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TOBELORESE ETHNOBIOLOGY: THE FOLK CLASSIFICATION OF "BIOTIC FORMS"

Yale University PH.D. 1980

Tobelorese Ethnobiology:
The Folk Classification of "Biotic Forms"

A Dissertation

Presented to the Faculty of the Graduate School

of

Yale University

in Candidacy for the Degree of

Doctor of Philosophy

by

Paul Michael Taylor

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ABSTRACT

Tobelorese Ethnobiology:

The Folk Classification of "Biotic Forms"

Paul Michael Taylor

Yale University

1980

This ethnographic study of folk biology among the Tobelorese (Halmahera Island, Indonesia) outlines local cultural presumptions about classifying flora and fauna, describes the system of nomenclature in terms consistent with the morphology and syntax of the Tobelorese language, and analyzes the local folk system of classification within a posited semantic domain of "biotic forms".

In the local linguistic context, dialectal differences, multilingualism, an apparently strict in-law name taboo, and particular speech registers for which Tobelorese consider their language inappropriate are shown to affect word formation, the adoption of foreign plant and animal names, and other aspects of ethnobiological classification. Culturally, the belief that names for plants and animals were set down by ancestors vastly more familiar with local biota than are their descendants, the notion that there is a "proper" name for virtually all easily visible plants and animals, and that much knowledge is and should remain esoteric, justify several alternative ways in which Tobelorese may reconcile individual or dialectal variation to determine "proper" details of classification consistent with these presumptions.

Nomenclature is considered in detail. The importance of recognizing the lexemic status of homonymous and polysemous terms is illustrated; and means of recognizing lexemes having the same form as non-lexemic expressions are detailed. A morphosyntactic classification of lexemic types is here applied to the formation of terms in this domain.

Unlabelled Tobelorese folk taxa, including the highest-level class BIOTIC FORM, are posited; and new methods developed for determining and evaluating such covert folk taxa are discussed. A critique of other procedures based on perceived similarities among plants and animals shows that the only local cultural significance of those classes may be their sudden appearance as a result of tests designed to find them, that similarities observed may not be those used in hierarchically relating folk taxa, and that such classes do not in any case belong in a linguistic description. From a systematic review of Tobelorese lexemes it is possible to avoid these difficulties.

The analysis of Tobelorese folk biological classification (the system of semantic relations among usually lexically labelled classes) provides various types of evidence for the distinctiveness of a "basic" level, and details methods for distinguishing basic terms. Taxonomic relations order the set of hierarchically related folk classes into eleven levels: the widest or "basic" level, along with six above and four below. Non-"regular"

elements of this folk taxonomy include a "residue" of higher-level classes, nonsymmetric and disjunctive contrast, ambiguous subclass-superclass relations, and dual structural positions of a single class in the overall hierarchic structure.

Also analyzed are other types of semantic relations among folk classes, including a 'mother'-'child' relation among FAUNAL FORMS, crosscutting and intersecting subclasses of the basic class, and classification by growth stage and size.

Detailed folk classificatory, nomenclatural, and systematic botanical information for all recorded FLORAL FORMS is given in the Appendix.

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Acknowledgments

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Most of all I thank my parents, Mr. and Mrs. Scott Taylor, for their continuing support and encouragement of all aspects of my research.

Note on Pronunciation

Tobelorese terms are written here in a phonemic transcription using the following nineteen consonants: b, c (as ch in church), d, f, g (as in good), h, j, k, l, m, n, ng (as in singer), ny (as in canyon), p, r (as in Spanish pero), s, t, w, and y.

Vowels (a, e, i, o, u) have allophonic distributions particular to each Tobelorese dialect, but may roughly be pronounced as in Spanish or Italian.

The symbols used in Hueting's (1908c) nonphonemic transcription of Tobelo District dialect pronunciation are here replaced by letters reflecting Boeng dialect pronunciation (i.e., his ɣ [uvular fricative] is lost or becomes g; and his ʎ [palatal lateral] becomes y or l).

Stress is indicated with the acute accent (´); e.g., -póaka 'scream', -poáka 'already poured out'. However, stress may optionally be left unmarked in the following "regular" cases: where the penultimate vowel is different from the final vowel, stress is generally on the penultimate syllable (e.g. -leha [-léha] 'ask', bole [bóle] 'banana'); and where the penultimate vowel is the same as the final vowel, stress is on the antepenultimate syllable (e.g. -poaka [-póaka] 'scream', baluhu [báluhu] 'adult') unless there are only two syllables, in which case it is on the penult (e.g. peke [péke]).

Chapter 1

Introduction

1.1 The Description of Tobelorese Folk Classification

This description of Tobelorese folk biological classification presents data gathered during twenty-two months of ethnographic field research in Tobelorese-speaking, largely Christian, coastal villages of Halmahera Island (Moluccas, Indonesia). After considering the local linguistic context in which folk classification occurs (including dialect differences, bilingualism and multilingualism, the in-law name taboo, and particular speech registers for which Tobelorese consider their language inappropriate), Tobelorese cultural presumptions about the origin and the nature of folk biological classification are reviewed (Chapter 2). Then an investigation of folk nomenclature (Chapter 3) details methods for the identification of lexemes and proposes a typology of Tobelorese lexemic types. Data from folk nomenclature are among those considered in positing culturally relevant covert classes (Chapter 4), including the class BIOTIC FORM, the semantic domain whose classificatory structure of inter-articulated taxonomic and non-taxonomic relations is considered below in detail (Chapter 5).

"Ethnobiology" (or "folk biology") here refers to the "conceptualisation and classification of plants and animals, and knowledge and belief concerning biological processes" (Bulmer 1974:9) by individuals within an ethnic unit (e.g. "the Tobelorese"). The semantic and classificatory emphasis of this analysis is justified primarily because Tobelorese decisions about dietary, technological, medical, and other uses of plants and animals (cf. 2.2.1 below) are presumably based on criteria which can be linguistically expressed and discussed, and on a system of grouping plants and animals into classes used in natural language. "Folk classification" (cf. Conklin 1972:7-10) here refers to the culturally shared set of relationships of these usually lexically labelled classes to one another; "nomenclature" refers to the system of naming these classes, and "identification" refers to the processes or techniques by which particular objects are placed in classes (cf. Lawrence 1951:3-4).

Of course, a quite different type (or "level" [Bulmer 1974:ibid.]) of ethnobiological enquiry would instead study the relationship between humans within an ethnic unit and the biological species with which they interact; or study within a larger ecological framework the interaction of humans and other species in a region. While to some extent data bearing on such topics are inseparable in the field from data on folk conceptualizations and classification, the description of the latter can be heuristically separated from the description of "ethnobiology" in this second sense. Though some would undoubtedly prefer that I concentrate here on reporting and analyzing field data regarding Tobelorese cultural uses of plants and animals, rather than on their conceptualizations and classification of them, I can only respond that no study's author can satisfy all those who will wish he had taken up the study of something else.

This apparently cavalier attitude toward all ethnobiology that is seemingly not folk classification may worry those (e.g. Martin 1975) who correctly criticize ethnobiological studies which have become divorced from the ethnographic context in which folk classification occurs; but it will hopefully be clear from the text below that the attempt has been made, in the holistic tradition of ethnography, to bring together

evidence from quite various areas of Tobelorese culture wherever they are relevant to the topic at hand; also, it will be reassuring to note that, though this study stands alone as an analysis of data on an isolable topic, it is presented in the context of further planned and scheduled field research on related topics in the region.

