

# I. MESOAMÉRICA

# MESOAMERICAN CALQUES

*Thomas C. Smith Stark*

## 1. Introduction<sup>1</sup>

It is natural to expect that an area which is as well-defined culturally as Mesoamerica (MA) should also form a well-defined linguistic area. As Kaufman (1973:480) puts it,

'We look at MA with a view to seeing if there are notable areal phenomena because we know that the kinds of historical developments that have been going on there in the last 3- to 4000 years logically could foster such a situation.'

Indeed, in recent years, several works have appeared which claim or assume that Mesoamerica does constitute a linguistic area (see, for example, Campbell 1971:345-347, 1979:955-958; Kaufman 1973, 1974:59-65; Escalante H. 1975).<sup>2</sup> Frequently, lists of properties of Mesoamerican languages are given, sometimes together with the names of languages sharing these properties. While this procedure is a useful prerequisite to defining a linguistic area, it fails to demonstrate the existence of one. Specifically, it fails to show that the distribution of such properties deviates in a significant way from chance. Furthermore, it fails to show that the geographic limits of such properties correspond in a meaningful way to the boundaries of Mesoamerica. Consider, for example, the impressive list of characteristics adduced by Campbell (1979:955-958) in his article on 'Middle American languages'. He himself points out that

'Of those [areal features] presented here, some are shared by most MA languages, but by others outside MA as well; some are restricted in their distribution within MA. This preliminary list is presented here to demonstrate the existence of the MA area and to stimulate more research in it.' (p. 955)

Campbell's list is in fact quite stimulating. However, one wonders how features shared with languages outside Mesoamerica support the existence of a Mesoamerican area. Rather, it would seem that they may point to some larger areal grouping of which Mesoamerica is part; or they may be due to language universals, or to features which are likely to develop independently in any given language and which therefore do not necessarily imply historical contact. Likewise, it seems to me that features which are limited in their distribution to a geographically determined subset of Mesoamerican languages may support the existence of linguistic areas within Mesoamerica, but they do not necessarily imply that Mesoamerica as a whole is a linguistic area. They could also be accidental similarities which have developed independently rather than as the result of diffusion. The reader of Campbell's list is thus left wondering how many and which of the areal features he presents have distributions which actually do correspond to Mesoamerica. Rather than demonstrate the existence of the Mesoamerican linguistic area as he claims, Campbell simply provides a list of potential areal features. It remains to be seen to what extent they do or do not corroborate his claim.

The most important attempt to systematically chart the distribution of features in a representative sample of Mesoamerican languages is Kaufman's study, 'Areal linguistics and Middle America' (1973), which focuses on phonological material.<sup>3</sup> Kaufman is quite conservative with respect to claims about linguistic areas. In much of his paper, he talks in terms of the distribution of typological characteristics, with only occasional cautious suggestions about diffusion. Significantly, the evidence from phonology which he presents does *not* support the existence of a Mesoamerican area. Nevertheless, Kaufman seems to feel that a Mesoamerican area does in fact exist. At one point, he claims that diffusion has 'contributed to a kind of linguistic unity in MA' (p. 461) despite the great deal of linguistic diversity to be found there.

Currently then there seems to be a feeling shared by several knowledgeable and respected linguists that Mesoamerica does form a bona fide linguistic area. However, this feeling is more an article of faith than an established fact. Proposed evidence which might support this claim has either been insufficiently elaborated, or, when sufficiently investigated, has proved inconclusive. In this paper, I hope to contribute to our understanding of the areal characteristics of Mesoamerica both methodologically and substantively. Methodologically, I will emphasize the kinds of considerations which must be

taken into account whenever one claims that a particular characteristic is an areal trait and suggest some procedures for doing so. Substantively, I will apply these methodological considerations to some of the features of lexical structure which have been noted in Mesoamerican languages, and demonstrate that based on such features it does seem possible to define a Mesoamerican linguistic area.

The structure of my presentation will be as follows: -1. I will summarize claims which have been made about lexical structure in Mesoamerica and present a list of lexical features which appear to be potential areal traits; -2. I will attempt to clarify what I mean by linguistic area; -3. I will discuss the procedures I employ for establishing whether or not a feature is an areal trait of Mesoamerica; and -4. I will present the results of my investigation.

## 2. Lexical features

The features of lexical structure that I will be examining reflect two characteristics of lexical items, their internal morphological structure and their range of meaning. When these aspects of lexical structure are diffused, they are usually known as *loan shifts*, *loan translations*, or *calques*. For example, the English expression 'hot dog' has diffused into both Mexican Spanish and Yucatec. However, rather than being incorporated as a loan word, it has been literally translated in both cases—as *perro caliente* in Spanish<sup>4</sup> and as *čoko(l) pè:k'* in Yucatec. This is an example of calquing the internal structure of a lexical item. Another type of calquing involves the range of meaning of lexical items. For example some speakers of Acatec, a Mayan language of Guatemala, use the Spanish word *verde* with the meaning 'raw'. This is due to the fact that in Acatec, the word *yaaš* includes the meanings 'green', 'unripe', and 'raw'. Acatec speakers then use the Spanish word *verde*, which has the meanings 'green' and 'unripe', as if it had the same range of meanings as *yaaš*.

To my knowledge, the first suggestion that lexical calques could contribute to the understanding of diffusion in Mesoamerica was made by Kaufman (1973), in the study mentioned earlier.<sup>5</sup> He recognizes two types of semantic features which can be diffused: grammatical categories and types of metaphor used in lexeme formation. The second type is what I refer to as features of lexical structure. Kaufman notes that 'MA languages seem to show a great

deal of similarity ... in the area of the use of specific metaphors in forming lexical items.' (p. 477) To illustrate this phenomenon, he gives the following seven examples from Mayan languages.

- |     |    |         |   |                              |
|-----|----|---------|---|------------------------------|
| (1) | a. | door    | = | mouth of house               |
|     | b. | soot    | = | nose of firewood             |
|     | c. | fruit   | = | eye of tree                  |
|     | d. | bark    | = | skin of tree or back of tree |
|     | e. | vein    | = | road of blood                |
|     | f. | bladder | = | house of urine               |
|     | g. | thumb   | = | mother of hand               |

He does not claim that these features are areal in any sense, but merely offers them as examples of a phenomenon which deserves investigation.

Holt and Bright (1976), in their article 'La lengua paya y las fronteras lingüísticas de Mesoamérica', consider briefly the seven metaphors given by Kaufman, though they apparently interpret them mistakenly as proposed areal traits. They report that

'The metaphors which Kaufman chooses to exemplify Mesoamerican types, in the majority of cases, are particularly inappropriate for establishing a Mesoamerican typological group distinct from the Central American group, since the identical metaphors are also used with the same meanings in many Central American languages.' (p. 153, my translation)

They do note, however, that 'mother of hand' to refer to 'thumb' and 'nose of firewood' to refer to 'soot' are exclusively Mesoamerican.

Campbell was the first one to attempt to compile a list of lexical features which might be characteristic of Mesoamerica.<sup>6</sup> In his paper 'Middle American languages' (1979), referred to above, he claims that 'Lexical compounds and semantic doublets are widespread in MA' (p. 957), and lists the following twenty examples.

- (2)
- a. door = mouth of house
  - b. bark = skin or back of tree
  - c. eye = fruit or seed of face
  - d. knee = head of leg
  - e. boa = deer-snake
  - f. moon = grandmother
  - g. finger ring = coyol-hand
  - h. witch = owl
  - i. witch = sleep
  - j. witch = old man
  - k. cramp = associated in some way with deer
  - l. fiesta = (big) day (ceremonial occasions)
  - m. root = hair (of tree)
  - n. twenty = man
  - o. lime(stone) = (rock-)ashes
  - p. wrist = neck (of hand)
  - q. egg = stone-bird
  - r. river = water
  - s. gall bladder = bitter
  - t. wife = inalienably possessed 'woman'

He does not give any information on the specific distribution of these features.

Using the lists of Kaufman and of Campbell as my starting point, and adding a number of additional examples which I have observed in at least two Mesoamerican language families, I have compiled a list of fifty-two features of lexical structure which might be traits of a Mesoamerican linguistic area.<sup>7</sup> These are given in (3).

