JACALTEC NOUN CLASSIFIERS
A STUDY IN LANGUAGE AND CULTURE

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The main purpose of this paper is to study a particular type of linguistic segmentation of the world — the noun classification system of a Mayan language — and to argue for a culturally motivated classification rather than an arbitrary or cognitively natural classification.

The data come from Jacaltec, a Meso-American language with various classification systems. Due to peculiar circumstances, this case study provides interesting insights into the nature of a particular type of linguistic categorization, that of noun classification. It exemplifies in unusually transparent ways what organizing principles noun classification systems may follow, and what purpose they may serve in language.

The presentation of this ethno-linguistic case study is structured as follows. First, a general discussion of the Jacaltec noun classifier system identifies its structural, typological, and semantic features in order to place it in the context of the classifier systems of the other languages of the world and of the other classification systems with which it co-exists within the language. Then a study of the relation holding between the Jacaltec noun classification system and the Jacaltec culture is developed in two steps, following the organization of the classifiers into two subsystems each dealing with separate domains of human interaction. The final section of the paper is a consideration of the circumstances which permit the analysis of the cultural motivation of the Jacaltec noun classification system and of the significance of such a case study for the general study of the nature of classifier systems.

1. The Jacaltec Noun Classifiers: Overview

Jacaltec is a language spoken in the western highlands of Guatemala. It belongs to the Kanjobalan branch of the Mayan family of languages and
has been described in Day (1973), Craig (1977), and Datz (1980). One of the main characteristics of the structure of the Jacaltec noun phrase is its noun classifier system.

1.1. Morphosyntactic Characteristics

Noun classifiers (N Cl) are free morphemes which immediately precede the noun and may co-occur with the various other determiners of the noun phrase, such as numeral, possessive, and demonstrative:

(1) a. xul naj Pel b’oj ya7 malin came N Cl Peter with N Cl Mary
   ‘Peter came with Mary’

b. xil ix ix hune7 hin no7 txitam tu7 saw CL woman one my N Cl pig that
   ‘The woman saw that one pig of mine’

c. caj te7 tahnaj ixpix red N Cl ripe tomato
   ‘The tomato is ripe’

The Jacaltec noun classifiers function also as anaphoric constituents:

(2) a. xil naj xuan no7 lab’a saw N Cl John N Cl snake
   ‘John saw the snake’

b. xil naj no7 saw N Cl/he N Cl/it
   ‘He saw it’

(3) a. swatx’ ix ix ixim b’itx made N Cl girl N Cl tamale
   ‘The girl made the tamales’

b. tuxot ix ixim yiñ how-eb’ sentavo sold N Cl/she N Cl/it for five-Pl Cl cents
   ‘she sold them for five cents’

c. xin lob’ ox-eb’ ixim I ate 3-Pl Cl N Cl
   ‘I ate three of them (tamales)’

1.2. More Classifications

There are three additional classificatory systems in Jacaltec. The first one is a set of number classifiers which are obligatorily suffixed to the numeral (Num) and are in a limited set of three: human/animal/inanimate. The second is a set of plural classifiers and is even more limited; it consists of only two overt markings which are in opposition to each other and to the absence of overt marker, forming a similar three-way opposition. The examples below illustrate the use of the three number classifiers (Nb Cl), the two overt plural classifiers (Pl Cl) and the three of the twenty-four noun classifiers (N Cl):

(4) a. NUM+Nb class Pl class N class Noun

   b. ca-wañ heb’ naj winaj ‘two men’
      2-human human man man
   c. ca-c’oñ (hej) no7 nok’ ‘two animals’
      2-animal animal animal
   d. ca-b’ Ø te7 ñah ‘two houses’
      2-inanimate plant house
   e. ca-b’ Ø no7 xila ‘two saddles’
      2-inanimate (inanimate object made of animal product)

Finally, Jacaltec has very large sets of classifying lexemes which Day refers to as numeral classifiers (Num Cl). These classifiers are akin to the English unit counters. They appear only in classifying expressions such as:

(5) a. ox(-eb’) motx ixim

   b. ox(-c’oñ) chehal ixim

   c. ox-eb’ nimejiaj c’alan si7 ‘three big

Hence the Jacaltec noun classifier system is one of four classification systems in the language and is situated somewhere in between the inflectional type
of the number and plural classifiers (reminiscent of the Indo European gender system) and the lexical open-ended type of the numeral classifiers (reminiscent of the English unit counters).

1.3. Semantic Transparency

As a semantic system, the main characteristic of the Jacaltec noun classifier system is that it consists of twenty-four classes that are all semantically transparent. The complete semantic transparency of the whole results from the combination of various factors. One factor is that the system classifies only concrete objects and does not even classify them all. Another factor is that there is no general, residual category for which no unifying semantic principle can be found. A last important factor is that the evolution of the Jacaltec system arrested at an early stage of development and is not subject to adaptation or expansion any more.

1.4. Two subsystems of Classification

The very first step in the analysis of the system is to divide its twenty-four classes into two distinct sets which correspond to semantically distinct subsystems based on different classificatory principles. The mere existence of two separate subsystems is one of the originalities of the Jacaltec noun classification system.

One of the subsystems classifies the human and spiritual world, while the other subsystem classifies the non-human world. Following Denny (1976) one would say that the domain of the former is that of social interaction and the domain of the latter is that of physical and functional interaction. The initial split in the whole system of Jacaltec world segmentation is given below in order to provide the reader with an initial impression of the organization of the world as expressed through the noun classification system of the language.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>SUBSYSTEM I: SOCIAL INTERACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. cumam</td>
<td>male deity</td>
</tr>
<tr>
<td>2. cumi7</td>
<td>female deity</td>
</tr>
<tr>
<td>3. ya7</td>
<td>respected human</td>
</tr>
<tr>
<td>4. naj</td>
<td>male non-kin</td>
</tr>
<tr>
<td>5. ix</td>
<td>female non-kin</td>
</tr>
<tr>
<td>6. naj ni7an</td>
<td>young male non-kin</td>
</tr>
</tbody>
</table>

SUBSYSTEM II: PHYSICAL AND FUNCTIONAL INTERACTION

| 7. ix ni7an | young female non-kin             |
| 8. ho7      | male kin                         |
| 9. xo7      | young female kin                 |
| 10. ho7 ni7an | young male kin                    |
| 11. xo7 ni7an | young female kin                   |
| 12. unin    | infant                           |

While the exact inventory of the classifiers may be subject to some discussion, and while the seemingly perfect balance between the two subsystems may not be more than accidental, the basic evenness of the distribution between the number of classifiers for social interaction and for physical/functional interaction invites comment. It is rare to find among the classifier languages of the world such fullness of classification in all the interaction domains at once. The more common situation is for one or the other domain to be dominant in the system.