The study of ethnobiology in this particular geographic area presents some special problems. Not least is the great species diversity of fauna and flora of Wallacea familiar to the Tobelorese in their tropical marine and terrestrial environments. The biological taxa present and their geographic distributions in this relatively unstudied region are in most cases still little known.[1] Thus at several points in this investigation Tobelorese terms have been translated using some particular biological species name, which is the identification (by myself or by a specialist in a subfield of biology) of a particular specimen or group of specimens collected by me and named by Tobelorese using the term in question. But as Bulmer has noted:

> . . . one cannot say of any taxon that "it corresponds to species 'X'" unless one knows of all other locally occurring species which could conceivably be identified or confused with 'X'. And even if the investigator is aware of the local occurrence of certain

> species, he may find it difficult or even impossible to observe these sufficiently frequently in the company of his informants, or to collect them, for him to be able to be certain as to how they are classified.
> (Bulmer 1970:1075)

Thus not only does Halmahera's great diversity of biological species offer an exceptionally complex task for folk classifiers, but the relative lack of biological investigation into the many species found in this region makes the task of "translating" folk terms especially difficult.

Identifications of biological species or other taxa offered throughout the text and in the Appendix below will indicate only the gloss which appears most accurate given current information about the organisms to which particular Tobelorese terms may be applied, and given the still incomplete identification of specimens collected. In the Appendix to this study, the sources of species determinations (especially vouchers of botanical specimens) for the "plants" (or, more precisely, for the subclasses of the posited Tobelorese covert class of FLORAL FORM) are listed. Though more of the author's time was in fact spent in the field collecting ethnozoological specimens, no Appendix detailing the Tobelorese classification of FAUNAL FORMS, regrettably, is included. The identification of collected invertebrates is delayed by the process of sorting and distribution; and the bulky drums of vertebrate specimens arrived at museums much later than the light, frequently air-freighted boxes

of herbarium vouchers. Thus the apparent bias against FAUNAL FORMS in details requiring biological identification of specimens reflects the logistics of the collection and distribution of specimens rather than any personal preference for folk botany. I have been informed that distribution and identification of specimens will require many more years, and it seems unimportant to wait so long only for more accurate "translations" of some of the folk terms.

Besides facing the complexity of local fauna and flora, a study of this kind must face the complexities of Tobelorese culture. The widespread and numerous[2] Tobelorese, though originating somewhere in Galela or Tobelo district of Halmahera, now cover extensive areas of that and other islands (each area of settlement having its own fauna and flora), speaking three mutually intelligible dialects and now generally also bilingual, often in villages with mixed ethnic populations (see 2.1.2 below).

Yet despite the great variation in Tobelorese dialects, in names for plants and animals, and also in the distribution of fauna and flora throughout the range of Tobelorese-speaking areas, we may still posit here a "Tobelorese" classification system (1) partly because of the similarity of language which seems to use the same rules of nomenclature for all dialects even though labels

("names") for the same class vary, and (2) (most importantly) because the characteristics of the classification system outlined below appear to be the same. (Where they are not, however, as among Tobelorese-speaking Tugutil of upriver Dodaga River in Wasile District [cf. 5.2.2.2] it seems best simply not to consider that communalect or dialect one of those presently being described, until more adequate data show either that the system of folk classification used by Tugutil speakers is best described separately, or that particular generalizations require modifications to include that dialect in the present description.)

Within particular subdomains the "defining features" (or "significatum"; that is, "the necessary and sufficient conditions for membership in a class" [Scheffler and Lounsbury 1971:4]) of classes may differ among dialects. This may, as one of its effects, cause particular biological species to be classed under a term in one dialect with species <u>different</u> from those with which it is classed (perhaps under the same term) in another dialect. In other cases, two distinct "basic" classes (see 5.1) in one dialect are brought together as subclasses of a single "basic" class in another dialect (cf. Appendix, e.g. <u>o bobaharama</u>). A great number of such small differences exist within the general scheme of "the" Tobelorese classification system.

Even if we were to limit our description to a single Tobelorese dialect, we would not solve the problem of variation among speakers, because variation among individuals also occurs. Neither a complete description of "the" Tobelorese language nor a complete description of "the" domain of BIOTIC FORMS among the Tobelorese would describe any particular individual's knowledge or competence. Not only are many plants and animals unidentifiable by, and their names unfamiliar to, most Tobelorese, but there is also considerable apparent disagreement over the correct names for specimens shown them (less often for those seen in their natural context), despite the widespread Tobelorese cultural presumption (cf. 2.2.2) that each plant and fair-sized animal should have (or should have formerly had) a name.

From the ethnographic fieldworker's point of view, there are two kinds of causes for this disagreement: the "exasperating" and the "interesting". "Exasperating" causes of informant disagreement include the methodological problems of identifying plant classes from parts of plants when specimens must be removed from context, or of proffering names without conviction but with misleading certainty. Social conventions also play a role, such as those which dictate that younger Tobelorese should concede to their elders' opinions in public, just as hosts should defer to guests; or that most medicinal uses of plants (including those which can be inferred from names for some plant-types)

are not freely discussed. Though exasperating, these sources of the vast majority of cases of apparent disagreement are not insurmountable. Many social conventions can be overcome in private, and names mistakenly assigned are often enthusiastically corrected when new possibilities are presented; or corrections by the more expert accepted (even in private) by others as "learning something new."

The disagreement which remains is "interesting," and may lead to discoveries of synonymy, of dialectal differences, of marked and unmarked senses of terms, or of polysemous terms which include plant or animal names among their senses. All these possibilities, however, can be investigated only if we continue to posit, just as a working hypothesis, that a single structural description of the domain under investigation can be derived, and then try to determine if and how both of two terms applied to the same object (or even class) might be predictable with reference to the same structural description.

Perhaps Hays (1976) is arguing against such an approach when he writes:

> . . .the descriptive problem raised by informants' disagreements has more often been sidestepped by adopting either of two models of the culture (or a limited domain of it) to be described. One is that which views a culture as "the common element which all members share, or the set theoretical INTERSECTION of individual competences" (Werner 1969:233), or . . . the "shared" model. According to a second view, an ethnographic description is "an attempt to characterize the set theoretical UNION of all individual competences" (Werner 1969:333), an approach

> commonly used in folk biology . . . , where the notion of an "omniscient informant" is employed; this model of a culture I will refer to as a "composite."
>
> Uncritical adoption of either approach can lead to descriptions which are incomplete, misleading, or simply reifications . . . . (Hays 1976:489)

Hays has instead (1976, 1979) commendably attempted to document the degree of intra-cultural variation in plant classification among a sample of Ndumba informants. Despite some serious methodological problems (particularly his complete reliance on a controlled naming response using only pressed herbarium vouchers as stimuli), it still appears from his discussion of the Ndumba data that the point of documenting such variation has been missed: Either all informants share a single system of classification or they do not. If they do, then we may adequately describe it with a single model. If they do not, we still need a model within which individual, dialectal, or other variation can be predicted. If "composite model" is meant to imply a model which fails to predict variation wherever it occurs, then I join in rejecting it; but if it could provide a structural explanation for and an adequate description of dialectal (and, ideally, even individual) variation, I would see no choice but to adopt it.

