{4}nda^4 a^{32}

yesterday finished salt face-of store declarative

'The store ran out of salt yesterday.'

(32) kizih^5 ki$^{?}$yah^3 gwaa^4 we$^{?3}$ a^{32}

ended made John house declarative

'John finished building the house.'

(33) nawih^3 kutu$^{?}$weh^5 gwaa^4 kwa^{4}yo^4 a^{32}

ended sold John horse declarative

'John is done selling horses.'

There is a difference in connotation between $\underline{zih}^5$ and $\underline{nawih}^3$ in their spatial uses that carries over into their temporal uses: $\underline{zih}^5$ implies that the preparations are over and that a goal has been attained, while $\underline{nawih}^3$ implies that the peak is over and that a decline has set in.

There are no verbs that **refer specifically** to the middle part of an event or unit, though the number $^?o^2$ 'one' is used adverbially with the continuative aspect of the verb to indicate prolonged action:

(34) $^?o^2$ $^?yah^3$ $z\tilde{u}\tilde{u}^{32}$ $gwaa^4$ a^{32}

    one does work John declarative

    'John works continually.'

The internal part of an action may also be referred to by a some- what rare construction in which the verb $\underline{wah}^{32}$ 'to move' is com- bined with a verb in the potential aspect. This construction has a progressive meaning.[8]

(35) wah^{32} $kawi?^1$ $gwaa^4$ a^{32}

    moves will-die John declarative

    'John is dying.'

4. Just as spatial entities have extension in one to three dimensions, so temporal entities have duration. And just as spatial entities are measured in units, so temporal entities are measured in temporal units. In this section three kinds of temporal units are discussed: natural time units, sociocultural time units, and named sequences of time units. It is also possible to describe both spa-

tial and temporal entities ̶a̶r̶e̶ less precise|y by describing
their relative extension or duration, and relative duration is
also discussed in this section. The section closes with a discussion
of ̶m̶o̶r̶e̶ a few kinds of complex expressions of duration.

4.1 Natural time units are those defined by cyclic astro-
nomical phenomena: day, lunar month, and year. The most direct
parallelism with spatial notions would be to extend the name for a
unit of linear measure, such as <u>foot</u> or <u>cubit</u>, to units of time,
but I know of no language which does so.[9] Even though some Tri-
que names for temporal units have a spatial origin, the metaphorical
path is less direct. The Trique word <u>gwii</u>[3] 'day' also means 'sun',
and the latter meaning seems to be basic. The word <u>yawii</u>[32] 'month'
differs only by tone from <u>yawii</u>[3] 'moon', and a similar extension
seems to be warranted. The word <u>yawii</u>[32] currently means calendar
month, which is a sociocultural unit, rather than lunar month,
which is a natural unit, but it seems clear that the original mean-
ing was lunar month and that the word was transferred to the socio-
cultural unit of about the same size imposed at the Spanish conquest.
The Trique word is therefore parallel in development to the English
word <u>month</u>, which is etymologically related to <u>moon</u>. As for the
third natural time unit, the year, the Trique word <u>yo?</u>[3] does not
have any recoverable etymology.

4.2 Sociocultural time units are those defined by the society
rather than by astronomical phenomena; they include minutes, hours,

10   weeks, calendar months, decades, and centuries.[10] As with natural

time units, there are no extensions from units of linear measure

in Trique. The term for 'minute' is a loanword from Spanish minuto,

and one of the two words for 'hour' is from Spanish hora. The

other word for 'hour', $aga?^3$, the basic meaning of which is 'metal',

'bell', or 'glass', is a spatial extension based on the Spanish

custom of ringing church bells at significant times of the day.

The term for 'week', $sema^4na^4$, is also a Spanish loanword, and the

term for calendar month has been discussed in section 4.1 under

lunar month. There are no Trique terms for units larger than a

year; the native term for the fifty-two year Mesoamerican cycle has

been lost.

    4.3 Named sequences of time units include parts of the day,

days of the week, months of the year, days of the month, and

seasons. Such sequences are inherent in the unidirectional nature

of time and have no obvious spatial analogies; no direct spatial

extension can therefore be expected. A number of indirect spatial

extensions do, however, occur in the Trique terms for such sequences.

    Parts of the day are all formed using the locative relative

clause introducer, reh^{32} 'place where', which is a reduced form of

$\check{c}eh^{32}$ 'trail'. These phrases are all therefore spatial metaphors.