2. Subsystem I; Social Interaction

According to Denny (1976:126) classifiers in the domain of social interaction express the appropriate ways in which humans are expected to interact with other humans compared to how they interact with animals or with high status persons as compared to low status ones.
2.1. Semantics Features

The organization of this part of the Jacaltec system was originally described by Day (1967), who isolated the semantic parameters with which the classes can be defined. The diagram below shows the semantic parameters with which the classes can be defined. The diagram shows how the semantic features of divinity, kinship, respect, sex, and age are necessary to account for the semantics of the classifiers for social interaction.

The semantic feature of *divinity* isolates the Jacaltec pantheon of deities and supernatural god-like entities from humans and supernatural spirits without deity status which are classified with adult humans. Within the human world, one needs to distinguish between classes which are sensitive to *kinship* and classes which are neutral with respect to it. The classifiers which are not sensitive to the parameter of kinship are the ones marking infants and persons of respect. Although respect may naturally coincide with old age, the semantic feature of *respect* is independent of the one of age. Jacaltecs say of persons classified as *ya7* that they have acquired respect through various means, only one of which is the life experience and wisdom that may accompany old age. The eight classifiers which are sensitive to kinship form a cluster of classifiers which are also sensitive to the semantic feature of *sex* (*M/F*) and *age* (*adult, child*). The features of sex and age are not limited to the cluster of classifiers marked for kinship, however. Sex is contrastive for deities, and age is what sets apart infants from other humans.

Based on their study of numeral classifiers, Adams and Conklin (1973:3) have made the claim that human classifier systems are organized according to either social rank parameters (age, wealth, nobility, sacredness, occupation) or kinship, but not both at once. If the claim can be extended to all noun classifications systems of the world, the Jacaltec system would represent an exception to it since it uses both the social rank parameters of age, respect, and divinity, and the inherent semantic notions of sex and kinship. The parameters of social rank provide a basically hierarchical organization of the classifiers which is cut across by the additional segmenting principle of kinship for the middle range of human life. This double articulation of the classifiers of social interaction is represented in the diagram below. The semantic features on the vertical axis are those of the social rank parameters (divinity, respect, age) and the semantic features on the horizontal axis are the inherent parameters of sex and kinship:

The diagram shows how the semantic features of divinity, kinship, respect, sex, and age are necessary to account for the semantics of the classifiers for social interaction.

![Diagram showing semantic features of divinity, kinship, respect, sex, and age]

**TABLE 3: Internal Organization of the Classifiers of Social Interaction**

<table>
<thead>
<tr>
<th>Divinity</th>
<th>M ——&gt; Sex ——&gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respect</td>
<td></td>
</tr>
<tr>
<td>Non-Kin</td>
<td></td>
</tr>
<tr>
<td>Kin</td>
<td></td>
</tr>
</tbody>
</table>

Comments on the ethnographic significance of such a system will be offered at a later point in the paper.

2.2. Dynamism of the System — Reclassification

The subsystem of classification of the domain of social interaction contrasts with the other subsystem of classification of the language by the fact that a certain amount of dynamism is built into it, meaning that the noun classifier
attributed to any one human being varies in accordance to the speaker’s relationship to and attitude toward the person being talked about. For instance, a man in his 40’s who has special status in the community by virtue of being knowledgeable or rich or powerful (shaman, dignitary of religious organization, influential store owner) could be referred to as: naj (by his contemporaries and elders) or xo7 (by his close relatives), or ya7 (by the younger generations, and the contemporaries who are not close friends or neighbors).

Additional dynamism in the system is provided by verbal play of a very limited nature. Along the parameters of respect, one may express extra positive or extra negative feelings toward the person referred to by bestowing or withholding expression of respect in an unexpected fashion. Hence, it is a form of insult to classify as ix/naj a person of great age or fame who is expected to deserve the classifier ya7. Conversely it is a form of compliment to classify as ya7 a person expected to be classified as ix/naj.

Along the parameter of kinship, one can express extra affection by using classifiers for kins when referring to a favorite non-kin, and conversely, one can express anger by using classifier for non-kin when referring to a rejected kin.7

There is no classification across the two subsystems of Jacteltec classifiers, meaning that people are never compared to animals or things. This strict limitation on verbal manipulation in Jacteltec can be put in contrast with Allan’s mentions of “abusive classification” of human beings by both animal classifiers or the general inanimate classifier in Japanese, and of the reclassification of women as round objects in Yucatecan, another Mayan language (Allan 1977:296). Although verbal manipulation is available to speakers, it is both of a very restricted nature and rarely used.

2.3. Ethnographic Significance of Subsystem 1

What is striking about the subsystem of classifiers which deals with social interaction in Jacteltec is its richness. It contains no less than a dozen classifiers and uses a highly language-specific combination of semantic features. The question may be raised then of how this elaborate linguistic system of categorization may or may not reflect the social organization of the Jacteltecs.

The main source of information on the social organization of the Jacteltecs is the invaluable ethnographic study of Oliver La Farge and Douglas Byers entitled The Year Bearers’ People (1931) — hence YBP. The book is the report of an expedition made in 1927 and includes chapters on social organization, life cycles, mythology, folklore, native worship, etc. It is one of the most thorough and well documented ethnographies of a Mayan culture from that period and has become a classic in Meso-American studies. More recently two anthropologists have studied the Jacteltec social structure (Breitborde, 1973, 1980 and Casaverde, 1976).

At the top of the hierarchical organization of the Jacteltec pantheon are the high deities. The male high deities are classified as cumam (cu-man ‘our father’) and are the Christian God, the sun, lightning, measles, and whooping cough. Assimilated to them one may also find the very honored “Year Bearer” gods. The female high deities are classified as cumi7 (cu-mi7 ‘our mother’) and are the Virgin Mary, the moon, and the corn.8

Below these god-like entities are lower deities or spirits expressing human contingency and living among humans. They are marked as male spirits by the classifiers naj (adult male non-kin) and are: disease, fight/war, sadness, poverty, fear, wind. Included here is also naj justicia, a kind of avenging angel in La Farge’s terms (YBP: 93), and a number of the spirits that inhabit specific places of the Jacteltec environment. There is a noticeable absence of animals in the Jacteltec pantheon.