- (3)
1. door = mouth (of house)
  2. bark =
    - a. skin (of tree)
    - b. back (of tree)

3. eye =
  - a. fruit (of face)
  - b. seed (of face)
  - c. bean (of face)
  - d. stone (of face)
  - e. egg (of face)
4. knee = head (of leg)
5. boa = deer snake
6. moon = grandmother or respected female
7. ring = hand coyol
8. witch =
  - a. owl
  - b. sleep, dream
  - c. old man
9. cramp = associated with deer
10. fiesta = (big) day
11. root = hair (of tree)
12. twenty = man or person
13. lime(stone) = (rock) ashes
14. wrist = neck (of hand)
15. egg =
  - a. stone (of bird)
  - b. bone (of bird)
16. river = (big) water
17. gall (bladder) = bitter
18. wife = woman
19. day = sun
20. month = moon
21. branch = arm or hand (of tree)
22. coral snake = mother of leaf-cutter ant
23. read =
  - a. see
  - b. count
24. write = paint
25. kiss = suck
26. eclipse =
  - a. (the moon/sun) is eaten
  - b. (the moon/sun) dies
27. bladder = house (of urine)
28. vein = road (of blood)

29. porcupine = a. thorn possum  
b. thorn lion/tiger/wild cat  
c. thorn peccary/pig
30. feather = hair
31. excrement = intestines
32. canine tooth = a. dog tooth  
b. snake tooth
33. molar = grindstone
34. mouth = edge
35. a. thumb = mother (of hand)  
b. finger = child (of hand)
36. handstone = a. hand (of grindstone)  
b. child (of grindstone)
37. a. poor = orphan  
b. poor = widow  
c. orphan = widow
38. blue = green
39. raw = unripe
40. wide = big face
41. alive = awake
42. rainbow = a. snake  
b. lion  
c. turtle  
d. squirrel  
e. weasel
43. lion = red X
44. silver or gold = God excrement
45. otter = a. water dog  
b. water wildcat
46. marry = find or meet
47. anteater = honey X
48. cedar = holy tree
49. medicine = poison
50. pataxte = tiger cacao
51. town = water-mountain
52. soot = nose of firewood



However, as I have already mentioned, compiling such a list is merely a first step. The crucial task which remains is to evaluate the extent to which these lexical features support the existence of a Mesoamerican linguistic area.

### 3. Linguistic areas

Thus far, I have taken the concept of linguistic area for granted. However, it is in fact a rather complex and controversial notion (*cf.* Campbell, Kaufman and Smith-Stark 1986). Clearly, if one wants to claim that the languages of a certain region comprise a linguistic area, one must first make explicit the notion of linguistic area. For the purpose of this paper, I will define a linguistic area as follows:

- (4) A linguistic area is a geographic area within which the distribution and frequency of certain features of the languages spoken there cannot be explained on the basis of known genetic relations, chance, or linguistic universals. Furthermore, languages adjacent to the area do not share these characteristics; or, if some of them do, their presence can be explained on the basis of known genetic relations or chance.

Several aspects of this definition deserve comment. First, note that I do not say what kinds of features are involved. Generally, linguists prefer to establish linguistic areas on the basis of structural features since it is usually accepted that structural similarities can only be diffused as the result of extended and intimate contact. The types of shared structural features usually referred to are things like word and morpheme order, syntactic rules, phonological inventories and rules, and grammatical categories. In particular, loan words are not considered significant for establishing a linguistic area since they frequently occur even in situations with rather superficial contact. The importance of lexical calques is not usually discussed. On the one hand, since they involve the relatively unstructured lexicon, they presumably can occur as the result of less intimate contact than standard structural diffusion. On the other hand, calques seem to imply more intimate contact than simple loanwords, since one must not only know what a word refers to but one must also understand it well enough to translate it literally, at least in the case of calques of the internal

structure of lexical items. In addition, lexical calques are just a special case of a more general phenomenon of literal translation, which provides a mechanism for introducing new periphrastic categories and syntactic structure into a language.<sup>8</sup> I would claim then that the distribution of calques, even if only at the lexical level, is relevant to the establishing of linguistic areas.

A second thing to note about my definition of a linguistic area is that it does not mention diffusion. In effect, by eliminating all other possible explanations of similarity, diffusion should be the only possible explanation for the distribution of the areal features, or at least the most likely explanation. This characteristic of my definition is dictated by the areal-typological method I am using, which consists in identifying linguistic areas by examining the distribution of some set of typological features. This approach, best known from the work of Sherzer (1968, 1973), has been criticized by Eric Hamp (1977) for confusing the achronic facts of typology with the diachronic facts of diffusion.<sup>9</sup> However, I would claim that it is not the method itself which is at fault, but rather its application without sufficient care to select typological features relevant to the languages involved or to ensure that the areal traits which result are in fact most likely the result of diffusion. That is, I believe that it is possible to identify features which were probably diffused on the basis of their areal and typological distributions. It then remains to fit such cases of diffusion into some historical model, something which I will not try to do here.

The third characteristic of my definition which merits special comment is the fact that I have explicitly incorporated the notion of boundary by requiring that languages bordering the area not exhibit the areal features, at least not in unexpected numbers. I consider this an important point since one of the major weaknesses of work on the Mesoamerican area has been a failure to show that such boundaries exist.<sup>10</sup>

#### 4. Method

It should be clear from the preceding discussion that in order to demonstrate that any given feature is an areal feature of Mesoamerica, I must show three things. First, I must show that it indeed occurs throughout Mesoamerica. Second, I must establish that the occurrence of the feature in Mesoamerica is

not due to chance. And third, for those features which do occur throughout Mesoamerica, I must show that their distribution is in some sense limited to Mesoamerica.

In order to accomplish these tasks, I have examined a sample of 46 languages—25 representing Mesoamerica, 11 representing the languages bordering Mesoamerica, and 10 representing a control group of five North American and five South American languages well removed from Mesoamerica. These languages, their genetic affiliations, and my sources of data are summarized in (5).

### (5) MESOAMERICA

#### I. Utoaztecan

1. Cora (McMahon y Aiton de McMahon 1959)
2. Nahuatl (Molina [1571] 1977)
3. Pipil (Campbell 1982)

#### II. Tarascan

4. Tarascan (Velásquez Gallardo 1978, Swadesh 1969)

#### III. Otomangue

5. Otomí (Wallis, Arroyo et al. 1956)
6. Ixcatec (Fernández de Miranda 1961)
7. Popoloca (Barrera and Dakin 1978)
8. Amuzgo (fieldnotes)
9. Mixtec (Pensinger 1974)
10. Trique (Good 1979)
11. Zapotec (Pickett *et al.* [1959] 1979)
12. Chinantec (Smith and Smith 1955)
  - a. Matlatzinca (Basalenque [1640] 1975, [1642] 1975)
  - b. Mazahua (Stewart and Gamble de Stewart 1954)
  - c. Chatino (Pride and Pride 1970)

## IV. Totonacan

13. Totonac (Reid and Bishop 1974; Aschmann and Dawson de Aschmann 1973)

## V. Tequistlatecan (Chontal de Oaxaca)

14. Tequistlatec (Turner and Turner 1971)

## VI. Huavean

15. Huave (Stairs Kreger and Scharfe de Stairs 1981)

## VII. Mixezoque

16. Mixe (Schoenhals and Schoenhals 1965)
17. Sayula (Clark and Davis de Clark 1960)
18. Texistepec (Clark and Nordell no date)
19. Zoque (Harrison, Harrison and García H. 1981)
  - d. Oluta (Clark 1981)

## VIII. Mayan

20. Huastec (Larsen 1955)
21. Yucatec (Barrera Vásquez 1980)
22. Acatec (fieldnotes)
23. Pocomam (fieldnotes)
  - e. Chol (Aulie and Aulie 1978)
  - f. Tzotzil (Hurley vda. de Delgaty and Ruiz Sánchez 1978)
  - g. Tzeltal (Slocum and Gerdel [1965] 1971, Hunn 1977)
  - h. Kekchi (Sedat S. [1955] 1971)
  - i. Quiche (Henne 1980)

## IX. Xincan

24. Xinca (Lehmann 1920; Schumann Gálvez 1967)

## X. Lencan

25. Lenca (Lehmann 1920)

*NORTHERN BORDER*

- I. Utoaztecan
  - 26. Mayo (Collard and Collard [1962] 1979)
  - 27. Papago (Saxton and Saxton 1977)
- XI. Serian
  - 28. Seri (Moser and Moser 1961)
- XII. Coahuiltecan
  - 29. Comecrudo (Swanton 1940)
- XIII. Tonkawan
  - 30. Tonkawa (Hoiijer 1949)
- XIV. Tunican
  - 31. Tunica (Haas 1953)

*SOUTHERN BORDER*

- XV. Jicaquean
  - 32. Jicaque (Lehmann 1920)
- XVI. Misumalpan
  - 33. Mískito (Lehmann 1920)
  - 34. Sumo (Lehmann 1920)
- XVII. Chibchan
  - 35. Paya (Holt no date)
  - 36. Terraba (Arroyo 1972)

*NORTHERN CONTROL*

- XVIII. Penutian
  - 37. Miwok (Callaghan 1970)
  - 38. Wintun (Schlichter 1981)
  - 39. Klamath (Barker 1963)
- XIX. Hokan
  - 40. Yana (Sapir and Swadesh 1960)
- XX. Siouan
  - 41. Osage (La Flesche 1932)