Examples:

    (36) reh^{32} $ta^4\check{s}eh^1$ 'in the hours before dawn'

          place wee-hours

(37) reh^{32} $\text{na}^{4}\text{ʔyãa}^{1}$　　'at dawn'

　　place early

(38) reh^{32} štaʔ^{1} gwii^{3}　　'in the morning'

　　place high sun

(39) reh^{32} $\text{ka}^{4}\text{šuh}^{1}$　　'at noon'

　　place noon

(40) reh^{32} anokoʔ^{3} gwii^{3}　　'in the afternoon'

　　place hangs sun

(41) reh^{32} tiʔnuu^{32}　　'at dusk'

　　place gets-dark

(42) reh^{32} nii^{31}　　'at night'

　　place night

The word $\text{ka}^{4}\text{šuh}^{1}$ in example (39) is a fused form of agaʔ^{3} šuwih^{1}, which means 'twelve o'clock', literally 'metal twelve'; it is thus clearly a postconquest term.

Terms for days of the week are postconquest introductions, but only the word for 'Sunday' contains a direct loanword. All the terms for days are fused compounds with $\underline{\text{gwii}}^{3}$ 'day' as the first member. For Sunday the second member is a loanword from Spanish $\underline{\text{domingo}}$, and for the **days** from Monday through Saturday, the second member is a number from one to six. These terms are:

(43) $\text{kotu}^{4}\text{ngo}^{4}$　　'Sunday'　　(45) $\text{ku}^{4}\text{wih}^{1}$　　'Tuesday'

　　day-Sunday　　　　　　　　　　day-two

(44) $\text{ko}^{4}\text{ʔngo}^{2}$　　'Monday'　　(46) $\text{kwe}^{4}\text{ʔnuh}^{1}$　　'Wednesday'

　　day-one　　　　　　　　　　　day-three

(47) kwi^{4}ka$^?$ãh^{13} 'Thursday'   (49) kwe^{4}tã$^{?1}$ 'Saturday'

     day-four   day-six

(48) ku^{4}yũ$^{?1}$ 'Friday'

     day-five

None of these terms are spatial extensions except that the word for

[11]   'day' is probably an extension from 'sun'.[11]

The terms for months are all phrases beginning with the word

yawii^{32} 'month'. The second element is sometimes a direct loanword

from the Spanish month name, but more often it is the name of a

fiesta that takes place near the beginning of the month. These

terms are:

(50) yawii^{32} ka^{4}ya$^?$ãh^{32} 'January'

     month   is-born-god

(51) yawii^{32} wire^{4}ro^4 'February'

     month   February

(52) yawii^{32} ma^{4}rɜo^4 'March'

     month   March

(53) yawii^{32} abrii^4 'April'

     month   April

(54) yawii^{32} ma^{4}yo^4 'May'

     month   May

(55) yawii^{32} sagwaa^4 'June'

     month   St.-John

(56) yawii^{32} sindyoo^4 'July'

     month   St.-James

(57) yawii^{32} ški$\check{}^4$ 'August'

   month our-boss

(58) yawii^{32} ti^{4}ta^4 'September'

   month ?

(59) yawii^{32} sa^{4}ryo^4 'October'

   month rosary

(60) yawii^{32} šnanga^4 'November'

   month corpse

(61) yawii^{32} sandre^{4}se^1 'December'

   month St.-Andrew

The name for January, for example, is taken from the Christmas

fiesta, which occurs near the end of December, and the name for

November is taken from the All Saints' Day and All Souls' Day

fiesta at the very beginning of the month. In that fiestas are both spatial
and temporal phenomena, there are no obvious spatial extensions in these terms.
The days of the months are labeled with numbers, rather than

names, to conform to the Spanish system. A clear spatial metaphor

is used: the number of the day is followed by the verb čee^5 'walks'

and the name of the month. The verb čee^5 is a fairly general term

for locomotion, used of birds and planes in the sky and of fish in

water, as well as of animals and people on land. Even though these

date ex*ressions contain a verb and thus constitute complete sen-

tences, they are usually embedded within other sentences:

(62) wih^1 čee^5 yawii^{32} ma^{4}yo^4 kawi$\check{}^3$ gwaa^4 a^{32}

   two walks month May died John declarative

   'John died on May 2nd.'