Within the strictly human community, the classifiers underline key notions which dictate social interactions, such as those of kinship and personal worth. Kinship and sex form the primary basis for the classification of humans of childbearing age. As mentioned by La Farge and Byers — and confirmed by Casaverde (1976) and Camposeco (1978) the social unit in Jacteltecano is the family consisting, at its largest, of the father, the mother, their children and sometimes their grandchildren, when they live in the same house. ... There is no formal organization of the family, and no larger unit less than the municipality. (YBP: 80)

The use of the kin classifier is reserved to the close members of the family and does not extend to members of an extended family. It is interesting to note the existence of two classifiers which do not encode kinship relations. They represent in some sense the two ends of a scale of social status. At one end are the infants, who are not born as full members of the community probably due to factors such as an extremely high infant mortality. La Farge and Byers have remarked that “birth is attended by relatively little ceremony” (YBP: 86).

At the other end are the respected members of the community, individuals who have earned the reverence bestowed on them. Thus the classifier ya7 is a personal social status marker, and not a social class status marker.
Its existence correlates with the recognition of personal individual worth, in the absence of clear social classes or even an aristocracy in the Jacalteco community, which was commented upon by La Farge and Byers on several occasions (YBP: 7, 147, 150).

Hence the classifiers of social interaction reflect the organization of the powers that be in the Jacalteco world in the midst of, and beyond the world of humans.9 One sees in the choices of classifiers the recognition of higher powers of god-like nature, and of the powers of both god-like and human nature, in a mixture of Christian and native worship typical of the Mayan communities. And at the level of the social organization of the community the noun classifier system appears to encode two important characteristics of the Jacalteco community, one being that the nuclear family is the basic social unit of the community, and the other that the social status of a person is a function of his or her personal worth and not of social class status.

3. Subsystem II: Physical and Functional Interaction

The second subsystem of noun classifiers organizes the world of concrete objects with which humans interact. The classification is based on the semantic feature of material, the substance out of which the objects are made. The system relies also, to a very limited extent, on the semantic feature of consistency and on perceptual analogy, as will be discussed later. A striking characteristic of this Jacalteco subsystem is that the classification is semantically very transparent. There is no polysemy in the semantic features of the different classes, as is common in many classificatory systems. In addition, there is no residual class. Nouns, therefore, either belong to a specific, totally predicatable class, or they remain unclassified.

3.1. Principles of Classification

A very limited set of principles accounts for the absolute semantic transparency of the system. The basic principle is that classes organize the concrete objects of the world according to their material; that is to say the substance they are made of. Deviations from the basic principle consist in either the non assignment of a concrete object to any class, or the extension of a class through perceptual analogy, or the assignment of an object to a class of the first subsystem. And as will be shown, the choice of which classification principle operates is culturally determined.

3.1.1. Unclassified Nouns

By definition, abstract words which do not refer to material objects are excluded from classification. Such is the case for events or happenings: game, race, story, letter, fiesta, etc...or time expressions: hour, day, week, month, year.

Besides these abstract words, a number of concrete words referring to objects in the world are not classified. These unclassified objects fall into three major categories:

- locative nouns such as road, church, school, market, patio, village.
- body parts which are inalienable nouns used morphologically in possessive constructions and are therefore indirectly assigned to a class through the obligatory presence of the classifier of the possessor:

\[
\begin{align*}
(6) & \\
\text{a.} & y-oj & \text{naj} & \text{pel} & \text{E3-foot/leg cl Peter} & \text{'Peter's foot'} \\
& & & & \text{lit. its foot of him Peter} \\
\text{b.} & y-oj & \text{naj} & \text{E3-head cl Mary} & \text{'his foot'} & \text{lit. its foot of him} \\
& s-wi7 & \text{kalein} & \text{ix} & \text{Mary's head}' & \\
\text{d.} & s-wi7 & \text{ix} & \text{E3-head cl Mary} & \text{'her head'} & \text{lit. its head of her} \\
\text{c.} & y-oj & \text{cumil7x'ahaw} & \text{E3-head cl/plant house} & \text{the rays of the moon'} & \text{the moonlight} \\
& & & & \text{lit. its rays of the goddess moon} \\
\text{f.} & s-wi7 & \text{te7} & \text{nah} & \text{E3-head cl/plant house} & \text{'the roof'} & \text{lit. its head of the [plant] house} \\
\end{align*}
\]

To the extent that they are identified as edible animal products, alienable animal body parts are classified: no7 sasim 'animal liver', no7 chib'e 'animal meat'.

- unidentified materials and mixed substances such as beer, Coca-Cola, food, garbage, smoke, cloud, star. Because of the ethnosemantic significance of the exclusion of such items from classification this last class of concrete nouns will be considered in greater detail. A closer look at this last type of unclassified nouns reveals that assignment to a class is done on the basis of the knowledge by the Jacaltecs of the constituting substance of the object. The
identification of a substance is based on a working knowledge which involves the 
perception of the object by at least the two senses of vision and touch. 
Such a constraint accounts for the lack of classification of the air and the 
winds _cak'e_ (unnamed) in contrast with the classification of the other natural 
elements such as fire _ka7_ and water _ha7_. In a parallel fashion, the untouchable 
although visible far away stars _tx'umel_ are not classified, nor are the 
clouds _asun_, nor is smoke _rubu_. The restriction that the classified object be 
accessible to at least two senses was articulated by Allan (1977: 298) who 
had further specified that not all senses qualified and that the two had to be 
specifically visual and tactile perceptions.

That it is working knowledge and not simple familiarity with the object 
which is required is shown by the fact that words for beer _serbesa_ or Coca-Cola 
(idem) are not classified in spite of being the most popular bottled drinks 
available in the stores of Guatemala. It must be because they are brought 
in already bottled, manufactured away. The same reasoning holds for 
the lack of classification of objects made of nylon and plastic, which have been 
recently introduced on the market place.

Nouns designating mixtures of substances remain unclassified. Such is 
the case for the garbage _k'alem_ which is a combination of whatever is on the 
ground and may include substances of several classes, such as peelings of 
fruits or vegetables (te7 'plant'), feathers, animal parts (no7 'animal'), corn 
husk (ixim 'corn'), dirt (tx'ox 'dirt'), maybe even threads (tx'al 'thread'), 
and scraps of cloth (k'ap 'cloth'), or plastic unclassified). The generic word 
for food, or edibles is unclassified too: _ita_ 'food' includes fruits and vegetables 
(te7 'plant'), corn (ixim 'corn'), and meats or animal products such as eggs, 
milk (no7 'animal'). There is a generic word for fruits and vegetables in the 
plant category: _te7 lobe7al_ literally 'plant edibles that you chew on', and a 
generic word for meats: _no7 chib'e_. A certain type of mixture is not considered 
an obstacle to classification, however. Provided a functionally dominant 
substance is identifiable, the object will be classified according to that substance. 
Consider how a coffee drink is made of water (ha7 'water'), coffee grounds 
(te7 'plant'), and raw sugar (te7 'plant'), and is classified as te7 'plant'. Similarly 
consider how the corn drink 'atole' is made of corn (ixim 'corn'), water 
(ha7 'water'), and raw sugar (te7 'plant'), and is classified as ixim 'corn'; or 
how the corn tortillas are made of corn (ixim 'corn') and lime (ch'en 'rock'), 
cooked in water (ha7 'water') and salt (at'um 'salt'), and are classified as 
ixim 'corn'.

