Numeral Classifier Systems:
A Southeast Asian Cross-Linguistic Analysis
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I. INTRODUCTION AND GENERAL REMARKS

Numeral classifier systems occur in languages throughout Southeast
Asia and are attested in such non-Asian languages as Tzeltal, a Mayan
language (11) and Tarascan, an Amerindian language (29). Classifiers
are usually introduced in the context of numeral phrases, corresponding
to English constructions such as 'two <u>sheets</u> of paper' or twenty <u>head</u>
of cattle', where the classifiers are underlined. However, as Adams
et al. (1, p. 2) point out: "Besides their function in numeral noun phrases
classifiers in various languages function as nominal substitutes,
nominalizers of words in other form classes, markers of definiteness,
relativizers, markers of possession, and as vocatives; serve to disambigu-
ate sentences, establish coherence in discourse and regularly mark
registers and styles within a language." They also raise the question,
without providing an answer, of whether the diverse phenomena listed
above can be considered as a single Southeast Asian areal grammatical
feature. Beyond this dilemma, there is often the problem of determining
when a particular occurrence of a morpheme can be designated as the
occurrence of a classifier.

In the literature, as will be discussed further below, classifiers
are usually not clearly defined. Instead, a few examples are given,
the grammatical category is assumed to exist, and various lexical forms
are included or excluded from the set of classifiers of a given language
seemingly by the unsubstantiated whim of the investigator. One of the
objectives of this study will be to provide rigorous characterizations of
classifier systems in various Southeast Asian languages.

The development of the concept of the classifier will begin with the
presentation of Vietnamese examples. Then, the general conclusions of
various investigators will be discussed, postponing final evaluations until
detailed analyses are made of data from individual languages. Guided by
the general problems and theories proposed and exposed in the literature,
the syntax and semantics of classifiers (hereafter abbreviated CL) will
be investigated in Vietnamese, Burmese, Cambodian, Lahu, Chinese, Thai,
Lao, and Indonesian. The genetic affiliations of these languages are
illustrated in Appendix 1, as explained by J. Matisoff in his course:
Linguistics of Southeast Asia, Spring, 1976, U.C. Berkeley. The Austro-
Thai hypothesis, developed by P. Benedict, is still controversial.

In order to provide a typological standard by which the various
Southeast Asian languages can be compared, the structure of each language
was first examined in terms of the universals proposed by Greenberg (31).

Vietnamese has the basic order subject-verb-object (SVO). It is
prepositional rather than postpositional, though what are translated as
prepositions in English can also be interpreted as verbs (4, p. 201).
The dominant position of qualifying adjectives is noun + adjective,
although items borrowed from Chinese maintain the order adjective + noun.
Again, the Vietnamese equivalent of English adjectives are usually
interpreted as verbal elements. The genitive appears after the governing
noun.

The basic order typology for Lahu was obtained from Matisoff (45), for Indonesian from Kwee (40), for Lao from Roffe (57), and for the remainder from Greenberg (31, pp. 87-88). The results are shown in Appendix 1.

Finally, the comparisons and conclusions not made in the course of the language-specific studies will be explicitly presented and explained in XIII.

II. VIETNAMESE EXAMPLES OF CL'S

The following examples are taken from Nguyen Dinh Hoa (48, 49) and from Nguyen Phu Phong (50). The Vietnamese data are written in the standar Vietnamese orthography, and the CL's are underlined. Since phonetic detail is not the primary concern of this study, the data from each language is written in the transcriptions which are used in the sources.

1) ba cái bát (3 + non-living thing + eating bowl) 'three eating bowls'
2) bốn con mèo (four + living thing + cat) 'four cats'
3) hai tờ báo (two + sheet + newspaper) 'two newspapers'
4) năm cân thịt (five + pound + meat) 'five pounds of meat'
5) cây đào (tree, plant + peach) 'peach tree'
6) cành đào (branch + peach) 'branch of peach tree'
7) hoa đào (flower + peach) 'peach blossom'
8) quả đào (fruit + peach) 'peach(the fruit)'
9) một con gà (one + animate + chicken) 'one chicken'
10) hai cân gà (two + unit of measure + chicken) 'two kilograms of chicken'

The above limited corpus illustrates several problems and properties of Vietnamese CL's. #1-2 show the contrast inanimate object/animate object Here, the CL's are evidently required in the context of a numeral phrase. #3 shows the semantic feature sheet of paper. #5-8 show how the choice of CL can change the meaning of a word or phrase. #9-10 show the contrast quality/quantity.

From #1-4 and #9-10, a first attempt at characterizing Vietnamese CL's can be made on syntactic grounds.

Def. 1 : A CL is any lexical item which can appear in the frame
        Num + ___ + N, where Num = numeral, N = noun.

What about the CL's in #5-8? These were given by Nguyen Dinh Hoa (49, p. 127) without any numerals, though presumably each of these examples could be preceded by a numeral. Therefore, Def. 1 still holds, as long as it is realized that the CL may alos occur outside of the numeral phrase environment.

Are there any syntactic differences between CL's given by Def. 1 ? It will be shown that CL's can not all occur in the same non-numerative environments. What are the semantic functions of CL's? Frequently, linguists prefer to categorize "quantifiers", such as the CL's in #4, 10, separately from "qualifiers", such as the other CL's. Can this distinction be made rigorous? What are the syntactic and/or semantic grounds for associating nouns and CL's? These questions can be extended to CL's in other languages, though the answers will sometimes vary.

III. THEORETICAL APPROACHES TO THE STUDY OF CLASSIFIERS

III A. Semantic Basis of CL Systems

Adams & Conklin (2, p. 1), after surveying 37 Asian languages, claimed that: "Numeral classification is based primarily on the parameters of animateness, shape, or function which are attributed to the head noun." They considered CL's to be the means "by which nouns are classed for counting." The main problem that they are concerned with is determining the basis, cultural or cognitive, of the noun classes associated with the various CL's. Adams, Becker, & Conklin (1) expanded the earlier treatment of CL's to include non-numeral phrase occurrences, but nowhere is there an explicit statement of how CL's were identified. Because CL's are used (1, p. 4) to make nouns into countable units, it was claimed that there is a tendency for "naturally countable" items such as time periods and body parts not to take CL's, presumably because they are already countable. Similarly, abstract quantities are supposed to be unclassified in most languages, presumably because they are inherently uncountable, although Burmese was admitted to be a counterexample to this generalization. The general pattern discovered by Adams & Conklin (2) was that animate nouns formed their own class or classes; inanimate nouns were categorized by shape; the primary dimensions of shape were length, flatness, and roundness, or in other terms, 1-dimensionality, 2-dimensionality, and 3-dimensionality. These dimensions were also expressed by the plant metaphor: stem, leaf, and fruit. A major problem with all of the above generalizations is that exceptions are admitted and no quantification is attempted. Thus, the claims are not in forms suitable for testing.

III B. Burmese CL System: A Spatial Metaphor

Becker (5) interpreted the Burmese CL system as a "spatial metaphor." Animate beings are located in various "orbits" from the "center", which is identified with Buddha. Inanimate objects are located in various orbits about the self and are associated with the head or body. Concepts are located in orbits about sacred (Buddhist) concepts. Becker also emphasized (5, p. 111) that "the numerative classifier system, then is not a folk taxonomy, in which items are classified on the basis of objective features, but rather a system much more like a paradigm, in which items are located relationally." He stated (personal communication, 1975) that he did not know if such an analysis could be applied to Vietnamese. This analysis is clearly culture-specific but is not inconsistent with the Adams & Conklin generalizations. Even though all the CL's are related to each other, in Becker's system, through variations along a deictic dimension, the animate/ inanimate distinctions are still maintained, and the 1-dim, 2-dim, 3-dim trichotomy of shape can still be imposed on inanimate objects. The implication of Becker's work is that a given CL system may have more than one level of structure. One level, including such features as the shape trichotomy, may be based on "universal" or "cognitive" principles, while other levels may be culture- or language-specific.

III C. Psychological Basis of CL's

The psychological approach was adopted by Clark (19). After reviewing Adams & Conklin (2), Clark (19, p. 7) decided that "... much basic categorization depends on the visual form of the entities classified. Secondary classifications usually involve additional physical, perceptible properties. In addition, some classifications are made on the basis of .

function, but these tend to be language- or culture-specific, unlike
the classifications based on shape." Clark then claimed to see the same
patterns of classification in the over-extensions made by children and
concluded (19, p. 17) that from visual perception can be derived a
"common cognitive basis that allows (and even encourages) the formation
of natural, universal categories of the sort considered in children's
over-extensions and in classifier systems." An examination of Vietnamese
data, described below, is sufficient to prove that Clark's views of CL
systems are oversimplified at best. Again, the vagueness of the claims
concerning "primary" and "secondary" classifications preclude any
possible test.

III D. Importance of Shape

Friedrich (29) studied numeral CL's, classificatory verbs, and
locative suffixes in Tarascan, and then surveyed studies of other
languages. He saw shape as an important semantic component in many
languages. More specifically, he claimed that shape is primarily analyzed
into the complex concept of orifice/(curved) edge; the trichotomy of
long, flat, round (1-dim, 2-dim, 3-dim); and the overall shape of the
zoological body. Once again, it is difficult to prove or disprove a
general tendency, but a quantitative analysis of Vietnamese data proves
that the primacy of shape is not universal.

III E. T'sou's Syntactic Analysis of CL Systems

On a more abstract level, T'sou (61) proposed a four-way distinction
for all CL's, based on + values of the two features entity and exactness.
He illustrated this feature system with English (61, p. 4): two head
(+exact, +entity) of cattle, two herd (-exact, +entity) of cattle,
twenty thousand pounds (+exact, -entity) of cattle, and two kinds
(-exact, -entity) of cattle. The (+exact, +entity) CL's are claimed
to comprise most of the rich, complex CL systems in most Asian languages.
The (+exact, -entity) words, such as gallons and kilograms, are commonly
known as measure words, are culture-bound, and are relatively small in
number. The (-exact, +entity) words are the "temporary measure" words,
such as in "three tables full of papers". The (-exact, -entity) CL's
have "universally few categories" and are most common for abstract nouns.
T'sou constructed a hierarchy of semantic features to subclassify the
(+exact, +entity) CL's (61, pp. 10-13; see Appendix 2).
T'sou claimed (61, p. 14) that the above features are organized in
a nested hierarchy, with the implication that a lexical form based on a
dominant feature in the hierarchy will tend to replace a form based on
a less dominant feature. This argument is not presented clearly. Ex-
amples of this dominance are: size is dominated by shape and edifice,
shape is dominated by mechanical, mechanical is dominated by duality
and set, mechanical and vehicular vary in relative dominance between
languages. No more of the hierarchical structure was given.
Finally, T'sou stated (61, p. 3): "The hypothesis advanced in this
paper is that the use of nominal classifiers and the use of the plural
morpheme are in complementary distribution in natural language. More
concretely, it suggests that either a) a natural language has either
nominal classifiers or plural morphemes, or b) if a natural language

has both kinds of morphemes, then their use is in complementary dis-
tribution." This hypothesis will be tested below.

IV. RELEVANT PROBLEMS IN SEMANTIC THEORY

IV A. Levels of Analysis

Any attempt to analyze CL systems immediately leads to a confrontation
with certain theoretical problems in linguistics. In the structuralist
tradition, the "levels of analysis", that is, phonology, morphology, and
syntax, had to be kept distinct. However, in CL systems, syntax and
semantics are inextricably intertwined. Thus, Burling(15, p. 245)
was able to give a purely syntactic characterization of Burmese CL's,
similar to Def. 1 (see II), but (15, p. 257) then went on to give a
semantic basis to further analysis.

IV B. Componential Analysis

Within semantic theory proper, there are conflicting views on how
to analyze meaning. Componential analysis is used most in anthropology,
especially in the study of kinship terminology. Lyons (44, pp. 470-472)
set up such proportions as "man:woman:child::bull:cow:calf" and claimed
that semantic features could be "factored out" by a process analogous to
factoring integers. However, while algorithms exist in number theory,
they have not been exhibited in anthropology. Kay (38, p. 78) described
componential analysis as the analytic process for finding dimensions of
meaning underlying a domain, which is a set of lexemes that share some
feature of meaning. Again, there is no actual method; there is merely
a fancy label for the linguist's intuitions. Burling (14) pointed out
that there are a large number of componential analyses which distinguish
between the members of any given set and that since there are no criteria
for choosing among them, any implications for psychological reality are
doubtful.

IV C. Folk Taxonomies

While Becker asserted that the Burmese CL system, at least, could best
be analyzed as a paradigm (5, p. 112) rather than as a taxonomy, T'sou's
general analysis of CL's is explicitly taxonomic. Conklin (20) gave a
clear explanation of the defining characteristics of folk taxonomies.
(20, p. 124) "A lexical set consists of all semantically contrastive lexemes
which in a given, culturally relevant context share exclusively at least
one defining feature. The semantic domain of all such lexemes defines
the domain of the lexical set." (20, p. 128) "A system of monolexemically-
labeled folk segregates related by hierarchic inclusion is a folk
taxonomy; segregates included in such a classification are known as
folk taxa." Berlin and various associates (6,8,9,10) have done extensive
work on folk taxonomies in the areas of botany and zoology. Berlin (6, p. 51
claimed that "A general correspondence is seen to exist between the number
of categories encoded at any point in time in a particular language's
history and degree of sociocultural development." Since the classes of
nouns associated with various CL's have not been satisfactorily delineated,

such a numerical claim made about CL systems cannot yet be evaluated.
If CL's do define noun classes, then these classes are "covert" in the
sense described by Berlin et al. (9), where the existence of un-named
but well-defined folk taxonomic categories is asserted.

IV D. Prototypes and Psychological Basis of Categorization

Burling attempted to discover semantic dimensions which could be
used to categorize the Burmese CL's, but concluded (15, p. 264) that
while componential analysis may have worked for kinship terminology, it
fails for CL systems. Rosch (58) proposed that psychological principles
could account for human categorization. She asserted (58, p. 3) that
there are general attribute domains such as color and form, and that
"Categories form around perceptually salient points in the domain and ...
such points form cognitive 'prototypes' for the categories." Fillmore
went on (28, p. 123) to characterize a prototype in the following way:
"Instead of the meaning of a linguistic form being represented in terms
of a checklist of conditions that have to be satisfied in order for the
form to be used, it is held that the understanding of meaning requires,
at least for a great many cases, an appeal to an exemplar or prototype - -
this prototype being possibly something which is innately available
to the human mind, possibly something which, instead of being analyzed,
needs to be presented or demonstrated or manipulated." One implication
of this approach is that as nouns approach various prototypes, so they
are classified with the corresponding CL's, even though, as Burling con-
cluded, no componential definitions can adequately capture the relevant
meanings. Prototype theory is not yet precise enough to form the
basis of predictions of CL selection; perhaps the study of CL systems
will lead to clarification of prototype hypotheses.

V. VIETNAMESE

V A. Sources of Data

Several lists of Vietnamese CL's have been published (48; 25),
but in order to obtain a broader perspective of these sometimes elusive
lexical items, a dictionary search was made. In his Vietnamese-English
Dictionary (49), Nguyen Dinh Hoa explicitly labeled many words CL.
Other words, while not thus labeled, were cited as the CL's of particular
nouns under the entries for the latter. In all, 140 CL's were obtained,
and they are given in Appendix 3.

In an unpublished study, I tested CL's from the dictionary against
Def. 1 (see II) with the help of two Vietnamese informants. Numeral
frames of the form Num + ___ + Noun were shown to the informants and
they were asked to fill in the blanks. Appendix 4, Table 2, shows the
results. Agreement between both informants and the dictionary was close
enough for the 23 frames that it was assumed that the remaining CL's
would also satisfy this test, though this should also be tested eventually.

V B. Confusion Between CL's and Nouns

Emeneau (25, p. 85) gave the following schema for numerated

constructions:

Numerator	Classifier Classified noun	+Attribute(s)	Demonstrative
	Nonclassified noun		numerator

He declared (25, p. 93) that "the class meaning of classifiers is 'one
unit quantity or number of that denoted by the noun that it precedes'."
As is indicated above, nouns are divided into classified nouns, which are
(25, p. 94) "numerable only when preceded by a unit indicator (i.e., a
classifier)", and nonclassified nouns, which are "directly numerable".
Although Emeneau could give many examples of both classified and non-
classified nouns, he was unable to find a systematic difference between
the two classes.

One example of a nonclassified noun mentioned by Emeneau leads to
an important problem, which is crucial to the classified/nonclassified
distinction. He cited as nonclassified (25, p. 94) "certain restricted
nouns and two-word nouns made up of words restricted in use, such as
nhà 'an expert' (e.g. nhà báo 'journalist' [báo 'newspaper, journal'],
nhà mỹ thuật 'artist' [mỹ thuật 'fine arts', made up of mỹ 'to be beau-
tiful' (restricted) and thuật 'to be made with ingenuity' (restricted)
in a restricted type of construction])." While Emeneau labeled nhà
as a CL (25, p. 108), it was only in the sense of 'house, building'.
Nguyen Dinh Hoa, on the other hand, defined nhà as the CL for experts
(Appendix 3, #87). The problem is: what is nhà? If it is a CL, it
is doing more than just making a noun countable in the cases of
journalist and artist. Báo is a noun by itself, but the meaning is
changed drastically in the combination nhà báo. These two examples
imply that the construction nhà + Noun should be interpreted as 'expert
in the field of Noun', with nhà being a restricted noun. Emeneau's
analysis is then consistent with Thompson's (60, p. 133) definition of
pseudo-compounds as "morpheme sequences with two immediate constituents
at least one of which is bound", where nhà is the bound morpheme.
Normally, in order to count newspapers, the CL tờ (Appendix 3, #114)
is used. However, Emeneau's definition of the meaning of CL could be
stretched to give nhà + Noun the interpretation 'one expert's-worth
of Noun'. The semantic load carried by nhà is not as heavy in all
cases. Thus, bác-học, 'learned man, scholar, scientist' (49, p. 8)
is an unrestricted noun, i.e., it is not a bound constituent. It takes
the CL nhà, although here the semantic component of 'expertise' is
intrinsic to the noun.

The experimental results shown in Appendix 4 illustrate further facets
of this problem. After selecting CL's to complete the numeral phrase
frames presented to them, the informants were asked to give further
examples of numeral phrases with the chosen CL's. The motivation for
this experiment was to determine the semantic behavior of the CL's,
but interesting syntactic relationships were also revealed. For example,
in Table 2, #1, the numeral frame was một ____ diễn-văn, 'one speech'.
The CL predicted by Nguyen Dinh Hoa, bài, was given by both informants.
One of the further examples given by an informant was một bài báo
'a newspaper article'. Here, bài was introduced by the informant as a
CL, but there is a semantic shift in its use with báo. Diễn-văn
means 'speech' with or without a CL, but báo behaves like an attribute

after bài. Again, two possible analyses exist. Either bài bao is a
noun compound which is nonclassified, or bài is a CL and the interpre-
tation of the numeral phrase is 'one article's-worth of newspaper'.
However, if the noun compound approach is used, then the restricted
nature of the nominal elements is no longer a necessary part of Emeneau's
description of this particular group of nonclassified nouns, because
both bài and báo are also independent nouns.

Finally, two other examples supplied by the informants introduce
verbal elements into this type of construction. From tập 'to practice'
and học 'to study', there are the numeral phrases một bài tập ' a
homework, a quiz' and một bài học 'a lesson'. Tập and học are verbs,
but they can be part of compounds which act as nouns. If we have compounds
here, then they are two examples of nonclassified nouns. Otherwise,
we are forced to allow the classification of verbs, which is theoretically
possible but which would certainly complicate the simple schema given by
Emeneau. In fact, it will be shown later that CL's can nominalize
verbs, but this fact does not of itself lead to the conclusion that the
resulting nominal elements are not classifiable. If verbs are allowed
to be classified, we can have such interpretations as 'one text's-
worth of practice' for một bài tập and 'one text's-worth of study'
for một bài học. In this analysis the verbs are behaving like nouns,
so we would have to posit simultaneous nominalization and classification,
or nominalization via classification.