A Trique without formal education, however, is more likely to
ignore precise calendar dates in favor of an approximation based
on the yearly cycle of fiestas:

(63) $\check{s}a^{?}\tilde{s}h^{32}$ samigee^4 ka$^?$ngaa^{32} ne$^?$eh^3 a^{32}

fiesta St.-Michael was-born baby declarative

'The baby was born around the fiesta of St. Michael.'

This custom is perhaps the basis for the month names based on
fiestas.

The Trique recognize two seasons of the year: the rainy
season from May to October, and the dry season from November to
April. The terms for these seasons are compounds based on an old
Spanish loanword, dyo^4, from tiempo, and the second element is a
word for 'rain' or 'heat':

(64) dyo^4 $m\tilde{a}^{?3}$ 'the rainy season'

season rains (verb)

(65) dyo^4 $m\tilde{a}\tilde{a}^{32}$ 'the dry season'

season heat

Neither of these terms in a spatial extension. The event of raining
takes place in both space and time, and neither aspect seems more
important than the other. The term for the dry season, on the other
hand, is an extension from the domain of temperature.

4.4 English terms of relative duration are chosen from the
length dimension. In Trique, on the other hand, there is a word
that specifically means 'of long duration' and that is negated to

express short duration. The words that mean 'long' and 'short'

from the length dimension of the spatial domain, however, are also

used to express duration, though less commonly than the other word.

It is possible that this extended use of spatial terms came about

through Spanish influence. Examples:

(66) $\check{s}a^{\prime}\tilde{a}h^{32}$ $r\tilde{a}\tilde{a}^{1}$

deleted

fiesta of-long-duration

'long fiesta'

(67) $g\tilde{u}\tilde{u}^{3}$ $r\tilde{a}\tilde{a}^{1}$ $tuku^{\prime}y\tilde{o}^{4}$ $gwaa^{4}$ a^{32}

became of-long-duration studied John   declarative

'John studied for a long time.'

(68) ne^{3} $r\tilde{a}\tilde{a}^{1}$ waa^{32} $\check{s}a^{\prime}\tilde{a}h^{32}$ a^{32}

not of-long-duration is   fiesta   declarative

'The fiesta is short.'

(69) $\check{s}a^{\prime}\tilde{a}h^{32}$ $\acute{s}k\tilde{a}\tilde{a}^{1}$

fiesta long

'long fiesta'

(70) $na^{4}na^{1}$ $\check{c}e^{\prime 2}$

word   short

'short speech'

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5. Units and events may be placed along the time dimension

either with reference to the time of the speech act (deictic

anchoring) or with reference to some other event. Both kinds are

discussed in this section.

4.5 The units of duration described in sections 4.1 and 4.2
are all nouns and can therefore take optional quantifiers. To
express the duration of an event in terms of such units, a simple
noun phrase with a quantifier can be used. Unlike English, no
preposition is ever used. Example:

(70a) kačee^5 gwaa^4 wih^1 gwii^3 a^{32}

walked John two day declarative

'John walked for two days.'

Such a construction is perhaps parallel to expressions of spatial
extent, which are likewise expressed without prepositions. To
express the time within which something was done, however, the
preposition rike^3 'in', 'under' is used, which is an extension
from the body-part noun 'stomach of'. Example:

(70b) ki?yah^3 gwaa^4 we?^{3} rike^3 wa?nuh^1 yawii^{32} a^{32}

made   John house stomach-of three   month   declarative

'John built the house within three months.'

The extension of rike^3 from locative to temporal use gives it a
range very parallel to English in and inside of. Bennett (1975:
116) attempts to unite the spatial and temporal uses of in by
reference to a semantic common denominator. In this respect his
work contrasts with the approach I take in this paper. The body-
part source for rike^3, however, shows that the spatial use of this
Trique word is primary.

5.1 Deictic anchoring of temporal reference means that the
time of the speech act serves as the reference point for specifying
the placement of a unit or event. (For a discussion of the notion
of reference point, see Reichenbach, 1947:287-98.) This kind of
deictic anchoring is probably universal. In English it appears in
the tense system, in temporal adverbs like now and yesterday, and in
terms referring to future and past in general. Likewise in Copala
Trique deictic anchoring is found in the tense-aspect system, in
temporal adverbs, and in terms for past and future. There are also
special terms for 'forever' in Copala Trique that involve spatial
extensions.