3.1.2. Extension of Classes Through Perceptual Analogy

The classification of some of the objects of the daily world of the Jicaltecs 
does not follow the strict principle of identification of the basic substance of 
that object. Instead, the classification is determined on perceptual grounds 
and the object is assigned to a class with which it shares some other physical 
characteristic. The clearest case of such a classification by perceptual analogy 
is the assignment of ice to the rock class. The analogy consists in assimilating 
the hard consistency of the ice to the hard consistency of the rocks. Hence, 
the ice is _ch'en ch'ew_ literally 'cl rock cold' and hail is _ch'en sajb'at_ literally 
'cl rock hail' rather than _ch'en ch'ew 'cl water cold'_ or _*sa7 sjab'at cl water 
hail_. One could not claim in this instance that the Jicaltecs were not aware 
of the relation holding between ice and water, and yet the ice objects are 
not classified by their water substance. The fact that the classification is based 
on perceptual analogy seems to argue that classification by material presupposes 
a certain degree of control and manipulation of the material by humans.

Analogue classification seems also to have been the way to incorporate 
foreign objects introduced by the conquering Spaniards that were no made 
of local material, such as items made of glass, metal, or wheat. By analogy 
of hard consistency all Spanish loanwords for metal and glass objects have 
been assimilated to the rock class. Examples are:

(7) 

| Ch'en lawu x | Clavo  | 'nail' |
| Ch'en alcapus | Arcabus  | 'rifle' |
| Ch'en baso | Vaso  | 'glass' (drinking) |
| Ch'en botella | Botella  | 'bottle' |

One may perhaps be tempted to argue that the classification of metal 
and glass objects into the rock category is not the result of perceptual analogy 
but rather the most natural classification, one which identifies the mineral 
origin of metal and glass. However, it cannot be assumed that Jicaltecs were 
aware of this origin, and even less that they were familiar with the modes of 
production, both types of knowledge having been shown to underlie the basic 
principles of classification.

Another case of class extension can be found in the assimilation of wheat 
and wheat products to the class of corn. In this case, the analogy is not purely 
perceptual but also functional. The extension of the class relies mostly on 
similar methods of cultivation and similar use, and to a lesser degree on 
similarity of appearance of plants growing on stalks and producing grains.
These two classes, corn and rock, constitute the only two cases of semantic extension of classes in the system. As mentioned earlier, no parallel extension of the water class on the basis of liquid consistency permits the classification of newly introduced drinks such as beer or Coca-Cola.

To sum up, the classification of the concrete non-human objects of the world follows one of four strategies:

1. Natural classification by material substance. This is the unmarked principle of classification, being the most widespread, and presumably the original classificatory principle.

2. Natural classification by perceptual analogy, which is limited to the rock and the corn classes.

3. Totemic classification in subsystem 1, as member of the spiritual world. This is the principle accounting for the classification of objects such as the sun, the moon, lightning, crosses, mountains, the corn, and the wind.

4. Absence of classification. The analysis of the unclassified objects underlined several types of conditions on the classification of objects of the world: that they be perceived by several senses, that they not be made of unidentified substance or of an undifferentiated mixture of substances.

3.2. Cultural Motivation for the Different Principles of Classification

The question can then be asked whether there is any motivation in the choice of strategies listed above for the assignment or non-assignment of objects of the world to particular classes. The claim of this paper is that the motivation is cultural in nature, and that it takes into account notions such as the amount of control that Jaltecex exercise over objects, and the degree of familiarity they experienced with the objects, at the time the classification system was developing.

What all the cases of deviation from the basic material class assignment have in common is that they point to objects of the world over which Jaltecex had limited control, or little opportunity to manipulate as raw materials.

All the objects of the world fall along a continuum; at one extreme are the objects most familiar, those most used, controlled, and manipulated, and which are classified on the basis of the identification of their substance (plants, animal, etc.). At the other extreme are the objects which the Jaltecex could not manipulate, or control, or even identify, and which remained unclassified (smoke, star, Coca-Cola, etc.). In the middle is a range of objects which the Jaltecex either were not familiar with when the classification system emerged (metal and glass objects, wheat), or that they could not control or use for any purpose (ice) and which are classified on the basis of perceptual characteristics of consistency and shape rather than substance.

3.3. Concept of General vs Specific Classes

The classifiers all belong to one of the four natural domains of human interaction: two organic, animal and plant; and two inorganic, minerals and natural elements. There is a basic set of five general classifiers representing discrete cuts in the natural world:

(8) no7 animal
    te7 plant
    ch'en rock
    ha7 water
    k'a7 fire

They constitute a basic set of physical interaction classes, classifying the types of objects that the Jaltecex commonly handle.

The remaining seven classifiers are specific classifiers. They do not define additional discrete natural groupings on a par with the ones established by the general classes. They are cases where an object which is by nature an object of one of the general classes heads a class of its own, in a process of overclassification. A simple example is found in the animal domain. The general classifier is no7, and it classifies all zoological forms to the exception of one animal, the dog. Dogs have their own classifier, metx', which is thus labeled as a specific classifier. Another example is found in the plant domain. The general classifier for all botanical life forms is te7, except for one plant, corn. The classifier for corn, ixim, (representing another instance of overclassification) is a specific classifier within the general class of plants. Ixim will classify all the different species of corn and all the foods made of corn meal.

Even more specific is a classifier such as tx'al 'thread' which is uniquely for crafts made of woven thread, and most specific perhaps is 'cloth' k'ap which classifies cloth and pieces of clothing which are woven.