The problems discussed here are in the realm of analysis, not
usage. I suggest that the basis of the difficulty in choosing a
single, consistent analysis is that nouns cannot be divided into the neat,
mutually exclusive categories of classified and nonclassified. Similarly,
nouns cannot simply be labeled as CL's or non-CL's. The concept of
classification is certainly important in Southeast Asian languages, and
in Vietnamese in particular, but individual lexemes apparently act more
or less as CL's depending on the particular lexeme and on the particular
context. An examination of Appendix 3 will show that most CL's are also
nouns, sometimes with semantic shifts from their occurrences as CL's.
In some cases, the distinction is clear. For example, if ấm takes the
CL cái, then it must have the interpretation 'teapot'; if ấm precedes
a noun such as nước 'water', then it has the meaning 'a kettleful
of water', and it must be a CL (48, p. 144).

V C. Thompson's CL's and Categoricals

This confusion in the syntactic characterization of CL's was noted
by Nguyen phu Phong (50, p. 2) when he pointed out that some investigators
(e.g. Nguyen Dinh Hoa) considered CL's a subclass of nouns, while others
(e.g. *Truong vinh Ky, Nguyen kim Than*) *considered CL's as a separate*
class. Emeneau (25, p. 84) included both nouns and CL's as subclasses
of the general category substantive. Thompson (60, p. 192) divided
substantives into numerals and nominals, nominals into categoricals
and nouns, and categoricals into general categoricals and classifiers.
Thompson's theoretical framework was that of immediate constituent ana-
lysis (60, p. 109). In this framework each utterance is divided into
constituents (60, p. 110). If an immediate constituent is part of a
larger constituent, the latter is its constitute, and each remaining
constituent is a partner of the first (60, p. 110). A model (60, p. 111)

is any syntactic structure that can substitute for a longer constituent
such that the result is still grammatical, although the meaning bears no
necessary relationship to that of the original constituent of the utterance.
If an immediate constituent of a constitute is a model for that constitute,
then it is a nuclear model (60, pp. 111-112). A nuclear model of a
constitute which is itself a nuclear model or a complete sentence is
a head, and the non-model partners of a head are its complements (60,
p. 114).

The above terminology is sufficient to develop Thompson's definition
of CL's. Substantives are those words which can occur after plural markers
or before demonstrative markers (60, p. 179). Substantive constructions
involving several words can fill the same syntactic slots. A nominal
(60, p. 192) is a substantive which does not occur as a single-word
numerator. A categorical (60, p. 192) is a nominal which can occur as
the head of a numerative phrase. A general categorical (60, p. 192)
can occur as a single-word descriptive complement of a numerative phrase,
while a classifier cannot stand alone in this position.

General categoricals include many words usually given as 'CL's
or as nonclassified nouns. A "suggestive" list (60, pp. 198-199) is
divided into seven semantic groups: human reference terms (e.g. anh
'elder brother', người 'person'), containers (e.g. ấm 'kettle, (tea)pot'),
grades and classes (e.g. bậc 'category, rank; step (or stairs), rung
(of ladder)'), time units (e.g. buổi 'portion of a day', tháng 'month'),
spatial units (e.g. chỗ 'place', làng 'village', thước 'meter'), units
of quantity and value (e.g. đồng 'piastre (unit of currency)', cân 'pound,
kilogram'), units of language (e.g. chữ '(written) word, character,
letter', câu 'sentence, clause'). The groups of general categoricals
are similar to Nguyen Dinh Hoa's tentative list (48, pp. 131-132) of
nonclassified nouns: nouns denoting substance (chất), color (màu),
smell (mùi), taste (vị), noise (tiếng); nouns denoting geographical
areas, regions, or administrative or social units (e.g. thứ 'kind');
several additive constructions using two nouns denoting synonymous
or related items (e.g. nhà cửa 'dwelling, house', lit. 'house and door');
compound nouns, most of which are Chinese loans (e.g. độc-lập 'independence').
In addition, Nguyen Dinh Hoa noted that the time units (48, p. 131)
and the geographical areas, etc. (48, p. 132) are often used as CL's.

Thompson's division of CL's into CL's and general categoricals
does not solve any of our problems. CL's can be divided up in numerous
ways on both syntactic and semantic grounds. Frequently, measure
words such as ấm 'potful' and thước 'meter' are put in a category separate
from CL's. Anaphoric behavior of CL's will be treated below, but it
can be noted here that many CL's can substitute for a numeral phrase
previously used in a discourse. However, (Appendix 4, Table 2,#7) one
informant declared that it was difficult to substitute phát, the CL
for fire shots and injections, for numeral phrases containing it. Thus,
CL's could conceivably be grouped according to their anaphoric behavior.
More importantly, Thompson's distinction between general categoricals
and CL's fails in the case of verbal CL's. For example, in the phrase
cười ba cái 'to smile three times' (50, p. 7), cười means 'to smile',
ba means 'three', and cái is a CL; in fact Thompson (60, p. 193) called
it the 'general classifier'. This occurrence of cái satisfies the
definition of general categorical. The only way to save Thompson's
analysis is to move from a purely distributional framework to a

transformational theory which would allow us to derive such occurrences of cái from underlying numerative phrases containing at least one other word in the complement.

V D. Classified vs. Nonclassified Nouns

The monosyllabic nouns, such as làng 'village', are clear examples of the existence of nonclassified nouns. A few examples found by both Nguyen Dinh Hoa and by Emeneau, however, show that the situation, at least vestigially, is not unambiguous even for these terms. Emeneau (25, p. 97) found that when a noun is followed by an attributive predication introduced by the relative or subordinating particle mà, then the noun is preceded by an "extra CL", which is always cái, even though the noun is nonclassified or already classified.

11) tôi hát   cái   bài   hát,   mà   anh   vừa   mới   nghe
    I   sang   "extra bài   hát,   that you   this   just   heard
               CL"
                     which   very
               text one sings   moment

'I sang the song that you have just heard.'

12) Những kẻ   du   khách,   đã   tim   được   cái
    plural person travel traveler who   search got   "extra CL"
                                           already for   success-
                                           acted   fully

    phong cảnh,   mà   bây   lâu   nay   vẫn   ao ước
    (air + scene) that   at time were for   this con-   desire
    landscape   in past a long time   tinued
                                                        without
                                                        change

'Travelers who had searched for and found that scene which for long they had always desired.'

13) cái   ngày mà   các   bác   sẽ   về   quê,   để
    "extra day   when all   father's will   return native will allow
    CL"   the   elder brothers to   village to
                  various

    gặp   cha   mẹ,   vợ   con ... vâng.   cái   ngày
    meet   father mother wife child   yes.   "extra CL"   day

    ấy   sắp   sửa   đến.
    that   (is arranged +   is repaired)   arrive
           is ready

'That day when they return to their native town, will allow them to meet father and mother, wife and children...Yes! That day is about to come.'

Emeneau (25, p. 97) stated that the use of an "extra" cái before con and người was considered old-fashioned. Nguyen Dinh Hoa (48, p. 131) agreed that the use of the "extra" cái was considered old-fashioned and added that having cái precede such abstract terms as độc-lập 'independence' would be considered incorrect by young people. #11-13 show that cái can precede questionable compounds like bài hát, normal compounds like phong cảnh, and monosyllabic, nonclassified nouns like ngày.

Three more examples found by Emeneau show that the use of mà is not
a necessary condition for the appearance of the "extra" cái. In #14, the
function of mà may be fulfilled by nó, a third person pronoun, and this
usage is also noted by Nguyen Dinh Hoa (48, p. 131). In #15 and #16, the
noun or noun phrase which is preceded by cái is followed by a demonstrative
marker, but in most cases such demonstratives do not co-occur with
"extra" CL's.

14) Làm ơn   cất   bỏ   cho   tôi   cái   bộ
    do favor   (put away + abandon)   "extra" CL-composite
              remove   (give to) me   CL   thing
                            for

    mặt,   nó   làm   cho   người   ta   phát   ngượng.
    face   it   make give person our   (come to be suddenly + be
                                                              embarrassed)
                                           blush
    'Please remove for me that facial expression that makes people blush.'

15) Chỉ   còn   một   hi vọng, là   một   ngày kia, quân
    there   there   one   hope   which   one   day   that armed forces
    was only remained   is that

    đồng   minh   sẽ   đến.   Thì   cái   ngày ấy,   là   hôm nay.
    (have the   will arrive then "extra"   ay   is   day this
    same   + oath)   CL   day   that
    of the allies

    'There remained only one hope, which was that one of those days
    the allied armies would arrive. Then that day is today.'

16) Ông ngó   thấy cái   ngọn   cây   cao   kia,
    you glance see   "extra"   which   that
         at   CL   (CL-tree shaped   is tall
                              object   + tree)
                                           treetop
    là   cây   đa   trên   bờ   sông.
    which tree banyan which path on edge   of river
    is   is on
    'Take a look at that tall treetop over there, which is a banyan
    tree on the path along the river.'

V E. Identification of CL's

The analyses of #14-16 are by Emeneau (25, p. 98), and they bring us
back to the original problem of how to handle constructions of the form
CL + Noun, Noun + Noun, Noun + Verb, and CL + Verb. Ngọn cây is treated
as a compound 'treetop', although ngọn is explicitly labeled a CL in this
occurrence. Similarly bộ is labeled a CL in #14. These analyses are
inconsistent with that of nhà báo as discussed above, where nhà is called
a restricted noun instead of a CL. Since informants produce CL + Noun,
Noun + Noun, and CL + Verb forms in the same context, the psychological
or semantic closeness of these constructions should be given formal
recognition.

    I propose that Def. 1 (see II) be maintained as the deciding criterion
for identifying CL's. If a morpheme M has been identified by Def. 1 as a
CL, and it is found in another context directly preceded by a second CL,
then the second occurrence of M is that of a noun, and it is restricted
or unrestricted depending upon further analysis. For example, cây is a CL
in một cây đao 'a peach tree', and a noun in its first occurrence in #16.
Since the occurrences of bài in Appendix 2, Table 2, #1, are evidently
psychologically similar, I prefer to consider them all as CL's, and thus
allow CL's to enter into various compounds. The semantic loads carried
by unambiguous occurrences of CL's vary enough that such distinctions
as quantity vs. quality as criteria for CL-hood are arbitrary unless some
objective tests are devised.

    Nguyen phu Phong (50, p. 12) tried to make the trichotomy CL/quantifier
noun. To illustrate, he used the word nhà 'house'.
17) cái nhà 'the house'   nhà = noun
18) nhà thi sĩ 'a poet'   nhà = CL
19) một nhà sách 'a house(ful) of books'   nhà = quantifier
    I would agree with his analysis of #17-18, but both "quantity" and
"quality" are present in #18, so quantification is not a valid distinction
here. Thus, in #18, nhà implies that reference to a single poet is being
made, and that the quality of expertise is present. Besides the obvious
quantification in #19, the use of nhà implies that books can fill something,
that is, they have the quality of occupying three-dimensional space.

V F. Anaphoric Behavior of CL's

    Anaphora is another grammatical area where there is confusion between
nouns and CL's. The usual interpretation of this phenomenon is that
when the reference is clear from the context, either linguistic or extra-
linguistic (e.g., the speaker points to the referent), the noun may be
dropped from a numerated construction, while the CL is retained.
20) anh muốn cuốn   sách nào.--- cuốn kia.
    you want CL for book which   CL that
            book
    'Which book do you want? --- That one.' (25, p. 84)
21) Con   ây   là con gì. --- con ây   là con vịt.
    CL for that is CL   what   CL   that is CL   duck
    living
    thing

    'What's that? --- A duck.' (25, p. 84)
In #20, the phrase cuốn kia could be derived, in transformational terms,
by deleting sách from the previous nominal phrase. Such a derivation will
not work for #21 unless a hypothetical noun representing a living thing is
inserted at an underlying level and then deleted before the surface form
is reached.
22) Tôi có   ba   con mèo, hai con trắng, một con đen.
    I   have three CL   cat two CL   white one   CL   black
    'I have three cats, two white and one black.' (48, p. 130)
In #22, the anaphoric occurrences of con are followed by predicates,
following the usual treatment of the Vietnamese equivalent of English
adjectives, while in #20-21, the anaphors are followed by demonstratives
or gì, which may be considered an indefinite noun (60, p. 203). The
point is that unlike nouns, con and cuốn cannot stand alone, even if

the exact nature of the referent is not known. The obligatoriness of definiteness, either with demonstratives or predicates, supports the hypothesis that CL's are markers of definiteness. Continuing this line of reasoning, if we can construct a sentence of the form: tôi có M 'I have (an) M' or tôi thấy M 'I see (an) M', where M has the same meaning as the referent in the anaphoric construction, though without the same specificity, then M is a Noun and not a CL. Otherwise, M is a CL. For example, we cannot say *Tôi có cuốn, so cuốn is a CL. We need the reference condition on M, because otherwise the acceptable sentence Tôi thấy con 'I see children' would imply that the con of #22 was a noun.

23) ba   người   ấy   đi   chơi   về.
    three   CL for that go   amuse   return
            nouns denoting   oneself
            adult human beings

'Those three men are returning from a walk.' (25, p. 99)

Since Tôi thấy người is acceptable where người means 'person', then the người in #23 is a noun. We may want to add the condition that in such cases, if there is a preceding numeral phrase where M is a CL, then it remains a CL in anaphoric constructions. This rule would preserve the grammatical identity of a CL in a discourse. However, it is not clear that this is the most accurate analysis. For example, one informant said that bài đó could be used to refer to any of the numeral phrases in Appendix 4, Table 2, #1. The problem is that the meaning 'a text', where bài is an ordinary noun, is a reasonable choice. Thus, if there is a real distinction between noun and CL here, an objective test has yet to be discovered. Of course, the difficulty in finding such a test may indicate that, at least anaphorically, there is no real distinction.

As was mentioned above, in the case of phát, the presence of a demonstrative does not guarantee the acceptability of deleting the noun from a numerative phrase. Also, while the above analysis of anaphora is consistent with available data, these proposals still need to be checked with informants.

V G. Relationships with Numerals, Demonstratives, and Pluralizers

In #20-21, it can be noted that no numerals are present. This is not a problem. Indeed, one informant volunteered the fact that for all the numeral frames in Appenedix 4, Table 2, the numeral could be deleted, and the remaining phrase would be acceptable though without the meaning of numerical specificity. Hence, at least in the 23 numeral frames of Table 2, the numeral made the CL obligatory, but the converse is false. With nouns, CL's are necessary to reduce countability, unless the nouns are already considered countable. Examples like bài học 'a lesson' and bài tập 'homework' show that CL's also nominalize verbs, making them countable at the same time, though the numeral does not obligatorily accompany the CL. Nguyen phu Phong (50, p. 6) discussed an example where nominalization is the primary function of the CL. Đẹp is a verb with the meaning 'to be beautiful'. Cái đẹp is given the meaning 'beauty'.

Another illustrative example was found in a 1966 newspaper article

included in DLI <u>Vietnamese Basic Course</u> (65, Vol. 10, pp. 43-46).
Vượt-tuyến 'to escape from across the parallel' is a verb compounded
from vượt 'to exceed, overcome, cross' and vĩ-tuyến 'parallel, latitude'.
This verb is an attribute to the noun <u>sinh-viên</u> 'student' in <u>sinh-viên</u>
<u>vượt-tuyến</u> 'refugee student'.

24) Sự   vượt-tuyến của   chúng tôi   là   kết-quả   của
    CL for   escape   belong we(exclusive)   is   result   belong to
    actions;   to
    restricted noun-
    affair, event

    mọi   quá-trình suy-nghĩ   sâu   xa, ...
    'Our escape across the parallel was the result of every profound
    thought,...'

25) Rồi ông kể   lại   cuộc   vượt-tuyến của   ông.
    then he   narrate repeat CL for   escape   belong   he
                              actions   to

    'Then he repeated the story of his escape.'

In #24, nominalization is occurring, but sự could be a restricted noun.
Since cuộc is only a CL, the nominalization of the following verb is
clear in #25.

    Specificity, or definite reference, has been mentioned above, and
Emeneau noted (25, p. 85) that without a numerator and without a CL,
no information concerning number is available.

26) Tôi muốn mua   sách.
    I   want   buy   book
    'I want to buy book(s).'

Nguyen phu Phong (50, p. 11) produced several examples to show that
the CL indicates definite reference. A sentence without a CL is a more
general statement. In particular, the absence of CL's is the rule in
proberbs.

27) mèo sợ   chuột   'cats are afraid of mice.'
    cat fear   mouse

28) con mèo sợ   chuột   'the cat is afraid of mice.'
    CL   cat fear   mouse

However, the CL + Noun construction sometimes has a generic meaning.

29) cái trống sơn đỏ,   cái   mõ   sơn   son
    CL   drum   be   red   CL   wooden(to be painted + to be red)
                painted   to be red-lacquered

    'Drums and wooden fish are painted red.'

Nguyen phu Phong (50, p. 12) also claimed that Verb + Noun constructions
without an intervening CL became compounds with meanings quite different
from the corresponding phrases with the CL.

30) ăn ảnh 'to be photogenic'

31) ăn cái ảnh   'to take a picture'

    In anaphoric constructions, demonstratives played a major role.
Adams èt al. (1, p. 10) claimed that the relationship between CL's
and demonstratives was so close in Vietnamese and Thai that the presence
of the latter required the use of the former.

32) Cái bàn   này   dài. 'This table is long.'
    CL   table this   long (65, Vol. 1, p. 20)

33) Cái bàn   kia   không dài. 'That table is not long.'
    CL   table that   not   long (65, Vol. 1, p. 20)

34) Tờ báo này mới. 'This newspaper is new.'
   CL news- this new (65, Vol. 1, p. 20)
   paper
35) Báo này là báo Mỹ. 'This is an American newspaper.'
   news- this is news- American (65, Vol. 1, p. 85)
   paper paper
36) Báo kia là báo Việt-Nam. 'That newspaper is Vietnamese.'
   news- that is news- Vietnamese (65, Vol. 1, p. 85)
   paper paper

#32-34 show that CL's and demonstratives certainly co-occur, but #35-36 prove that the obligatoriness of co-occurrence does not hold. #34 shows that this is not caused by the noun in question being nonclassified.

The general claim made by T'sou concerning the complementary distribution of plural morphemes and CL's is false in both respects. First, Vietnamese has several plural morphemes along with its numerous CL's:

những (pluralizer) 'the various' (48, p. 329)
các (pluralizer) 'the various' (48, p. 329)

Thompson (60, p. 179) gave the above in his list of plural markers and also included mọi 'every', mỗi 'each', and từng 'each (in turn)'. It might be argued that the latter three are not really plural markers, since they do not require a plural morpheme when translated into English, but there is no question about the first two. Next, T'sou claimed that if plural morphemes and CL's are both present in the same language, "their use is in complementary distribution".