The tense-aspect system of verb inflection is the only way in
which temporal concepts are grammaticalized in Trique. There are
three forms, continuative, completive, and potential. The continu-
ative aspect form is the stem alone, the completive aspect form
consists of a prefix of the form kV- plus the stem, and the potential
aspect form consists of the completive form plus a lowering of the stem
tone. In main clauses these three forms are close in meaning to the
traditional concept of present, past, and future tense. In subordinate
clauses, however, they ~~are more clearly aspectual and~~ show the time of the
action with respect to the main clause. This seems to be because the
reference point for subordinate clauses is established by the verb of
the main clause rather than by the time of the speech act. Examples
of verb aspect:

(71) ane^{32} gwaa^4 a^{32} 'John is taking a bath.'

      bathes John   declarative

(72) kane^{32} gwaa^4 a^{32} 'John took a bath.'

bathed John declarative

(73) kane^2 gwaa^4 a^{32} 'John will take a bath.'

will-bathe John declarative

(74) našu?^{3} ne?eh^3 ga^2 ane^{32} gwaa^4 a^{32}

fell   baby   when bathes John declarative

'The baby fell while John was taking a bath.'

These three verb forms are clearly very old, and they bear no discernible relation to spatial terms.

Temporal adverbs expressing distance from the time of the speech act do not have recoverable etymologies, and therefore no spatial extensions can be traced. Some of these terms are: kwano^2 'now', kwã?^{3} 'today', kii^3 'yesterday', mãh^3 'day before yesterday (or any day before that up to about a week ago)', goh^3 'last year', nanuh^3 'two years ago', a?yoh^3 'tomorrow', yatah^3 'day after tomorrow (or any day after that up to about a week from now)'. There is also a term for 'next year', a^{4}yo?^{3}, which is a compound of some unknown word and yo?^{3} 'year'; and there is a term for 'long ago', naa^4, which usually occurs with a temporal conjunction, as in ga^2 naa^4 'long ago', literally 'when long ago'.

The distance from the time of the speech act can also be expressed by using the verb zih^5 'to arrive', 'to reach', 'to total' and the number of units. Examples:

(75) kizih^5 wih^1 yawii^{32} ka?ãh^{32} gwaa^4 a^{32}

totaled two month   went   John declarative

'John went away two months ago.'

The terms m̃ãh³ and yatah³

~~Terms for days~~ may be combined with a day of the week to identify a day more precisely. Examples:

(74a) ka?ãh^{32} gwaa^4 m̃ãh^3 $\quad\quad\quad\quad$ ku^4wih^1 a^{32}

$\quad\quad\quad$ went $\quad$ John $\quad$ day-before-yesterday Tuesday declarative

$\quad\quad\quad$ 'John went away last Tuesday.'

(74b) yatah^3 $\quad$ $\text{kwe}^4\text{tã?}^1$ ka?ãh^2 gwaa^4 a^{32}

$\quad\quad\quad$ day-after-tomorrow Saturday will-go John declarative

$\quad\quad\quad$ 'John will go away ~~tomorrow~~ Saturday.'

One spatial extension ~~that is used~~ to express time relative to the time of the speech act is the use of $\text{ni\v{c}ũ?}^1$ 'near' to mean 'soon'. Example:

(74c) $\text{ni\v{c}ũ?}^1$ ka?na?^1 $\quad$ gwaa^4 a^{32}

$\quad\quad\quad$ near $\quad$ will-come John $\quad$ declarative

$\quad\quad\quad$ 'John will come soon.'

(76) kizih^2 wih^1 yawii^{32} ne^2 ka$^{\prime}$ãh^2 gwaa^4 a^{32}

will-total two month and will-go John declarative

'John will go away two months from now.'

In that the verb zih^5 is basically spatial (see the discussion in section 2.), these expressions are spatial extensions.

Copala Trique also has general terms for 'past' and 'future' that are spatial extensions. There is a pair of terms based on uphill and downhill directions, and an extra term for future based on the idea of facing the future. These terms are:

(77) reh^{32} rike^{13} 'in the past' or 'downhill'

place stomach

(78) reh^{32} šah^1 'in the future' or 'uphill'

place back

(79) reh^{32} riãa^2 'in the future' or 'in front'

place face

The spatial metaphor is also seen in the use of the locative term reh^{32} 'place where'.