The twelve classes of subsystem II are given in relation to each other in the diagram below. On the horizontal axis one finds the distinction between general and specific classes, and on the vertical axis, the traditional divisions of the world into organic and inorganic domains.
### TABLE 4: General vs. Specific Classifiers

<table>
<thead>
<tr>
<th>DOMAINS</th>
<th>GENERAL</th>
<th>CLASSES</th>
<th>SPECIFIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANIMAL</td>
<td>1. no7 'animal'</td>
<td>2. metx 'dog'</td>
<td></td>
</tr>
<tr>
<td>ORGANIC PLANT</td>
<td>3. te7 'plant'</td>
<td>4. ixim 'corn'</td>
<td>5. tx'al 'thread'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. tx'an 'w'wine'</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. k'ap 'cloth'</td>
<td></td>
</tr>
<tr>
<td>INORGANIC MINERAL</td>
<td>8. ch'en 'rock'</td>
<td>9. tx'otx</td>
<td>10. atz'am 'salt'</td>
</tr>
<tr>
<td>INORGANIC NATURAL</td>
<td>11. ha7 'water'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL ELEMENTS</td>
<td>12. ka7 'fire'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The point is to sense how the specificity of the classes increases from left to right, and how the domains themselves are ordered from top to bottom to convey the notion of a decreasing degree of control and/or closeness experienced by human beings in their relation to the concrete objects of their environment. Such a diagram is of course likely to be flawed by the curse of ethnocentrism, the imposition of traditional western or European types of categorization of the world. The clearest cases of distinction between general and specific classes are between (1) animal and (2) dog, and (3) plant and (4) corn. The relative ordering of (9) dirt and (10) salt is due to the fact that (9) tx'otx refers to any kind of soil while salt is a specific kind of mineral to be located and extracted. At least for the animal and plant domains a working definition of the difference between general and specific classifiers can be found. First, let it be established that within a given class objects are related to each other by one of two principles, either a taxonomic relation of inclusion (no7 nok 'animal' vs no7 mis 'cat' or no7 lab'a 'snake') or a relation of chaining which includes in a class objects made of the primary substance of the classifier (no7 nok 'animal' vs no7 lech 'milk', or no7 xaf'ab 'sandals or no7 ak'b'al 'bee wax candle').

A specific classifier can then be said to correspond to an object which is naturally in a relation of inclusion or chaining to one of the general classifiers, but has come to function as head of a class of its own. Within a taxonomic organization of the world, the general classifiers correspond to objects of the biological rank of kingdom (no7 'animal, te7 'plant') while the specific classifiers correspond to objects at a lower biological rank (life form ixim 'corn' or generic form metx 'dog'). The additional specific classifiers correspond to objects in a relation of chaining (tx'an 'w'wine' produce of the agave plant, and tx'al 'thread' product of the cotton plant.)

The hypothesis of this analysis is that while the general classifiers identify ecologically and culturally important and common objects manipulated by the Jalcitecs, the specific classifiers identify objects of particular cultural significance to the Jalcitec community of speakers. In any agricultural culture many objects are handled, but only a few specific ones are considered essential for the subsistence and the identity of the community. Another way to phrase the hypothesis, using Denny's terms, is to say that while the general classifiers are physical interaction classifiers, specific classifiers are functional interaction classifiers, classifiers characterized by a degree of abstractness and metaphorical value.

#### 3.4. Ethnographic Evidence

The question raised therefore is to determine whether the specific classifiers can be shown to correspond to classes of objects of particular cultural significance. To this effect, the Mayan ethnographic literature was searched for information on which objects were considered of particular value to the Mayans at large, the highland Mayas in particular, and the Jalcitecs most specifically.

References include general work on the Mayas (Thompson 1967; Stuart and Stuart 1977; Morley 1956; Vogt 1964), works on the highland Mayas of Chiapas which form a natural and cultural unity with the Western Guatemalan highland Mayas (Vogt 1969; Berlin, Breedlove, and Raven 1974; Hunn 1978), and ethnographic work on the Jalcitecs themselves (La Farge and Byers 1931; Camposeco 1978; Casaverde 1976, and the present author's own
field notes).

What follows is a discussion of each of the specific classifiers in the context of the Jacaltec Maya culture taken in the following order:

- ixim’  
  - ‘corn’
- ax’am  
  - ‘salt’
- metx’  
  - ‘dog’
- tx’añ  
  - ‘rope’
- k’ap  
  - ‘cloth’
- tx’al  
  - ‘thread’
- tx’otx’  
  - ‘soil’

As will be seen, the ethographic evidence supports the claim that the specific classifiers are functional interaction classifiers, and that, while they come from nouns which refer to particular material objects, they are themselves metaphors for the main life sustaining functions of the Jacaltec community.

3.4.1. Corn

Corn is the main item of subsistence of the Mayan people, and is endowed with corresponding religious significance. In their study of the ethnobotany of the Tzeltal Maya area of highland Chiapas (Mexico), which forms a single cultural unit with Highland Guatemala where Jacaltenango is situated, Berlin, Breedlove and Raven describe the multiple ways corn is prepared and consumed, at three different stages of its maturation, with dozens of specific terms to designate all the types of food produced and all the intermediate stages of the preparations (1974: 113-116). The taxonomic class also includes wheat and wheat products introduced by, and mostly produced for Spanish speaker (ladinos). Berlin, Breedlove, and Raven label the overt category ʔsim ‘corn’ as ‘grains’ (1974: 33).

It is not unexpected to have corn define a functional interaction class of plant, if the classification system is to have any such class, for it is a well established fact that the cultivation of the maize plant is of primordial centrality in the Mayan culture.

In fact, the cultural importance of corn is already reflected in the unaffiliated generic status of the corn plant complex in the folk plant classification. However, the fact that it is the only of its own in the Jacaltec noun classification system is taken to be a reflection of its primordial cultural importance. “This staple comprises more than 75% of the total crop raised by the Jacaltecs” (La Farge and Byers 1931: 69). Black beans, while they are locally the next most consumed food do not, for instance, constitute a class of their own. Their cultivation certainly does not demand the religious care characteristic of the cultivation of the major plant, the corn.

3.4.2. Salt

Salt was one of the most important trading items in Central America in preColumbian times, (Redfield 1959: 54; McAlpine 1940; Hammond 1982:223,230).

Salt is of crucial physiological importance to people who live in the tropics... But more than this, salt has also taken on ritual significance. Not only does it invariably accompany meals, but it is also utilized in a variety of ritual contexts. (Vogt 1969: 116)

By the time of this study, salt was not a trading item anymore but it had kept in the eyes of the Jacaltecs a special survival value. It is said in Jacaltenango that the people of San Marcos, the Jacaltec village across the gorge, survive on water, roots, and salt alone, for weeks at a time, in bad years when the crops are meager.

3.4.3. Dog

The dog class includes only the domestic dog, and excludes the other animals of the dog complex, such as the coyote (no7 of). The dog is the only pet animal of the Mayan culture (Hunn 1978: 215). Of neighboring Chiapas, Vogt writes that “if the ancestors of the Zinacantecos had domesticated animals or fowls in preColumbian times, they must have had only dogs and turkeys. Most Zinacanteco houses still have one ore more dogs” (Vogt 1969: 67). Domestic cats are not considered pets in Jacaltenango. La Farge and Byers had noted that “almost every man owns one or more dogs” and that “they are trained when they are puppies, and are very obedient, following close behind their master’s heels unless given permission to roam” (1931: 67).