*SOUTHERN CONTROL*

## XXI. Barbacoan

42. Cayapa (Lindskoog and Lindskoog 1964)

## XXII. Cofanian

43. Cofan (Borman 1976)

## XXIII. Quechuan

44. Quichua (Orr and Wrisley 1965)

## XXIV. Moviman

45. Movima (Judy and Emerich de Judy 1962)

## XXV. Tacanan

46. Tacana (Van Wynen and Garrard de Van Wynen 1962)

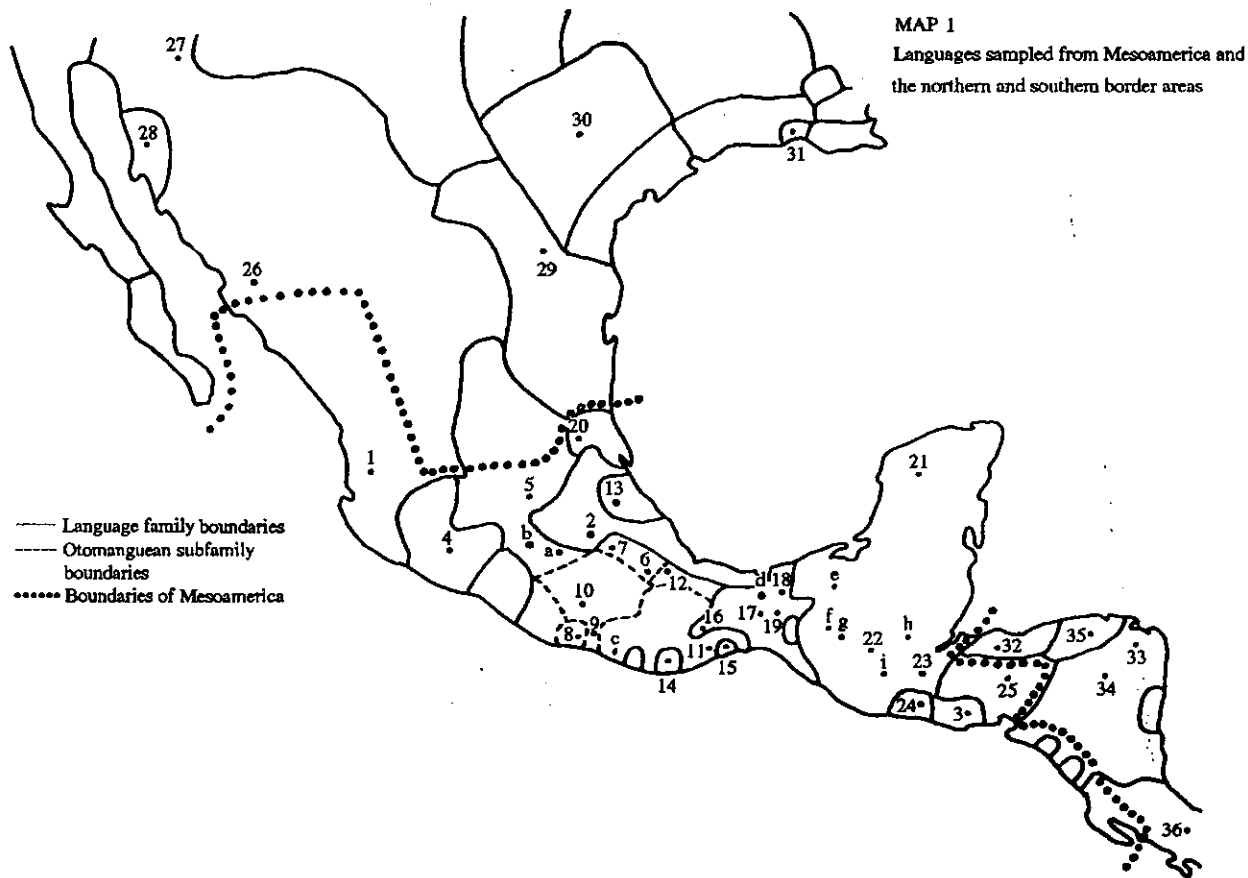
For the purpose of deciding which languages are Mesoamerican, I have accepted Mesoamerica as defined on Longacre's map, published in volume five of the *Handbook of Middle American Indians* (1967, facing p. 120).

The twenty-five Mesoamerican languages which I include in my sample are meant to be representative of the genetic and geographic diversity of the area, to the extent that my access to lexical material permits.

The eleven border languages represent six languages from the north of Mesoamerica and five languages from the south. My choice of border languages was rather arbitrary, based primarily on the availability of material. I considered any language to be a border language if it fit on Map 1, which shows the approximate locations of all Mesoamerican and border languages referred to in this paper. Ideally, the border sample should be extensive enough to demonstrate clearly the limits of areal features. In retrospect, I suspect that my southern border sample is inadequate in this regard.

My selection of North and South American languages for the control group was also largely dictated by availability of material, combined with an attempt to achieve as much genetic and geographic diversity as possible.

For each of the forty-six languages of the sample, I then attempted to determine whether or not each of the fifty-two lexical features in my test list occurs in that language. I entered that information on a grid, which is reproduced as Tables 1-3. The numbers in the left hand column of the grid refer to the numbers assigned to lexical features in (3) above. The numbers along the top of the grid are those assigned to the languages in (5) and utilized to locate



languages on Map 1. A plus (+) in the grid indicates that the feature is present. A plus with a question mark (+?) indicates that the feature is probably present but that there is some reason for doubt. The symbol 'x' indicates that the feature is absent. This symbol with a question mark 'x?' indicates that the feature seems to be absent but that there is some room for doubt. A blank means that I do not have enough information to decide one way or another. When a lexical feature has several subparts, a lower case letter indicates which subpart is being referred to. If there is no lowercase letter, then all subparts are referred to.

Once the grid was completed, I then computed the frequency of each feature for the following groups: Mesoamerica in terms of languages (MA I), Mesoamerica in terms of families (MA II), northern border (NB), southern border (SB), northern control (NC), southern control (SC), and combined control (CC). These frequencies are given in Table 4. The frequencies are expressed as fractions, where the numerator refers to the number of times the feature is present and the denominator refers to the number of cases for which there is data. For comparison, these fractions were converted to decimals. Those features with a frequency of 0/0 were treated as if they had a frequency of .00 for the purpose of comparison.

I divided the procedure of evaluating each feature into three steps, based on the three tasks mentioned above. First, I examined the distribution of features within Mesoamerica to determine whether or not a given feature occurs throughout the region. My conclusion is given in the column labeled *saturation* in Table 5. Those features which occur in at least two families, and which are widely distributed are indicated by a 'W'. Rather arbitrarily, I have considered those traits which are found in at least one family east of the Isthmus of Tehuantepec's narrowest point (including Huave and all of Mixezoque) and another family north of Mexico City (excluding the Yucatan Peninsula) to be widely distributed. Features which are found in at least two families but which are not widespread are considered regional traits and are indicated by 'R'. All other features are marked with a hyphen (-). For the purpose of determining distribution, Huastec was not counted as a northern language unless it differed from the rest of the Mayan family. Likewise, Pipil was not counted as a language east of the Isthmus unless it differed from Cora and Nahuatl. In addition, I considered data from languages outside my sample in a few cases where I knew or had reason to suspect the distribution to be



more widespread than indicated by the sample.<sup>11</sup> These cases are marked by 'W' or 'R' if they resulted in a change in symbol.

The second step in the evaluation of each feature was to compare its frequency in Mesoamerica with its frequency in the control group. The results of this procedure are given in the column labeled *distribution* in Table 5. I treated any Mesoamerican feature as an areal trait if its frequency in Mesoamerica, both in terms of languages and in terms of families, was more than double the frequency in the control group. Areal traits are marked with an 'A'. Those features whose frequencies in Mesoamerica are not substantially higher than in the control group are marked by 'C', since their distribution in Mesoamerica might be due to chance.<sup>12</sup>

The third step in the evaluation of each feature was to determine whether or not it is limited to Mesoamerica. My criterion for deciding this question depended on the frequency of the features in the border sample. The results of evaluation are given in the column labeled *limits* in Table 5. If the frequency in the northern border sample is less than half the Mesoamerican frequency, I consider the feature bounded to the north, indicated by 'BN'. If the frequency in the southern border sample is less than half the Mesoamerican frequency, I consider the feature to be bounded to the south, indicated by 'BS'. If a feature is bounded both to the north and to the south, it is marked 'BB'. Features which are unbounded both to the south and to the north are marked 'U'.

In addition to the use of the above mechanical evaluation procedures, I have also mapped many of the lexical features in order to obtain a visual impression of their distribution. When this is done, it is possible to draw isoglosses which mark the geographical limits of the feature. An example of this mapping process is given in Map 2, which shows the distribution of feature 22, 'coral snake' = 'mother of leaf-cutter ant', and which attempts to include isoglosses. Notice that the isoglosses do not imply that all languages contained by them exhibit the features. They merely delimit the area in which the feature occurs in a relatively compact and simple way. This feature, though somewhat sparsely distributed and poorly attested, appears to correspond pretty well with Mesoamerica. It was classified as a widespread areal feature bounded to the north (but not to the south) by the procedures outlined above.