Copala Trique has different terms for 'forever' ~~for~~ in the past and future, both involving motion verbs. They are:

(80) nu$^{\prime 1}$ ka$^{\prime}$na$^{\prime 3}$ 'forever in the past'

completely came

(81) nu$^{\prime 1}$ ka$^{\prime}$ãh^{32} 'forever in the future'

completely went

(82) nu$^{\prime 1}$ kawii^{32} nu$^{\prime 1}$ ka$^{\prime}$na$^{\prime 3}$

completely went-out completely came

'forever and ever in the past'

(83) nu^1 kawii^{32} nu^1 ka^{2}ãh^{32}

      completely went-out completely went

      'forever and ever in the future'

Because of the presence of motion verbs, it is clear that these

terms are spatial metaphors, but the precise basis of extension

is far from clear. Fillmore (1975:28-29) shows that the passage of

time can be viewed either as time moving past a stationary world,

or as the world moving through time, but neither metaphor seems to

be applied consistently here. If the metaphor of moving time is

used, the use of the completive aspect of 'come' for forever in the

past can be explained, but we would expect the potential aspect of

'come' for forever in the future. If, however, the metaphor of a

moving world is used, we can still explain the completive aspect of

'come' for forever in the past, but we would expect the potential

aspect of 'go' for forever in the future. To further complicate

matters, ~~theXexXisXno~~ neither metaphor provides an obvious explanation for the use of kawii^{32}

'went out' (which also means 'went up') to expand both terms for

forever.

5.2 The placement of a temporal unit or event can also be

specified relative to some other unit or event. As in English,

this is expressed in Trique by means of verbs when the units are

nouns, and by means of conjunctions when the events are sentences.

    To express a temporal relationship between two nouns, spatial

verbs are used, but they are extended in precisely the opposite way

12   from English.^{12} Examples:

(84)   noko$^{\gamma 1}$ ko^4$^{\gamma}$ngo^2 ško^4 ku^{4}wih^1 a^{32}

follows Monday behind Tuesday declarative

'Monday comes before Tuesday.

(85)   taa^5 yãã^1 ku^{4}wih^1 riãã^{32} ko^4$^{\gamma}$ngo^2 a^{32}

is-on-top first Tuesday face-of Monday   declarative

'Tuesday comes after Monday.'

The compound verb <u>taa^5 yãã^1</u>, glossed literally above, is the verb normally used to indicate the person that walks first on the trail. These metaphors are therefore consistent. They seem to be based on the notion that time units are lined up in order and that people move past them. The units take their orientation from the orientation of the people. This pair of metaphors therefore fits into Fillmore's (1975:28-29) world moving through time metaphor, rather than his time moving past the world metaphor.

To express a temporal relation between two sentences, Copala Trique uses conjunctions, sometimes together with adverbs or phrasal verbs.

There is one specifically coordinating temporal conjunction, <u>ga^2 ne^2</u> 'and then', which means literally 'when and'. Sometimes the simple coordinating conjunction <u>ne^2</u> 'and' is used alone to express sequence. Examples:

(86)   ka$^{\gamma}$ãh^{32} gwaa^4 ngah^{32} ga^2 ne^2 kutu$^{\gamma}$weh^5 zo$^{\gamma 3}$ ru$^{\gamma}$wi$^{\gamma 3}$ a^{32}

went   John Putla when and sold   he   charcoal declarative

'John went to Putla, and then he sold charcoal.'

(87) ka²ãh^{32} gwaa^4 ngah^{32} ne^2 kutu²weh^5 zo²^3 ru²wi²^3 a^{32}

went   John Putla and sold   he   charcoal declarative

'John went to Putla, and he sold charcoal.'

To express immediate sequence, the phasal verb zih^5 'to arrive',
'to reach', 'to total' can be used with the first sentence, or the
correlative conjunctions nu²^1 ... nu²^1 can be used. Examples:

(88) kizih^5 ki²yah^3 gwaa^4 we²^3 ga^2 ne^2 kane^{32} zo²^3 a^{32}

totaled made   John house when and bathed he   declarative

'As soon as John finished building the house, he took a bath.'

(89) nu²^1 kizih^5 we²^3 ne^2 nu²^1 kane^{32} zo²^3 a^{32}

immediately totaled house and immediately bathed he   declarative

'As soon as the house was done, he took a bath.'

Copala Trique also has three subordinating conjunctions: ga^2
'when', azih^2 'since', and ndaa^{13} 'until'. The first two are purely
temporal, but ndaa^{13} is also sometimes used for spatial source and
destination, and also in the sense of 'even'. It is not clear to me
which of these senses is basic. Examples:

(90) naǧu²^3 ne²eh^3 ga^2 nayaa^{32} gwaa^4 yãh^3 a^{32}

fell   baby when read   John paper declarative

'The baby fell when John was reading a book.'