Of course, one might instead try to document the knowledge of each individual, treating that as his own

system of classification. Though there are methodological difficulties, such an effort among Tobelorese would undoubtedly produce interesting results. But to leave the description there seems to deny many facts of language in general and of Tobelorese language and culture in particular. (1) In every specialized area of language some native speakers must rely on others for terms in that specialized domain, about which they can inquire for "correct" terms much as we might search for them in an encyclopedia. (2) Speakers of a language themselves generally have a definite idea that some terms are correctly and others incorrectly applied to objects including the various BIOTIC FORMS. Within the restraints of local etiquette (which frowns upon correcting hosts, guests, or those older than oneself), Tobelorese generally appear willing to (and frequently do) discuss the "proper" terms for particular organisms. There are also certain cultural presumptions about the existence of "proper" terms (see 2.2.2). (3) Finally, despite these cultural presumptions about the existence of an already established system of folk classification laid down by ancestors, there is considerable evidence that when individuals or groups of individuals do revise the classification system they do so by productively applying to new situations the classificatory relations used throughout the system.

This shared system is the source of the particular "appropriateness" of such revisions, though they may be made by an individual or a small group, and may in fact be "esoteric" or idiosyncratic (cf. 5.2.1.5 below). Revisions that are "esoteric" or "idiosyncratic" (see 2.2.2 and 5.2.1.5) are such precisely because they are recognized even by those who use them to be variations within the context of a more generally accepted non-"esoteric" folk classification (though of course not all informant variability is due to this cause), and this fact can also best be expressed by noting the variation within a larger model of "the" Tobelorese classification of BIOTIC FORMS.

Thus my goal has not been to travel throughout the range of Tobelorese speakers recording variations in the names applied to plants and animals; nor has it been to compile an exhaustive inventory of those names, or even of all classes known throughout the region (see Map 1). If the goal of this study were large numbers of folk classes, however, I would have felt that a point of greatly diminishing returns had been reached in the particular villages in which I spent the most time (i.e. Pasir Putih [Jailolo District, Dodinga dialect] and Loleba [Wasile District, Boeng dialect]). I was more interested, however, in accounting for the variation and describing the principles of folk classification within these regions of more intensive field research, where

fauna and flora were relatively well known to informants whose reliability I could gauge from long personal acquaintances, than I was in immediately expanding the study area. Insofar as the methods presented here are successful in describing Tobelorese ethnobiology, the description presumably could be expanded to include still other Tobelorese dialects and regions using the same nomenclatural and classificatory principles, though after travelling throughout much of northern Halmahera it seems to me that the two regions chosen are linguistically and (in terms of terrestrial species) biogeographically as diverse as any two Tobelorese regions could be. (Collections were made, and comparative fieldwork carried out, in many other villages, however.)

1.2 Field Methods

This investigation of folk biology was undertaken within the context of a wider ethnography of Tobelorese culture, as well as the study of that language and of the local dialect of Malay-Indonesian which I call below "North Moluccan Malay". I arrived in Halmahera speaking some standard Indonesian; but as I was alone conversing almost entirely with local villagers for twenty-two months, I became quite proficient in both North Moluccan Malay and Tobelorese. Tobelorese has remained a daily language of conversation, because I returned to the United States with a Tobelorese (Dodinga dialect) research

assistant, who helped me explore ways to describe many aspects of his language, and also helped in the sizeable task of distributing the biological specimens collected for identification by specialists. Only the last five months of fieldwork were carried out primarily in a Dodinga-dialect village (Pasir Putih); previous to that, fieldwork was in Boeng-dialect-speaking villages. Thus, though I made notes on the Dodinga dialect in the field, I did not primarily begin speaking it until we returned to the United States in August 1979.

In the field, my field methods were simple if sometimes inconvenient. Much of the time involved in the study of folk biology is spent in making adequate collections of local fauna and flora. I trained several villagers in biological collecting techniques. In addition, difficult-to-find items (such as flowering specimens of some bamboos) brought rewards or prizes to those who found them. In this way, local people were encouraged to take part in the collection of specimens and in the discussion of them, while I was free to record more of those discussions, both in the village and on collecting trips, in addition to doing other types of ethnographic work.

The village involvement was essential. Rain and constant humidity wreaked havoc on all early plant collections; of the first 2,000 vouchers, only a handful could be saved. Finally one Loleba villager said he could not understand why I pressed and bound plants in the rainy

season, and suggested drying them as the Tobelorese dry their copra and sliced fish at that time: by laying them out over a fire, a few at a time, on a flat, very hot surface (ideally of corrugated iron), so that a non-succulent plant would dry to a fine museum specimen in less than twenty minutes, be removed, and another placed on the long sheets in its place. Though the unconventional technique required full-time tending, it allowed fine herbarium specimens to be produced in all weather. A fisherman on a small island off Halmahera's coast was provided with instructions and a small drum of formaldehyde, and occasional updates on fish already in the collection. In short, the community became involved in the collection of animals and plants perhaps more than in any of the other areas of my ethnographic work; this saved time for me, led to village discussions of ethnobiological issues, and greatly increased my familiarity with Halmahera's fauna and flora as well as with Tobelorese conceptualizations of it.

The study of local material culture also involved collection and annotation of local technology (many specimens of which have been accessioned to the collections of the Yale Peabody Museum Anthropology Division [numbers 248739 to 248876]), and detailed notes on choices of raw materials, methods of manufacture, cultural significance of the objects, and of course the linguistic forms appropriate to these realms.

Esoteric information, however, was gathered in quite a different way. I studied "medicine" from the former Tobelorese village chief of Loleba, and to a lesser extent also from other people whose trust had been gained over many months.

Information was also recorded in formal interviews, in which a detailed discussion of a particular topic could take place; notes were typed onto file cards as the interviews were held. The Tobelorese seemed to enjoy being studied; they waited patiently as lines were typed, and then said the next few lines for typing. I once very apologetically asked to record a trial of adultery; after that other parties seemed always to want their cases also recorded, as if to emphasize the importance they attached to them. And once when I asked a village minister if I could photograph the service in his church, I was embarrassed to find that, when he saw it was time for my photograph, he stopped everything and lined up the entire congregation beneath the pulpit.

In short, ethnobiological classification is an important and integral part of Tobelorese culture though the topic is here to some extent heuristically isolated from others; and its adequate study in its natural context requires, to the extent to which it is possible, a holistic or properly "ethnographic" investigation.