37) Đại-Đội có thể đảm nhận các nhiệm vụ của một Đại Đội Bộ Binh thường
   và lại có thể thi hành nhiệm vụ biên về hay thám sát thay thế cho
   các đơn vị Thiết Giáp thám thính, thi hành những cuộc vượt
                                         assume   plural CL   cross
                                         the responsibility
   sông cấp thời.
   river urgent
   'A (mechanized) company can take over the functions of a regular
      infantry company and can repeatedly carry out border guard or re-
   connaissance missions as a substitute for armored reconnaissance units,
   take over the responsibility of urgent river crossings.' (65, Vol. IX, p. 31)
38) Hoạt-động của Hoa-Kỳ để ngăn-cản tiến trình ấy là biện-pháp tăng-cường
   các trận   không-tập nhắm vào những đường xa, ...
   Pl. CL   air-raid
   'In order to prevent that progress, the American move is the method
      of increasing air raids aimed at highways, ...' (65, Vol. IX, p. 55)
39) Riêng biệt, cầu cống là mục tiêu rất thích-hợp cho những trận
                                                    plural   CL
   oanh-kích của không-quân chiến-thuật.
   bombing
   attack
   'Separately, bridge and (canal) locks are very suitable targets
      for the bombing attacks belonging to air force tactics.'
   (65, Vol. IX, p. 55)
40) Nó còn tủa ra những con đường hầm phụ như những cặp chân con rết
                    plural CL   plural pair foot
   bám lấy thân bình con rết.
   'It bristles secondary trench lines like pairs of centipede feet
      clinging to a centipede body.' (65, Vol. IX, p.105)

#37-40 were taken from newspaper articles from the 1960's. They contain examples of both plural morphemes and several different CL's occurring together, thus refuting T'sou's hypothesis.

However, the following data received from one informant indicate that complications still exist.

41) *Tôi có nhũng cuốn sách.
      I   have pl   CL   book

42) Tôi có   nhũng cuốn sách xanh. 'I have the green books.'
      I   have   plural CL book green

Besides requiring a modifier after the noun to produce acceptability, the informant added that nhũng is used more in subject than in object position.

   V H. Repeaters in Vietnamese

   Adams et al. (1, p. 15) claimed that since the noun for 'person' is also the CL for people in general in Vietnamese, Thai, and Indonesian, then this CL is a repeater, that is, a word which is its own CL. This is somewhat misleading in Vietnamese. True, người is both a noun meaning 'person' and a CL for human beings. However, người only appears as the CL in phrases like một người cha 'a father' and một người bạn 'a friend' (49, p. 133). When the noun người is classified, it does not take itself as a CL: con người 'human being' (49, p. 143). Kiếm 'sword' (Appendix 3, #53) was the only word found which was given as its own CL, but no actual occurrence of the CL together with the noun was discovered.

   V I. Verbal Classifiers

   Verbal CL's (50, p. 7) are those which appear in constructions of the form Verb + Num + CL + (Verb). Nguyen phu Phong categorized verbs according to the types of constructions in which they participate, such as dropping the final verb, or retaining the final verb and deleting the CL.

43) nhảy hai cái 'make two jumps'
      jump   two CL

44) nhảy hai   nhảy 'make two jumps'

45) nhảy hai cái nhảy 'make two jumps'

46) hát một cái   'sing (imperative)'
      sing one CL

47) hát một bài   'sing a song'
      sing one CL

48) hát một bài hát 'sing a song'

49) *hát một cái hát

   #44-45 show that the verb nhảy can be nominalized by cái or can act as a nonclassified noun. For other verbs, not all of these variants are possible. #43 can be considered as a case of anaphora, and the previous analysis applies. In #47-48, bài behaves analogously to nhảy. #49 implies that #46 is not simply a case of nominalization followed by deletion of the nominalized verb. Nguyen phu Phong (50, p. 8) concluded that this example of cái was not a true CL, but rather a verbal substitute.

V J. Function of CL's

Nguyen phu Phong (50, p. 13) raised the issue of whether the CL
should be considered as determiner or determined. As a nominal substitute,
the CL is modified by demonstratives, e.g., cái này 'this one' (literally,
CL this). Thompson (60, p. 124) gave the following immediate constituent
analysis for con chó nhỏ này 'this small dog' (lit., CL dog small this).

50)

    con chó nhỏ   (model)
       con chó   (model, head)
          cón   (model, head, center)
          chó   (innermost complement)
       nhỏ   (inner complement)
    này   (outermost complement)

The motivation for #50, in which the noun is attributive to the CL,
is not explicitly given. According to Thompson's general theoretical
approach, as discussed above, the correctness of #50 depends on con being
able to substitute for con chó, and on chó not being able to do so. #32-36
show that the CL is not necessarily required by the presence of a demonstra-
tive or other modifier, so this argument alone is inadequate to decide
which word is the modifier.
    Emeneau (24, pp. 12-13) included CL + Noun constructions as special
cases of Noun + Noun constructions, in which the first noun is the head,
and the second is the attribute. This analysis is consistent with the
head + attribute order in Noun + Adjective (Verbal) constructions.
However, the role of the numerator, which precedes the CL + Noun, was not
made clear.

V K. Semantics of Vietnamese CL's

In the above arguments, distributional facts are the only allowable
data. Semantic facts are usually added after the theoretical decisions
have been made. Yet, semantics is at the core of CL behavior and so cannot
be ignored. There are, then, two ways of looking at CL + Noun constructions
semantically. First, the CL specifies a general category, such as animate
object or flat object, and th4 noun restricts the category to a more specific
subcategory, such as dog or sheet of paper. Second, the starting place
can be the noun, say sword (Appendix 4, Table 2, #21), and the CL then
focuses on a particular aspect of this object, such as its long shape
or sharp edge. Because Adjective + Noun order is preserved in Chinese
loan compounds, this order is possible in Vietnamese. At present, there
is no way to decide between these two proposals. Also, it is possible that
both analyses are applicable, and that a choice cannot be made in general
but must be made for each individual CL phrase.
    Most of the investigations concerning CL's concentrate on the
semantics of CL selection. The objectives of such studies are usually to
find psychological or cultural principles which will account for the
association of certain CL's with certain nouns. The CL's and numeral phrases
produced by the informants (Appendix 4, Table 2) show that Nguyen Dinh Hoa's
characterization of individual CL's (Appendix 3) is fairly accurate, although
allowances must be made for dialectal and individual variation, which
have yet to be adequately studied.

To measure the relative importance of some of the semantic dimensions mentioned in III, each of the CL's in Appendix 3 was categorized as <u>abstract</u> or <u>concrete</u>. Here, <u>abstract</u> meant incorporeal or focusing on some subjective aspect of an object. For example, chặp (Appendix 3, #31) is the CL for <u>whippings</u>, which have physical consequences; yet the recognition of purpose is abstract and the only concrete aspects are actually the participants and the instrument. <u>Concrete</u> CL's were marked as referring to <u>animate</u> or <u>inanimate</u> nouns and were checked for <u>shape</u>, <u>quantity</u>, and <u>function</u>. The results (Appendix 4, Table 1) prove that while shape is an important feature, it is definitely not primary in Vietnamese. Next, the shape trichotomy hypothesis was tested, by subcategorizing all those CL's marked +shape in Table 1. Besides being checked for simple dimensionality (1, 2, or, 3), other salient aspects of physical form and, sometimes, composition were noted (Appendix 4, Table 3). While dimensionality can be found, the other features could be more salient. This needs to be studied further, but the present results raise the question of what the relationship is between "ubiquitous" features like dimensionality and the idiosyncratic "other" features. The <u>shape</u> data show that T'sou's features (Appendix 2) need to be expanded to include <u>regularity/irregularity</u>. It must be realized that although features were used in this analysis, no effort was made to exhaustively characterize each CL by means of these features; this is <u>not</u> a componential analysis. Further comments on semantics will be postponed until after the examination of data from the other languages.

V L. Summary of Vietnamese CL Syntax

If M is a morpheme which can occur in the frame Num + ___ + Noun, then M is a CL. If such an M also occurs directly preceded by another CL, then this second occurrence of M is <u>not</u> a CL, but is a noun, restricted or not, according to individual circumstances. If an M, previously identified as a CL, occurs in a non-numerated construction M + Noun or M + Verb, then M is still a CL, unless preceded by another CL. In anaphoric constructions, the distinction between nouns and CL's is neutralized; such morphemes will tentatigely be labeled CL's. There exist nouns which can take CL's and nouns which cannot. Although there are exceptions, the general rule is that sequences of CL's are prohibited; this explains why compounds formed with CL's cannot be further classified.

VI. BURMESE

VI A. Definition of Burmese CL's

There seems to be general agreement as to the syntactic criterion for identifying CL's in Burmese. Cornyn & Roop (22, p. 128) stated that "<u>Numeral Classifiers</u> are nouns which occur immediately after numerals or <u>be hna</u> = 'how many?' to form <u>classifier</u> <u>phrases</u>." Burling's definition (15, p. 245) is similar except that he substituted the term <u>morpheme</u> for <u>noun</u>, and added the condition that this morpheme must also be in close juncture with <u>be hna</u> or the appropriate numeral. Close juncture in Burmese is signaled by initial voiceless consonants becoming voiced when they follow and are in close juncture with words ending in any of the first three tones in Burmese.

The definition of the Burmese CL is identical to Def. 1 (see II)
except for the 'how many?' phrase and the position of the head noun. In
Emeneau's schema for numerated phrases in Vietnamese (25, p. 85), his
<u>numerators</u> consist of the numerals, plural indicators, indefinite or
interrogative pronouns, and a few other words. Thompson (60, p. 181)
included the plural markers, as well as various other words in his list
of numerators.

51) Ông có mấy trái cam?   'How many oranges do you have?'
    you have how   CL   orange
                  many

52) Tôi có hai mười trái cam.   'I have 20 oranges.'
    I   have   20   CL   orange

#51-52 (65, Vol. II, p. 125) show how the indefinite or interrogative
pronoun <u>mấy</u> 'how many' fills the same slot as a numeral in Vietnamese.
However, numerators were not included in Def. 1, because they would not
cause additional words to be labeled <u>CL</u>, and because there are other
problems connected with numerators. For example, Emeneau (25, p. 88)
considered <u>nhiều</u> to be both a numerator 'a fairly large number' and a
verb 'to have much or many' and believed the contrast to be neutralized
before nonclassified nouns. To avoid such problems and the possibility
of circularly defining CL's and numerators in terms of each other, the
numerals were judged adequate for Def. 1. Interestingly, neither Nguyen
Dinh Hoa nor Nguyen phu Phong commented on the relationship between
numerators and CL's. Hence, to maintain generality for the characterization
of CL's across languages, the <u>be hna</u> part will be dropped from the CL
definition for Burmese, giving us Def. 2.
Def. 2: A <u>CL</u> is any lexical item which can appear in the frame Num + ___ .
As with Vietnamese, simple transformations will then allow for CL occurrences
in other contexts, but Def. 2 will unambiguously select all the candidates
for CL-hood. Notice that Def. 2 is motivated by the word order, Noun +
Num + CL, which is found in Burmese numerative phrases.

VI B.   Subgroups of Burmese CL's

As in Vietnamese, the Burmese CL's do not constitute a completely
distinct form class, though the problems of identification are less severe
than in Vietnamese. Burling (15, pp. 250-259) gave a list of "a large
majority of the classifiers used in the Burmese language and an over-
whelming majority of those which would be found in any sample of speech",
which is found in Appendix 5. He divided the CL's into rough semantically
based groups and characterized each CL by the type of object it classifies.
Cornyn & Roop (22, pp. 317-319) divided Burmese CL's into three
groups on the basis of syntactic behavior. "Type I consists of bound
forms which can be preceded by various noun expressions." "A Type II
classifier is preceded by a noun expression the main word of which is the
same as the classifier." "A Type III classifier is a noun which also
occurs independently."
53) tha: thoun:<u>yau</u>'   'three sons' (Type I)
    son   3   CL for people
54) hsain hyi'<u>hsain</u>   'eight shops' (Type II)
    shop   8   CL for shops
55) hin:jou tahkwe'   'one bowl of soup' (Type III)
    soup   1 CL for bowlfuls

Type II CL's are also referred to as <u>repeaters</u>. There are problems with
the above system, however. Okell (53, p. 213) cited <u>hkwe</u>' as a repeating
numerative.

56) hkwe' hnahkwe'   'two cups'
    cup   2   CL for cup

Therefore, either we must add the restriction that a CL is Type II
if it <u>only</u> appears with identical nouns, or the tripartite distinction is
between <u>occurrences</u> of CL's rather than between CL's themselves. There
are also problems in deciding if a form is free or bound. Okell (53, p. 220)
admitted that he used the relationship "subordinate-head" without any
formal criteria when he distinguished between words (free forms) and
particles (bound forms), but said that such judgments were usually easily
accomplished by interpreting the meanings of the various expressions
observed and noting their contexts. Not all cases were clear; in particular,
"in numerative compound nouns, the counted noun and the numeral compound
might equally satisfactorily be analysed as subordinate and head respectively
instead of head and subordinate".

VI C. Basic Structure of Burmese Numerative Phrase

Okell considered all the elements of numerative compounds, including
the numerals themselves, as nouns. #57 is his schema for the basic pattern
of the Burmese numerative compound (53, p. 209).

57)

counted noun (head)	numeral noun (attribute)	numerative noun (head)
	numeral compound (attribute)	
numerative compound		

58) with mass nouns: measuring numeratives ⎫
                     ⎧grouping numeratives ⎬   non-repeating
    with individual   ⎨classifying numeratives⎭
      nouns: ⎩repeating numeratives   repeating

#58 (53, p. 209) shows a combined syntactic/semantic schema for describing
CL's. Burling's analysis (Appendix 5) contains further subdivisions, based
only on semantic criteria, and he admitted (15, pp. 263-264) that a rigorous
ordering of CL's required the discovery of new analytic techniques.

VI D. Some Consequences of Word Order

Even with repeaters, there is no problem distinguishing counted noun
from CL in the #57 schema. The CL is always the word which <u>follows</u> the
numeral. Thus, there are two fundamental word orders: Num + CL + Noun
for Vietnamese and Noun + Num + CL for Burmese. The Burmese order does
not allow any gradations between loose sequences of CL's and nouns versus
CL + Noun compounds. They syntactic constraint of having the numeral separat
the CL from the counted noun corresponds to the occurrence of repeaters
and partial repeaters, which will be discussed in XIII E. The Vietnamese
pattern is shared by Chinese and Indonesian, while the Burmese pattern
appears in Thai, Lao, and Lahu. Hence, syntactic similarities such as the

occurrence of repeaters in different languages can be considered to result
from similar structural pressures rather than from common genetic origins.
Even if syntactic borrowing has occurred, the appropriate word orders are
prerequisites for the CL/noun confusions and the behavior of repeaters.

VI E. Variant Patterns for Numerative Phrases in Burmese

    Okell (53, p. 215) gave one variant, analogous to the nominal
substitutes in Vietnamese, which also causes no difficulty.
59) hna-yau'   lou-nei-dhei.-te   'Two people are still missing.'
    2 CL for   be stay yet verb sentence marker
       person   missing
60) hna-htou'   pei.-pa   'Give (me) two packets (of cigarettes).'
    2 CL for   give polite
       packet
Since the counted noun was not part of the definition, its absence does
not change the identity of the CL. Since the numeral is still present,
the morpheme immediately following the numeral in both #59 and #60 is
still a CL. Also, the construction is shown to occur in both subject and
object functions. The next important variant pattern presented by
Okell (53, pp. 215-216) is somewhat more complicated.
61) hke:dan ahcaun: hnaya   'two hundred pencils'
    pencil CL for   2 100
          long thing
62) myei eka. hnahtaun   'two thousand acres of land'
    land acre 2   1000
63) nwa: ahyin: hnahse   'twenty yoke of oxen'
    ox   CL for   2 10
        yoke
64) eka. hnahtaun   'two thousand acres (of land)
    acre 2 1000
65) ahyin: hnahse   'twenty yoke (of oxen)'
    yoke   2 10
    The formative prefix a in the CL's ahcaun: and ahyin: evidently
disappears when the CL is in close juncture with the preceding word;
this is a recognized phenomenon in compounding (53, p. 47) In #61-63,
the round-numbers are clearly CL's, but the words immediately preceding
the numbers do not satisfy the CL criterion. Okell merely stated that
these, too, were CL's, because if the round-number CL's were replaced
with other numvrals, then the order shown in #57 would occur. However,
since CL's and nouns can have the same shape, it must be realized that
these words (e.g. ahcaun:) are not automatically CL's.
    Formally, since ahcaun:, eka., and ahyin: are already nouns in
Okell's treatment, they could be said to have lost their status as CL's
in #61-63. Yet, this might miss the semantic nature of what a CL does.
If there are some, possibly psychological, grounds for deciding that in
this position these words are still "making the preceding noun countable",
then they are still CL's. Otherwise, they are ordinary nouns participating
in noun compounds. If we want to put CL's into a cross-linguistic frame-
work, we can derive #61-63 transformationally from numerative phrases
of the form in #57 from the following underlying form:
66) noun   numeral+round-number+CL_1 CL_2

Since numeral+round-number CL_1 is itself a numeral, CL_2 satisfies Def. 2. Similarly, the round-number CL_1 follows a numeral and so it is a CL. Then, we could invoke a general principle, noted to apply to Vietnamese, that sequences of CL's are not tolerated, or at least not preferred. The easiest way to break up the CL_1+CL_2 sequence is to move CL_2 to the left of the numeral. Voila! #64-65 could be taken as evidence that eka. and ahyin: are simply classified nouns, in which case they would also be nouns in #61-63. Without further evidence, a choice between these analyses seems arbitrary.

In contrast to his analysis of #61-65, Okell considered the second noun in #67 and #68, respectively, not to be CL's.

```
67) hsagwe:   nou.zibu:    hnaloun:      'two condensed milk tins-ful
    broken    condensed    2  CL for        of broken rice'
    rice      milk can        round thing
68) da'hsi  biyapalin:  hnaloun:         'two beer-bottles-ful of petrol'
    petrol  beer bottle  2  CL for round thing
```

Superficially, #67-68 resemble #62: noun+noun+numeral+CL, except that the second noun in #62 is a CL. Here, the underlying form of #66 does not apply, so there is no motivation to consider beer bottle as a CL originally following loun:. Following Okell, we have a well-formed numerative compound, instead of a numeral compound, as the attribute to the counted head noun. Perhaps, the English gloss, as well as the above analysis, is misleading, and the innermost compound is between the first two nouns, so that we have a #57 type construction with a gloss such as 'two round units of bottle-of-petrol'. The point is that more than one analysis is possible, and semantic information is necessary to decide between them.