(91) čee^5 kočoh^1 ne²eh^3 azih^2 naǧu²^3 zo²^3 a^{32}

walks crippled baby   since fell   he   declarative

'The baby has been lame since he fell.'

(92) ta$^?$wee^3 ne$^?$eh^3 ndaa^{13} ka$^?$na$^?{}^3$ nii^3 zo$^?{}^3$ a^{32}

cried   baby   until   came   mother-of him   declarative

'The baby cried until his mother came.'

(93) ndaa^{13} tayoh^3 ndaa^{13} ngah^{32} kačee^5 gwaa^4 a^{32}

until Juxtlahuaca until Putla walked John declarative

'John walked from Juxtlahuaca to Putla.'

(94) ndaa^{13} ne$^?$eh^3 kačee^5 a^{32}

until   baby   walked declarative

'Even the babies walked.'

The adverbs ah^1 'already' and ataa^3 'not yet' are sometimes used together with conjunctions to make the temporal relations more precise. Examples:

(95) ah^1 ka$^?$äh^{32} gwaa^4 ga^2 namã^4 li^{4}na^4 a^{32}

already went   John   when returned-home Kathleen declarative

'John had already left by the time Kathleen got home.'

(96) ataa^3 ka$^?$äh^2 gwaa^4 ga^2 namã^4 li^{4}na^4 a^{32}

not-yet will-go John   when returned-home Kathleen declarative

'John hadn't left yet when Kathleen returned home.'

Neither of these has a recoverable etymology, and so no spatial extensions can be seen.

6. Just as spatial entities may be single or plural, so events and temporal units may also occur once or more than once. English has special forms once and twice for repetitions of an event, and phrases with a number plus the word times for three or more repetitions. Trique, on the other hand, has a special form for 'once',

13   but uses simple **numbers** preposed to the verb for two or more times.[13]

Examples:

(97)   yũũ^1 ka$^?$ãh^{32} gwaa^4 ngah^{32} a^{32}

once went   John Putla declarative

'John went to Putla once.'

(98)   wih^1 ka$^?$ãh^{32} gwaa^4 ngah^{32} a^{32}

two went   John Putla declarative

'John went to Putla twice.'

(99)   sŭwih^1 ka$^?$ãh^{32} gwaa^4 ngah^{32} a^{32}

twelve went   John Putla declarative

'John went to Putla twelve times.'

It is also possible to use general quantifiers for expressing the number of times an event occurs. Example:

(100)   ke$^?$ee^1 ka$^?$ãh^{32} gwaa^4 ngah^{32} a^{32}

many   went John Putla declarative

'John went to Putla many times.'

The word for 'once' plus a raising of the stem tone means 'again'.

(101)   ka$^?$ãh^{32} gwaa^4 ngah^{32} yũũ^4 a^{32}

went   John Putla again declarative

'John went to Putla again.'

Sometimes the word yũũ^4 means 'also' instead of 'again'. This seems to be an extension from the temporal domain to the spatial, because the basic form yũũ^1 'once' is purely temporal in meaning. The use of **numbers** does not appear to be an extension (see footnote 11).

7. Just as spatial entities may be rare or common, so temporal
ones may be rare or frequent. The most obvious parallel would be
the use of words like 'dense' and 'scattered' to indicate relative
frequency. This analogy is not used regularly in English, but it is
common in Trique. Examples:

(102) niča?^{1} ?na?^{3} gwaa^4 a^{32}

      close-together comes John declarative

      'John comes often.'

(103) ka?nu?^{1} ?na?^{3} gwaa^4 a^{32}

      far-apart comes John declarative

      'John comes infrequently.'

There does not appear to be any other way to express these
concepts in Trique.

8. The data presented in sections 2.-7. show that Copala
Trique makes heavy use of spatial terms to express temporal concepts.
These include both direct extensions, such as using the word that
means 'uphill' to refer to the future, and less direct ones, such
as using the word that means 'sun' to refer to a day, Only a minority
of the terms described are purely temporal. (Perhaps the paucity of
purely temporal terms in any language is a function of the fact that
pure time simply can't be marked off into units without reference to
some spatial entity that correlates with them.)