TABLE 2. *Distribution of lexical features - Border languages*

	26	27	28	29	30	31	32	33	34	35	36
1	x	x	x	x	x	x?	x	+	x		x
2	+a	+a	+a	x		+a	x	+a	+a	+a	+a
3	x	x	x	x	xbde	+b	x	xabcd	+ab?	+a	+a
4	x	x		x	x	x	x	x?	x	x	x?
5			x					x	x	x	
6	x	x	x		x	+		x	x	x	x
7						x					
8					+b?	x		x	x	+a	
9						x		+			
10	x	x	x							x	
11	x					x	+	x	x	x	
12	+?	x	x			x	x	x	x	x	
13							x?			x	
14	x			x		x					
15	x	x	x	x	x	x	x			x	x
16	x	x	x	x	x	x	+	x?	+	+	+
17	x							x	x	x	+?
18	x	x	+	+		x	x	+	+	x	+
19	x?	+	+	+	+	x	x	+	+	+	x
20	+	+		x		+	+	+	+	+	+
21	x	x	x	x		x	+	x	+	x	x?
22	x							x		+?	
23	+a	x	x	xa					x	xa	x
24	x		x	+	+	x					
25	x				x	+?					
26			+b					x	+a		
27	x	x						+	+	x?	
28		x	x	x	x			x	x	x	x
29		x	+a?							x	x
30		x	+	x	x	x	x	+?	x	x	+
31	x	x	x	x	x	x	x	x	+	+	+
32						x				x	
33	x			x				x	x		
34	x	x	x	x		x				x	x
35	x	xb	x	x	x	x	xb	xab	xab	xab	xb
36			+b?	+a				+a	xab		x
37	x	x	x	xa		+a		xc			x
38	x	+	+	x	+	+		x	x	x	
39			x	x		+					
40	x		x	x			+	x	x	x	x
41	x	x	x			x					x
42	+a?	x	+c?	xab		+?	xab	xabc	xabc	xab?c	+c?
43	x	x	x	x	x	x	+	+	+	+	x
44		x	xb	x	x	x	x	x	xa	xb	x
45				x		x		x	x	x	
46	x	x			x	x					x
47											x?
48						x				x	
49	x	x	x	x		x				+	
50								x	x		
51	x	x	x			x	x				
52		x								x	

Languages

TABLE 3. *Distribution of lexical features - Control languages*

	37	38	39	40	41	42	43	44	45	46
1	x	x	x	+?	x	x		x	x	x
2	x	+	x	x	+	+a	+a	+a	+a	+a
3	x	xbcde	xbde	xbd	x	xbcde	xacde	x	x	x
4	x	+?	x	x	x	x	x	x	x	x?
5						x	x	x		x?
6	x	x	x	x	x	x	x	x	x	x
7		x								
8					x	+c		x	x	xac
9		x	x		x	x		x		
10			x		x	x	+	x	x	+
11	x	+?	x		x	x	x	x	x	x
12	x	+	x	x	x	x	x	x		
13		x								
14			x	x	x	x	x	x	x	x?
15	x	x	x	x	x	x	x	x	x	x
16	x	+	x	+	+	+	x	+	x	x
17	x?	x	x	x?			x			x
18	+	+	+	+		+	+	+	x	x
19	+	x	x	+	x	x	x	x	x	x
20	+	+	x		+	+?	+	+	+	+
21	+?	x	+	+	x	x	x	x	x	x
22						x?	x			x
23	+b	x	x		x	x			x	
24	x	+	x		x		+	x	x?	x
25	x	+				x	x	x	x	
26		x	+a							
27		x			x	x	x	x		x
28			x	x	x	x	x	x		x
29		x	x	x?	x	x	x	x	x	x
30	+?	x	x	x?	x	+	+	+	x	+
31	x	x	x		+	+	x	x		x
32										
33						x				x
34	x	x	x		x?		x	x	x	x
35		x	x	x	x	xab	x	+a	xb	x
36			x?							
37	xb	x	x	xc	x?	x	xb	+c	x	x
38	+?	+	x	+	+	+	+	+	x	x
39		x	x	+	x	x	x	+	+	+
40		x	x	x	x	x	x	x	x	x?
41	x	x	x	x	x	x	x	+?	x	
42	x		x	x	x	x	x	x	x	+a
43		x	x	x	x	x?	x	x?	x	
44		xb			xb?		x	xb		x
45		x	x	x	x	x	x	x	x?	
46	x?	x	x	x	x	x	x	x	x	x
47						x	x	x	x	x
48		x?	x		x		x	x	x?	x?
49	x	x	x		+		+	+		
50										
51	x		x		x	x	x	x	x	x
52		x	x				x			

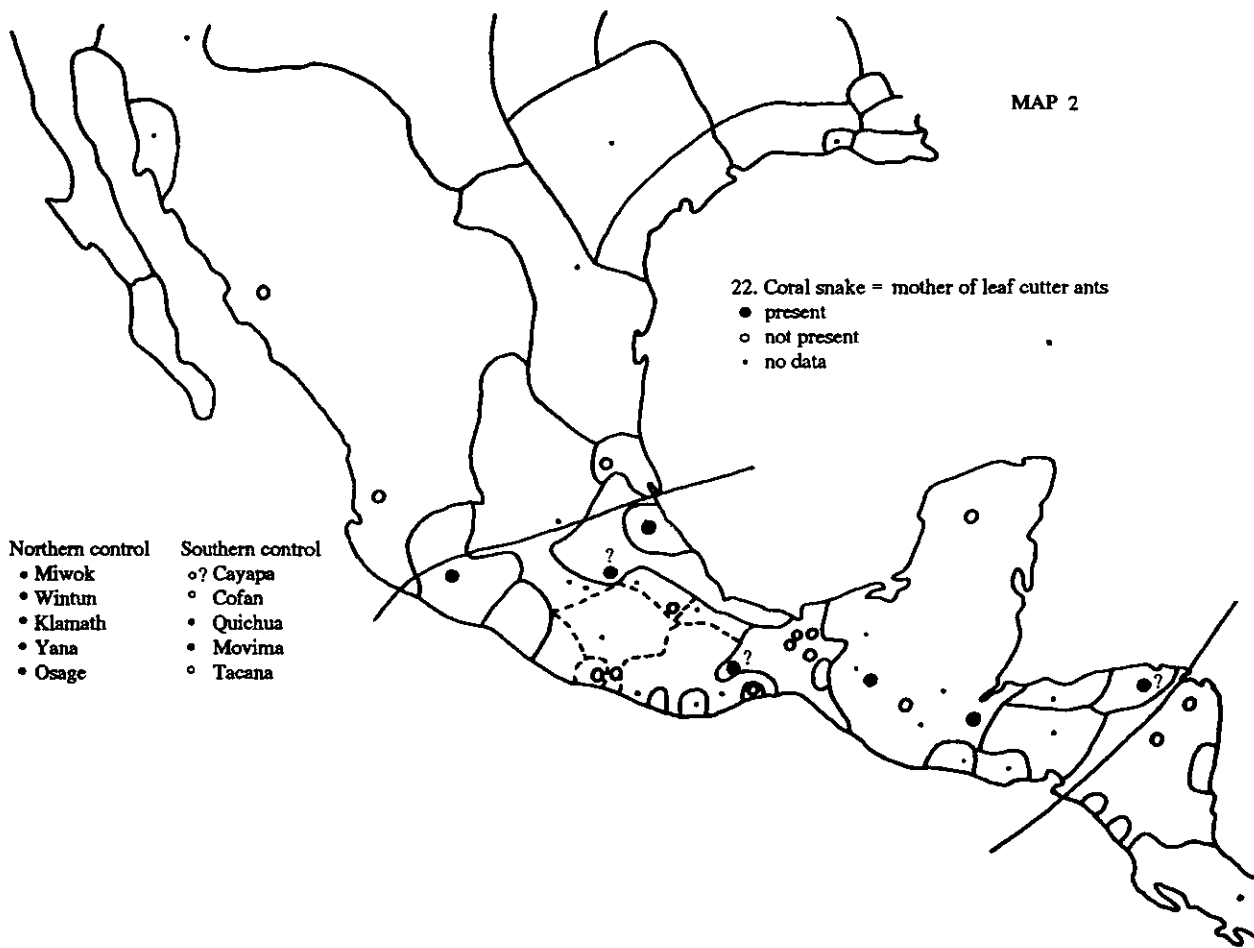
Languages

TABLE 4. *Frequencies of lexical features*

	MAI	MAII	NB	SB	NC	SC	CC
1	12/24	7/9	0/6	1/4	1/5	0/4	1/9
2	17/23	8/10	4/5	4/5	2/5	5/5	7/10
3	17/25	6/10	1/6	3/5	0/5	0/5	0/10
4	6/24	3/10	0/5	0/5	1/5	0/5	1/10
5	9/13	6/6	0/1	0/3	0/0	0/4	0/4
6	8/25	5/10	1/5	0/4	0/5	0/5	0/10
7	3/13	1/7	0/1	0/0	0/1	0/0	0/1
8	1/23	1/9	1/2	1/3	0/1	1/4	1/5
9	0/15	0/8	0/1	1/1	0/3	0/2	0/5
10	9/22	5/8	0/3	0/1	0/2	2/5	2/7
11	1/24	1/10	0/2	1/4	1/4	0/4	1/8
12	5/22	3/9	1/4	0/4	1/5	0/3	1/8
13	10/24	4/9	0/0	0/2	0/1	0/0	0/1
14	11/18	6/7	0/3	0/0	0/3	0/5	0/8
15	4/25	2/10	0/6	0/3	0/4	0/5	0/9
16	12/24	5/10	0/6	4/5	3/5	2/5	5/10
17	7/18	4/8	0/1	1/4	0/4	0/2	0/6
18	15/23	8/10	2/5	3/5	4/4	3/5	7/9
19	16/25	8/10	4/6	3/5	2/5	0/5	2/10
20	17/19	8/9	3/4	5/5	3/4	5/5	8/9
21	15/23	7/9	0/5	2/5	3/5	0/5	3/10
22	5/16	5/7	0/1	1/3	0/0	0/3	0/3
23	8/22	4/9	1/4	0/2	1/4	0/2	1/6
24	5/22	3/8	2/5	0/2	1/4	1/4	2/8
25	7/23	5/9	1/3	0/0	1/2	0/4	1/6
26	11/16	4/5	1/1	1/2	1/2	0/0	1/2
27	3/14	3/6	0/2	2/3	0/2	0/4	0/6
28	3/14	3/7	0/4	0/4	0/3	0/4	0/7
29	11/13	5/6	1/2	0/2	0/4	0/4	0/8
30	12/23	7/10	1/5	2/5	1/5	4/5	5/10
31	8/16	4/9	0/6	3/5	1/4	1/4	2/8
32	4/14	3/8	0/1	0/1	0/0	0/0	0/0
33	7/20	4/8	0/2	0/2	0/0	0/2	0/2
34	12/20	7/9	0/5	0/2	0/4	0/4	0/8
35	12/23	7/9	0/6	0/5	0/4	1/5	1/9
36	15/24	7/10	2/2	1/3	0/1	0/0	0/1
37	10/22	4/8	1/5	0/2	0/5	1/5	1/10
38	10/17	4/7	4/6	0/3	4/5	3/5	7/10
39	11/16	4/4	1/3	1/1	1/3	2/3	3/6
40	3/24	2/10	0/3	0/5	0/4	0/5	0/9
41	9/22	6/8	0/4	0/1	0/5	1/4	1/9
42	11/17	5/8	3/5	1/5	0/4	1/4	1/8
43	2/17	2/9	0/6	4/5	0/4	0/4	0/8
44	2/15	2/8	0/5	0/5	0/2	0/3	0/5
45	10/14	4/7	0/2	0/3	0/4	0/4	0/8
46	6/22	4/9	0/4	0/1	0/5	0/5	0/10
47	4/10	4/7	0/0	0/1	0/0	0/5	0/5
48	3/14	3/6	0/1	0/1	0/3	0/3	0/6
49	3/10	3/5	0/5	1/1	1/4	2/2	3/6
50	2/5	2/4	0/0	0/2	0/0	0/0	0/0
51	2/15	2/6	0/4	0/3	0/3	0/5	0/8
52	0/14	0/6	0/1	0/1	0/2	0/1	0/3