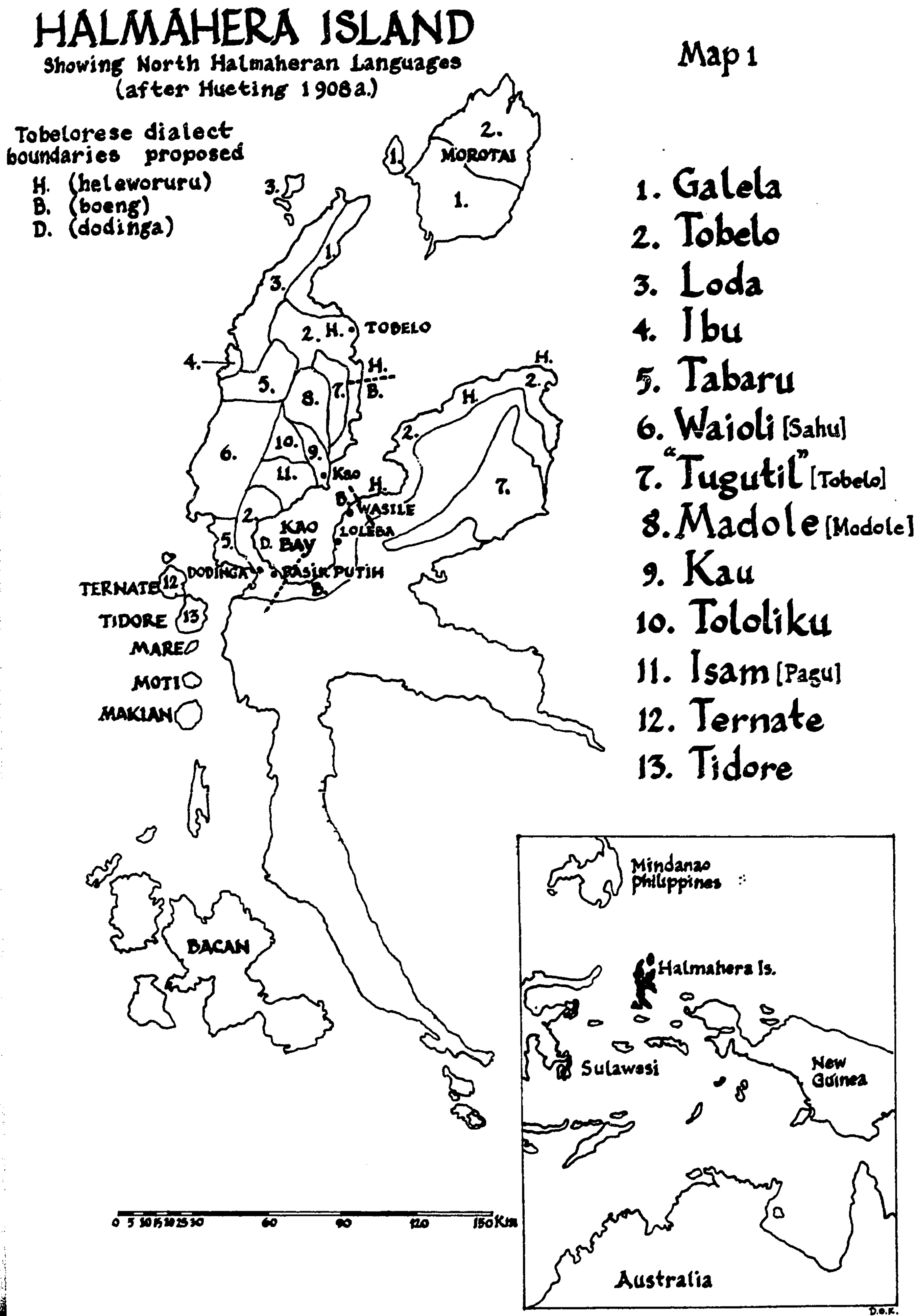
FOOTNOTES

Chapter 1

1. The first complete list of birds recorded from Halmahera (by M. D. Bruce) was drawn up after I returned from the field, though I was able to add a recently-established, previously unreported species (Pelecanus conspicillatus). George Zug also supplied an updated and nearly-complete list of the herpetofauna of the island from several published sources (including Rooij 1917).

2. Tobelo District itself had a 1976 population of 25,370 Indonesian citizens; Kao had 10,275 (Maluku Utara 1977: cf. Maluku Utara 1973); but both figures include a great many non-Tobelorese. There are, however, Tobelorese settlers in every district (Kecamatan) of the North Moluccas and of Central Halmahera including Bacan and Morotai Islands. The Tobelorese traditions of "wanderlust" (see 2.1.2.2 below) and their historic period of piracy in the late eighteenth and early nineteenth centuries (when the power of the Sultanates of Ternate and Tidore waned and Tobelorese in their service turned to piracy in areas as widespread as Flores, Bawean Island, Sulawesi, and the coasts of Java

[Lapian 1979]) have left villages of Tobelorese speakers as far away as Ambon (J. Collins, pers. communication). But Indonesian government censuses in this region do not ask the ethnic group or language competence of respondents. Even if they did, my own field data and village survey at Wasile village (see below, 2.1.2.2) indicate how difficult such data would be to gather from the more ethnically intermixed coastal villages. Until a more complete survey of the region's ethnic groups and languages is obtained, a reasonable estimate is that Tobelorese speakers in those areas they have inhabited for some time (Tobelo, Jailolo, Kao, and Wasile districts only) probably number between five and fifteen thousand.


HALMAHERA ISLAND
Showing North Halmaheran Languages
(after Hueting 1908a.)
Map 1
Tobelorese dialect boundaries proposed
H. (heleworuru)
B. (boeng)
D. (dodinga)
1. Galela
2. Tobelo
3. Loda
4. Ibu
5. Tabaru
6. Waioli [Sahu]
7. "Tugutil" [Tobelo]
8. Madole [Modole]
9. Kau
10. Tololiku
11. Isam [Pagu]
12. Ternate
13. Tidore
MOROTAI
TOBELO
Kao
WASILE
LOLEBA
KAO BAY
DODINGA
PASIR PUTIH
TERNATE
TIDORE
MARE
MOTI
MAKIAN
BACAN
0 5 10 15 20 25 30 60 90 120 150 Km
Mindanao
Philippines
Halmahera Is.
Sulawesi
New Guinea
Australia

Chapter 2

Tobelorese Folk Biology
in its Cultural and Linguistic Context

2.0 Introduction

This chapter first considers the complex Tobelorese language (including sociolinguistic) "situation" (2.1), and its effects on folk classification, then (2.2) summarizes some Tobelorese cultural presumptions about folk biological classificiation.

2.1 The Tobelorese Language Situation

After briefly considering the external relationships of Tobelorese to other languages, and the internal relationships of the Tobelorese dialects (2.1.1), information is summarized on local bilingualism and multilingualism (2.1.2), on the in-law name taboo (2.1.3), and on speech registers for which Tobelorese consider their own language inappropriate (2.1.4), in order both to provide some descriptive sociolinguistic background about the language itself, and to assess (2.1.5) the influence of these factors on folk classification and its description.

2.1.1 External Relationships to Other Languages, and Internal Relationships Among Tobelorese Dialects

2.1.1.1 Tobelorese and the North Halmaheran Languages

The Tobelorese speak one of a group of eleven closely related languages of the North Halmaheran group or "family" which Wurm (1971, following Cowan 1957) places in

the West Papuan Phylum. No cognation percentages have been published, however, to document the degree of inter-relationship between member languages of this family. Van Veen (1919) had recognized the distinctiveness of the closely related North Halmaheran languages, which he showed to be non-Austronesian. As Wurm (1971:614-5) notes, "in all studies and discussions of these languages . . . they are treated as very closely interrelated languages of a single family displaying far-reaching lexical, structural and typological agreements."

Two of the languages of this North Halmaheran group, Ternatese and Tidorese, have been written using a modified Arabic script since at least the end of the fifteenth or the early sixteenth century (Clercq 1890;193ff); while literature on other languages of this family was recorded by missionaries of the Utrechtse Zendingsvereeniging, who began mission work on the island in 1866 (Hueting 1929, L.P.S.D.G.I. 1976: 3-21). According to Laycock and Voorhoeve (1971:514-515), they produced, in addition to "mission literature":

> . . . wordlists of Galela (Baarda 1895), Tobelo [Boeng dialect--PMT] (Roest 1905), Pagu and Modole (Ellen 1916a and b), Tabaru, Waioli, Ibu, Galela, Loda, and Ternate (Fortgens 1905, 1917); a Tobelo-Dutch dictionary (Hueting 1908c, [supplement:] 1935); a grammatical sketch and a manual of Galela (Baarda 1891, 1908) a grammatical sketch of Tabaru (Fortgens 1928) and Tobelo (Hueting 1936); a comparative study in Loda and Galela grammar (Baarda 1904) and texts in Galela ([Baarda and Dijken] 1895), Tobelo (Hueting 1908b), Pagu and Modole (Ellen 1916c and d) and Tabaru (Fortgens 1928); Hueting (1908a) gave a survey of the North Halmahera languages together with comparative vocabularies. It was later corrected and supplemented by Adriani (1912:300).