The dog is the main companion of men, and a symbol of manhood. The Jacaltecs’ description of a totally destitute man is one of a man “to poor to even have a dog”, either that he cannot feed it, or that he is not capable of being a master to a dog and command respect and loyalty from it. In a story published by Day (1976) entitled “Someone Else’s Dog” one can find a clue to how dogs are noticed, talked about, and possessed in that culture. When
considered in its cultural context, the text provides independent ethnographic evidence for the importance of the place that dogs occupy in the life of the Jacaltecs.

The last two classifiers considered, salt and dog, have in common an additional trait which is their uniqueness. They do not form a class with internal structure, in that they are a one object class.

### 3.4.4. Rope, Thread, Cloth

The three classifiers regroup manufactured objects made from two plants: cotton and agave. The cotton plant is used in the fabrication of items of clothing, the agave plant as the raw material used for tying and carrying implements. The rational behind the selection of the particular three classifiers of rope, thread, and cloth is to be found in the craft pattern of the Jacaltec community, within the context of its Mayan economy. What is typical of the Mayan community is that it constitutes a closed corporate community in which:

all members are equally socialized into the special technology viewed as part of the total community tradition... in closed communities, the technological speciality may be weaving, basket making, rope making, and so forth. The crucial fact is that, no matter which specialization is established, all able members of the community are expected to practice the same community defined specialization. (Reina and Hill 1978: 19)

And indeed, evidence can be found that the three specific classifiers for rope, thread, and cloth represent the three craft specializations which were most widely shared by the Jacaltec community of men (rope work) and women (weaving).

La Farge and Byers (1931: 73) discuss the making of ropes, nets, and hammocks which was in vigor at the time of their visit. Ropes and twine are made from the agave plant which grows below Jacaltenango.15 By the time of the present author’s field work, ropes, nets, and bags were used by all the men of the Jacaltec community; they were sold by men in the Jacaltenango market place, and outside of the Jacaltec area where they were considered a trademark of the Jacaltecs.16 Such collective male skill, use, and source of identity contrast with the activities of a few specialists in town. La Farge and Byers mention carpentry as a “specialist occupation” (1931: 61) and the weaving of wool as a specialty of the men from the neighboring Mam speaking town of Todos Santos (1931: 51). Reina and Hill also characterize carpentry as a specialty of individuals and families (1978: 19). In the seventies, there were no more than a handful of carpenters, one leather worker, and no wool workers at all in Jacaltenango. There is, correspondingly, no classifier for leather objects (sandals, saddles, saddle bags, all classified as no7 ‘animal’), or wool objects (capixays ‘men’s pullover jackets, blankets, also classified as no7 ‘animal’); nor is there a classifier for boards (used for pieces of furniture, house siding, caskets, all classified as ie7 ‘plant’).

The other two classifiers correspond to the typically woman’s craft of weaving. The importance of weaving in the life of Mayan women does not need any more justifying than the importance of corn raising in the life of Mayan men. The challenge in the analysis of the two classifiers resides more in motivating the existence of two distinct classifiers for weaving: tx’al ‘thread’, and k’ap ‘cloth’ which are both produced from the same cotton plant. What the ethnographic evidence suggests is that the two classifiers correspond to two types of weaving, one done by mature women to produce basic clothing for the members of the community and another one done by unmarried younger women and girls to produce sashes and head-bands distinctively worn only by the women of the Jacaltec community. La Farge and Byers documented these two types of weaving, weaving of cloth (1931:52) and “sash-weaving” (1931:55) with descriptions and photographs. They described how one is done on a large back-strap loom, and the other on a loom “essentially the miniature of the larger one”. (1931:55). They photographed two women weavers to show the different types of weaving, and one was a mature woman (1931:52) for cloth weaving, and the other a young girl (1931:55) for “sash weaving”.

At the time of La Farge and Byers’ expedition, women were still weaving huipiles, women’s blouses but had, by and large, stopped weaving the traditional men’s pants and shirts, and women’s wrap around skirts, although the classifier k’ap which is common to all those garments attests to their having been woven locally in earlier times. Four decades later, the only form of weaving left was that of head-bands and it was still indeed the specialty of the young unmarried female members of the community.

### 3.4.5. Soil

Tx’ox’ ‘soil’, the classifier for soil and all artifacts made of clay contrasts with the general mineral classifier ch’en ‘rock’ used for hard rocks and objects made out of hard rock, such as grinding stones. Hence the language has a distinct classifier for those objects crafted out of malleable material. There is again in this instance solid ethnographic evidence to demonstrate that the
existence of a specific classifier correlates with the attested cultural importance of the items that it classifies. Indeed clay pottery was a very widespread craft in the Mayan highland communities. Immediately after detailing weaving methods in Jacaltenango, La Farge and Byers note that “pottery was also a speciality of the women” and give drawings of nine different types of pottery made locally to carry and store water, to wash lime from corn, and to cook corn and beans (1931: 54-55). Reina and Hill’s comprehensive study of The traditional Pottery of Guatemala provides valuable insights in the cultural importance of pottery among the Mayan people. In their words, “Guatemalans without pottery would be comparable to Guatemalans without maize” (1978: XVIII). As with weaving, pottery was part of the work of women in every household.17

From La Farge and Byer’s notes and from Reina and Hill’s mention of the still active pottery center of San Miguel Acatan close by, one can infer that pottery making was one of the traditional crafts of the Jocotepec women. The loss of the tradition of pottery making parallels the loss of the tradition of weaving on large back-slap looms.18

3.5. The Basic Functions of the Jocotepec Culture

All the specific classifiers discussed have been shown to have or to have had a very high cultural value in the context of the traditional Jocotepec way of life, and thus to be appropriately considered as functional interaction classifiers. The specific classifiers may in fact be thought of as metaphors for the main functions that characterize the traditional life of the Jocotepecs. In this perspective, corn could be said to be a symbol for “subsistence, food” (food grown by the men and cooked by the women), earth (soil) to be also one for subsistence food (grown in that soil by the men) and for “cooking implements” (made and used by the women), cloth to be one for “clothing” (a specialty of women), and rope to be one for “transportation” (done on men’s or mule’s backs, with the corn and the beans carried in bags, the firewood tied with ropes). In addition, in a more abstract way, salt would stand for “survival” (or trade?), dog for “companionship” (or manhood?) and thread for “identity” (or womanhood?).