TABLE 5. *Evaluation of Mesoamerican calques*

	Lexical feature	Saturation	Distribution	Limits
1.	door = mouth (of house)	W	A	BN
2.	bark = skin/back (of tree)	W	C	U
3.	eye = fruit/seed/bean/stone/egg	W	A	BN
4.	knee = head (of leg)	W	A	BB
5.	boa = deer snake	W	A	BB
6.	moon = grandmother/respected female	W	A	BS
7.	ring = hand coyol	-	A	BB
8.	witch = owl/sleep/dream/old man	-	C	U
9.	cramp = associated with deer	-	C	U
10.	fiesta = (big) day	W	C	BB
11.	root = hair (of tree)	-	C	BN
12.	twenty = man/person	R	C	BS
13.	lime(stone) = (rock) ashes	W	A	BB
14.	wrist = neck (of hand)	W	A	BB
15.	egg = stone/bone (of bird)	W	A	BB
16.	river = (big) water	W	C	BN
17.	gall (bladder) = bitter	W	A	BN
18.	wife = woman	W	C	U
19.	day = sun	W	A	U
20.	month = moon	W	C	U
21.	branch = arm/hand (of tree)	W	A	BN
22.	coral snake = mother of leaf-cutter ant	W	A	BN
23.	read = see/count	W	A	BS
24.	write = paint	W	C	BS
25.	kiss = suck	W	C	BS
26.	eclipse = the moon/sun dies/is eaten	W	C	U
27.	bladder = house (of urine)	W	A	BN
28.	vein = road (of blood)	W	A	BB
29.	porcupine = thorn possum/lion/pig	W	A	BS
30.	feather = hair	W	C	BN
31.	excrement = intestines	W	C	BN
32.	canine tooth = dog/snake tooth	R	A	BB
33.	molar = grindstone	W	A	BB
34.	mouth = edge	W	A	BB
35.	thumb = mother; finger = child	W	A	BB
36.	handstone = hand/child (of grindstone)	W	A	U
37.	poor = orphan = widow	W	A	BB
38.	blue = green	W	C	BS
39.	raw = unripe	W	C	BN
40.	wide = big face	R	A	BB
41.	alive = awake	W	A	BB
42.	rainbow=snake/lion/turtle/squirrel/weasel	W	A	BS
43.	lion = red X	R	A	BN
44.	silver/gold = God excrement	W	A	BB
45.	otter = water dog/wildcat	R	A	BB
46.	marry = find/meet	W	A	BB
47.	anteater = honey X	R	A	BB
48.	cedar = holy tree	R	A	BB
49.	medicine = poison	W	C	BN
50.	pataxte = tiger cacao	R	A	BB
51.	town = water-mountain	W	A	BB
52.	soot = nose of firewood	-	C	U



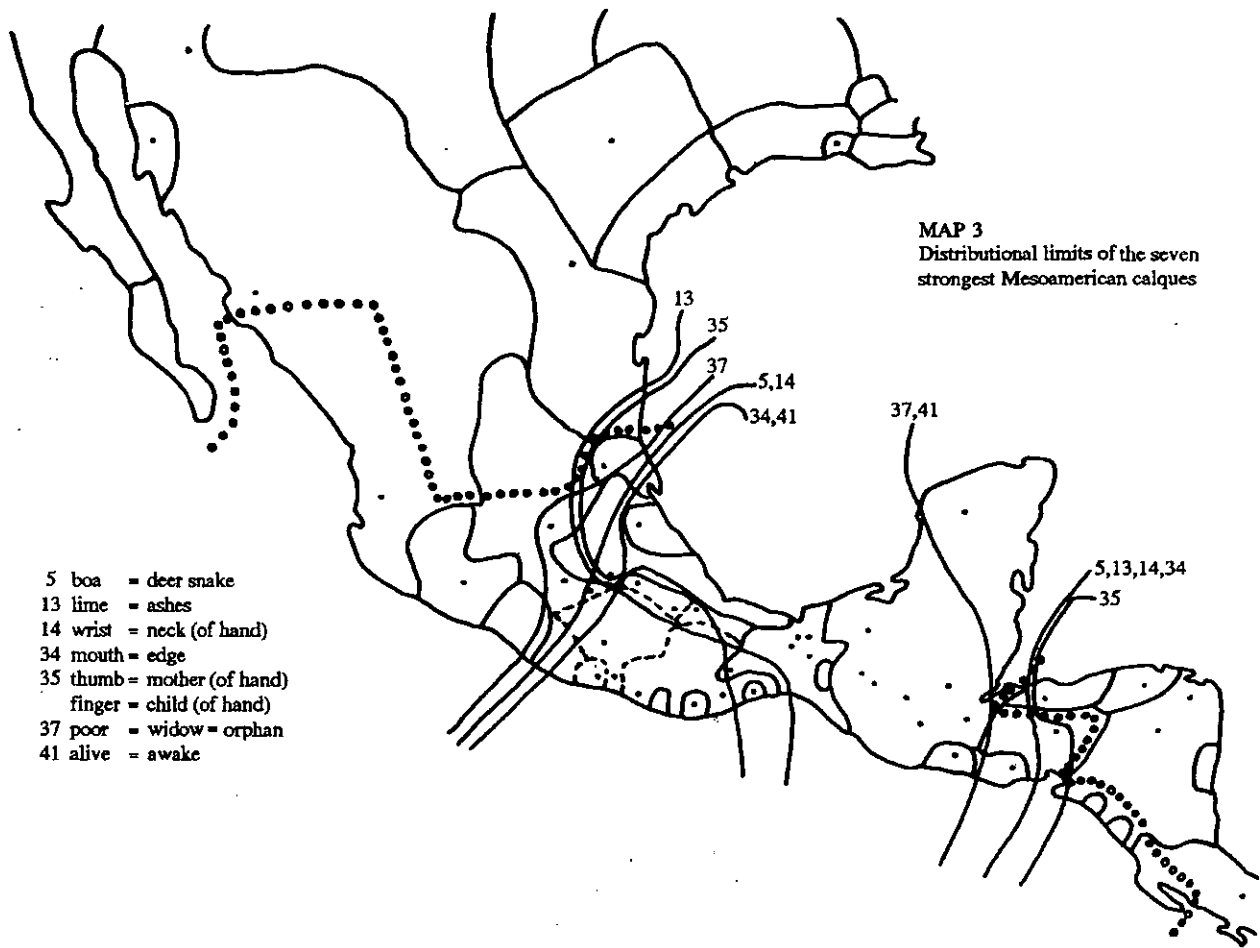
## 5. Results

Based on these procedures, it is now possible to identify those features which are widespread within Mesoamerica and which are substantially more frequent in Mesoamerica than in the control group or the border samples; that is, those features identified as 'W', 'A', and 'BB' in Table 5. Of the fifty-two lexical features tested, fourteen meet these conditions, and can be considered true Mesoamerican areal traits: 4. knee = head (of leg); 5. boa = deer snake; 13. lime(stone) = (rock) ashes; 14. wrist = neck (of hand); 15. egg = stone/bone (of bird); 28. vein = road (of blood); 33. molar = grindstone; 34. mouth = edge;<sup>13</sup> 35. thumb = mother (of hand), finger = child (of hand);<sup>14</sup> 37. poor = widow = orphan; 41. alive = awake; 44. silver/gold = God excrement; 46. marry = find/meet; 51. town = water-mountain. This is not to say that the other features should be forgotten. Many of them, such as feature 22 shown in Map 2, are almost certainly relevant to the history of Mesoamerica, and have been eliminated due to limitations in the data or because of weaknesses in my procedures. What can be said is that the fourteen Mesoamerican areal traits have survived fairly rigorous tests.