VI F. CL's and Pluralizers in Burmese

Burmese has three auxiliary nouns (53, p. 82) indicating plurality.

```
69) saun-dou.         'blankets and the like' (53, p. 446)
    blanket
         plural
70) hou    lu-dei       be-ga.      la-dhale:
    that   person       where       come-actual mode-
               plural       from        question marker
    'Where did those people come from?' (22, p. 75)
71) cano.gou   ba     pyi'si:mya:   hnga:hnain-male:
    I      object what  thing indefinite        potential mode - question.
        marker               plural                      marker
                                  lend-able
    'What things can you lend me?' (22, p. 257)
```

In contrast to Vietnamese, the Burmese pluralizers are evidently in complementary distribution to CL's, or more precisely, to numeral compounds. It should be remembered, however, that such evidence as this, which supports T'sou's hypothesis, does not modify the falsification demonstrated by the Vietnamese counterexamples. Tei is only used when plurality is stressed (22, p. 78), and #69-70 imply that the other pluralizers have a component of indefiniteness. Although CL's are associated with numbers, the quantification can still be vague (see Appendix 5, #105-106). The absence of a CL implies indifinite reference as is indicated by the following English glosses:

72) thaja: lou-jin-dhala:
    sugar   need-want-actual mode-question marker
    'Do you want sugar?' (22, p. 40)
73) hin:jou thau'hcin-dhala:
    soup   drink-want-actual mode - question marker
    'Do you want some soup?' (22, p. 41)

VI G. Nominalization in Burmese

Burmese CL's do not appear to have any major function in nominalization, and there are numerous particles which do nominalize. Okell found a few exceptions to this rule in "set phrases" (53, p. 218).
74) hcin-thoun:jin   'the three wants'
    want-3-want
Hcin is normally a bound auxiliary verb, but is treated as a noun and as a repeating CL in #74.
    As with Vietnamese, the semantics of Burmese CL's will be postponed until the syntactic analyses of the remaining languages are briefly discussed

VII. THAI

    "The particles known variously as classifiers, auxiliary numerals, or designatory particles, are at once the most important and most charac- teristic feature of the Thai language, as indeed they are of all the members of the Thai-Chinese family, as also of the Mon-Khmer languages and of Japanese, of which the precise philogical position is disputed." (42, p. 35). Lanyon-Orgill (above quote) emphasized the importance of CL's in Thai a bit more than did other scholars, but all agree that the Thai CL system is a major part of Thai grammar.
    There are various sets of rules for the usage of CL's in Thai, followed by more or less extensive lists (see Appendix 6) of CL's, but the actual characterization of CL's is rarely made in any precise fashion. Thus (42, p. 36), "As a general rule the appropriate classifier must be used with every concrete noun when limited by a numeral, numeral adverb, or a singular demonstrative. The classifiers are not used with abstract nouns, with plural demonstratives ('these,those'), or with possessive adjectives ('my, his', etc.)." Unfortunately, such rules presuppose the identification of CL's.
    M. Haas (personal communication, 1976) pointed out that the above characterization of Thai CL's is misleading in several respects. First, "any Thai noun can take a CL". Second, what Lanyon-Orgill called "possessive adjectives" are really pronouns in a possessive construction. Noss (51, p. 103) cited law-nii 'these' and law-nán 'those' as "special plural forms" for demonstratives, but Haas (personal communication, 1976) analyzed these forms as 'this group' and 'that group', respectively, asserting that there is actually no singular/plural distinction in Thai demonstratives.
    Haas (34, p. 203) claimed that the use of a CL is obligatory following a Noun + Quantifier, where a Quantifier is a non-zero numeral or a word such as láj 'many'. However, the use of a CL is optional following a Noun + Indicator or Noun + Adjective, where an Indicator is a demonstrative adjective, interrogative adjective, or the special

function word nyŋ 'one'. In particular, the use of a CL is preferred
in "precise speech" in the frame Noun + ___ + Indicator while the CL is
omitted in less precise speech.   Adjective
        Noss (51, p. 104) stated that "A classifier is any substantive
which occurs with weak stress directly before, and in construction with,
demonstratives." In #75-76 (51, p. 104), he gave examples of CL's with
normal stress, which provide counterexamples to his own definition of CL.
75) khǎw   khǎaj   pen-sɔɔŋ   'They are sold by the pack (as one pack).'
    they   sell   as- CL for pack
76) aw   burii   phrá-can,   sɔɔŋ   'Give me a pack of Moon
    bring   cigarette   Moon   CL for pack   Cigarettes.'
He added that (51, p. 104) the most common use of CL's is in numeration,
where the CL follows numerals and/or precedes demonstratives. Haas
(personal communication, 1976) claimed that forms such as #76, #78
must be derived from underlying forms containing nyŋ 'one', either
preceding or following the CL in #76, and following the CL in #78.
77) hâa   sɔɔŋ   'five packs'
    five   CL
78) sɔɔŋ-nán   'that pack'
    CL   that
79) hâa   sɔɔŋ: nán   'those five packs'
    five   CL   that
80) burii   hâa sɔɔŋ: nan 'those five packs of cigarettes'
    cigarette five CL   that
While CL's are allowed to receive normal stress when they do not precede
demonstratives, the fact that abstract nouns occur with normal stress
before demonstratives prevents them from being considered CL's even
though they also follow numerals directly (51, p. 105). Being motivated
by cross-linguistic considerations, I think that the stress condition is
too restrictive, and that abstract nouns should be considered as CL's. In
fact, they are repeaters. The exact functions and properties of CL's
vary from language to language, but if a universal aspect of CL systems
exists at all, it is the association between CL's and counting.
81) sɔɔŋ sii-lỹan   'the yellow pack'
    CL   yellow (noun)
82) sɔɔŋ-jàj   'the big pack'
    CL   big (adjective)
83) sɔɔŋ thíi-sìi   'the fourth pack'
    CL   ordinal number - four
        #81-83 are Noss's (51, p. 104) examples of classifier phrases, in which
the CL is the first constituent,and the second is a specifying item other
than a demonstrative. What seems to differentiate CL's from ordinary
nouns in phrases such as #81-83 is that the CL alone can not substitute
for the entire phrase. Haas (personal communication, 1976) added the
general rule that CL's always precede ordinal numbers and follow cardinal
numbers.
        As with Vietnamese and Burmese, the CL cannot be identified in many
contexts, such as #81-83, unless it has previously been labeled a CL
from other data. In Thai, the use of CL is preferred, but not obligatory,
preceding a singular demonstrative, but the obligatoriness in numerative
contexts is unquestionable, and the cross-linguistic generality of the
latter motivates the extension of Def. 2 to Thai. Then, co-occurrence

with demonstratives is redundant information. Once a morpheme satisfies
Def. 2, if it appears in a noun phrase for which it alone is not a substitute,
then the second occurrence is also a CL. This analysis disagrees with both
Lanyon-Orgill and Noss in their treatment of abstract nouns.
84) wichaa   sɔɔŋ wichaa   'two disciplines' (51, p. 90)
#84 is one of Noss's examples of an "abstract noun" which is its own
"counter" but is not a CL. Since the second occurrence of wichaa
satisfies Def. 2, I would call it a CL. The first occurrence should
be able to substitute for the phrase (this should be checked with an
informant), in which case it is a noun.
    The interaction between CL's and plurality is not simple.
85) rorngtow koo   nee my pee-ak 'This pair of shoes is not wet.'
    shoe   CL for this not wet   (16, p. 109)
             pair
86) rorngtow low nee my pee-ak 'These shoes are not wet.'
    shoe   these   not wet   (16, p. 109)
#85-86 show that the plural demonstrative blocks the occurrence of the
CL koo. Lai is considered a "numeral word" (16, p. 106; 65, p. 112)
with the meaning 'several'. Like an actual numeral, lai requires a CL.
According to Haas' analysis (personal communication, 1976), low in #86
is itself a CL for groups, and so plurality is not a factor.
87) mee   mah   lai   dtoo-a   'There are several dogs.'
    there is   several CL for animal
    Another method of indicating plurality is reduplication, which occurs
with this meaning for only a few nouns but for many CL's (51, p. 68).
Although Noss explicitly labeled #88-90 as examples of plurality, Haas
(personal communication, 1976) considered the reduplicated forms as more
indicative of indefiniteness than of plurality.
88) deg 'child' , deg-deg 'children
89) tâŋ 'CL for stacks', pen tâŋ-tâŋ 'in stacks'
90) kɔɔn 'CL for lumps', pen kɔɔn-kɔɔn 'in lumps'
    Thai exhibits one CL phenomenon which is distinct from anything
observed in Vietnamese or Burmese. As can be seen in such examples as
Appendix 6, #26-29, a number of CL's are identical to the first element
in noun compounds which they classify.
91) baj-máaj 'leaf' CL = baj (52, p. 105)
92) khon-ság-phâa 'laundress' CL = khon
Noss (51, pp. 64-65) treated these constituents of noun compounds as
CL's, and noted that they are exceptions to the rule that the first
constituent of a compound is usually the head. Further study will be
required to decide if this analysis is correct. It is consistent with
#81, where a CL and a noun make up a phrase. It differs from the
Vietnamese problem in that the Vietnamese word order was CL + Noun in
both compounds and numerative phrases, while the Thai word order changes.

VIII. LAO

    A comparison of Haas & Subhanka's Spoken Thai (H. Holt, 1945)
with Roffe & Roffe's Spoken Lao (57) shows that the latter work (which
was the only Lao reference in this study) was strongly influenced by the
former. Thus, the similarities between Thai and Lao, which are discussed
below, may be exaggerated.

Lao and Thai are closely related genetically and geographically, and the effects of either heavy borrowing or genetic similarity are obvious from a brief comparison of Appendix 6 with Appendix 10. For example, jâŋ (Appendix 6, #2), the Thai CL for things, kinds, sorts, is not very different from jā:ng, the Lao CL for kinds or sorts of anything (Appendix 10, #27). There are no claims that Roffe's (57) list is complete, but with 241 Thai CL's and 94 Lao CL's, at least 45 CL's are apparently identical in meaning and phonetic shape. In fact, differences which occur may be due only to incomplete inventories, but insufficient data was available for this hypothesis to be tested.

Syntactically, Lao CL's and Thai CL's behave almost identically. Numerals and "number words" such as la:ng 'some' and ba:ng 'some' are always followed by CL's (57, Book 1, p. 60). Roffe (57, Book 1, p. 199) stated one condition under which a CL could appear without being preceded by a number word. Only nȳng 'one' can be so omitted, so it is always understodd to be the missing number.

93) khǒ:j caʔ paj sý: hǒm cȧk khan 'I'm going to
    I will go buy umbrella as little CL buy an umbrella.'
                            as

94) la:w tǒ:ngka:n kǒ:p cȧk khū: 'He needs a pair of shoes.'
    he need shoe as little CL
                  as

As in Vietnamese, 'one' in Lao can mean the number one or be equivalent to the English indefinite article. In Vietnamese, môt 'one' is always ambiguous in this way and always precedes a CL or noun. In Lao, if nȳng precedes a CL it means 'one', but it can also follow the CL and act as an indefinite article. It is the only number which can thus serve as a "descriptive word" in Lao (57, Book 1, p. 159). Incidentally, (42, p. 67), nȳng has the same properties in Thai.

Lao and Thai CL's appear to be identical in their interaction with demonstratives. "Descriptive words" (57, Book 1, pp. 88-91)include demonstratives, and they all follow the words they modify. With any descriptive word, the co-occurrence of a CL implies that a particular object is being specified. The CL is not obligatory, and its absence merely means that the reference is indefinite.

As with Thai, Def. 2 can be extended to Lao.

IX. CAMBODIAN

In contrast to the other languages of this study, CL's do not play a major grammatical role in spoken Cambodian. "In normal casual speech classifiers are omitted, except for ... /ne/ 'person.' For some nouns, e.g. rooms and furniture, classifiers are almost never used. Use of classifiers is a signal of formal style; classifiers occur far more often in writing than in speech." (23, p. 18).

97) rotɛh phlɔəŋ muoy krɨəŋ 'one train' (23, p. 17)
    train   one CL for engines and machines

98) sraa muoy dɔɔp 'one bottle of liquor' (23, p. 17)
    liquor one bottle

99) sraa mɔdɔɔp 'one bottle of liquor' (23, p. 18)
    liquor one-bottle

The above examples show that Def. 2 applies to Cambodian. In

numerative phrases, the word order is invariably Noun + Num + CL.
#99 shows that <u>muoy</u> 'one' is reduced in "normal casual speech" (23, p. 18)
before CL's; other numbers are invariant. One word order constraint in
the noun phrase (23, p. 19) is that any adjective must precede a number
if a CL follows that number. With no CL, the adjective may follow the
number.

The list of CL's shown in Appendix 7 is supposed to include the
most common, so the total number of CL's in Cambodian cannot be estimated
from available data. Although Cambodian is not genetically close to Thai
or Vietnamese, a substantial number of Cambodian CL's are quite similar
to CL's in these other languages.

Cambodian	Thai
<u>kuu</u> CL for pairs	<u>khu</u>^{4} CL for pairs
<u>khr**ɨəɲ**</u> CL for machinery	<u>khryan</u>^{4} CL for machinery
<u>cbap</u> CL for copies of pamphlets, newspapers, magazines	<u>cha^{2}bab^2</u> CL for newspapers, letters, documents, telegrams, etc.
(?) <u>tuo</u> CL for vehicle bodies, letters of the alphabet, characters in a play	<u>tua</u> CL for animals, furniture (four legs), clothing (resembles skin)
<u>ruup</u> CL for pictures, shapes, forms, images, persons	<u>rūb</u>^{4} CL for pictures, statues of persons; the Buddha, Buddhist priests
<u>sɔmrap</u> CL for suits of clothing, sets of tools and equipment	<u>Lao :</u> <u>sǎmlàp</u> CL for suit for a man
<u>oŋ</u> CL for monks, exalted people, images of Buddha	<u>Thai:</u> <u>ʔoŋ</u>^{1} CL for rulers, chiefs
	<u>Vietnamese :</u> <u>ông</u> CL for uncle, Buddhist monk, Buddha, assistant (director)

X. INDONESIAN

Indonesian is a suitable language to investigate in order to decide
whether or not CL's should be considered an areal feature of Southeast
Asia. It developed from Malay, the 15th century lingua franca of the
Malay Peninsula and Archipelago (40, p. xi). While Indonesian, which
has been the official language of Indonesia only since 1949, now uses
Roman letters, Malay used Arabic letters and borrowed much vocabulary
from Sanskrit, Arabic, Chinese, and various European languages (42, p. 5).

Kwee (40, p. 89) referred to CL's as "numeral coefficients", and the
Indonesian CL can be defined by Def. 1. In numerative phrases, the word
order is generally Num + CL + Noun, as in Vietnamese.

100) tudjuh <u>ékor</u>   beruang   'seven bears' (40, p. 89)
     seven CL for bear
            animal

101) <u>seorang</u>   <u>orang</u> Amerika   'one, or an, American'
     one-CL for humans   American   (40, p. 89)
                  man

102) se<u>orang</u>   Inggeris   'an Englishman' (40, p. 89)
     one-CL for   English
       human

In isolation, the numeral 'one' is <u>satu</u>, but it is always <u>se-</u>
in compounds, similar to the vowel reduction in Cambodian. <u>Orang</u> is both
the noun for 'man' and the CL. #102 shows how one of two consecutive
<u>orang</u>'s can optionally be deleted. <u>Inggeris</u> (40, p. 54) may be considered
a noun so that <u>orang</u> in #102 is still a CL according to Def. 1.

Vietnamese word order in numeral phrases can be Noun + Num + CL in
poetry and in inventory forms (1, p. 2; 48, p. 126), and Indonesian
exhibits similar variance in word order in numerative constructions.
If the quantity is emphasized, the numeral + CL comes before the counted
noun; if the noun is emphasized, the numeral + CL combination follows
the noun (40, p. 91).

103) ia   mengirim dua <u>putjuk</u> surat.   'He sent two letters.'
     he   send   two CL   letter   (40, p. 91)

104) Ibu   membeli ajam   seékor,   djeruk 20 <u>buah</u> dan telur 10 <u>butir</u>.
     mother   buy   chicken 1-CL   orange 20 CL   and egg   10 CL
     'Mother bought a chicken, 20 oranges, and 10 eggs.' (40, p. 91)

Although #104 suggests that Def. 2 should be used instead of Def. 1,
this approach would make other constraints necessary. If we use Def. 2,
then ordinal and cardinal numbers must be differentiated, because non-CL's
may directly follow ordinals, though with the added meaning of definiteness
(40, p. 91). The ordinal is formed by adding the prefix <u>ke-</u> to the
corresponding cardinal.

105) gadis ketiga   'the third girl'
     girl   third

106) ketiga gadis   'the three girls'

If we allow any morpheme which directly follows a cardinal number
to be a CL, then we must expand Kwee's list of numeral coefficients to
include <u>rupiah</u>, the unit of Indonesian currency, and <u>kali</u> 'time'.

107) dua kali 'twice, two times'
     two time

However, telling time creates problems unless we insist on Num + ___
+ Noun to define CL's.

108) djam 7 pagi '(it is) 7 o'clock in the morning.'
     hour 7 morning

109) djam 3   sore   '3 o'clock in the afternoon'
     hour 3   afternoon

110) djam 9   lewat (lebih) 5   menit   '5 minutes past 9'
     hour 9   ?   (more)   5   minute

111) djam 9 kurang 5   menit   '5 minutes to 9'
     hour 9 lack (?)5   minute

In #108-109 it is clearly the <u>hours</u>, rather than <u>morning</u> or <u>afternoon</u>,
which are being counted. <u>Minute</u> in #110-111 is in the correct position
to be a CL.

Also, the round-numbers must be taken into account.

112) sepuluh '10'
113) dua puluh '20'
114) dua ratus '200'
115) dua ribu   '3000'
116) be-ribu-ribu   domba   'thousands of sheep'
     prefix-1000-1000 sheep

117) puluhan 'tens'

118) puluhan ribu 'tens of thousands' (?)

The round-numbers follow numerals and so are CL's by Def. 2, but #104 shows that their presence does not substitute for an ordinary CL. On the other hand, constructions of the form shown in #116 may be given a CL analysis. Kwee (40, p. 91) stated that when a round-number was duplicated and prefixed with be(r)- , it became an indefinite adjective. He added that the same effect could be achieved with the suffix -an, but without duplication, as in #117-118. Semantically, the modified round-number is a CL in that it makes the following noun, such as sheep, countable. Then, the indefiniteness can be explained by the fact that no other numeral is present.

The Indonesian data illustrate how semantics cannot be avoided in syntactic arguments. Without semantics, #108-116 contain arbitrary exceptions to the general characterization of CL's. With semantics, the problems fall into well defined areas of round-numbers and telling time, which exhibit idiosyncratic behavior in many languages. Telling time appears to be simply idiosyncratic, and since instances of time-telling are easily identified, they can be excluded from consideration for CL's. Similarly, the modified round-numbers are not preceded by ordinary numerals, so they can be excluded from consideration as CL's on syntactic grounds. Informant work would be necessary to decide if semantic similarity with CL's might reverse this last decision.

Kwee (40, p. 89) claimed that there were "plenty of" CL's in Indonesian, while Adams & Conklin (1) indicated that Indonesian has fewer CL's than do other Southeast Asian languages. The 16 CL's given in Appendix 8 are presumably the most commonly used, but the exact status of the list was not made precise by Kwee.

XI. CHINESE

Chinese does not present any surprises in the analysis of CL's. Chinese CL's are treated as bound particles (13, p. 68) or as bound auxiliary nouns (18, p. 45). Syntactically they are more tightly bound to the preceding "determinatives" than are CL's in most other languages, except Burmese. Determinatives consist of numerals, demonstrative pronouns, interrogatives, and a few other bound words (18, p. 45). The determinative + CL construction forms a compound. Those CL's which are associated with particular nouns, such as those listed in Appendix 9, are given full CL status. Other words which directly follow determinatives are referred to as measure words, temporary measure words, quasi-auxiliary nouns, or nonclassified nouns. 24 CL's are given in Appendix 9, and they are claimed (13, p. 69) to be the most common out of "several dozen". The standard form of the numerative phrase is Num + CL + Noun, though Noun + Num + CL is used in inventories.

119) i^4-pen^3-shu1   'a book' (13, p. 69)
      one-CL-book

The examples of nonclassified nouns (13, pp. 68-69) are all measure words or units of time. Hence, they can be categorized as CL's, or not, according to whether they satisfy Def. 1. As in Vietnamese, this analysis results in identifying occurrences of CL's rather than rigidly categorizing the isolated morphemes. In particular, the temporary measure

words, which also occur in Vietnamese, are usually nouns, but sometimes
fill the CL slot in numerative phrases.
    Determinative + CL compounds can function an nominal substitutes,
and the analysis again parallels that of Vietnamese.
120) Jell yeou   leangg cherntz, geei nii ig.
     here there   two   orange   give you one
           are
     'There are two oranges here, I give you one.' (18, p. 47)
In #120, ig is a compound formed from i 'one' and geh (abbreviated g),
the general CL.