> Further have to be mentioned the history of Ternate, written in the Ternate language (Crab 1878), the Ternate wordlist, texts, and a few grammatical notes by de Clercq (1890), the notes on Galela grammar by Kern (1891), and an article on word taboo in Galela (Kern 1893). [References cited are found with corrections in bibliography below.]

Recently, fieldworkers from the National Museum of Ethnology at Osaka, Japan, have recorded unpublished Galela texts; and by using computerized compilations of Dutch missionary materials, have prepared in manuscript a Dutch-Galelan index from Baarda's (1895) Galela wordlist, a general index of 67,000 Dutch entries for North Halmaheran language materials, a semantic group index for Galelarese, and K.W.I.C. (Key Word in Context) indices for Galela, Ternate, Pagu, Loda, Tabaru (Modole in preparation -- 1979) (see Wada 1979).

2.1.1.2 The Tobelorese Dialects

The Tobelorese language is divided by Hueting (1908c; 3ff) into the northern dialect (spoken by Tobelorese of the Tobelo district), which he calls "genuine Tobelorese", the Boeng Dialect (B), spoken by Tobelorese of the Kao district (elsewhere Hueting [1921] called speakers of this dialect the "Kao Tobelorese"), and the "Dodinga dialect" (D). I shall here use the abbreviation "H" [for heleworúru, see below] for the "genuine" Tobelorese dialect of the Tobelo district, contrasting with the D and B dialects of the south. Hueting also writes (1908c:4) that words of "genuine" (Tobelo district) Tobelorese--the dialect of the area to which he personally ministered--are used throughout these dialect ranges, but the B and D dialects have additional words not used farther north (though in fact many current common northern dialect words were unknown to my B and D informants). Since D dialect is only spoken in two villages (see below), he is probably correct in noting that "the B [dialect] words are also in use among the D [speakers], but the reverse is not true" (ibid.).

Aside from the "not large" number of words specific to any particular dialect, Hueting notes only two phonological differences distinguishing dialects (ibid.): "the use by B and D of f for the [H dialect] Tobelorese h, and sometimes by the D of s for the [other dialects'] h." In the absence of any more adequate study of Tobelorese dialectology, it may be sufficient to point out that this difference

is locally considered striking (as is the difference of intonation in each dialect and the presence of a few particular lexemes or expressions). The following examples of folk terms for BIOTIC FORMS illustrate the correspondence:

H	B	D
o hahihúku	o fahihúku	o hafisúku
o ngohaka ma iyo-iyoko	o ngohaka ma iyo-iyoko	o ngofaka ma iyo-iyoko
o heleheku	o heleheku	o feleheku

The distinctiveness of the Dodinga dialect, though it may be justifiable on phonological grounds, is not recognized by its speakers, who call themselves Tobelo Boeng. Hueting's use of the term "Dodinga" could not refer to the village of that name (a Ternatese-speaking village populated primarily by Islamic speakers of that language until Makianese and Sangir/Talaud immigrants forming separate adjacent kampungs changed its ethnic makeup in the late 1970's). According to old informants at Pasir Putih (Jailolo District), the Tobelorese word o todingana (="Dodinga") was formerly used to refer to a large area encompassing the present villages of Dodinga (Tbl: o todingana), Bobaneigo (Tbl: o baneigo), Tetewang (Tbl: o tetewanga), and Pasir Putih (whose villagers resettled to the place given this Malay name by missionaries in the 19th century); but only

these last two villages speak Tobelorese, and the area occupied by them may be considered the full range of the "Dodinga" dialect (which thus only has some 600-800 speakers). At Pasir Putih I was told that in former times, when inhabitants of these villages arrived by canoe at Tobelo (some 70 miles to the north), they seldom referred to their village names, but rather said, in their distinctive dialect, that they were from "o todingana" (i.e.Dodinga in this wide sense). This perhaps explains why Hueting called the dialect the "Dodinga" dialect, and for convenience I shall use that designation here.

The northern boundary of the Boeng (B) dialect, on the northern peninsula of Halmahera, may roughly be drawn at the present border between the Kao and Tobelo districts (see Map 1). It was thus drawn by Hueting (1921) and is still recognized locally today. Throughout the Tobelo-Boeng-speaking regions, the Tobelorese of the area north of this are referred to as Tobelo "Heleworuru" (< helewo 'stone' + ruru '?crushed to bits, worn to bits'--this latter verb root is not used today by my B informants except in this compound, nor is helewo, which is hakaru 'stone' in B and D). This designation for the northern dialect is not mentioned by Hueting. (It is surprising that he gives another form of this name, "Seleruru," for one of the hoana [traditional tribal divisions] of the "Kao" [=Boeng] Tobelorese, not one of the group known in the

south as "Heleworuru" speakers.) For convenience, I shall refer to the northern dialect as the Heleworuru dialect (H), to contrast it with the Boeng (B) and the Dodinga (D) dialects. As noted above, despite Hueting's claims, many H words are not in fact recognized by B and D speakers, though of course all these dialects are mutually intelligible.

Based on a few diagnostic phonemic differences (including the distinctive /h/-/f/, or /h/-/s/) we may provisionally draw the boundary between B and H dialects on the east side of Kao Bay between the villages of Wasile (northernmost B-speakers) and Fayaul (southernmost H-speakers) in Wasile district (Halmahera's northeast peninsula). This dialect boundary here proposed thus lies just north of the Wayapiakal (or Wasile) River on the coast, and qualifies Hueting's (1921:218) statement that the Tobelorese who "inhabit the villages lying on the east side of Kau [=Kao] Bay generally belong to the Kau [B] Tobelorese."

Finally, because the Tugutil or highland groups have often been considered ethnically distinct there have been

references by Hueting to "Tugutil" expressions in some of his dictionary entries or even to the "Tugutil language" (e.g. by Hueting 1908a, Salzner 1960). However, Tugutil do not anywhere have a single Tugutil language. Tugutil from upriver Dodaga, with whom I spent a few days in 1979, refer to their language as Tobelorese, and indeed we spoke only Tobelorese in the time I visited them (they spoke H dialect with a distinctive intonation pattern jokingly imitated by their coastal neighbors).

For the Tobelorese themselves, who claim one can always recognize a person's home village by his speech, intonation and a few habitual local expressions provide the major criteria for comparison, discussion, or imitation of dialect differences within their language. In a comic imitation of Tugutil, for example, D-speakers will often not change any of the phonemes that distinguish their dialect from the H-dialect, but will be careful to exaggerate the lilting intonation and at every opportunity put in an expression such as "hiokóo" ('What a shame! [expression of empathy]', a word frequently used in upriver Dodaga conversations). On the other hand, imitation of Kao Basin communilects which are considered by B speakers to be different languages takes a different form. Less attention is given to intonation, and (since the Tobelorese are un-

familiar with many lexemes of closely-related languages such as Modole, Kao, and Pagu) at most a handful of freqently used lexemes in the imitated languages may be used ('eat', 'go', etc.). Tobelorese words are then regularly transformed to sound like words in (say) Pagu, by dropping the last vowel of roots of nouns and verbs, keeping the accent on the same syllable of the root word, regardless of suffixation, and systematically changing all "h"'s to "s"'s, which produces a hilarious pidgin-Tobelorese that sounds just like Pagu from a distance. Since upriver Kao dwellers are often considered country bumpkins by coastal Tobelorese, a person who intends to poke fun at someone's blundering stupidity, or to playfully suggest he doesn't know much about a particular topic himself, may play in this manner with North Halmahera's folk comparative linguistics for the length of whole conversations. Of course, such play, and the languages behind them, need much more serious study.