4. Overall Conclusion to the Analysis of the Jocotepec Noun Classification System and its Relation to the Jocotepec Culture

Taken as a whole, the system of noun classification in Jocotepec sketches a fascinating picture of the daily life of the Jocotepecs a while back in time. The effect is that of stilted compositions like a series of blurry black-and-white snapshots, not unlike the photographs that Oliver La Farge brought back from his 1927 expedition to Jacaltenango.

The classifiers of Subsystem I reflect two important general features of the Mayan culture. One is the very complex Maya cosmos where “many deities crowded the Maya Pantheon”, with “deities generally related to forces of nature” and even “periods of time, days, numbers appearing as Gods” (Benson 1967: 110-7), complexity only increased by the blending of Christian divinities into the Maya Pantheon. The other general feature of the Mayan society which is reflected in the classifier system is the closed corporate organization of the community, a society without class systems, but in which reverence is shown for the religious offices which provide mediation between the society of men and the forces of the cosmos they inhabit and a society built on the structural unit of the family. Typically Jocotepec were the apparent absence of animals in the Pantheon, the maintenance of the Year Bearer Gods of the old Mayan calendar and of the multitude of local spirits who are guardians of the mountains, water springs and other sacred places located within the boundaries of the Jocotepec territory.

The classifiers of subsystem II provide a comprehensive categorization of the physical world of the Jocotepecs. On the backdrop of general classifiers which account for all the domains of interaction of men with their environment, a handful of specific classifiers detach the foreground elements of the cultural life of the Jocotepecs. The overall picture is close to the description La Farge and Byers gave of the life they encountered in the late twenties in Jacaltenango. “The chief and foremost occupation of the men, and heart of the Indian’s life is agriculture, and, yet more specifically, the raising of corn (Zea Maize)” (1931: 39). “Pottery and weaving are the women’s most important crafts; with housekeeping they comprise the bulk of her work” (1931: 58). Interspersed in their text, and echoed in other Mayan ethnographic studies one can also trace the importance of rope making, the difference between the weaving of the older woman and that of the younger women, the survival and trading value of the salt, and the special closeness of the master and his pet dogs. Taken together, the specific classifiers tell us how
“all members (of a typically Mayan society) are expected to practice the same community defined specializations” (Reina and Hill 1978: 19).

4.1. Favorable Circumstances for the Jacaltec Analysis

The analysis of the close match between the Jacaltec noun classification system and the Jacaltec culture is made possible by an array of favorable circumstances rarely encountered in natural language situations.

The uniqueness of the case resides in the combination of three independent factors: one is the semantic transparency of the classes, another is the independent ethnographic evidence of how the classes, especially the specific-functional classes, correspond to specific traits of the Jacaltec culture and yet another is the comprehensiveness of the system.

4.1.1. Semantic Transparency

The semantic transparency of the Jacaltec classes is to be contrasted with the most common situation in classifier languages, wherein the motivation for the assignment of items to particular classes has been obscured over time. As discussed in this paper, the transparency of the Jacaltec classes is the result of several factors, including the noun origin of the classifiers themselves, the nature of the rules of class assignment, the absence of reclassification, and the accountable non-classification of a number of objects.

From the still clear noun origin of the majority of the noun classifiers, one can infer that the system is a relatively recent development of the language. Of the twenty-four classifiers, only four do not correspond to nouns still in use in the language.19

To talk about transparency is to allude to the orderliness of the classification, and the apparent non-arbitrariness of the assignment of objects of particular classes. In subsystem I, the semantic attributes are equivalent to those commonly found in classifier systems dealing with social and religious organizations: divinity, respect, kinship, sex, and age. In subsystem II, the basic attribute is raw material, which is substituted in specific cases by the secondary attributes of consistency and use. This use of the basic attributes of raw material accounts for the absence of reclassification of objects by individual speakers, which is another factor in the straightforwardness of the noun classification in the Jacaltec language. Finally, the study of the concrete objects that remain unclassified does not uncover arbitrariness either. Rather it reveals the exact conditions and limitations of this particular classificatory system.

4.1.2. Ethnographic Evidence

Circumstances would have it that in this particular case the unusual transparency of the noun classification system is equalled by a relative wealth of independently gathered ethnographic information on the culture of the speakers.

From the comparison between the ethnographic material and the linguistic system it can be argued that the linguistic system overtly marked the main features of the culture at some point back in time. The noun classification system still matched closely the culture that La Farge and Byers encountered and documented only a little more than fifty years ago.

4.1.3. Comprehensiveness

With its twenty-four classes the Jacaltec noun classifier system encompasses all aspects of the traditional Jacaltec life. There are enough classifiers to develop a sense of what kinds of principles operate behind the selection of the classifiers, and behind the assignment of particular objects to particular classes. There is also enough material to be able to test the hypothesis that the selection of classes is not arbitrary. The classifiers are few enough to isolate very selectively certain objects of the Jacaltec culture (corn but not beans, weaving but not carpentry), and at the same time, they are in enough number to produce together a very realistic picture of the Jacaltec culture as a whole (human beings and powers of nature, men's work, women's work, and how basic subsistence needs are met).

Overall, the cultural picture provided by the classifiers is rather complex. Two evenly balanced subsystems sketch on one hand human interaction of a socio-religious nature (subsystem I) and on the other hand human interaction of a physical nature (subsystem II). Structural complexity characterizes each subsystem. Subsystem I presents a multidimensional organization with a hierarchical axis of interaction of humans with the powers of the Mayan cosmos, and a horizontal axis elaborating the social organization of fellow human beings. Subsystem II encodes gradation in the intensity of the interaction between the Jacaltecs and the objects of their surrounding world, from minimal interaction with objects that do not enter into the classification system to intense interaction with the objects of the world from which Jacaltecs derive their subsistence and their sense of self.

In its uniqueness the Jacaltec noun classification system provides a good example of the tight relation that may hold between a culture and certain parts of the language of its community of speakers at some point in time.
NOTES

1) Let us never ignore or forget the fate of the speakers of the languages we study. Let it be said here what the Mayan people of Guatemala are presently enduring.

In tiny Guatemala, one million people are internal refugees. Vast stretches of forests have been burned by the army; whole villages massacred: houses, crops, water resources, everything destroyed. Over 250,000 people have fled this terror into exile in Mexico and the United States. One hundred thousand refugees are in camps along the border in Chiapas... The government assault on the Central Highlands escalated under Rios Montt and continues today. In the Departments of El Quiche, Huehuetenango, San Marcos, Solola, Chimaltenango, Alta and Baja Verapaz, and the Peten, the military campaigns against the indigenous population have reached the proportion of genocide. Guatemalan Church in Exile, December 1983.

Este estudio está dedicado, en solidaridad y paz, a María Trinidad Montejo, Antonio Feliciano Mendez, Baltazar Diaz, Alejandro Camposeco, y el pueblo jacalteco.