XII. LAHU

    Typologically and genetically, Lahu is closer to Burmese than to any of
the other languages in this study. Comparing the Lahu CL's (Appendix 11)
with Burmese CL's (Appendix 5), nonetheless, reveals very few similarities.
Lahu chi and Burmese she are bothe CL's for groups of ten, and Lahu
khwê 'half' could correspond to Burmese we? 'half', though it may be
closer to Burmese kwe: 'to split, divide'.
    Matisoff (45, p. 88) described the Lahu CL as "a type of limited
noun that occurs only after numerals (or after another classifier), and
whose selection is determined by a preceding (overt or implicit) noun."
He defined CL's (45, p. 45) as the form class of items which "occur only
and always after numerals." Like Burmese, the standard numerative
construction is Noun + Num + CL.
121) pa-thû khɔ̂ʔ mà   'six dried fish' (45, p. 89)
     dried six   CL
     fish
122) yɛ̀   tê   yɛ̀   'a/one house' (45, p. 89)
     house one CL
123) šu-leʔ   tê   leʔ   'one cigarette' (45, p. 89)
     cigarette   one CL
     (tobacco+roll)
    #122 shows that Lahu has repeaters, and #123 illustrates "partial
auto-classification", in which the CL phonologically matches the final
syllable of the quantified head noun. This is reminiscent of Thai
CL's matching the first syllable of the quantified head noun.
    The only examples of CL's directly following other CL's seem to
involve round-number CL's. Whereas Burmese does not tolerate round-number +
CL, Lahu does.
124) nâʔ tê   ha   qhɔ̂   '100 guns' (45, p. 94)
     gun one 100 CL for elongated object
    As in Thai and Indonesian, Lahu CL's can be reduplicated with the
meaning of indefinite plurality (45, p. 93). If the CL is polysyllabic,
only the last syllable is reduplicated.
125) nâ-chî=ši tê   ši-ši   'a pill or two'
     pill   one CL
126) tê   ha-pa-pa   'about a month'
     one   month
Since reduplicated round-number CL's cannot be followed by other CL's
(45, p. 93), in #100 qhɔ̂ can be reduplicated, but ha can be reduplicated
only if qhɔ̂ is dropped.

Lahu, apparently unlike other languages, employs sequences of Numeral +
CL pairs in various constructions. Although this is interesting in its
own right, the only relevance this phenomenon has for this study is that
Numeral + CL constructions function freely as nominal units.

Matisoff (45, p. 100) argued that even though Numeral + CL combinations
occur without head nouns in the surface of Lahu grammar, a covert
quantified noun is always present, and this is what determines the choice
of CL. This argument applies to most of the Numeral + CL constructions
observed in the other languages, too. However, the following Vietnamese
example proves that a specific noun may not always be presumed to exist.

127) cái   ay   là   cái   gì. --- cái   ay   là   cuốn   sách.

| general CL for objects | that | is | CL | what | CL | that | is | CL for book | book |

'What is that? --- That's a book.' (25, p. 99)
In #127, the general CL cái is used precisely because the nature of the
referent, or underlying noun, is not known by the first speaker.

The group CL's (Appendix 11, #34-38) are interesting in that they can
only follow tê 'one'. This fact does not affect the application of Def. 2 in
identifying them as CL's, but it is another indication that individual
CL's may vary widely in their own idiosyncratic behavior within as well as
between languages.

XIII. SEMANTICS AND CONCLUSIONS

XIII A. Semantic Structures of CL Systems

A quick glance through Appendix 3 illustrates the semantic chaos
that reigns in the domain of the CL. Some CL's are associated with clearly
delineated categories of nouns, e.g. bông (Appendix 3, #13) is the CL
for flowers; and others are given as CL's for bewildering lists of
seemingly disparate nouns, e.g. ổ (Appendix 3, #89) is the CL for ovaries,
loaves of bread, locks, and engines. Although Burling was able to
assign Burmese CL's (15) to various semantic categories, he despaired of finc
ing an adequate componential analysis. Becker (5) also rejected componential
analysis, but was able to construct a paradigm which accounted for all
the Burmese CL's to his satisfaction.

There are two extreme views regarding the structure of CL items.
Haas (34) recommended that for Thai the ideal dictionary would include
the appropriate CL or CL's under the entry for each noun. That is, there
is no point in searching for an overall pattern. Becker represents the othe1
extreme: each CL has a place in an intricate web based on a single semantic
dimension. The componential analysts differ in their methodology from
Becker, but they, too, have the goal of setting up s system which would
distinguish each CL from the others.

In fact, the evidence suggests that CL systems are combinations of
structured subsystems and isolated, idiosyncratic relations. The Viet-
namese CL con is a good example of this situation. It is defined
(Appendix 3, #22) as the CL for animals and certain inanimate things. Is
such a definition psychologically valid? The Vietnamese informants both
supplied this CL immediately when presented with the numeral frame 'one ___
chicken' (Appendix 4, Table 2, #11). When asked about con dao 'the knife',

they agreed that <u>con</u> was the appropriate CL and that such CL + Noun combinations simply had to be memorized. They were aware of the general noun class of animals, and could think of no principle by which <u>dao</u> could be included in this class. Of course, this does not mean that historically the association was accidental. Various legendary and mythical weapons of various cultures have received proper names, so it is semantically plausible that knives could have been classified as animate. Whether or not such arguments can be constructed is not important for a synchronic analysis. This example shows that a single CL can have associated with it both a well-defined noun class and an arbitrary list of individual nouns.

XIII B. Criteria for Choosing Appropriate CL's

Even in those syntactic contexts where a CL is obligatory, the specific choice may depend on the context or on the speaker's point of view. Thus, the two Vietnamese informants chose different CL's for sword (Appendix 4, Table 2, #21), one emphasizing the sharp edge, the other focusing on the long shape. Becker illustrated the same freedom of choice in Burmese with the noun <u>myiʔ</u> 'river' (5, p. 113).

128) myiʔ tə yaʔ   'river one place' (e.g., a destination for a picnic)
      myiʔ tə tan   'river one line' (e.g., on a map)
      myiʔ tə hmwa   'river one section' (e.g., a fishing area)
      myiʔ tə 'sin   'river one distant arc' (e.g., a path to the sea)
      myiʔ tə Øwe   'river one connection' (e.g., tying two villages)
      myiʔ tə 'pa   'river one sacred object' (e.g., in mythology)
      myiʔ tə khu'   'river one conceptual unit' (e.g., in a discussion
                            of rivers in general)
      myiʔ tə myiʔ   'river one river' (the unmarked case)

Just as one noun can be classified in different ways, so can one CL classify along different semantic dimensions.
129) quả   'fruit'
130) hai quả cam   'two oranges'
      2   CL   orange
131) hai quả chuối   'two bananas'
132) hai quả lựu-đạn   'two grenades'
      2   CL   grenade
           (pomegranate-bullet)
#129-132 are all Vietnamese examples. Quả by itself is a noun meaning 'fruit'/ #130-132 show contexts where it satisfies Def. 1 and so is a CL. In fact, (Appendix 3, #96) it is a CL for fruits, mountains, hills, balls, fists, etc. How can this be explained? Here, both the prototype concept and features can be applied. The general idea of fruit easily included such items as oranges and pomegranates, which also happen to be round. Thus, as a CL, quả has the features <u>fruit</u> and <u>round</u>, or quả is associated with a prototype which is matched by such objects as oranges. Then, along comes a banana. It is not round, but it grows on trees, has a peel, and is edible. Hence, it is also classified with quả. As for <u>grenade</u>, part of the explantaion be seen from the constituents of the compound. It is definitely not edible and it does grow on trees, but in shape it resembles a typical fruit. Since grenades are historically recent additions to Vietnamese culture, this example indicates that the CL system is still productive. Also, the case for hierarchies, as advocated by T'sou,

is hereby weakened. <u>Grenade</u> taking qu$\overset{?}{a}$ as a CL implies that <u>shape</u> is more important than <u>function</u>, while <u>banana</u> taking qu$\overset{?}{a}$ implies that <u>function</u> or physical properties other than basic shape are the most important

XIII C. Semantic Functions of CL's

In all eight languages studied, CL's are closely associated with numerals and other words with numerative connotations. So, the distributiona evidence supposrt the claim that CL's make nouns countable. Beyond that, CL's usually add definiteness to the head noun. The semantic load of the CL varies from being hardly more than a marker of definiteness (e.g., the typical occurrence of Vietnamese cái) to specifying certain physical qualities (e.g., Vietnamese qu$\overset{?}{a}$) to being an integral part of compounds (e.g., Vietnamese bài).

XIII D. Shape and Abstraction

The falsity of the shape primacy hypothesis was demonstrated in V and in the above discussion of qu$\hat{a}$. Adams & Conklin (1) claimed that abstract nouns were not classified in most languages,admitting Burmese as an exception. In particular, Becker (5, pp. 119-120) discussed the classification of concepts along the deictic dimension of distance from sacred (Buddhist) concepts. Vietnamese has many CL's for abstract nouns. For example, cuộc (Appendix 3, #26) is CL for games, parties, actions, etc.; nên (Appendix 3, #79) is CL for patience. In Indonesian, <u>buah</u> (Appendix 8, #3) is CL for abstract nouns as well as other nouns. Although there are generally more CL's for concrete nouns, abstract nouns constitute a major subset of classified nouns.

XIII E. Repeaters, Partial Repeaters, and Word Order

A syntactic/semantic continuum occurs with repeaters or auto-classifiers In the languages with numerative phrases of the form Num + CL + Noun : Vietnamese, Chinese, and Indonesian, there are no repeaters, supporting the hypothesis that CL + CL sequences, or just sequences of identical morphemes, are generally discouraged. However, the relationship between this idea and the existence of reduplication in other contexts remains to be studied. In Thai, Lao, Burmese, and Lahu, the languages with word order Noun + Num + CL, repeaters and partial repeaters are plentiful. Cambodian has the latter word order, but no repeaters were found in the data. Noss (51, p. 90) treated abstract nouns in Thai as "their own counters" but excluded them from the set of CL's. Place nouns were considered to be special cases of abstract nouns and are counted by themselves (in which case they are evidently not CL's in Noss's analysis) or by the general CL hèŋ. Time nouns were also special cases of abstract nouns, and though they occur as CL's they do not classify themselves. Now, notice that many abstract nouns, geographical names, and time units are among the nonclassified nouns of Vietnamese. Also, in #128, when <u>river</u> was its own CL, Becker called this case "unmarked". The conclusion is that repeaters are, at least in many cases, only filling a <u>syntactic</u> slot which is determined by the word order in the particular language, so that there is a semantic parallel between repeaters in languages that

have them and the absence of CL's in the same contexts in other languages.
     When CL's participate in compounds in Vietnamese, they are the first
constituents, so the CL + CL prohibition prevents even partial repeaters.
In the Noun + Num + CL languages, this constraint does not apply, so
partial repeaters can occupy a semantic position midway between full
repeaters and other CL's.
133) qahkan: hcau'hkan: 'six rooms' (22, p. 318)
     room   6   CL for room
134) qei'hkan: thoun:gan: 'three bedrooms' (22, p. 318)
     bedroom   3   CL for room
#133-134 are Burmese illustrations of the continuum. As was noted above,
the nominalizing prefix qa- is frequently dropped in compounds, so hkan:
can be considered a full repeater in #133. Or, it can be considered a
partial repeater on superficial grounds, but one with no semantic function.
In #134, bedroom is not merely being counted but is also placed in the
general class of rooms. Another possibility is that hkan: should not
be considered a repeater because it can classify other nouns than itself,
and the same semantic role is being fulfilled in #133.
135) $baj^1 rab^5 \eta \ni n^1$ $s \ni \eta^3$ baj^1 'two receipts' (42, p. 40)
     receipt   2   CL for leaf-like
                            objects, among others
#135 illustrates a Thai example of a partial repeater where the level
of abstraction is greater than in #134. While bedroom is an example of
a room, a receipt is not a leaf, but is only leaf-like.

   XIII F.   Prototypes Versus Features of CL's

     Some noun classes associated with particular CL's satisfy Conklin's
(see IV) definition of lexical set. For example, in Vietnamese, the nouns
classified by bông (Appendix 3, #13) are all names of flowers which contrast
with each other. Yet, the set of nouns classified by quả (Appendix 3, #96)
co not share a single defining feature. Thus, if features are used to
characterized this noun set, the members need only have some of the
features. The "family resemblance" concept of prototype theory describes
this type of relationship better than lists of features which are
satisfied in varying combinations.
     If CL's are to be described in terms of prototypes, the nature of
the prototypes should be tested by experiments such as with the Vietnamese
numerative frames of Appendix 4. In attempting to characterize CL's and
associated noun sets, the substantial number of idiosyncratic combinations
must be individually listed. As the Vietnamese informants claimed, these
are acquired by brute memorizaion, even if there once were semantic
relationships that have since been obscured.

   XIII G.   Neurological Basis of CL Systems

     Next, we must determine if there are universal principles that govern
CL selection for the non-idiosyncratic cases. Also, do the idiosyncratic
nouns in each language share any common properties? All eight languages
have some CL's that are based on the dimensional trichotomy, which is a
good candidate for a biologically based pattern of prototypes. In a
visual perception study of cats, Blakemore (12, p. 105) concluded that

"the final organization of pattern detecting neurons in the visual cortex
of a cat is fundamentally determined by the kitten's early visual experience."
Since human neural organization is presumably somewhat similar to that of
the cat, it is likely that given sufficient stimulus during early develop-
ment, humans acauire sensitivity to certain basic geometric patterns.

XIII H.   Inter-Language Similarities

All the languages use standard measure CL's such as <u>meter</u> , temporary
measure words such as <u>tableful</u>, and most CL's contain varying combinations
of T'sou's semantic features (Appendix 2). As was argued above, organizing
these features into a hierarchy may be an impossible task. For example,
Thai phȳn (Appendix 6, #41) is the CL for pieces of cloth cut to some definite
size for use, such as curtains, towels, etc. The shape, compostion, and
function of the classified object all participate in the selection of
this CL. The evident borrowing illustrated by the similarities between
Cambodian and Thai CL's, as well as the widespread influences of Buddhism,
Indian culture, and Chinese culture, imply that inter-cultural contacts may
explain some of the similarities among CL systems. As with all such
comparisons, there is the problem of distinguishing between parallel
evolution and borrowing of words and concepts.
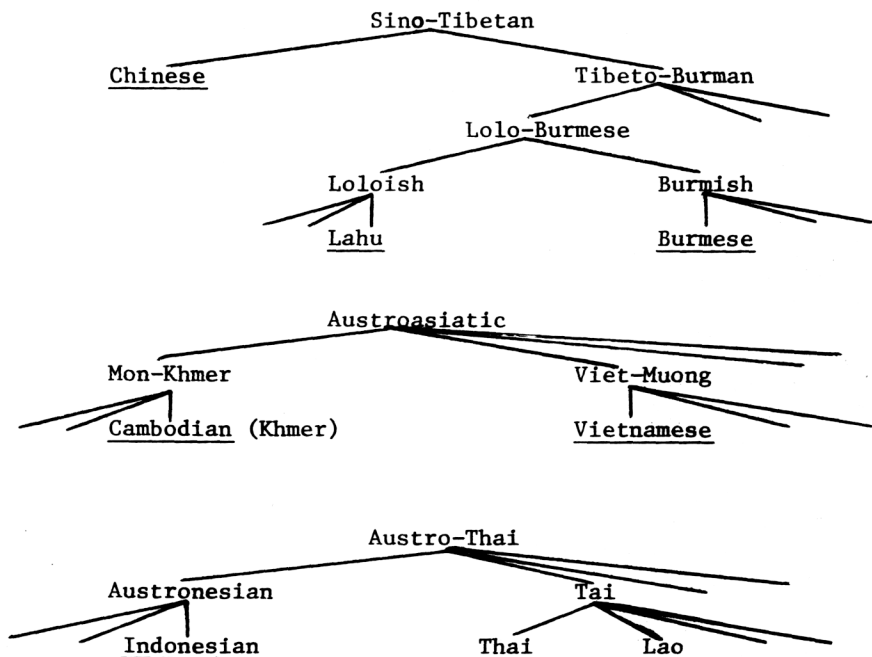
XIII I. Semantic Dimensions of CL's

Each language seems to use the same semantic dimensions but in
varying combinations. Pens and pencils have their own CL's in Thai
and Lao, take the general CL or the CL for stick-like objects in Vietnamese,
and are classified as long, slender objedts in Burmese. Cigars and cigar-
ettes have their own CL's in Vietnamese and Thai, are classified as long,
cylindrical objects along with trees and spears in Indonesian, and are
classified as 'rolls' in Lahu and Burmese. As an exercise, the reader
is invited to choose other common items and look through the Appendices
to see the different classifications. A drawback to this endeavor is
that the lists do not supply contexts but only common or possible
CL assignments.

XIII J. Conclusions

In conclusion, I claim that it has been shown that CL's are indeed a
Southeast Asian areal feature. They can most economically and unam-
biguously be defined by their occurrence in numerative phrases, in particular
as the element which immediately follows the numeral in such phrases. In
each language, the grammatical roles of the CL expand in different ways,
constrained by syntactic features of the individual language, as in the
case of repeaters. CL's add specificity and may or may not co-exist with
plural morphemes as the case may be. Demonstratives tend to be associated
with CL's but this relationship is not obligatory and the closeness between
CL's and demonstratives varies widely. CL's cannot stand alone in a phrase,
but either the noun or the CL can be deleted from the numerative phrase in
many cases. Semantically, CL's can be associated with multi-dimensional
prototypes, ranging from totally opaque, arbitrary CL - Noun associations
to clearly defined systems, as well as every possible mixture of these two
extremes. The prototypes are evidently based on a combination of

biological and cultural determinants. Most of the generalizations cited in the literature have been shown to be false, which is not surprising as they tended to oversimplify a complex topic. This does not mean that generalizations are not possible, only that they must be made in appropriate contexts and with due attention paid to actual language behavior.

Appendix 1
Relevant Genetic Affiliations
Of Southeast Asian Languages

Sino-Tibetan
Chinese   Tibeto-Burman
              Lolo-Burmese
        Loloish   Burmish
          Lahu   Burmese

Austroasiatic
    Mon-Khmer   Viet-Muong
      Cambodian (Khmer)   Vietnamese

Austro-Thai
    Austronesian   Tai
      Indonesian   Thai   Lao

Typological Sketch

Chinese:	SVO	Postposition	Genitive-Noun	Adj-Noun
Lahu:	SOV	Postposition	Genitive-Noun	Noun-Adj
Burmese:	SOV	Postposition	Genitive-Noun	Noun-Adj
Cambodian:	SVO	Preposition	Noun-Genitive	Noun-Adj
Vietnamese:	SVO	Preposition	Noun-Genitive	Noun-Adj
Indonesian:	-SVO	Preposition	Noun-Genitive	Noun-Adj
Thai:	SVO	Preposition	Noun-Genitive	Noun-Adj
Lao:	SVO	Preposition	Noun-Genitive	Noun-Adj

Appendix 2
Semantic Features of Classifiers
According to B.K. T'sou

1) Geometric shape/form
   a) spherical, round
   b) long, slender, cylindrical
   c) possessing flat surface with or without thickness
   d) horizontal (vs. vertical) orientation
2) Natural attributes
   a) fauna
   b) flora
   c) arborial
   d) head
   e) tail
   f) marine (vs. land based)
3) Qualitative attributes
   a) rigidity
   b) size/bulk
   c) meritorious
   d) stationary/mobile
4) Social attributes
   a) politeness
   b) social status
   c) sex (male/female)
5) Cultural attributes
   a) literary/written records
   b) culinary
   c) clothing
   d) instrumental
   e) edifice
   f) mechanical
   g) vehicular
   h) domesticated
6) Congregational attributes
   a) duality
   b) set (non-uniform objects)
   c) set (uniform objects)
7) Inherent attributes
   a) animate
   b) human/animal

Appendix 3
Vietnamese Classifiers
According to Nguyen Dinh Hoa

(Each entry consists of the CL, it's definition, the CL it takes if it
is a noun in its own right, and a characterization or listing of the
nouns for which it is a CL.)