2.1.2 Multilingualism

Halmahera's geographical position at the source of the spice trade historically made the region an important trade emporium; and the long subordination of the Tobelorese and other Halmaheran groups to the Sultanates of Ternate and Tidore, as well as the temporary expansion of the "Tobelorese" (in fact, Tobelorese with other Halmaheran ethnic groups)

into eastern Indonesian piracy as those Sultanates later declined in power (Lapian 1979), have left a legacy of two widespread languages used as lingua franca: Ternatese and the local dialect of Malay or Indonesian[1] which is here called North Moluccan Malay. In addition, high mobility of many Halmaherans and continuing migration of outsiders to the island has encouraged the present great intermixture of ethnic groups and languages in many Halmaheran coastal villages.

2.1.2.1 North Moluccan Malay

The two trade languages serving as North Moluccan lingua franca (Malay and Ternatese), though genetically quite unrelated, have both apparently diverged greatly from whatever they might have been when they first came into contact. If we can consider more western or "standard" dialects of Malay-Indonesian as closer to a hypothetical pre-contact Malay, and the "mainland" North Halmaheran languages (i.e. those spoken on Halmahera itself) as retaining features of pre-contact Ternatese, then we could consider both of these languages in "convergence," though evidence for such an interpretation would be inappropriate to detail here, and it must also be admitted that borrowing of non-Austronesian terms by all North Halmaheran languages has been strong[2].

What is here called North Moluccan Malay (NMM) is a "dialect" of Indonesian in the sense that speakers of NMM consider themselves speakers of an admittedly inferior and "unrefined" (kasar) or "marketplace" (pasar) dialect of that language. Furthermore, as is often the case for dialects elsewhere considered "inferior" (Cortelazzo 1976), any "standard" Indonesian word or usage is "acceptable" in NMM, even though it may be clearly recognizable as a non-local form. The insertion of "standard" speech forms may involve the simple expression of concepts (e.g. from the fields of international events, politics, law, medicine) for which no NMM terms are available; on the other hand, the frequent use of "standard" speech by a North Moluccan in everyday contexts may be interpreted by listeners as a sign of arrogance or self-styled superiority on the part of a local person who thinks his fellows are somehow below him. Though it might be contended that it would be difficult to pinpoint any truly "standard" dialect of Indonesian, or that such a standard would in fact contain considerable variation, it remains a fact that North Moluccan villagers believe that there is a proper form of Indonesian, sometimes referred to as bahasa Indonesia asli 'genuine Indonesian (language)', used in books (including the Bible) and taught in schools, and that when they speak their everyday dialect they are clearly speaking something which is substandard.

An outside observer might prefer to consider NMM a language in its own right, long spoken by many North Moluccans as their first and sometimes only tongue. This language has been so influenced in both vocabulary and grammar by the non-Austronesian North Halmaheran languages that it is virtually unintelligible to those who know only "standard" varieties of Indonesian.

It should be noted that many North Moluccans (especially from Ternate Island) are educated modern Indonesians who pride themselves on their command of "standard" speech. Furthermore, every Halmaheran villager admires those of his small village who command "genuine" Indonesian words and phrases for use on appropriate occasions, such as Christian church services, marriage ceremonies conducted in Indonesian, and village government meetings[3].

2.1.2.2 The Intermixture of Ethnic Groups and Languages in Halmaheran Villages

Four important factors strongly influence the distribution of ethnic groups in Halmaheran villages.

(1) The first is that, since the late nineteenth century, Halmaherans have generally adopted one of the region's two great religions (Christianity and Islam) along ethnic group lines; almost all Tobelorese, Galelarese, Buli, Pagu, Sahu, and Loloda people, for instance, are Christian; while effectively all ethnic Ternatese, Tidorese, Makianese, or Maba are Moslem.

(2) While marriage across ethnic boundaries is frequent, marriage of Christians with Moslems is rare.

(3) In addition, Halmahera has attracted immigrants from other islands for several reasons. Certainly the most significant for many groups (Sangir, Talaud, Makian, Tidore) has been the ease of opening up choice new land in Halmahera's uncut jungles, while for others (including Bugis, Makassarese, and Chinese) opportunites for commercial profit as traders seem the most significant factor. There were also intensive Dutch efforts to transport workers from Tanimbar, Kei, Flores, and other places (including Talaud) for wage labor on Halmaheran plantations such as the coconut plantation at Akeselaka (Wasile District), from which many nearby towns (including Wasile Village and Loleba) added to their populations. These Christian newcomers worked on the plantations only until they were able to establish their own farms.

(4) Finally, such historical and continuing sources of ethnic admixture are coupled with the high mobility of individual Tobelorese, especially males, though even small groups of females also often travel to other villages seemingly at a moment's notice and without escort, to take part in any festivities; girls are often escorted to relatives in a distant village, and sometimes to stay for several months, while I have often heard Tobelorese parents tell their sons who ask permission to go to another village that "a male child can always wander." This freedom of movement impressed nineteenth-century missionaries. As Hueting (1921:240) writes:

> The Tobelorese yearn for wandering; they move away with ease, and whenever they deem themselves wronged, their first expression is, "Then I'll go away!" One could naturally call this a lust for freedom, but it rather degenerates into lawlessness, and makes them difficult to rule, even for their own <u>adat</u> [customary] chiefs.

In the layout of those coastal villages which have mixed ethnic populations, the Islam-Christian division is generally marked, with the Islamic section of the village invariably placed "seaward" of the Tobelorese (Christian) section in those areas considered originally

populated by Tobelorese (in such areas the Tobelorese consider themselves and are considered ma tonaka ma dutu which directly translates the widespread Indonesian term tuan tanah 'lord of the land'). The largely Christian Chinese traders may live in either section of the village; but many Islamic traders (such as Bugis, Makassarese), also attracted to Halmahera by its commerce, generally take up residence in Islamic sections of divided villages. While many villages have only one of these religions (including Loleba [with two Christian sects] and Pasir Putih), those with both Christian and Moslem populations (e.g. Wasile, Lolobata, Ekor, Fayaul in Wasile District) maintain this divided settlement pattern.

Wasile Village (Wasile District, Halmahera; resident population ca. 400) provides an example of such an ethnically and religiously integrated "Tobelorese" community (i.e., a village in an area in which Tobelorese are "lords of the land" and in which there is a sizeable Tobelorese community "landwards" of the line of Islamic houses on the shore). The village is (like Kao, directly across Kao Bay from Wasile) locally known for its long tradition of ethnic admixture while it was formerly the site of the district capital, so that it may be contrasted below with Loleba Village (Wasile District) and Pasir Putih Village (Jailolo District) in its ethnic admixture and especially its language use.