On the other hand, not all fourteen Mesoamerican areal traits are equally impressive. When they are examined in detail, it is seen that one of them, 51, is only attested in two languages. This calque, which exists between Nahuatl and Sayula, is probably the result of a localized case of diffusion from a Gulf dialect of Nahuatl into nearby Sayula.<sup>15</sup> However, most of the fourteen features are quite widely distributed. Nine of them (5, 13, 14, 33, 34, 35, 37, 41, 46) occur in at least four language families.

Now that some actual areal features have been identified for Mesoamerica, we can ask what the boundaries of this linguistically defined Mesoamerica are. In order to provide an answer to this question, the isoglosses which illustrate the limits of distribution of the seven most frequent and widespread Mesoamerican areal traits are combined in Map 3.

Several observations can be made based on this map. First, though the isoglosses do not correspond completely, they do tend to occur in bundles. The extent to which this is the case strongly supports the claim that the boundary between the languages in Mesoamerica and those not in Mesoamerica is a real one.





Second, though the area defined by this map is obviously related to Mesoamerica, it is somewhat smaller than the Mesoamerica defined on Longacre's map, which was based on cultural factors. In particular, there is no indication of the extension of Mesoamerica up the Pacific coast as on Longacre's map. Note that even Tarascan seems to be outside of Mesoamerica as defined here.

Third, Map 3 suggests that the Gulf Coast has served as the primary corridor for the spread of areal features. The great core of Otomanguan languages centered on Oaxaca seems to have been only sporadically affected by diffusion.

## 6. Conclusions

To conclude, I have tried to show that the identification of Mesoamerican areal traits is more complicated than merely listing features known to occur in some Mesoamerican languages; but that by using the procedures described here a number of features emerge which concretely support the claim that Mesoamerica is a linguistic area in the classic sense. It remains to be seen whether equally positive results will be obtained when other aspects of linguistic structure are examined.<sup>16</sup>

As the distribution of these and other features are more carefully plotted and studied, it should also be possible to more confidently interpret the historical implications of the cases of diffusion which emerge and thereby contribute to our understanding of the overall history of Mesoamerica.

## NOTES

<sup>1</sup>This paper was originally presented at the symposium 'Mesoamerican dialectology and language history' of the 44th International Congress of Americanists, Manchester, England, on 10 September, 1982. I would like to thank Karen Dakin for seeing that it arrived in Manchester and Wick Miller for reading it for me there in my absence. I would also like to acknowledge a special debt of gratitude to Lyle Campbell, who was my neighbor during the preparation of this paper and from whom I received invaluable information and advice. Whatever value this study might have is due to his influence. Alas! the defects are of my own confection. The present version of the paper is identical to the version delivered in Manchester, except for some minor corrections and slight

modifications to make it more palatable for a written rather than oral presentation. Where I have felt it necessary to add comments or make emendations I have done so in the notes, which are all new. Many of the claims made in this paper were later incorporated into Campbell, Kaufman and Smith-Stark (1986).

<sup>2</sup>Hasler (1959), Holt and Bright (1976), and Rosenthal (1981) should also have been included in this list. Also relevant are Campbell, Kaufman and Smith-Stark (1986) and Smith-Stark (1988), which appeared after the present paper was written.

<sup>3</sup>See Pickett (1983) for a more recent study of this sort.

<sup>4</sup>Of course, Mexican Spanish also uses the loanword *hot dog*.

<sup>5</sup>I now know that Lehman (1920), Hasler (1959) and (1966), and García León [1969] (1976) all treat calques among Mesoamerican languages before Kaufman (1973). See also Robles U. and Bruce S. (1975).

<sup>6</sup>In reality, this honor now seems to belong to Hasler (1959).

<sup>7</sup>This list is by no means meant to be exhaustive. For instance, other possibilities which might be worth examining are the following (and there are surely more of which I am not aware): handle (of jug) = ear (suggested to me by Otto Schumann); scale (of fish) = metal or money (suggested to me by Louise Schoenhals); high-pitched = thin; low-pitched = thick; kiss = smell; flower = sacred; sky = snake or other reptile (suggested to me by Jonathan Amith); part (in hair) = road (suggested to me by Lyle Campbell); vein = rope; intestines = rope; now = today; nose = tip; heart = liver; boat = water house (cf. Robles U. and Bruce S. 1975: 117); peccary = ear-of-corn pig (cf. García de León 1976:51); metal = bell; bladder = jar, gourd or canteen (of urine); fruit = seed; tree = wood = stick. See also the other examples mentioned in the sources cited in note 5. Campbell, Kaufman and Smith-Stark (1986) add calf = excrement or belly of leg; to smoke = to suck; to cure = to suck (to smoke); son and daughter distinguished for men but not for women; head = bottle gourd; thirst = water-die; need = want, be wanted; enter = house-enter; cockroach = house + X (often combined with 'in' or something equivalent).

<sup>8</sup>See Smith-Stark (1990) for further ideas about the relationship between lexical and syntactic calques.

<sup>9</sup>Campbell, Kaufman and Smith-Stark (1986) refer to the two opposing postures of Sherzer and Hamp as the circumstantialist and the historical approaches to areal linguistics, respectively.

<sup>10</sup>Note, however, that Holt and Bright (1976) and Rosenthal (1981) do attend to the problem of identifying, respectively, the southern and northern boundaries of a Mesoamerican linguistic area.

<sup>11</sup>These additional languages are identified in (5) and on Map 1 with lower case letters.

<sup>12</sup>As was observed by the audience when this paper was originally presented, my use of statistics needs to be improved, something I am aware of but have not yet managed.

<sup>13</sup>The typically Mesoamerican association between mouth and edge has always struck me as peculiarly foreign to the Western versions of these concepts. However, the fact that Latin *o:ra* 'edge, border, coast' is related to *o:s, o:ris* 'mouth' (Corominas 1954, vol. 3, p.

573) indicates that this association is certainly not limited to Mesoamerica. Campbell, Kaufman and Smith-Stark (1986) also note a similar association in South American Cashibo. As so often happens when comparing languages, what at first sight seems strange and exotic is discovered upon further reflection to be natural and motivated, with familiar antecedents in one's own experience.

<sup>14</sup>In their worldwide sample of 118 languages, Brown and Witkowski (1981) found that 42 languages (35.6%) use a figurative expression for fingers and toes which equate digits with people, usually kinsmen. This is considerably higher than the 11% (1/9) which I found in my control group and might call into question the areal nature of this lexical feature, though the Mesoamerican rate is still considerably above even Brown and Witkowski's global figure.

<sup>15</sup>Hasler (1959) notes that this expression is also found in Pochutec, Totonac and Ichcatlán Mazatec, thereby considerably strengthening the areal character of this calque.

<sup>16</sup>It now appears that there are important shared syntactic characteristics of Mesoamerican languages, as well. Campbell, Kaufman and Smith-Stark (1986) note several possibilities: the nominal possessive construction, the use of relational nouns, and above all, verb-object rather than object-verb word order (see also Smith Stark (1987) on word order). In addition, I have identified a characteristic of information questions, pied-piping with inversion of preposition-object or noun-possessor order, whose distribution seems to be highly correlated with Mesoamerica (Smith Stark 1988).

## REFERENCES

- Arroyo, Victor Manuel. 1972. *Lenguas indígenas costarricenses*. 2nd edition. EDUCA, San José, Costa Rica.
- Aschmann, Herman Pedro and Elisa Dawson de Aschmann. 1973. *Diccionario totonaco de Papantla, Veracruz: totonaco-español español-totonaco*. Serie de vocabularios y diccionarios indígenas Mariano Silva y Aceves, 16. Instituto Lingüístico de Verano en coordinación con la Secretaría de Educación Pública a través de la Dirección General de Educación Extraescolar en el Medio Indígena, México, D. F.
- Aulie, H. Wilbur and Evelyn W. de Aulie, compilers, with the collaboration of César Meneses Díaz and Cristóbal López Vázquez. 1978. *Diccionario ch'ol-español español-ch'ol*. Serie de vocabularios y diccionarios indígenas Mariano Silva y Aceves, 21. Instituto Lingüístico de Verano en

coordinación con la Secretaría de Educación Pública a través de la Dirección General de Servicios Educativos en el Medio Indígena, México, D. F.