1) ấm; teapot, kettle; CL cái; CL for potfuls, kettlefuls.
2) áng; cloud; given as CL for cloud.
3) bài; text, lesson, script; CL for nouns denoting speeches, news-
    paper articles, etc.
4) ban; section of time; given as CL for noontime.
5) bãi; flat expanse, field, stretch (of grass, sand, etc.); given as
    CL for cemetery, battlefield.
6) bản; edition, impression; CL for scripts, songs, plays, statements,
    treaties, etc.
7) bác; uncle (father's elder brother); CL người, ông; given as CL
    for assistant director.
8) bát; eating bowl; CL cái; CL for bowlfuls.
9) bắp; corn; CL for ears of corn, cabbages, muscles.
10) bậc; step (of stairs), rung (of ladder), rank, category, level;
    CL for outstanding men.
11) bầu; bottle gourd, calabash; CL quả, trái; gourdful; CL for
    friendly atmosphere, enthusiasm.
12) bó; to tie in a bundle, bunch bundle; given as CL for torch.
13) bông; flower; CL for flowers.
14) bộ; section, part, (government) department; set, series, pack
    (of cards), suit (of clothes), service, collection, assortment,
    etc.; given as CL for machine, government machinery.
15) buồng; bunch; CL for liver, lung, ovary.
16) buổi; half a day, session, event; given as CL for late afternoon,
    noontime, early evening.
17) bức; CL for walls, paintings, curtains, hangings, letters, etc.
18) cái; object, thing; CL for most nouns denoting inanimate things
    and some nouns denoting small insects (such as ants, bees); CL
    for single actions, single strokes, single blows.
19) cánh; wing (of bird), door-leaf, petal (of flower), wing (of
    political party); CL for sails, fields.
20) cây; plant, tree (name of species follows), tree; CL cái; CL for
    objects shaped like sticks, wood.
21) cặp; pair, couple; given as CL for field glasses.
22) con; CL for animals and certain inanimate things.
23) cơn; outburst, fit; given as CL for storm, nightmare.
24) cô; aunt, father's sister; CL người; CL for young girls.
25) cỗ; set, banquet, feast; given as CL for coffin.
26) cuộc; CL for games, parties, meetings, actions, etc.
27) cuốn; roll, spool; given as CL for spool.
28) cuốn; to roll, to carry away (of wind and water), roll, volume;
    CL for books, rolls, scrolls, volumes.
29) củ; bulb, edible root, tuber; given as CL for caltrops.

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30) chàng; young man; given as CL for 'Don Juan', lady-killer.
31) chập; salvo, volley; CL for whippings, thrashings.
32) chậu; wash basin, washbowl, pot; CL cái; CL for bowlfuls, potfuls.
33) chiếc; CL for vehicles, boats, planes, bridges; CL for one of a pair.
34) chú; uncle, father's younger brother; CL người; CL for Chinese, Indians.
35) đám; crowd, throng, festival, fete; CL for crowds, clouds, fields, etc.
36) đạo; CL for armies, laws, decrees, edicts, etc.
37) đấng; CL for gods, heroes.
38) đĩa; saucer, plate, dish; CL cái; CL for dishfuls.
39) điếu; (smoking) pipe; CL for cigarettes, cigars, pipes.
40) đóa; CL for flowers.
41) đôi; pair, couple, two times, twice; given as CL for pairs of sleeping mats, pairs of chopsticks.
42) đồ; thing, object, baggage, material, furniture, utensil, tool, sort of, son of; given as CL for good-for-nothing and dishonest person.
43) đứa; individual; CL for children or low-statused adults.
44) đường; road, way, street; given as CL for dike, path, equator, diameter.
45) gã; individual, young man; given as CL for 'Don Juan', lady-killer.
46) gốc; foot (of a tree); CL for trees.
47) giấc; to sleep soundly, pass out; (as a noun) nap, slumber, dream; given as CL for dream.
48) giọt; drop; given as CL (literary) for tear.
49) hạt; grain, stone, seed, kernel, drop; given as CL for pearl, shelled peanut.
50) hòn; ball, stone; CL for islands, stones, stone-like objects.
51) hộp; box, carton, case, can; CL cái; CL for boxfuls.
52) kẻ; individual, person, man; given as CL for usurper.
53) kiếm; sword, foil; given as CL for itself.
54) khẩu; mouth, opening; CL for guns, bites.
55) khoa; subject of study, specialty; CL for examinations, course, curriculum.
56) khối; mass, bloc, volume, bulk; given as CL for prism.
57) khúc; section, portion (of a fish, of a tree trunk), stretch (of road, of river); CL for songs, musical compositions, poems, etc.
58) lá; leaf; CL for playing cards, flags, applications, livers, lungs, spleens, sails, letters.
59) làn; CL for waves on water or hair, gusts of wind, trails of smoke, cloud.
60) lão; to be old, aged, elderly; given as CL for old rake, old debauchee.
61) lòng; innards, bowels, entrails, intestines, tripes, heart, feelings; given as CL for courage.
62) lọ; vase, flask, bottle, jar; CL cái; CL for vasefuls.
63) lời; spoken word(s); CL for utterances, statements.
64) lưỡi; tongue; CL cái; blade (of knife); CL for swords, knives, bayonets.
65) ly; glass, cup; CL cái; CL for glassfuls.

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66) manh; piece, bit, fragment, shrapnel, broken piece; CL for fields, small gardens, a moon not full.
67) mâm; food tray (wooden or copper, round or square); CL for trayfuls.
68) môi; end (of entangled thread or string), beginning (of involved story); CL for feelings, tensions, relationships.
69) món; dish in the menu, course (in dinner), item, sum (of money), loan, subject (of study); given as CL for snacks, present, gift.
70) mở; tray (of roasted sticky rice), layer (of clothes), bundle, mass (of materials), lot, assortment, quantity, bundle (of vegetables); given as CL for locks (of hair).
71) mũi; nose; CL cái; nasal mucus, point (of knife), head (of arrow, lance), cape (point of land), toe (of shoe), muzzle (of gun), stich; CL for stiches.
72) mụn; boil, pimple, carbuncle; CL cái; piece, bit, odds and ends (of material, cloth); CL for infants.
73) muống; spoon; CL cái; CL for spoonfuls.
74) nấm; mushroom; CL cái; CL for graves, tumuli.
75) nắm; to hold in one's fist; fist, fistful, handful; given as CL for fist.
76) nạn; accident, danger, calamity, disaster, catastrophe, peril; given as CL for flood.
77) nàng; lass, young woman; given as CL for fairy, immortal being (if female).
78) nén; CL for bars of gold, josssticks.
79) nền; foundation, basis; CL for economic, political, or cultural institutions.
80) nóc; rooftop, housetop; CL for housing units, homes.
81) nồi; pot, cauldron; CL cái; CL for potfuls.
82) nụ; bud, (contact) stud (electricity); CL for smiles.
83) ngọn; peak (of mountain, tree, flame); CL for mountains, hills flame, candles, flags, trees, lamps, etc.
84) ngôi; throne, kingship, status, rank, dignity, station, position, person (grammar); CL for stars, graves, temples, etc.
85) người; you (used to inferiors by kings, officials); CL for inferiors.
86) người; man, person, individual, people; CL for adult human beings, other people, others, body.
87) nhà; CL for experts.
88) nhánh; branch; given as CL for clove (of garlic).
89) ổ; nest, brood, litter; CL for ovaries, loaves of bread, locks, engines.
90) ông; grandfather, gentleman; CL người; given as CL for uncle, Buddhist monk, Buddha, assistant (director).
91) ống; tube, pipe, canal, piggy-bank; given as CL for flute.
92) ống tiêm; syringe; CL for injections.
93) phát; CL for fire shots, injections.
94) phiến; CL for slabs of stone, sheets of metal.
95) pho; CL for statues, volumes (books).
96) quả; fruit; CL for fruits, mountains, hills, balls, fists, etc.
97) quân; band, individual (derogatory); CL for chessmen, card games.
98) quẻ; CL for divinations, phrophecies, horoscopes.
99) ruồng; trunk, case, box; CL cái; CL for trunkfuls.

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100) seng; shovel; CL cái; CL for shovelfuls.
101) sở; place of work, office, bureau; CL for fields, lands.
102) sợi; thread, fiber, filament, yarn; CL for threads, hairs, strings.
103) sự; affair, event, thing, matter, business; CL for nouns denoting actions, events, states, etc.
104) tảng; CL for big stones.
105) tàu; ship, boat; CL chiếc; CL for big leaves.
106) tay; hand, arm, handle, sleeve, individual, person; given as CL for champion.
107) tấc; one tenth of a thước, decimeter, inch; CL for hearts, sentiments (literary).
108) tấm; CL for bolts, pieces of cloth, boards, mirrors, tickets, pictures, planks, hides, photographs, examples, hearts.
109) tấn; CL for plays.
110) tên; name, personal name; CL for individuals.
111) tính; personal character, temper, temperment, disposition, nature; to calculate, compute, reckon, figure out; given as CL for patience.
112) tình; feeling, sentiment, love; condition, state; given as CL for blood relationship.
113) tòa; official or ceremonial seat, government palace, bureau, court of law; CL for temples, buildings.
114) tờ; sheet of paper; CL for papers, newspapers.
115) thang; soup served with bun noodles; hot water; CL for prescriptions (Sino-Vietnamese medicine).
116) thanh; CL for sticks, swords, thin pieces of material.
117) thằng; CL for boys and inferiors or contemptible men.
118) thầy; master, teacher, father; CL for traditional scholars or white-collared workers.
119) thìa; spoon; CL cái; CL for spoonfuls.
120) thiên; CL for chapters, feature articles, novels, etc.
121) thím; one's chú's wife, i.e. father's younger brother's wife, aunt; CL bà; CL for Chinese women.
122) thớt; CL for elephants, gardens, rafts.
123) thúng; bamboo basket (carried on the head or at the end of a pole); CL for basketfuls.
124) thửa; CL for gardens, fields, plots.
125) trái; CL for fruits, round objects (same as quả).
126) trang; CL for heroes, given as CL for rare beauty.
127) trận; combat, battle, violent outburst; CL for fights, wars, attacks, matches, rains, storms, etc.
128) ván; CL for chess or card games.
129) vầng; disc (of moon, etc.); CL for suns, moons, etc., aureole, halo.
130) ve; flask; CL for flaskfuls.
131) vì; throne, place, station; CL for stars.
132) vị; taste (good or bad), flavor; CL for dinner courses, ingredients in Sino-Vietnamese medicine.
133) vị; seat, condition, rank, position; CL for deities or persons of some status.
134) viên; CL for things of regular shape, such as pills, bullets, bricks, tiles, etc.; to roll into balls.

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135) viên; CL for officials, officers, etc.
136) vò; jar; CL cái; CL for jarfuls.
137) vốc; to pick up in one's hand (s); CL for handfuls.
138) vở; notebook; CL for plays, books, notebooks.
139) vụ; season, period, harvest, crop; business, duty, affairs;
      CL for accidents, calamities, disasters, etc.
140) xe; vehicle, cart, carriage, bicycle, car; CL chiếc;
      given as CL for wheelbarrow.

Appendix 4
Table 1: Semantic Features of Vietnamese Classifiers

[+ indicates the appropriate feature is present, (+) indicates the feature is present in some cases only, ? indicates that the appropriate feature is possibly present but no definite claim is made.]

Classifier	Abstract	Concrete				
		Animate	Inanimate	Shape	Quantity	Function
1) ăm			+	+	+	
2) áng			+			
3) bài			+	?		+
4) ban	+					
5) bãi			+	+		+
6) bản			+			
7) bắc		+				
8) bạt			+	+	+	
9) bắp		+		?		
10) bậc	+					
11) bầu	+					
12) bố			+	+		
13) bông		+				
14) bộ	+					
15) buồng		+		+		+
16) buổi	+					
17) bức			+	+		
18) cái		(+)	+			
19) cành			+	+		
20) cây			+	+		
21) cặp			+	+		
22) con		+	(+)			
23) cơn	+					+
24) cô		+				+
25) cỗ			+			
26) cuộc	+					
27) cuộn			+	+		
28) cuốn			+	+		+
29) củ		?	?			
30) chẳng		+				
31) chập	+					
32) chậu			+	+	+	
33) chiếc			+			+
34) chú		+				+
35) đám			+	+		+
36) đao			+			+
37) đằng		+				
38) đĩa			+	+	+	
39) điều			+			+
40) đóa		+				
41) đôi			+	?		
42) đồ			+			+
43) đứa		+				
44) đường			+	?		+

Appendix 4
Table 1: Semantic Features of Vietnamese Classifiers

| Classifier | Abstract | Concrete | | | | |
		Animate	Inanimate	Shape	Quantity	Function
45) gã		+				+
46) gốc		+				
47) giấc	+					
48) giọt			+	+		
49) hạt			+	+		
50) hòn			+	+		
51) hộp			+	+	+	
52) kẻ		+				+
53) kiểm			+	?		+
54) khẩu			+	?		+
55) khoa	+					
56) khối			+	+		
57) khúc			+	?		+
58) lá			+	+		
59) làn			+	+		
60) lão		+				+
61) long	+					
62) lọ			+	+		+
63) lỗi	+					
64) lưỡi			+	+		?
65) ly			+	+	+	
66) mảnh			+	+		
67) mâm			+	+	+	
68) mối	+					
69) món			+			+
70) mớ			+	+		
71) mũi			+	?		?
72) mụn		+				
73) muỗng			+	+	+	
74) nắm			+	+		+
75) nắm			+	+	+	
76) nạn	+					
77) năng		+				
78) nén			+	?		
79) nền	+					
80) nóc			+			+
81) nồi			+	+	+	
82) nụ	+					
83) ngọn			+	+		
84) ngổi			+			+
85) người		+				+
86) người		+				
87) nhà		+				+
88) nhánh			+(?)	?		+(?)
89) ổ		(?)	+	+		
90) ông		+				+
91) ông			+	+		
92) ông tiêm			+	?		+

Appendix 4
Table 1: Semantic Features of Vietnamese Classifiers

Classifier	Abstract	Concrete		Shape	Quantity	Function
		Animate	Inanimate			
93) phát			+			+
94) phiến			+	+		
95) phó			+			?
96) quả			+	+		(+)
97) quận	+					
98) qué	+					
99) rường			+	+	+	
100) séng			+	+	+	
101) só			+			+
102) sợi			+	+		
103) sư	+					
104) tầng			+	+		
105) tàu			+	+		
106) tay		+				+
107) tắc	+					
108) tấm			+	+		
109) tân	+					
110) tên		+				
111) tính	+					
112) tình	+					
113) tou			+			+
114) tờ			+	+		+
115) thang			+			+
116) thanh			+	+		
117) thăng		+				+
118) thầy		+				+
119) thia			+	+	+	
120) thiên	?		+(?)			+(?)
121) thim		+				+
122) thốt		+		?		+
123) thụng			+	+	+	
124) thửa			+			+
125) trái			+	+		
126) trang		+				+
127) trận	+					
128) ván	+					
129) vầng			+	+		
130) vẹ			+	+	+	
131) vi			+			+(?)
132) vị			+			+
133) vị		+				+
134) viên			+	+		
135) viên		+				+
136) vò			+	+	+	
137) vốc			+	+	+	
138) vở	+					
139) vụ	+					
140) xe			+			+

Appendix 4
Table 1: Semantic Features of Vietnamese Classifiers

| | Abstract | Concrete | | | | |
		Animate	Inanimate	Shape	Quantity	Function
Total	27	31	82	53	18	45

+shape −function	47	−shape +function	39

Table 2: Vietnamese Numeral Phrase Frames

P = CL predicted by Nguyen Dinh Hoa (49)
TT = response of subject TT
CT = response of subject CT
NDH = dictionary characterization of CL
() = observations of subjects except where author mentioned

1) một ___ diễn-văn 'one speech'
  P bài
  TT bài
     một bài tập 'a homework, quiz'
     một bài học 'a lesson'
     một bài báo 'a newspaper article'
  CT bài
     một bài học 'a lesson'
  NDH CL for nouns denoting speeches, newspaper articles, etc.
2) một ___ đảo 'one island'
  P hòn
  TT hòn
     một hòn bi 'a ball'
     một hòn núi 'a mountain'
  CT hòn (small, round)
  NDH CL for islands, stones, and stone-like objects
3) một ___ đồng 'one crowd'
  P đám
  TT đám
     một đám trẻ con 'a group of children'
     một đám con nít 'a group of children'
  CT đám
     một đám người 'a group of people' (moving beings, e.g. not trees)
  NDH CL for crowds, clouds, fields, etc.
4) một ___ hồng 'one rose'
  P bông
  TT bông, hoa
     một bông cẩm chướng 'a flower' (author: the precise type was not obtained
     here)
     (may say "một cái bông hồng" but this is very strange)
  CT bông (Southern Dialect), hoa (Northern Dialect)
     một nhánh hồng 'a branch with several rose blossoms'
  NDH CL for flowers

Appendix 4
Table 2: Vietnamese Numeral Phrase Frames

5) một ___ quân 'one army'
  P đạo
  TT đạo
  CT đạo
    một đạo binh 'a crowd of soldiers' (must be organized crowd)
  NDH CL for armies, laws, decrees, edicts, etc.

6) một ___ lụt 'one flood'
  P nạn, vụ
  TT cờn, trận
    một cờn (trận) gió 'a wind'
    một cờn (trận) bão 'a storm'
  CT trận
    một trận giặc 'one battle'
    một trận cờ 'one chess game' (after author suggested vụ, CT described
    vụ lụt as 'flood with everything associated with it', e.g. damage,
    rescue efforts.)
  NDH nạn given as CL for 'flood'
      vụ CL for accidents, calamities, disasters, etc.
      cờn given as CL for 'nightmare', as noun: cờn mưa 'squall of rain',
      cờn giận 'fit of anger', cờn gió 'gust of wind'.
      trận CL for fights, wars, attacks, matches, rains, storms, etc.