LANGUAGE COMPETENCE AMONG HOUSEHOLD HEADS AND THEIR WIVES

Wasile Village Survey, April, 1978

			N	%
Ind	6	Total monolingual	6	4.9%
Ind, Tbl	72			
Ind, Dutch	1			
Ind, Maba	5			
Ind, Tte	3			
Ind, Larat	3			
Ind, Gorap	2			
Ind, Tdr	1			
Ind, Adonara	3			
Ind, Yamdena	1			
Ind, Pagu	1	Total bilingual	92	74.8%
Ind, Tbl, Larat	1			
Ind, Tbl, Maba	2			
Ind, Tbl, Sawai	2			
Ind, Tbl, Kao	2			
Ind, Tbl, Pagu	1			
Ind, Sangir	1			
Ind, Tbl, Galela	1			
Ind, Tte, Galela	1			
Ind, Tte, Gorap	1			
Ind, Tte, Kao	1			
Ind, Bugis, Kalabahi	1			
Ind, Tdr, Maba	1			
Ind, Talaud, Sangir	2	Total Trilingual	17	13.8%
Ind, Tbl, Galela, Maba	1			
Ind, Tte, Tdr, Maba	1			
Ind, Tte, Galela, Maba	1			
Ind, Tbl, Tte, Tdr, Maba	1			
Ind, Tbl, Tte, Tdr, Kao	1			
Ind, Tbl, Tte, Tdr, Pagu	1			
Ind, Tbl, Tte, Tdr, Kao Galela, Sangir, Maba	1			
Ind, Tbl, Tte, Tdr, Sawai, Gorap, Kao, Galela, Maba, Buli	1	Other	8	6.5%
TOTAL household heads responding, plus wives of married household heads			123	100.0%

Ind: Indonesian Tdr: Tidorese
Tbl: Tobelorese Tte: Ternatese

TABLE I
(Chapter 2)

LANGUAGE USE AT WASILE VILLAGE
Wasile Village Survey, April, 1978

1. Language Usually Spoken Among Spouses (per pair of spouses)

Neither spouse Tobelorese:	Ind: 10 Tte: 1	Ind, Tdr: 1
One spouse Tobelorese:	Ind: 16 Tbl: 7	Ind, Tbl: 2 Tbl, Pagu: 1
Both Spouses Tobelorese:	Ind: 8 Tbl: 12	Ind, Tbl: 3

2. Language Usually Used by Parents to their Children (per nuclear family):

Neither parent Tobelorese:	Ind: 11	
One parent Tobelorese:	Ind: 22 Tbl: 2	
Both parents Tobelorese:	Ind: 15 Tbl: 3	Ind, Tbl: 5

3. Language Usually Used among Full Siblings (per set of full siblings)

Neither parent Tobelorese:	Ind: 8	Ind, Tdr: 1
One parent Tobelorese:	Ind: 22	Tbl: 1
Both parents Tobelorese:	Ind: 19	

Ind: Indonesian
Tbl: Tobelorese
Tdr: Tidorese
Tte: Ternatese

TABLE II
(Chapter 2)

In April 1978 I surveyed heads of households and their wives at Wasile Village, asking among other questions which languages they "commanded" (see responses, Table 1). (Indonesian government censuses are also by household head [kepala keluarga], and while it is possible for a woman, whose husband has divorced her or died, to maintain her own household as "household head", there were no such instances at Wasile, where all household heads were male.)

In considering the question, many respondents spontaneously noted the difference between "knowing" (Ind:tahu) and "commanding" (Ind:menguasai)a language. When they were unsure about which languages to count, I pointedly noted that the question referred to languages "commanded," not "known" .

Six persons claimed to be monolingual Indonesian-speakers (note that by comparison no one in Loleba village except the Chinese trader was monolingual, nor was anyone except one newcomer in Pasir Putih village). The majority of respondents are bilingual (74.8%); speakers bilingual in Tobelorese and Indonesian account for 58.5% of the total number of respondents (or 78.3% of all bilingual respondents).

Language use in the home, rather than language competence, though restricted to fewer languages, is more complex. Some figures for language use at Wasile Village are based on survey questions asking (1) what language do the household head and his wife normally use when speaking with one another; (2) what language do they normally use when speaking to their children, and (3) what language do their children use among themselves. The responses in Table 2 have been separated into those from households in which neither "spouse" (i.e., head of household or his wife), one parent, and both parents are Tobelorese. Heads of household and their wives who have no children responded only to the first question. Note that five pairs of parents claimed to speak both Tobelorese and Indonesian equally and one pair to speak Tidorese and Indonesian equally (total six pairs or 9.8%). In one case a 70-year-old man and his 60-year-old wife stated that he always spoke to her in Tobelorese, and she spoke to him in Pagu (others verified that this was the case); they both usually speak Tobelorese to their children. (In Loleba village, at least three couples have such Tobelo-Pagu linguistic "arrangements".) In cases where two languages were used about equally by parents when speaking to their children, <u>both</u> parents used both languages, except in one case where both parents are Tobelorese and the father speaks to the children in both languages while the mother

speaks only in Indonesian.

At first sight the figures seem to suggest that local language use is disappearing. Among households in which one or both parents are Tobelorese, the parents speak Tobelorese among themselves in 19 households (37.2%), but transmit the language to their children by primarily speaking Tobelorese in only five households (10.6% of households with children). Of households with more than one child, in only one (2.3%) is Tobelorese said to be the language normally used in communication among children. By including households in which both Tobelorese and Indonesian or both Tobelorese and Pagu are used, the figures even more strongly contrast the older and younger generations: 25 households (51.0% of all Tobelorese or partly Tobelorese households) use Tobelorese among spouses; in 10 households (21.3%) parents speak Tobelorese to children; and still in only one household (2.3%) is Tobelorese used among children.

A major cause for this apparent lack of local language use among children is probably the prohibition, said to be enforced by school teachers throughout Halmahera, against speaking anything but the national language during school hours, at study or play.

It would be premature, though, to conclude that local languages are disappearing in this village. Wasile, like Kao, has always been an emporium of ethnic groups, yet a knowledge of Tobelorese has been maintained among teenage and older residents. Unfortunately this survey did not ask parents whether they spoke Indonesian or Tobelorese in the home

when they were children, which might have helped to detect whether, like the Kao language at Kao, Tobelorese at Wasile has for some time been relegated to a subordinate but stable position. It is nevertheless a fact that some individuals who had always primarily used Indonesian in the home as children and who continued to use Indonesian to their own children were quite fluent in Tobelorese. This was especially clear in situations in which Tobelorese was normally used, such as among women in the kitchen, by men out fishing or drinking palm-wine beneath the aren palm (Arenga pinnata Merr.) from which it is made, or by all Tobelorese during the month-long celebration of Christmas and New Year, when, as part of the festive air that postpones productive labor and permeates every activity from mid-December to mid-January each year, there occurs an annual revival of local language use in the Christian sections of many Halmaheran villages. One Chinese trader (not included in the Wasile Survey because his family is primarily resident at Ternate) said, "I don't understand why they come [to our store] and speak Tobelorese even to me -- they know we don't know what they're saying." Important speeches at adat (customary) festivals must be given in Tobelorese. Marriage arrangements are made in Tobelorese (though appropriate proverbs, to which response is made with other proverbs, are in Ternatese). Such a "subordinate but stable" situation could probably also describe the Kao language at Kao village, directly opposite Wasile across Kao Bay, and recalls Hueting's (1921:223) statement

about Kao in the mid-19th century, but still valid today, that "Kao" (Boeng) dialect Tobelorese is not spoken at Kao village, where "the inhabitants of that head village of the district are a hodgepodge from everywhere, with very few Tobelorese". The fact that fluency in the Kao language is still maintained (even at Wasile), though (unlike Tobelorese) no "hearth" villages use Kao as a first language while others relegate it to subordination, indicates how stable and resistant to disappearance an ethnic group's language can be.[4]