It is perhaps necessary to point out that the use of spatial
terms for temporal concepts in Trique is not a borrowing from Spanish.

In spite of over 450 years of Spanish contact, many Trique spatial
metaphors simply do not occur in Spanish, for example, the Trique
use of the term for 'uphill' to refer to the future. Other Trique
metaphors are the opposite of Spanish, such as the use of a sen-
tence like 'Monday follows Tuesday', where Spanish, like English,
would use a verb that means 'precede'. These Trique metaphors
must be independent developments within pre-Columbian Mesoamerica;
therefore.
they cannot be borrowings. Their existence
confirms the thesis proposed in section 1. that every language
has extensions from the spatial domain to the temporal.

Trique is only one language, however, and a fuller confirma-
tion of this thesis will require further research. Studies similar
in scope to the present paper need to be carried out for a variety
of languages that constitute a fair sample of geographical areas
and linguistic stocks. If spatial metaphors for temporal concepts
occur in all of them, the thesis will be confirmed with a fair
degree of certainty.

A second kind of research that is relevant to my thesis, however
is a comparison of spatial metaphors for temporal concepts with
other kinds of metaphors. They can be compared with spatial meta-
phors for domains other than temporal, such as the logical, the
psychological, and the social. I suspect that all languages will
have metaphors in these areas too, though perhaps not as many as in
the temporal domain. Spatial metaphors can also be compared with
nonspatial metaphors for various domains, such as color and tempera-

ture terms used for psychological states. While such metaphors occur, it seems likely that they will be less frequent than spatial metaphors. I hope to investigate both of these areas in Copala Trique in a future study.

In that the frequency with which a domain serves as the source of a metaphor is one indicator of its cultural salience, the kinds of studies described above should provide a test of the thesis proposed by McLuhan (1962) that the introduction of literacy and movable type in Western society has led to an imbalance among the senses in favor of the visual. If McLuhan is correct, languages within the tradition of Western civilization should have more visual metaphors, such as those involving space and color, than languages spoken by people outside the Western tradition. If I am correct, languages spoken by societies both within Western civilization and outside it should have about the same number of visual metaphors. The comparison of Trique and English shows that in this paper Trique is as rich in spatial metaphors for temporal concepts as English is. This preliminary evidence therefore seems to indicate that McLuhan is wrong.

F O O T N O T E S

[1] The spatial source for these words is given in the etymological information provided with their entries in Webster's New Collegiate Dictionary (1977).

[2] In this respect I fall into what Ortony (1979:2) calls the constructivist camp, by which he means the position that cognition is based on active processes of construction that go beyond raw empirical data.

[3] Compare the following quotation from Greenberg (1978:88): "It seems that all languages have abstract terms, and this will then be an unrestricted universal. Such terms seem to be constantly recruited from concrete terms by certain characteristic metaphorical changes."

[4] Copala Trique is spoken by about 8,000 people living in the districts of Juxtlahuaca and Putla, Oaxaca, Mexico. It has been classified by Longacre (1957) as a member of the Mixtecan family, which forms part of the Otomanguean stock. Data for this paper are from my unpublished field notes, gathered on trips to the Copala area under the auspices of the Summer Institute of Linguistics, from 1962-1980.

[5] Copala Trique has the following consonants: fortis stops
p t k, lenis stops b d g, affricates c č č̣, fortis sibilants s š ṣ̌,
lenis sibilants z ž r, nasals m n, liquid l, glides y w, and laryn-
geals ʔ h. There are two vowel series, short vowels e o a and long
vowels ii uu ee oo aa; long vowels contrast with short vowels only
in word-final open syllables, and they are therefore written else-
where with single vowels. A phoneme of nasalization (˜) is re-
stricted to vowels in word-final syllables. There are also five
levels of tone, written with superscript numerals at the end of each
syllable that bears a significant tone. Number 1 represents the
lowest level, and number 5 represents the highest one. Some syl-
lables bear a sequence of two tones. Further information about the
phonology of Copala Trique is found in Hollenbach (1977a, 1981).

[6] Examples (3) and (4) are counterexamples to the claim that
the existence of one conventional metaphorical extension within a
lexical set predicts analogous extensions based on other members of
the set (see, for example, Lehrer, 1974:110-119). In that the
metaphors in (3) and (4) are both frozen, however, and not freely
created, they are perhaps more apparent than real counterexamples.
The principle probably holds for live metaphors.