2) The data were collected in the course of various trips to Jacaltenango between 1969 and 1980. The orthography used is the local variant form of the official Guatemalan orthography for Mayan languages, with the correspondences:

<table>
<thead>
<tr>
<th>Stops</th>
<th>Glottalized stops</th>
<th>Affricates</th>
<th>Glottalized affricates</th>
<th>Fricatives</th>
<th>Nasals</th>
<th>Liquids</th>
<th>Glides</th>
</tr>
</thead>
<tbody>
<tr>
<td>p, b, d</td>
<td>/p, b̞, d̞</td>
<td>t, k, t̞, k̞</td>
<td>/t, k̞, t̞, k̞</td>
<td>f, s, sh,</td>
<td>m</td>
<td>l</td>
<td>w</td>
</tr>
</tbody>
</table>

The sound values for Consonants in the Jacaltec Alphabet.
3) Day distinguished three classes of numeral classifiers, depending on the stem class from which they are recruited: (1) object numeral classifiers, ex: ca'colon k'oye 'two balls of dough' (c'olon 'spherical'); (2) quantity numeral classifier, ex: ca' pulato chah'e 'two plates of meat'; (3) action numeral classifiers, ex: hun pil 'one push', oxib'ik 'three actions of swallowing' (1973: 59-61).

According to Day, the number classifiers become optional in the presence of numeral classifiers.

4) The vast majority of the classifiers, twenty out of twenty-four, are derived from nouns still in use in the language. Some are identical to nouns (te? 'plant' from te? 'tree', atz'am 'salt' from atz'am 'salt'); others are shortened forms of nouns (naj 'man' from winaj 'man', no? 'animal' from nok 'animal'); others are compound forms (cumam 'deer male' from cu-nam 'our father', ix nit'an 'girl from ix nit'an 'girl young/little').

5) Not all Jaltec linguists agree as to the exact number and identity of the noun classifiers. The classifier list given here is that of Day (1973b) confirmed by Breitborde (1973). The present author did not directly elicit data to establish the complete list of classifiers and lacks in her data the use of am as a classifier in a determiner function. La Farge and Byers (1931) did not identify many classifiers, only those used with the highest frequency, and often without recognizing them as separate morphemes.

6) Age may actually be suspect as a universal social rank parameter, except for the collusion of mature age with wealth and prestige occupation. In the Jaltec situation, great age by itself does not automatically bring the status required to warrant the use of ya?

7) A simple example of the possibilities of reclassification based on the manipulation of these two axes of verbal play was the alternation in the classifiers used by Jaltecans to refer to the present author. As adult, female, non-kin, for any member of the community the unmarked classifier was ix. However, she was ya? to those who would come to ask for favors — the most common being to borrow money — and xo? to one male consultant who had daughters close to her in age and in occupation (they were school teachers and nurses).

8) The place of the moon is not as stable as that of the sun. The moon is alternatively considered a high and a low deity, classified as cumam? or ix? x'alah: the godly power of corn expressed as cumam cumam is distinguished from the corn as daily staple: ix x'alah; the spirit of the wind and that of the mountain nac'x'e and nac' wit? respectively, may do deeds but the concrete entities of wind nac'x'e and mountain nac' wit? are not classified. (One for being an indiscernible substance, as will be discussed later and the other for being a locative noun).

9) It is difficult to avoid a certain amount of circularity when trying to argue that the set of classifiers of social interaction reflects the social and religious organization of the Jaltec culture. Although one may find ethnographic evidence based on observation of the social organization which is relatively independent of language, whatever is known of the organization of the Jaltec pantheon is based on language data. For this reason, the analysis of the second set of classifiers will constitute a stronger case to argue that classifiers do represent a selection of the most culturally valued objects. The existence of ample language independent ethnomorphological evidence of the material culture will greatly lessen the problem of circularity encountered here.

10) The semantic feature of consistency is independently motivated in the noun classification system; it is the feature that distinguishes the two classifiers of the mineral domain, ch'en 'rock' and te'ox 'dirt/soil', and which corresponds to hard and crumbly consistency, respectively.

11) What the Jaltecans were familiar with were probably the native sharp tools made of carved stone which would have to be classified in the stone/rock class. There were no metal tools before the Conquest; the only metal objects known from the preColumbian time being copper bells.

12) Taxonomically wheat is a kind of corn in Tzeltal Maya.

At the time of the Conquest, the highland Maya groups were introduced to two similar and yet quite distinct edible grains: wheat and sorghum. These grain-bearing crops were considered to be similar by the Tzeltal population to their own polynuic class of corn. (Berlin, Breedlove, and Raven 1974: 33)

13) On the whole (the dogs) are pretty well fed: when the Indians are eating almost everybody throws portions of their tortillas to the dogs, and to them go what very few scraps are left from the Indians' meals. The half starved, cowering animals that one sees so often in Mexico are most uncommon here. (La Farge and Byers 1931: 67)

14) In Luad there are two classifiers for animals, one for elephant — an animal of religious importance in the society — and one for all others (Adams and Conklin 1973: 4).

15) According to Berlin, Breedlove, and Raven, the agave plant is part of another complex of unaffiliated generic plants, parallel to the unaffiliated generic complex of corn and beans already mentioned (1974: 415). And like corn and beans, the agave plants are culturally important.

"All varieties of ci (agave) are important fiber sources for the production of fiber bags, the major carrying container in use among the Tzeltal. Fiber from the plants is also used in making rope... ci normally grows wild, but it is also known to be planted near sites, making it easily available when needed. (Berlin, Breedlove, and Raven 1974: 419)

16) La Farge and Byers described two more activities of the Jaltec men. One is basketry and the other is hat plaiting (YPB: 60). The mention of basketry takes a few lines, and the hat making is said to involve the Jaltec men only in the plaiting of long strips, which are then sewn together in a coil by either women or by ladino men, the sewing being already done on a sewing machine in 1927. Neither activity seems to have the cultural significance of the rope making, or of the weaving activity of the women.

17) In Indian pueblos and aldeas, the basic unit of pottery production is invariably the individual household. Children assist in gathering fuel and tending the firing process. Small girls learn various aspects of the production process from the senior potter of the household (their mother, aunt, or grandmother). In each household, only one woman actually forms the vessels. The others are either learning or are put to such nonskilled tasks as grinding clay, slipping, or polishing vessels. (Reina and Hill 1978: 21)

18) Fuel...is a critical resource. Production of pottery is threatened in several centers at present simply because the local forests have been exhausted. It is probable that fuel depletion has forced... entire centers out of production in recent years. (Reina and Hill 1978: 17).

19) See Footnote 4.
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