- Barker, M. A. R. 1963. *Klamath dictionary*. University of California publications in linguistics, 31. University of California Press, Berkeley, California.
- Barrera, Bartolo and Karen Dakin. 1978. *Vocabulario popoloca de San Vicente Coyotepec*. Cuadernos de la Casa Chata, 11. Programa de Lingüística, Centro de Investigaciones Superiores del Instituto Nacional de Antropología e Historia, México, D. F.
- Barrera Vásquez, Alfredo, director. 1980. *Diccionario Maya Cordemex: maya-español español-maya*. Ediciones Cordemex, Mérida, Yucatán, México.
- Basalenne, Diego. [1640] 1975. *Arte y vocabulario de la lengua matlaltzinga vuelto a la castellana*. Versión paleográfica de María Elena Bribiesca S. con un estudio preliminar de Leonardo Manrique C. Biblioteca enciclopédica del estado de México, 33. México.
- Basalenne, Diego. [1642] 1975. *Vocabulario de la lengua castellana vuelto a la matlaltzinga*. Revisión paleográfica, nota introductoria y apéndice por Leonardo Manrique C. Biblioteca enciclopédica del estado de México, 34. México.
- Borman, M. B. 1976. *Vocabulario cofán: cofán-castellano castellano-cofán*. Serie de vocabularios indígenas Mariano Silva y Aceves, 17. Instituto Lingüístico de Verano en cooperación con el Ministerio de Educación Pública, Quito, Ecuador.
- Brown, Cecil H. and Stanley R. Witkowski. 1981. 'Figurative language in a universalist perspective'. In *American ethnologist*, vol. 8, no. 3, pp. 596-615.
- Callaghan, Catherine A. 1970. *Bodega Miwok dictionary*. University of California publications in linguistics, 60. University of California Press, Berkeley, California.

- Campbell, Lyle. 1971. *Historical linguistics and Quichean linguistic prehistory*. Ph. D. dissertation, University of California at Los Angeles. Subsequently published as *Quichean Linguistic Prehistory*, University of California publications in linguistics, 81, University of California Press, Berkeley, California, 1977.
- Campbell, Lyle. 1979. 'Middle American languages'. In Lyle Campbell and Marianne Mithun, editors, *The languages of Native America: historical and comparative assessment*, University of Texas Press, Austin, pp. 902-1000.
- Campbell, Lyle Richard. 1982. *El pipil: nahuate de El Salvador*. Unpublished manuscript. Subsequently revised and published as *The Pipil language of El Salvador*, Grammar library, 1, Mouton, Berlin, 1985.
- Campbell, Lyle, Terrence Kaufman and Thomas C. Smith-Stark. 1986. 'Meso-America as a linguistic area'. In *Language*, vol. 62, no. 3, pp. 530-570.
- Clark, Lawrence E. 1981. *Diccionario popoluca de Oluta: popoluca-español español-popoluca*. Serie de vocabularios y diccionarios indígenas Mariano Silva y Aceves, 25. Instituto Lingüístico de Verano, México, D. F.
- Clark, Lorenzo and Nancy Davis de Clark. 1960. *Popoluca-castellano castellano-popoluca: dialecto de Sayula, Veracruz*. Serie de vocabularios indígenas Mariano Silva y Aceves, 4. Instituto Lingüístico de Verano en coordinación con la Secretaría de Educación Pública a través de la Dirección General de Educación Extraescolar en el Medio Indígena, México, D. F.
- Clark, Lawrence and Norman Nordell. n.d. *Texistepec vocabulary*. Unpublished manuscript.
- Collard, Howard and Elisabeth Scott Collard. 1962. *Castellano-mayo mayo-castellano*. 2nd ed., 1974; reprinted 1979. Serie de vocabularios indígenas Mariano Silva y Aceves, 6. Instituto Lingüístico de Verano, México, D. F.

- Corominas, J. 1954. *Diccionario crítico etimológico de la lengua castellana*. A. Francke AG., Berna, Suiza. Reprinted in the series Biblioteca románica hispánica, Editorial Gredos, Madrid.
- Escalante H., Roberto. 1975. 'Tipología de las lenguas de México'. In Evangelina Arana de Swadesh, coordinator, *Las lenguas de México*, 2 vols., México: panorama histórico y cultural, 4-5, Instituto Nacional de Antropología e Historia, México, D. F., vol. 1, pp. 91-127.
- Fernández de Miranda, Ma. Teresa. 1961. *Diccionario ixcateco*. Dirección de Investigaciones Antropológicas, Instituto Nacional de Antropología e Historia, México, D. F.
- García de León, Antonio. 1976. *Pajapan: un dialecto mexicano del Golfo*. Departamento de lingüística, Colección científica lingüística, 43. Instituto Nacional de Antropología e Historia, México, D. F. (This is the published form of a 1969 thesis.)
- Good, Claude. 1979. *Diccionario triqui de Chicahuaxtla: triqui-castellano castellano-triqui*. Serie de vocabularios indígenas Mariano Silva y Aceves, 20. Instituto Lingüístico de Verano, México, D. F.
- Haas, Mary R. 1953. *Tunica dictionary*. University of California publications in linguistics, vol. 6, no. 2, pp. 175-332. University of California Press, Berkeley, California.
- Hamp, Eric P. 1977. 'On some questions of areal linguistics'. In the proceedings of the *Berkeley Linguistic Society*, vol. 3, pp. 279-282.
- Harrison, Roy, Margaret Harrison and Cástulo García H. 1981. *Diccionario zoque de Capainalá*. Serie de vocabularios y diccionarios indígenas Mariano Silva y Aceves, 23. Instituto Lingüístico de Verano, México, D. F.
- Hasler, Juan A. 1959. 'Una lingüística meso-americana'. In *La palabra y el hombre* (Revista de la Universidad Veracruzana, Jalapa), vol. 12, pp. 535-547.
- Hasler, Juan A. 1966. 'La posición dialectológica del tepehua'. In Antonio Pompa y Pompa, ed., *Summa anthropologica en homenaje a Roberto*

- J. Weitlaner, Instituto Nacional de Antropología e Historia, Secretaría de Educación Pública, México, D. F., pp. 533-540.
- Henne Pontious, David, compiler; Abraham García Hernández and Santiago Yac Sam, investigators. 1980. *Diccionario quiché-español*. Instituto Lingüístico de Verano, Guatemala.
- Hoiijer, Harry. 1949. *An analytical dictionary of the Tonkawa language*. University of California publications in linguistics, vol. 5, no. 1, pp. 1-174. University of California Press, Berkeley, California.
- Holt, Dennis. n. d. Paya fieldnotes.
- Holt, Dennis and William Bright. 1976. 'La lengua paya y las fronteras lingüísticas de Mesoamérica'. In *Fronteras de Mesoamérica*, 14a Mesa Redonda, Sociedad Mexicana de Antropología, México, vol. 1, pp. 149-156.
- Hunn, Eugene S. 1977. *Tzeltal folk zoology: the classification of discontinuities in nature*. Academic Press, New York.
- Hurley vda. de Delgaty, Alfa and Agustín Ruiz Sánchez. 1978. *Diccionario tzotzil de San Andrés con variaciones dialectales: tzotzil-español español-tzotzil*. Serie de vocabularios y diccionarios indígenas Mariano Silva y Aceves, 22. Instituto Lingüístico de Verano en coordinación con la Secretaría de Educación Pública a través de la Dirección General de Educación a Grupos Marginados, México, D. F.
- Judy, Roberto and Judit Emerich de Judy, compilers. 1962. *Movima y castellano*. Vocabularios bolivianos, 1. Instituto Lingüístico de Verano en colaboración con el Ministerio de Asuntos Campesinos y el Ministerio de Educación y Bellas Artes, Oficialía Mayor de Cultura, Departamento de Arqueología, Etnología y Folklore, Cochabamba, Bolivia.
- Kaufman, Terrence. 1973. 'Areal linguistics and Middle America'. In Thomas A. Sebeok, ed., *Current trends in linguistics*, vol. 11, *Diachronic, areal, and typological linguistics*, Henry M. Hoenigswald and Robert E. Longacre, associate editors, Mouton, The Hague - Paris, pp. 459-483.

- Kaufman, Terrence. 1974. *Idiomas de Mesoamérica*. Seminario de Integración Social Guatemalteca, 33. Ministerio de Educación, Editorial José de Pineda Ibarra, Guatemala, C. A.
- La Flesche, Francis. 1932. *A dictionary of the Osage language*. Smithsonian Institution Bureau of American Ethnology, Bulletin 109. United States Government Printing Office, Washington, D. C.
- Larsen, Ramón. 1955. *Vocabulario huasteco del estado de San Luis Potosí*. Ilustrado por Catalina Voigtlander. Instituto Lingüístico de Verano en cooperación con la Dirección General de Asuntos Indígenas de la Secretaría de Educación Pública, México, D. F.
- Lehmann, Walter. 1920. *Zentral-Amerika*. Teil 1. *Die Sprachen Zentral-Amerikas in ihren beziehungen zueinander sowie zu Süd-Amerika und Mexiko*. In zwei Bänden. Verlag Dietrich Reimer (Ernst Vohsen), Berlin.
- Lindskoog, John N. and Carrie A. Lindskoog, compilers. 1964. *Vocabulario cayapa*. Serie de vocabularios indígenas Mariano Silva y Aceves, 9. Instituto Lingüístico de Verano en cooperación con el Ministerio de Educación Pública, Quito, Ecuador.
- Longacre, Robert. 1967. 'Systemic comparison and reconstruction'. In Robert Wauchope, ed., *Handbook of Middle American Indians*, vol. 5, Norman A. McQuown, ed., *Linguistics*, University of Texas Press, Austin, pp. 117-159.
- McMahon, Ambrosio and María Aiton de McMahon, compilers. 1959. *Cora y español*. Serie de vocabularios indígenas Mariano Silva y Aceves, 2. Instituto Lingüístico de Verano en cooperación con la Dirección General de Asuntos Indígenas de la Secretaría de Educación Pública, México, D. F.
- Molina, Alonso de. [1571] 1970. *Vocabulario en lengua castellana y mexicana y mexicana y castellana* with a preliminary study by Miguel León-Portilla. Biblioteca Porrúa, 44. 2nd edition, 1977. Editorial Porrúa, México, D. F. (a facsimile edition of Platzmann's 1880 facsimile-like edition)