7) một ___ súng 'one gunshot'
  P phát
  TT phát
  CT phát (difficult to substitute for numeral phrase)
  NDH CL for fire shots, injections

8) một ___ dây 'one string'
  P sợi
  TT sợi
    một sợi chỉ 'a thread'
    một sợi tóc 'one hair'
  CT sợi
    một sợi chuỗi 'a string of beads'
  NDH CL for threads, hairs, strings

9) một ___ cam 'one orange'
  P trai, qua
  TT trái, quả
    một trái (quả) đào 'one peach'
    một trái (quả) banh 'one ball (used in sport)'
  CT trái (fruit, homogeneous)
    một trái lựu-đạn 'a hand grenade'
  NDH trai, qua both CL for fruits, round objects

10) một ___ bàn
  P cái
  TT cái
    một cái ghế 'a chair'
    một cái mền 'a blanket'
  CT cái, chiếc
  NDH cái CL for most nouns denoting inanimate things and some nouns
    denoting small insects, CL for single actions, single strokes,

Appendix 4
Table 2: Vietnamese Numeral Phrase Frames

10) (continued)
    single blows
    <u>chiếc</u> CL for vehicles, boats, planes, bridges, etc.
11) một ___ gà 'one chicken'
    P con
    TT con
       một con rắn 'a snake'
       một con dao 'a knife' (author suggested this example)
       một con người 'a human being, person, man'
    CT con
       một con dao ' a knife'
    NDH CL for animals and certain inanimate things
12) một ___ hát 'one song'
    P bài, khúc
    TT bài (<u>whole</u> song)
    CT bài (a piece, written thing)
    NDH <u>bài</u> CL for nouns denoting speeches, newspaper articles, etc.
13) một ___ lăng-trụ 'one prism'
    P khối
    TT (after author gave predicted CL)
       một khối nước đá 'a lot of ice'
    NDH given as CL for <u>prism</u>
14) một ___ quan-tài 'one coffin'
    P cỗ
    TT cỗ, bộ
    CT cỗ
       một cỗ bàn 'a table at a party (i.e. all set up, one of a group)'
    NDH <u>cỗ</u> given as CL for <u>coffin</u>, given as noun: set, banquet, feast;
         <u>bộ</u> given as CL for <u>machine</u>
15) một ___ bạch-ngọc 'one white jade'
    P hòn
    TT hòn, viên (little)
    CT viên, hòn (synonymous: round, usually small)
    NDH <u>hòn</u> (see #2); <u>viên</u> CL for things of regular shape, such as pills,
         bullets, bricks, tiles, etc.
         một viên gạch 'a brick (complete one)'
         một hòn gạch 'a piece of broken brick'
16) một ___ gan 'one liver'
    P buồng, là
    TT là
       một là bài 'a text, lesson'
    CT là (leaf = shape of liver)
       (after author suggested buồng, both TT and CT volunteered
       <u>buồng phổi</u> 'lungs', CT adding that lungs are "enclosed", both
       rejected <u>buồng</u> with <u>gan</u>)
17) một ___ đuốc 'one torch'
    P ngọn, bó
    TT ngọn, bó
    CT ngọn
       một ngọn cây 'tip of tree' (sharp point)

Appendix 4
Table 2: Vietnamese Numeral Phrase Frames

17) (continued)
    NDH ngọn CL for mountains, hills, flames, candles, flags, trees,
          lamps, etc.; bó verb: to tie in a bundle, given as CL for torch
18) một ___ tóc 'one lock of hair'
   P mớ
   TT mớ
      một mớ giấy 'a lot of paper'
   CT luồng
      một luồng cỏ 'grass'
   NDH mớ given as CL for 'lock of hair'; luồng noun: furrow, bed
       (in garden)
19) một ___ gương 'one mirror'
   P cái, tấm
   TT tấm, cái, chiếc
   CT áng (Northern Dialect)
   NDH tấm CL for bolts, pieces of cloth, boards, mirrors, tickets,
       pictures, planks, hides, photographs; áng given as CL for 'cloud'
20) một ___ gừng 'one ginger'
   P củ (root), nhát (slice)
   TT củ
   CT củ
      một củ khoai 'a yam' (root)
   NDH củ noun: bulb, edible root; given as CL for caltrops; nhát verb:
       cut, slash; given as CL in 'slice of ginger'
21) một ___ gươm 'one sword, sabre'
   P lưỡi, thanh
   TT lưỡi, thanh
   CT cây
      một cây gậy 'a cane' (long shape)
   NDH lưỡi CL for swords, knives, bayonets
       thanh CL for sticks, swords
       cây CL for objects shaped like sticks; wood
22) một ___ thuốc nhức đầu 'one aspirin'
   P viên
   TT viên
   CT viên
   NDH (see #15)
23) một ___ địa-đồ 'one map'
   P bản
   CT bản (flat)
   NDH CL for scripts, songs, plays, statements, treaties, etc.

Appendix 4
Table 3: Dimensions of Shape in Vietnamese

Classifier	Long	Flat	Round/3-dim	Other
1) ẩm			+	
5) bãi		+		
6) bản		+		
8) bát			+	
12) bó	+			tied in bundle
15) buồng			?	bunch
17) bức		+		vertical
19) cánh		+		
20) cây	+			
21) cặp				pair
22) cuộn	?		?	roll
23) cuốn	?		?	roll
32) chậu			+	
35) đám				organized mass
38) đĩa		+	+	
48) giọt			+	small?
49) hạt			+	small
50) hòn			+	irregular?
51) hộp			+	rectangular?
56) khối			+	regular?
58) lá		+		
59) làn				irregular
62) lọ			+	
64) lưỡi		+		sharp
65) ly			+	
66) mảnh		+		broken
67) mâm		+		
70) mớ				stuck together
73) muỗng	?		?	spoonful
74) nấm			+	mushroom
75) nắm			+	
81) nồi			+	
83) ngọn				pointed
89) ổ			?	
91) ống	?			cylinder
94) phiến		+		metal, stone
96) quả			+	
99) rưỡng			+	rectangular
100) sẻng			+	shovelful
102) sợi	+			thin? thread-like
104) tảng			+	big stones
105) tàu		+		big
108) tấm		+		
114) tờ		+		paper
116) thanh	+			
119) thìa	?		?	spoonfuls
123) thúng	?		?	basketfuls
125) trái			+	
129) vầng		+	+	disc
130) ve			?	flaskfuls
134) viên			+	regular, small?
136) vò			+	jarfuls
137) vốc			+	handfuls

Appendix 5
Burmese Classifiers
According to R. Burling

Group 1: Animate and Sacred Objects or Groups
1) shú   Buddhas, images of the Buddha, stupas.
2) pâ   kings, queens, monks, nuns, novices, parents, spirits.
3) qû   respected people.
4) yau?   people of all kinds, women, girls, barbers, and beggars,
             except royalty or members of the holy orders.
5) káun   animals of all kinds, from elephants to fish, birds, and
             mosquitoes; also various mythological animals and near-
             animals: ogres, dragons, ghosts.
6) cei?   groups of ten men, or ten Buddhas.
7) sóun   couples, a man and his wife, lovers.
8) šîn   yokes of animals, teams; used with oxen and buffaloes,
             but not with elephants or horses; occasionally used for
             twins, or very close friends.
9) qou?   groups of people or animals: herds, flocks, crowds.

Group 2: Objects with Dimension in Time or Space
10) châun   long, slender objects: pencils, spoons, rulers, sticks,
             needles, knives, cotton yarn (not wool), keys, rope, small
             pieces of bamboo, umbrellas, pieces of sugar cane, bamboo
             tie strips, pieces of firewood, horns, tails, brainds of
             hair, etc.
11) pín   long slender living, or recently living things, which are
             vertical or perpendicular to the object to which they are
             attached: trees, plants or stalks of plants, blades of grass,
             hair, strands of woolen yarn.
12) táin   vertical slender objects which are not living: posts,
             candlesticks.
13) kwîn   hoops, loops, rings, bracelets, sarongs, rubber bands.
14) cha?   thin, flat objects: carpets, mats, mirrors, plates, trays,
             loops of pineapple as found in tins, slices of bread, bricks
             (which were thinner and flatter in traditional Burma than
             in some countries).
15) ywe?   very thin and flat objects: leaves, paper.
16) lôun   spherical or cubical objects: boxes, pots, chairs, houses,
             fruit, cups, loaves, eyes, mountains, bags, pills, seeds,
             grains, etc.
17) phe?   objects which come in symmetrical pairs: body parts such as
             eyes, hands, ears, nostrils; shoes, sides of paper (i.e.
             "pages" in which the two sides of the same sheet are counted
             separately).
18) pau?   holes: windows, doorways (not the door itself), entrances
             to caves, holes in paper or cloth.
19) khá   events or actions which take place in time: the number of
             times that something is done: takha, 'once', hnakha,
             'twice', etc.
20) khau?   trips or motions, occurring in time, as 'he came here
             three times'.
21) pyai?   for storms of rain and wind.

Appendix 5

Group 3: Objects with Use

22) thé — things worn on the body: trousers, sarongs, shirts, handkerchiefs; not used for shoes or hats.

23) sîn — tools or machinery which are used for transportation or for cutting: ships, boats, automobiles, knives, saws, arrows.

24) sî — things ridden: slephants, horses, carts, automobiles, airplanes.

25) sáun — things which can be read: letters, tickets.

26) le? — hand tools: knives, guns, umbrellas, hammers, spectacles, brooms.

27) kôun — for looped objects which can be worn: garlands, necklaces.

28) sháun — livable places: houses, apartments; used especially for the apartments of the various queens in the traditional Burmese royal palace.

29) ⊖wé — (rare) geographical connections; roads, rivers.

Group 4: Residual Category - Objects

30) khù — used whenever nothing else is appropriate; implies nothing of shape, or use, but it does show at least that the item counted is not animate or sacred and that it is an individual object: spectacles, chairs, houses, stories, moons, tails, etc.

Group 5: Numbers

31) we? — half

32) shé — ten; used for counting groups of ten objects.

33) dázîn — twelve; used primarily but not exclusively for packaged goods of European style, as a 'dozen tins of condensed milk'; dázîn, unlike other classifiers, for higher numbers, is never used with people or animals.

34) ya — hundred.

35) tháun — thousand.

36) ⊖áun — ten thousand.

37) ⊖êin — hundred thousand.

38) ⊖ân — million.

39) gadéi — ten million.

Group 6: Weights and Measures - Length

40) shámjî — (rare) a hair width.

41) thau? — the length of a grain of rice.

42) le?ma? — the width of the thumb, 'inch'.

43) thwá — span; the distance from the outstretched thumb-tip to the tip of the middle finger.

44) mai? — distance from the end of the outstretched thumb to the opposite side of a clenched fist; used especially in measuring cloth and rope.

45) béi — an English 'foot'; used especially in building construction.

46) táun — the distance from the elbow to the tip of the extended middle finger; 'cubit'.

47) táunsou? — the distance from the elbow to the end of the doubled fist.

48) kai? — a yard; considered to be two táun; used especially in measuring cloth.

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49) lán   arm span; considered to be four táun.
50) phálóun   an English furlong; 1/8 mile.
51) máin   an English mile.
52) táin   an archaic measure of distance; about two English miles.

Group 6: Weights and Measures – Area
53) éika   acre; this seems to be the only unit of area.

Group 6: Weights and Measures – Volume
54) pyí   a small measure of volume, usually for dry foods, and
                especially uncooked rice.
55) tîn   sixteen pyí; the amount held in a basket of standard size.
56) se?   drop; used for any liquid.
57) gálán   gallon; used especially for gasoline.

Group 6: Weights and Measures – Time
58) mani?   minute.
59) náyí   hour.
60) ye?   day.
61) ba?   week.
62) là   month.
63) hni?   year.
64) she?   generation.
65) θe?   lifetime.
66) bawà   existence (i.e., one round in the Buddhist cycle of existences).

Group 6: Weights and Measures – Weights
67) ywéiléi   a very small measure of weight, used only for jewels and gold.
68) ywéiji   two ywéiléi.
69) bizawà   a small unit of weight used only for precious stones,
                especially for diamonds.
70) bêθâ   1/16 tikal.
71) mûθâ   1/8 tikal (when used with a , 'five', amûθâ means 1/2
                tikal, illogical though this may be).
72) ma?θâ   1/4 tikal.
73) ca?θâ   one tikal; 1/100 of a viss; the weight of a silver 'kyat'
                or rupee.
74) páun   one English pound; used especially for European-type goods:
                coffee, English tea, sweets.
75) peiθâ   one 'viss'; equivalent to about 3 1/2 English pounds.

Group 6: Weights and Measures – Value
76) pyâ   smallest unit of the Burmese monetary system; 1/100
                of a 'kyat'.
77) ma?   25-pyâ.
78) mû   used only with the numeral a 'five', the combination
                meaning 50-pya.
79) ca?   one 'kyat', the Burmese monetary unit, officially
                equivalent to about U.S. $.21.

Group 7: Weights and Measures: Relative –Distance

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80) kán	the distance of an arm length, especially the distance that something may be p assed from hand to hand; a reach.
81) pyi?	a stone's throw.
82) khó	the distance one can call.
83) pyà	the distance between corner gables on a palace, and by extension, a 'block'.

Group 7: Weights and Measures: Relative - Height
84) ya?   the height of a man - used in measuring heights of trees,
           buildings, etc.
85) pháun the height that a man can reach with arms stretched upward.

Group 7: Weights and Measures: Relative - Girth
86) thwâzái the circumference around with the outstretched fingers
             of two hands can reach.
87) phe?   the circumference around which the two arms can reach.

Group 7: Weights and Measures: Relative - Volume
88) bû   box, tin (the amount which can be held in such containers;
             this note applies to the other CL's in this subgroup, also).
89) zûn   spoon.
90) lou?   mouth.
91) shou?   hand.
92) pagán   plate.
93) tâun   basket.
94) chîn   a rough type of basket.
95) qei?   bag.
96) hlei?   cartload.
97) khwe?   cup, bowl, glass.
98) palîn   bottle.
99) qôu   pot, jar.
100) khayâ   kettle.
101) sí   tank, drum.
102) bôun   bucket, kerosene tin (which, in Burma is often used for other
             things than kerosene).

Group 7: Weights and Measures: Relative - Weights, Loads
103) pwèi   an armful; used for firewood, flowers, vegetables.
104) pai?   an armful; synonymous with pwèi.
105) thân   amount carried in the two loads of a shoulder pole.
106) ywe?   amount that can be carried on the head.

Group 8: Vague Amounts
107) pa?   a circuit; the distance around a circle, as the distance
             around the waist, the arm, a traffic roundabout, or even the
             distance around a city.
108) céin   a period of time of indefinite length; céin is also sometimes
             used to indicate actions in time, especially for the number
             of bows made to a monk.
109) swê   an indefinite unit of weight.

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Group 9: Residual Category - Amounts
110) chòu   some, used only with the number ta, 'one'.
111) póun   part; used in constructing fractions such as 'of four parts, three parts', i.e., 3/4, but póun does not in itself indicate any specific fraction.

Group 10: Pieces, Sets, Parts, Portions, Piles, Bunches.
112) sóun   pairs, complete assortments; pairs of shoes, sets of clothes, sets of dishes, cutlery, or furniture.
113) yán   pairs of personal ornaments and clothing, earrings, bracelets, bangles, shoes.
114) pwe   a serving of food, usually complete with rice, curry, etc., a course.
115) qou?   a pair of sarongs.
116) póun   piles of anything: firewood, clothes, sand, food, etc.
117) si   tied-up bunches: flowers, firewood, vegetables.
118) tho?   wrapped-up bunches: a serving of food wrapped in a leaf, a packet of salt, a deck of cards, a bundle of clothes.
119) twe   tied-together bunches, such as keys; a train carriage, possibly because it consists of a connected series of compartments.
120) sin   a bunch of hair added to the natural coiffure to give bulk: chignon.
121) pyi?   sections of thatch which are cut by a special technique known as pyi?de in Burmese.
122) khau?   folds.
123) tùn   gathers.
124) sà   pieces.
125) tân   rows of things such as trees, chairs, etc.
126) lâin   rows or lines of things: trees, chairs, flowers.
127) lei?   rolled-up things: rolled mats, cigarettes, cigars, rolls of paper or cloth.
128) khín   hanks of rope or wool.
129) khwei   coils of rope: wreaths of flowers.
130) pâin   cross-sectional pieces of bamboo, fish, logs; used especially for sections of long, slender things, but also for such things as tables, houses, and even stories of a building; often, but not necessarily, pâin means 'one-half'.
131) chân   a slice, usually length-wise, of fruit, fish, bamboo; often, but not necessarily, means 'one-half', or one of two parts, even if the parts are not equal.
132) sei?   a slice, especially of fruit, which is ambiguous as to the direction of the slice; indicates a piece smaller than half and usually only one-fourth or less.
133) shin   layers such as those of a food carrier which can be taken apart; shelves, i.e., sections which can be stacked one on top of another.
134) ta?   layers, stories.
135) tôun   blocks, cakes, or pieces of more or less homogeneous substances such as soap, ice, meat, charcoal, gold.
136) pau?   a bit of liquid; usually more than a drop, but an indefinite

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137) kwe?   an area, usually a wet area; a puddle; a paddy field.
138) kwîn   a field for crips or for playing games.
139) chán   a field for flowers or fruit trees, especially the latter.
140) wâin   compounds.

Group 11: Language Units
141) pou?   songs, poems.
142) khûn   words, occasionally for sentences or utterances.
143) pai?   verses, paragraphs.
144) câun   sentences, lines of poem.
145) lôun   small bits of speech or letters of the alphabet.
146) pâin   parts of a story.

Group 12: Plant Parts
147) kháin   branches, especially branches containing fruit or flowers:
           arms of bananas (whole stalk).
148) kâin   branches.
149) phî   hands of bananas; used for nothing else.
150) khe?   small branches, twigs, especially small sprigs of flowers.
151) twê   bunches of fruit, such as grapes, or branches laden with
           grain.
152) hnàn   stalks of grain, especially paddy.
153) pwìn   single flowers.
154) ŋóun   buds.
155) phû   buds.
156) qù   edible roots and tubers.
157) sei?   joints or nodes, as of bamboo, sugar cane, or the joints
           of fingers.
158) hmwá   sections of fruit, as of an orange or of a jackfruit.
159) tô   forests; used with species names of trees, as 'a forest
           of pine'.

Group 13
160) myôu   kinds, varieties, sorts; can occur with all nouns in the
           language.

Group 14: Echo Classifiers
161) caun   schools.
162) thâun   jails.
163) qéin   houses.
164) yôun   courts.
165) khân   rooms.
166) ywá   villages.
167) myôu   towns, cities.
168) né   districts.
169) pyí, pyéi   countries.
170) kán   lakes.
171) cûn   islands.
172) chán   gardens.
173) pwê   ceremonies.
174) hlân   steps.
175) câun   straight lines, rulings on paper.

176) câ   lancâ, lanes, paths.
177) lâŋ   roads.
178) twîn   yeidwin, wells.
179) tâun   baskets.
180) thân   paddles, oars.
181) póun   dápóun, photographs.
182) bêin   wheels.
183) sin   stages, shelves.
184) you?   dolls.
185) lâun   corpses.
186) hma?   marks.
187) shwê   drawers.
188) yi?   grooves, as on a screw.
189) khûn   skin, peel.

Appendix 6
Thai Classifiers
According to P.A. Lanyon-Orgill

1) khon[1]; person; CL for human beings.
2) jāŋ[2]; manner, way, type; CL for things, kinds, sorts.
3) cha[5]nid[5]; kind, species; CL for varieties or sorts.
4) chin[5]; CL for anything which is usually divided into pieces.
5) baj[1]; leaf; CL for fruit, containers and similar objects such as eggs and hats, leaf-like objects such as slips of paper.
6) kɔ̄n[4]; CL for things in the shape or form of a lump.
7) lūg[4]; CL for fruit and many spherical objects.
8) phon[3]; CL for fruit (formal word).
9) dɔ̄g[2]; CL for flowers, joss-sticks, keys.
10) ton[4]; CL for trees, plants.
11) kiŋ[2]; CL for branches, twigs.
12) tua[1]; body; CL for animals, creatures (other than white elephant), and by an extension of meaning with tables and chairs (having four legs), and coats, shirts, trousers, and similar garments (being similar to the skin of an animal).
13) chyag[4]; CL for tame or white elephants.
14) khū[4]; couple, pair; CL for things which occur in pairs.
15) khāŋ[4]; side, part; CL for parts of the body occurring in pairs, and also for certain items of clothing, like shoe, sock.
16) sī[4]; CL for teeth.
17) niw[5]; CL for digits (finger, toe).
18) ʔan[1]; CL for small, long, thin objects, especially types of brushes.
19) khan[1]; CL for a wide range of long thin objects, including umbrellas, forks, and spoons, as well as for most vehicles (but not ox-wagons).
20) lem[4]; CL for thin, flat, or sharp-pointed objects, and similar things; also for ox-wagons.
21) cha[2]bab[2]; CL for newspapers, letters, documents, telegrams, etc.
22) nā[4]; CL for pages of a book.
23) laŋ[3]; CL for buildings, mosquito-nets.
24) bān[1]; CL for doors, windows, and similar objects.
25) hèŋ[2]; CL for places or localities.
26) rōŋ[1]; building; CL for buildings, the names of which contain the element rōŋ[1].
27) rān[5]; store; CL for shops and stores, the names of which contain the element rān[5]. (hèŋ[2], #25, can be used for the same words).
28) hɔŋ[4]; room; CL for rooms, the names of which have hɔŋ[4] as the first element.
30) pa[2]; CL for forests.
31) hɔ̄[2]; CL for packets and packages.
32) sɔ̄ŋ[1]; envelope; CL for envelopes and similar objects such as packets of cigarettes.
33) muan[1]; CL for individual cigarettes, cigars.
34) thèŋ[4]; CL for pencils.
35) dam[4]; CL for pen-holders, pens.
36) ryan[1]; CL for clocks and watches.
37) sāj[3]; line; CL for ribbon-like objects such as route, street, canal, river.
38) sēn[4]; CL for string, etc.