[7] Even though virtually all Otomanguean languages use body-part
nouns to cover adpositional notions, it is not the case that all

have developed a distinct class of prepositions. In Jicaltepec
Mixtec, for example, body-part nouns have the function of prepo-
sitions, yet remain nouns, as is shown by the fact that they can
take a quantifier even when they function as prepositions (C. Henry
Bradley, personal communication). In Copala Trique, on the other
hand, body-part nouns can take a quantifier only when they are
functioning as nouns, never when they are functioning as prepo-
sitions. Because Jicaltepec Mixtec clearly witnesses to an inter-
mediate stage in the development of prepositions from body-part
nouns, it shows that the relation between the two classes in
Trique is more than an accidental similarity. The noun use is
historically basic, and Trique has simply moved farther in the
direction of separating prepositions from nouns.

[8] This construction is reminiscent of constructions such as
the Spanish progressive with estar, which originally meant 'to
stand'. The Trique construction is not, however, a direct borrow-
ing from Spanish, as is shown by the fact that wah[32] is never
translated by Spanish estar. Comrie (1976:98-103) claims that
there is a semantic connection between locative and progressive
notions and that the morphology of progressives often shows loca-
tive elements.

[9] An apparent counterexample to this claim is the use of the

terms minute and second to refer both to divisions of the surface

of a sphere and to units of time. In this case, however, I believe

that the spatial use of these terms is a later development for a

rather technical notion, based on an earlier temporal use. Never-

theless, when etymology is considered, both terms are originally

spatial in origin.

[10] Strictly speaking, even the natural time units discussed in

section 4.1 are socioculturally defined to some degree, as seen in

varying ideas about when a day begins (midnight versus sundown),

and such cultural devices as leap year to straighten out the calendar.

[11] Two possible ways of looking at **numbers** suggest themselves

to me: perhaps they belong in one particular domain, such as the

spatial, and are extended to other domains; or perhaps they are

abstractions that transcend particular domains. I tentatively

choose the second alternative because of my intuition that the use

of **numbers** in all domains is the same, rather than an extension.

[12] Spanish has a spatial extension of verbs for 'precede' and

'follow' to temporal concepts that is parallel to English. When

the clashing metaphorical extensions of Spanish and Trique come

into contact, bilingual Triques sometimes switch over to the Spanish

system, probably because of their intense feelings of cultural in-

feriority. This situation is discussed in greater detail in Hollen-

bach (1977b).

[13] The number for 'one' also occurs adverbially in Trique, but in this use it means 'continually' rather than 'once'.

R E F E R E N C E S

Bennett, David C.

    1975   Spatial and Temporal Uses of English Prepositions.

          London: Longman.

Comrie, Bernard

    1976   Aspect. Cambridge: Cambridge University Press.

Fillmore, Charles J.

    1975   Santa Cruz Lectures on Deixis 1971. Bloomington:

          Indiana University Linguistics Club.

Fodor, J. A.

    1981   The Modularity of Mind. Ms.

Friedrich, Paul

    1969   "On the Meaning of the Tarascan Suffixes of Space,"

          International Journal of American Linguistics 35.4,

          Part II.

Greenberg, Joseph

    1978   Universals of Human Language, Vol. 1. Stanford:

          Stanford University Press.

Hollenbach, Barbara E.

    1977a "Phonetic vs. Phonemic Correspondence in Two Trique

          Dialects," pp. 35-67 in William R. Merrifield, ed.,

Studies in Otomanguean Phonology. Dallas: Summer
Institute of Linguistics and University of Texas at
Arlington.

1977b "Reversal of Copala Trique Temporal Metaphors through
Language Contact," International Journal of American
Linguistics 43:150-54.

1981 "The Representation of Tone in Copala Trique." Ms.

Lehrer, Adrienne

1974 Semantic Fields and Lexical Structure.
North Holland Press.

Longacre, Robert E.

1957 "Proto-Mixtecan," International Journal of American
Linguistics 23:4, Part III.

McLuhan, Marshall

1962 The Gutenberg Galaxy: The Making of Typographic Man.
Toronto: University of Toronto Press.

Ortony, Andrew

1979 "Metaphor: A Multidimensional Problem," pp. 1-16 in
Andrew Ortony, ed., Metaphor and Thought. Cambridge:
Cambridge University Press.

Reichenbach, Hans

1947 Elements of Symbolic Logic. New York: Macmillan Co.