- Moser, Edward and Mary B. Moser. 1961. *Seri-castellano castellano-seri*. Serie de vocabularios indígenas Mariano Silva y Aceves, 5. Instituto Lingüístico de Verano en cooperación con la Dirección General de Asuntos Indígenas de la Secretaría de Educación Pública, México, D. F.
- Orr, Carolyn and Betsy Wrisley, compilers. 1965. *Vocabulario quichua del Oriente del Ecuador*. Serie de vocabularios indígenas Mariano Silva y Aceves, 11. Instituto Lingüístico de Verano en cooperación con el Ministerio de Educación Pública, Quito, Ecuador.
- Pensinger, Brenda J., compiler. 1974. *Diccionario mixteco-español español-mixteco*. Serie de vocabularios y diccionarios indígenas Mariano Silva y Aceves, 18. Instituto Lingüístico de Verano en coordinación con la Secretaría de Educación Pública, a través de la Dirección General de Educación Extraescolar en el Medio Indígena, México, D. F.
- Pickett, Velma B. 1983. 'Mexican Indian languages and Greenberg's «Universals of grammar ... »'. In F. B. Agard, G. Kelley, A. Makkai and V. B. Makkai, eds., *Essays in honor of Charles F. Hockett*, E. J. Brill, Leiden, pp. 530-551.
- Pickett, Velma and collaborators. [1959] 1979. *Vocabulario zapoteco del Istmo*. Serie de vocabularios indígenas Mariano Silva y Aceves, 3. 1st ed., 1959; 2nd ed. corrected and augmented, 1965, of which this is the 8th printing. Instituto Lingüístico de Verano, México, D. F.
- Pride, Leslie and Kitty Pride, compilers. 1970. *Vocabulario chatino de Tataltepec: castellano-chatino chatino-castellano*. Serie de vocabularios indígenas Mariano Silva y Aceves, 15. Instituto Lingüístico de Verano en coordinación con la Secretaría de Educación Pública a través de la Dirección General de Internados de Enseñanza Primaria y Educación Indígena, México, D. F.
- Reid, Aileen A. and Ruth G. Bishop, compilers. 1974. *Totonaco-castellano castellano-totonaco: diccionario totonaco de Xicotepec de Juárez, Puebla*. Serie de vocabularios y diccionarios indígenas Mariano Silva y Aceves, 17. Instituto Lingüístico de Verano en coordinación con la

Secretaría de Educación Pública a través de la Dirección General de Educación Extraescolar en el Medio Indígena, México, D. F.

- Robles U., Carlos and Roberto D. Bruce S. 1975. 'Transculturación lingüística'. In Evangelina Arana de Swadesh, coordinator, *Las lenguas de México*, 2 vols., México: panorama histórico y cultural, 4-5, Instituto Nacional de Antropología e Historia, México, D.F., vol. 2, pp. 111-128.
- Rosenthal, Jane M. 1981. 'How Uto-Aztecan is the Nahuatl possessive?'. In Frances Karttunen, ed., *Nahuatl studies in memory of Fernando Horcasitas*, Texas linguistic forum, 18, University of Texas, Department of Linguistics, Austin, Texas, pp. 182-214.
- Sapir, Edward and Morris Swadesh, edited by Mary R. Haas. 1960. *Yana dictionary*. University of California publications in linguistics, 22. University of California Press, Berkeley, California.
- Saxton, Dean and Lucille Saxton, compilers. 1977. *Dictionary Papago & Pima to English O'othham—Mil-gahn English to Papago & Pima Mil-gahn—O'othham*. University of Arizona Press, Tucson, Arizona. 2nd printing.
- Schlichter, Alice. 1981. *Wintu dictionary*. Report #2, Survey of California and Other Indian Languages. Department of Linguistics, University of California at Berkeley, Berkeley, California.
- Schoenhals, Alvin and Louise C. Schoenhals, compilers. 1965. *Vocabulario mixe de Totontepec: mixe-castellano castellano-mixe*. Serie de vocabularios indígenas Mariano Silva y Aceves, 14. Instituto Lingüístico de Verano en cooperación con la Dirección General de Asuntos Indígenas de la Secretaría de Educación Pública, México, D. F.
- Schumann Gálvez, Otto. 1967. *Xinca de Guazacapan*. Master's thesis. Escuela Nacional de Antropología e Historia, México, D. F.
- Sedat S., Guillermo. 1955. *Nuevo diccionario de las lenguas k'ekchi' y española*. 2nd printing, 1971. Summer Institute of Linguistics, Guatemala.

- Sherzer, Joel. 1968. *An areal-typological study of the American Indian languages north of Mexico*. Ph. D. thesis, University of Pennsylvania, Philadelphia, Pennsylvania. Subsequently published as *An areal-typological study of American Indian languages north of Mexico*, North-Holland linguistics series, 20, North-Holland Elsevier, Amsterdam, 1976.
- Sherzer, Joel. 1973. 'Areal linguistics in North America'. In Thomas Sebeok, ed., *Current trends in linguistics*, vol. 10, *Linguistics in North America*, William Bright, Dell Hymes, John Lotz, Albert H. Marckwardt and Jean-Paul Vinay, associate editors, Mouton, The Hague-Paris, vol. 10, 2nd part, pp. 749-795.
- Slocum, Marianna C. and Florencia L. Gerdel. 1965. *Vocabulario tzeltal de Bachajón: castellano-tzeltal tzeltal-castellano*. Serie de vocabularios indígenas Mariano Silva y Aceves, 13. 2nd printing, 1971. Instituto Lingüístico de Verano en coordinación con la Secretaría de Educación Pública a través de la Dirección General de Internados de Enseñanza Primaria y Educación Indígena, México, D. F.
- Smith, Pablo and Dorotea Smith, compilers. 1955. *Vocabulario chinanteco (dialecto de Ojitlán, Oaxaca)*. Instituto Lingüístico de Verano en cooperación con la Dirección General de Asuntos Indígenas de la Secretaría de Educación Pública, México, D. F.
- Smith Stark, Thomas C. 1987. 'Orden básico de palabras en las lenguas indoamericanas'. Unpublished paper presented during the workshop 'Hacia un atlas tipológico de las lenguas indoamericanas', Jornadas lingüísticas, Escuela Nacional de Antropología e Historia, México, D. F.
- Smith Stark, Thomas C. 1988. '«Pied-piping» con inversión en preguntas parciales'. Unpublished paper.
- Smith Stark, Thomas C. 1990. 'La difusión lingüística en el estado de Oaxaca, México'. In Violeta Demonte and Beatriz Garza Cuarón, edd., *Estudios de lingüística de España y México*, Instituto de Investigaciones Filológicas, Universidad Nacional Autónoma de

México and Centro de Estudios Lingüísticos y Literarios, El Colegio de México, pp. 603-631.

Stairs Kreger, Glenn Albert and Emily Florence Scharfe de Stairs; with Proceso Olivares Oviedo, Tereso Ponce Villanueva and Lorenzo Comonfort Llave as principal collaborators. 1981. *Diccionario huave de San Mateo del Mar*. Serie de vocabularios y diccionarios indígenas Mariano Silva y Aceves, 24. Instituto Lingüístico de Verano, México, D. F.

Stewart, Donald and Shirley Gamble de Stewart, with Hazel Spotts, compilers. 1954. *Vocabulario mazahua. Primera parte, mazahua-español. Segunda parte, español-mazahua*. Illustrated by Robert Chaney. Instituto Lingüístico de Verano en cooperación con la Dirección General de Asuntos Indígenas de la Secretaría de Educación Pública, México, D. F.

Swadesh, Mauricio. 1969. *Elementos del tarasco antiguo*. Serie antropológica, 11. Sección de Antropología, Instituto de Investigaciones Históricas, Universidad Nacional Autónoma de México, México.

Swanton, John R. 1940. *Linguistic material from the tribes of southern Texas and northeastern Mexico*. Smithsonian Institution Bureau of American Ethnology, Bulletin 127. United States Government Printing Office, Washington, D. C.

Turner, Paul and Shirley Turner, compilers. 1971. *Chontal to Spanish-English dictionary Spanish to Chontal*. The University of Arizona Press, Tucson, Arizona.

Van Wynen, Donald and Mabel Garrard de Van Wynen. 1962. *Tacana y castellano*. Vocabularios bolivianos, 2. Instituto Lingüístico de Verano en colaboración con el Ministerio de Asuntos Campesinos y el Ministerio de Educación y Bellas Artes, Oficialía Mayor de Cultura, Departamento de Arqueología, Etnología y Folklore, Cochabamba, Bolivia.

Velásquez Gallardo, Pablo. 1978. *Diccionario de la lengua phorhepecha*. Fondo de Cultura Económica, México, D. F.

Wallis, Ethel Emilia, Víctor Manuel Arroyo, et al. 1956. *Diccionario castellano-otomí otomí-castellano*. Cuadernos del Valle del Mezquital, vol. 1, núm. 1. Ediciones del Patrimonio Indígena del Valle del Mezquital y del Instituto Lingüístico de Verano, Itzmiquilpan, México.