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39) kra^{2}buan^1, kha^{2}buan^1; CL for processions, trains, etc.
40) phɛn^2; CL for thin, flat objects.
41) phȳn; CL for pieces of cloth cut to some definite size for use, such as curtain, towel, cloth.
42) chud^5; CL for sets of things such as clothes; games, plays.
43) duaŋ^1; CL for lighted objects, medals, seals, postage stamps, etc.
44) tɛ̄w^3; CL for ranks, rows, or lines.
45) lam^1; CL for boats, aircraft, etc.
46) khryan^4; utensils, tools; CL for machines.
47) kra^{2}bɔ̄g^2; CL for weapons, tubes, pipes.
48) ʔoŋ^1; CL for rulers and chiefs.
49) dun^4; CL for bundles of firewood.
50) phleŋ^1; song; CL for songs.
51) khɔ̄^{4}; CL for questions or subjects in discourses.
52) rūb^4; picture; CL for pictures, statues of the Buddha, Buddhist priests.
53) ryaŋ^4; CL for books, plays, other literary works (this CL is inserted before the title).
54) fɔ̄ŋ^1; CL for egg.
55) mɛd^5; CL for small objects such as buttons, seeds, grains, pills, gems.
56) dān^4; CL only for wall.
57) woŋ^1; CL for finger-ring, orchestras, card-parties.
58) jɔ̄d^4; CL for mountain, hill, banana leaves.

Temporal Classifiers

59) khrāw^1; time, occasion.
60) khraŋ^5; time, instance.
61) wēllā^1; time (e.g. number of times).
62) diaw^3; moment.
63) nā^{1}thī^1; minute (1/40 of an hour).
64) chua^{4}mōŋ^1; hour.
65) mōŋ^1; hour.
66) nā^{1}li^{5}kā^1; o'clock (24-hour system).
67) wan^1; day.
68) ʔā^{1}thid^5; week.
69) khȳn^1; night.
70) dyan^1; month.
71) ra^{5}dū^1; season.
72) pī^1; year.
73) thɔ̄m^1; term (school-).

Weights and Measures (regarded as classifiers)

74) kha^{2}nād^2; size (of anything).
75) lā^3; yard; CL for yards of cloth.
76) maj^1; mile.
77) fud^5; foot.
78) med^5; metre.
79) ki^{2}lō^{1}med^5; kilometre.
80) sen^{1}ti^{2}med^5; centimetre.
81) niw^5; inch ('digit').

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82) kram^1; gramme.
83) ki^{2}lo^{1}kram^1; kilogramme.
84) lo^3; dozen, especially for eggs.
‾85) ʔoŋ^{1}sa^3; degree of temperature.
86) khuab^2; year (of age of children up to adolescence).
87) thuaj^4; cup; CL for cupfuls.
88) can^1; plate; CL for platefuls.
89) cham^1; bowl, dish; CL for bowlfuls.
90) chɔn^5; spoon; CL for spoonfuls.

Units of Money (regarded as classifiers)

91) sa^{2}taŋ^1; satang (100 satangs = 1 baht).
92) sa^{2}lyŋ^3; quarter (25 satangs).
93) bad^2; baht, tical.

Identical Classifiers

94) tua^1; body.
95) raŋ^{4}kaj^1; body.
96) si^{3}saʔ^2; head (formal word).
97) hua^3; head.
98) na^4; face, countenance.
99) sa^{2}mɔŋ^3; brain.
100) phom^3; hair (of head).
101) kɛm^4; cheek.
102) ca^{2}mug^2; nose.
103) ta^1; eye.
104) khiw^5; eyebrow.
105) hu^3; ear.
106) pag^2; mouth.
107) khaŋ^1; jaw.
108) lin^5; tongue.
109) rim^{1}si^{3}pag^2; lip.
110) khɔ^1; neck.
111) laj^2; shoulder.
112) ba^2; shoulder (back part).
113) khɛŋ^3; arm.
114) khɔ^{4}sɔg^2; elbow.
115) my^1; hand.
116) fa^{2}my^1; palm of hand.
117) na^{4}ʔog^2; chest, thorax.
118) nom^1; breast.
119) hua^{3}caj^1; heart.
120) caj^1; spirit, heart (figurative).
121) siaŋ^3; voice, tone, sound.
122) rod^5; taste, flavor.
123) laŋ^3; back.
124) sa^{2}ʔɛw^1; waist.
125) saj^{4}tan^1; appendix.
126) thɔŋ^5; abdomen, belly.

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127) kha^3; leg.
128) khaw^2; knee.
129) son^4; heel.
130) thaw^5; foot (formal word).
131) tin^1; foot (informal word).
132) fa^2; sole of foot.
133) haŋ^3; tail.
134) med^5; seed, grain.
135) ma^{5}led^5; seed, grain.
136) tɔn^1; part, section.
137) phag^4; region, part.
138) log^4; world.
139) pra^{2}thed^4; country, nation.
140) tha^{5}wib^4; continent.
141) ma^{5}ha^{3}sa^{2}mud^2; ocean.
142) phɛn^{3}thi^4; map.
143) thid^5; direction, compass point.
144) siŋ^2; thing.
145) sad^{2}sa^{2}na^3; religion.
146) klag^2; box of matches.
147) kun^{1}cɛ^1; key, padlock.
148) rub^4; picture, image.
149) liam^2; edge, side (of square, etc.)
150) phaj^1; part, side.
151) nam^1; name, noun.
152) chɣ^4; name.
153) kham^1; word.
154) pha^{1}sa^3; language.
155) khrɔb^{4}khrua^1; family.
156) haŋ^4; store, shop, commercial firm.
157) bɔ^{1}ri^{5}sad^2; business firm.
158) myaŋ^3; mine, pit.
159) bod^2; temple.
160) sa^{2}tha^{3}ni^1; station.
161) sa^{2}tha^{3}ni^{1}rod^{5}faj^1; railway station.
162) khlɔŋ^1; canal.
163) phɛ^1; raft.
164) tha^4; port, harbor.
165) ʔaw^2; gulf, bay.
166) phu^{1}khaw^3; mountain, hill.
167) noŋ^5; dam.
168) sa^{2}phan^1; bridge.
169) chaj^{1}had^2; beach.
170) faŋ^2; bank, shore, strand.
171) lɛm^3; peninsula.
172) kɔʔ^2; island.
173) kra^{2}suaŋ^1; ministry, government department.
174) krom^1; sub-department of government office.
175) kɔŋ^{1}thab^5; army.
176) faj^2; faction, side in a contest.
177) chad^4; race, nationality.

178) kha^{5}na?^{5}; group, party (of men).
179) h$\mathrm{ɔ}$ŋ^4; room.
180) mum^1; corner (as of a room).
181) tiaŋ^1; bed.
182) hin^4; shelf.
183) tū^4; case, cupboard.
184) lin^{5}chag^5; drawer.
185) suam^4; toilet, lavatory.
186) taw^1; stove.
187) kra^{2}daj^1; staircase.
188) ban^{1}daj^1; stairs, steps.
189) chan^5; story (of building), layer.
190) laŋ^{3}khā^1; roof.
191) sa^{2}nām^3; field, lawn.
192) suan^3; garden.
193) rua^5; fence.
194) thaj^3; plough.
195) chag^2; theater-curtain, screen (cinema).
196) kra^{2}paw^3; pocket, purse.
197) ralkha^1; price.
198) huan^2; noose, loop.
199) kl$\mathrm{ɔ}$ŋ^4; pipe, tube.
200) ruan^1; ear of paddy, corn.
201) plyag^2; peel, husk.

Rarely Used Classifiers (transcriptions of these CL's were not given, so tones were not derived for this group; also, the transcriptions are not reliable).

202) sīg; pieces, ribs.
203) mawan (?); rolled-up objects.
204) pæp; narrow pieces of cloth.
205) tan (?); pieces of cloth or wood.
206) mat; bundles of wood.
207) kasum (?); bales, reels, hanks.
208) ōj; hanks of silk thread.
209) khat; hanks of twine or rattan.
210) khet; skeins of thread.
211) kaŋ (?); piles, heaps.
212) thēw; sets, series (as of nests of boxes).
213) sarap; set, series (as of suits of clothes).
214) bīp; tins of kerosine oil.
215) khnan (?); medicines.
216) pag; nets, cradles.
217) khamphīn (?); sacred books, books on magic.
218) fag(?); books made of palm-leaves.
219) chaf; acts of a play.
220) bat (?); songs, verses.
221) dajn; priests' robes.
222) kanat (?); sermons, speeches.
223) ha; showers of rain.
224) raj; fields.
225) khanat(?); garden-plots.
226) ka(?); clumps of trees.
227) dap; leaves for thatching.
228) kesat; flakes, scales.
229) phag; fish-roes.
230) hanuaj; eggs.
231) fa; oyster-shells.
232) phaŋ; herds, flocks.
233) khōlaŋ; herds of elephants.
234) sa(?); bunches of flowers.
235) thasaj; bunches of betel-nuts.
236) hīŋ; bunches of bananas.
237) can; blossoms of palms (coconut, areca).
238) phawaŋ(?); garlands.
239) cag(?); onions, garlic.
240) byn; saws.
241) dan(?); hermits, giants.

Appendix 7
Cambodian Classifiers
According to M.E. Ehrman

1) kbaal; copies of books, volumes; livestock.
2) knɔɔŋ; houses.
3) kuu; pairs of things.
4) krŏp; pellets, grains, tablets, bullets.
5) krɨɔn; machinery.
6) cbap; copies of pamphlets, newspapers, magazines.
7) daəm; long, thin, sticklike objects.
8) dom; pieces and lumps.
9) tuo; letters of the alphabet, vehicle bodies, characters in a play.
10) nếʔ; ordinary people.
11) prɔdap; suits of clothing; sets of tools and equipment.
12) phaɛn; disks.
13) mat; words, utterances, mouthfuls.
14) ruup; pictures, shapes, forms, images, persons.
15) sɔnlək; sheets of paper, leaves.
16) sɔmrap; suits of clothing; sets of tools and equipment.
17) ɔŋ; monks, exalted people, images of Buddha.

Less Common Classifiers

18) khsaɛ; strings, wires, and long, string-like objects.
19) muk; kind.

Measure Words

20) kilou; kilo.
21) dɔɔp; bottle.

Time Units

22) thŋay; day.

Appendix 8
Indonesian Classifiers
According to J.B. Kwee

1) orang; CL for human beings.
2) ékor; CL for animals.
3) buah; CL for large things: houses, ships, mountains and also for fruit and abstract nouns.
4) batang; CL for any long, cylindrical things; cigars, trees, spears, sticks.
5) tangkai; CL for flowers.
6) kuntum; CL for flowers.
7) helai; CL for flat, thin things: cloth, paper.
8) bidang; CL for grounds, fields, gardens.
9) bidji; CL for grains, seeds and anything resembling grains or seeds: corn, pearls, diamonds, eggs.
10) butir; CL for same objects as bidji.
11) bilah; CL for flat, bladed things: knives, planks.
12) putjuk; CL for sharp, pointed things: rifles, nails.
13) utas; CL for long, soft things: threads, cords.
14) potong: CL for anything that can easily be torn, broken, or cut: bread, meat.
15) kerat; CL for same objects as potong.
16) tjarik; CL for same objects as potong.

Appendix 9
Chinese Classifiers
According to J.J. Brandt

1) ko^4; a piece; a general CL for persons or things.
2) wei^4; position, place; CL for persons referred to in a respectful manner.
3) pen^3; the root, the origin; CL for books, documents, etc.
4) $chien^4$; an item; CL for affairs, clothes, documents, etc.
5) $chang^1$; to extend; CL for tables, paper, etc.
6) $k'uai^4$; a clod, a lump; CL for money, land, etc.
7) pa^4; to grasp; CL for knives, chairs, etc.
8) $t'iao^2$; a branch; CL for long and slender things, streets, etc.
9) $chien^1$; a space between; CL for rooms.
10) so^3; a place; CL for houses.
11) $chih^1$; one of a pair; CL for oxen, sheep, fowls, limbs, boats, etc.
12) $t'ou^2$; a head; CL for mules, oxen, and donkeys.
13) tao^4; a road; CL for streets, rivers, etc.
14) $feng^1$; to seal up; CL for letters and parcels.
15) $p'i^3$; one of a pair; CL for horses.
16) $liang^4$; a pair of wheels; CL for vehicles.
17) $kuan^3$; a reed, a tube; CL for tubular things.
18) $ting^3$; the top; CL for hats and sedan-chairs.
19) $shan^4$; a fan; CL for doors, windows, screens, etc.
20) $p'i^3$; a bolt; CL for 'pieces' of cloth, silk, etc.
21) $k'ou^3$; the mouth; CL for swords, bells, persons.
22) $k'o^1$; CL for trees.
23) $t'ao^4$; an envelope; CL for volumes of books and suits of clothes.
24) tso^4; a seat; CL for temples and graves.

Appendix 10
Lao Classifiers
According to G.E. Roffe & T.W. Roffe

1) an; general CL.
2) a:thĩt; week; CL for itself.
3) bâ:t; baht, tikal; CL for itself.
4) bay; CL for leaflike objects, many containers, etc.
5) bĩ:; ten-cent piece; CL for itself.
6) bɔ̃:n; CL for places: hospitals, schools, various kinds of stores, garden, stadium, sports field, toilet.
7) būang; spoon; CL for spoonfuls.
8) byang; side; CL for ear, knee, etc.
9) ca:n; cup; CL for cupful.
10) cay; heart, spirit; CL for itself.
11) da:ng; CL for mosquito net.
12) dɔ̃:k; flower; CL for flowers.
13) dɔ̃:nlā:; dollar; CL for itself.
14) duang; CL for stamps, lighted objects such as the moon, stars; knives.
15) dyan; moon, month; CL for itself.
16) fak; CL for green beans, beans.
17) fā:j; side; CL for sides (?).
18) hâ:ng; store; CL for itself.
19) hɛ̃:ng; place; CL for places: hospitals, schools, various kinds of stores.
20) ho:ng; CL for schools.
21) hɔ̃:; CL for packages.
22) hɔ̃:ng; room; CL for rooms.
23) hǔ:; ear, CL for itself.
24) hŭa; head, CL for itself.
25) hŭaj; creek, torrent, CL for itself.
26) hyan; CL for watch, house-clock.
27) jā:ng; kind, sort; CL for kinds or sorts of anything, and with the noun khɔ̃:ng 'thing'.
28) kabuan; CL for train.
29) kan; each other; CL for conversation.
30) ká:n; CL for spoons, forks.
31) kàp; box; CL for itself.
32) kīng; CL for branch, shoe.
33) kî:p; piastre; CL for itself.
34) kòk; CL for bushes, plants, trees.
35) kɔ̃:n; CL for things having the form of a lump, such as cakes of soap, bread.
36) kɔ:ng; drum; CL for army.
37) khan; CL for umbrellas, vehicles, spoons, forks.
38) kha:ng; chin, jaw; CL for itself.
39) khâ:ng; side; CL for sides (?).
40) khɛ̌:n; arm; CL for itself.
41) khon; person, people; CL for people.
42) khɔ̂:; verse; CL for points of questioning.
43) khɔ́:hkhua; family; CL for families (?).
44) khū:; pair; CL for things that come in pairs.
45) khŭa; bridge; CL for itself.
46) khwɛ̌:ng; province, township; CL for province, township (?).

Appendix 10

47) la:; yard (of measure); CL for yards.
48) ladu:; season; CL for seasons.
49) lam; CL for boats, certain objects that float on water, the watercourse itself.
50) lăng; CL for house.
51) lêm; CL for books, certain sharp-pointed objects, such as pencils; dugouts.
52) lín(tu:); drawer; CL for drawer.
53) lǒ:; dozen; CL for dozens.
54) lo:ng; building; CL for sawmill.
55) mâ:k; CL for mangos, green beans.
56) mi:nĭt; minute; CL for itself.
57) mo:ng; o'clock; CL for itself; time (on a watch), hour, watch.
58) myang; city, county; CL for city.
59) nâ:; face, front; CL for pages of a book, face.
60) nɛ:w; CL for sorts, kinds, varieties of anything.
61) níw; CL for finger, toe.
62) nũaj; CL for round and other objects, including clouds.
63) nja:m; season; CL for seasons.
64) ong; CL for king, monarch, head of Wat (Buddhist temple).
65) paka:n; **CL** for crime, punishment, error.
66) pɔ̄:ng; CL for doors, windows, etc.
67) pým; CL for book.
68) phăp; CL for book.
69) phɛ̌:n; CL for thin, flat objects: boards, sheets of paper, etc.
70) phû:; CL for individual person.
71) phȳ:n; CL for pieces or strips of cloth in form for use: towel, curtains, rugs, etc.
72) sămlàp; CL for suit for a man.
73) saná:m; CL for stadium, sports field.
74) sanĭt; CL for sorts, kinds, varieties of anything.
75) sên; CL for long ribbon-like objects, such as streets, rivers, hairs, etc.
76) sĭang; sound, voice; CL for itself.
77) sīng; thing; CL for things.
78) sɔ:ng; envelope; CL for envelopes.
79) sŭ:m; CL for suit for a man.
80) sû:t; CL for suit for a man.
81) taw; stove; CL for itself.
82) tāw; CL for breast.
83) tiang; bed; CL for itself.
84) to:; CL for animals, pieces of furniture, certain clothes: coats, dresses, pairs of pants.
85) tón; CL for bushes, plants, trees.
86) tɔ̄:n; CL for pieces.
87) tua:; alternate form for to:, #84.
88) thawí:p; continent; CL for continents.
89) thɛ̌:ng; CL for pens, pencils.
90) thong; CL for airfield.
91) thŏng; bag, pocket; CL for itself.
92) thûaj; cup; CL for cupfuls.
93) thȳa; time (as in 'four times'); CL for times.

94) wĭ:; CL for 'hand' of bananas.

95) wong; CL for ring (finger).

Appendix 11
Lahu Classifiers
According to J.A. Matisoff

1) ka̠; CL for places.
2) khɛ̂; CL for animals, subhuman spirits.
3) khwɛ́; bound nominal morpheme; CL for half.
4) câʔ; prefixable morpheme; CL for long, string-like objects.
5) cɔ̄; CL for kinds of things.
6) ma̠; general CL for objects.
7) gâ; CL for people.
8) ší; prefixable morpheme; CL for round/spherical objects, months(moons).
9) yɛ̀; house; CL for itself.
10) qhâʔ; village; CL for itself.
11) mû-mi; country; CL for itself.
12) lèʔ; CL for cigarettes.
13) cɛ̀; CL for plants, trees.
14) pêʔ; CL for fields.
15) qhɔ̂; CL for elongated objects.
16) qôʔ; CL for books or papers.

Measure CL's

17) lîʔ; liter; CL for liters
18) ha̠y; rai (about 10 acres); CL for rai's.
19) khê; cup; CL for cupfuls.
20) kɔ; bottle; CL for bottlefuls.
21) tû; basket; CL for basketfuls.
22) qhu; pipe; CL for pipefuls.
23) ba̠ʔ; baht (unit of currency); CL for bahts.

Time CL's

24) qhɔ̀ʔ; year.
25) ší; week.
26) ni; day.
27) jɔ; cycle (traditional Lahu week of 12 days).
28) nālî; half hour.
29) ha-pa; month.
30) khɨ; instant (only after te 'one').
31) pɔ̂ʔ; time (as 'one time').
32) yâ(n); time (as 'one time').
33) na̠ʔ; early-morning.

Group CL's

34) gɨ̠; CL for group, bunch, pack (only after tê 'one').
35) ca; CL for couple, pair (only after tê 'one').
36) tê gɛ́; together.
37) tê phā; the whole group.
38) tê pa; some.
39) mɔ̄; CL for group, party, faction (may take any numeral).

Round Number CL's

40) chi; tens.
41) ha̠; hundreds.
42) hi-hé; thousands.
43) mɔ̄; ten thousands.
44) lân; millions.

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