Thus Wasile (and also, perhaps, the small city of Tobelo itself) may be considered extremes, in which the use of Tobelorese is limited to a subordinate role even in the Tobelorese communities. At the opposite extreme, upriver Dodaga or other Tugutil hamlets consist only of monolingual Tobelorese speakers.[5] Other villages can not simply be ranked between the extremes like numbers on a number line. At Pasir Putih (Jailolo District), the center of the "Dodinga dialect", almost everyone in the village of about 450 resident population speaks (minimally) both Tobelorese and Indonesian; the one person who (in July, 1979) neither spoke nor understood Tobelorese is the wife of a local resident who very recently brought her back to live in this village, and the 25 others who understand but speak rather halting Tobelorese are in all cases recent migrants, or apparently less linguistically

gifted people who migrated to the village as adults but whose children all speak fluent Tobelorese though their parents' speech remains halting. Sangir, Tabaru, and other immigrants have learned to speak Tobelorese, and full siblings who have grown up together in this village, though children of Sangir parents (for example) speak Tobelorese among themselves.

Such adjustments of immigrants to what we may call the "host" language is common in the North Moluccas: small groups of immigrants arriving in the territory of another ethnic group consider themselves "guests" in the area (bound to some extent, for example, by local customary law), and accommodate themselves to the host language upon intermarriage.[6]

The change of the Talaud language at Loleba in the Wasile District from a guest language to an independently maintained local language seems to be a historical fact whose final stages were taking place during my fieldwork period, as ground was broken for a separate Talaud kampung at Baluari, about 2 km north of Loleba by foot. Some specific examples of immigrant families may illustrate at a "micro" level the process involved.

The first Talaud settlers were Karunya Nalande (who much more recently was village head during my stay), his first wife, and their four-year-old son, who arrived in Halmahera in 1953. "Om Karunya" was brought from Talaud by the manager of the onderneming (formerly Dutch, now government-owned coconut plantation) at Akeselaka, to work. After one year at the plantation he became a helmsman on a trading ship (prau fenis cf. Ind. perahu pinisi) for four years, then settled at Loleba in 1958 (later moving temporarily to Waijoi which, at that time, was the "parent" village from which Loleba later separated itself). In 1960 he acquired a trader's license, and has run small stores at Loleba or Waijoi which he passed on in his old age to his first son.

After 25 years in a Tobelorese region, Om Karunya understands Tobelorese but has trouble speaking it, and therefore seldom does -- quite unlike a Sangir minister re-assigned to Loleba as religious leader in 1977, who like some other immigrants does not seem to mind or shy away from daily conversations in his badly mangled Tobelorese. This may send waves of repressed laughter through the younger Tobelorese elements of his congregation when he speaks their language from the pulpit.[7]

But note that this first settler's five living children all speak Tobelorese indistinguishably from local people. The two who are married, Demi and Tein, use Tobelorese in the

home with their wives. Demi's wife is half Sangir and half Tobelorese, but grew up speaking only the Tobelorese "host language", which her Sangir father has also learned. Tein's wife is fully Sangir, though she grew up speaking Tobelorese in the village of Daru, in the Kao district. In both households Tobelorese has in effect become the language of descendants only one generation after the parents spoke Sangir (or Talaud) in the home, because all concerned had accommodated themselves to bringing up children speaking Tobelorese in a Tobelorese community.

Since these first settlers the number of Talaud immigrants at Loleba has greatly increased, largely due to the efforts of Karunya Nalande himself, who as village head since 1973, has sent several open invitations to his land-poor home village of Kakorotan (Talaud) requesting pioneers to open up the jungles around Loleba. In my June, 1978 survey, 105 of Loleba's total 265 population (39.6%) were Talaud, and the number is expected to continue growing as more migrants arrive. According to genealogies I collected, all migrants were relatives within six degrees of kinship of Karunya or of his present wife. (Before I left this village in June, 1979, several more Talaud and Sangir families had arrived.)

Of course, in the present Republic of Indonesia, any legal migrant feels he has a right to crops on primary forest land he clears, and that no group should feel

itself the "guest" of any other, though this may not always have been the case. Yet, as we have seen, ethnic groups have particular territories in which they are traditional "lords of the land", though (in Wasile District at least) this seems to be a traditional expression with no jural right to land associated with it. If only a few members of an "immigrant" ethnic group live outside their group's territory they are generally willing to accommodate themselves to assimilation. As their numbers increase, assimiliation becomes unwarranted and such accommodations are no longer made. Unlike early Sangir or Talaud migrants, recent settlers show no interest in customs they find unusual (such as in-law name taboos, which some recent settlers must quickly learn if they are blood relatives of anyone with a Tobelorese spouse). Today's new Sangir and Talaud settlers, unlike those first families, remain Sangir and Talaud; their language competence and usage reflect this fact.

Loleba's Tobelorese may change to adjust to this new condition, but for now small children playing in the village streets, like their parents in almost all households, speak Tobelorese (quite unlike those of Wasile) and none have taken up Talaud or Sangir other than to memorize some sharp or humorous phrases.

A greater variety of individual adjustments to bi-lingualism and multilingualism could undoubtedly be documented by considering other villages, yet the state of linguistic usage and competence illustrated here

shows how complicated the necessary task of documenting the distribution of North Moluccan ethnic groups and local languages will be.

2.1.3 The In-law Name Taboo and its Practical Effects

In addition to encouraging multilingualism and bilingualism, the historically strong presence of several languages in this area has provided options to the use of Tobelorese in particular contexts. One of those contexts in which bilingual Tobelorese may opt for terms from another language involves the customary prohibition against saying the names, or words containing the names (or certain parts of the names), of in-laws. "In-laws" (moyoka) include the spouses of one's close blood relatives in one's own or descending generations, and the close blood relatives of one's spouse.

The Tobelorese usually shorten personal names to either one or two syllables, or may shorten or lengthen them to a three syllable $(C)V_1(C)V_2CV_2$ pattern. For example, Yohanis (official name used on documents, formal occasions, etc) → Hánihi or Ánis or Ánihi; Pénina, given a similar nickname Ponóso → Ponóco → Óco; Sául → Áulu; all forms of these transformations are prohibited in the speech of Yohanis's or Penina's or Saul's in-laws. Also, many nicknames which often are names of animals or plants have no relation to "official" personal names, and may instead be associated with events surrounding the

individual's birth or given to them in memory of a relative who, for example, died not long before his namesake was born (Fortgens 1911). These nicknames, too, may be shortened or lengthened like personal names.

It is as if, in English, my spouse's sister were named "Ann", and consequently I would, under most circumstances, avoid saying "Ann" and also such words as "man", "chance", "antidote" and "land". I would obey similar prohibitions for all names of all in-laws whenever I spoke. If my own name were, say, "Andy", the prohibition would even extend to the utterance of my own name.

As explained to me within a few days of my arrival, the in-law name taboo impressed me for the sweeping effects it must have on language, and the implications it might have for the speed of language change. In practice, however, several factors make the taboo quite tolerable. The most important of these are (1) that, while all in-laws are theoretically included, not all their names are prohibited with equal force, and (2) that the prohibition is generally less strictly observed when no affected in-laws are present.[8] Individuals may vary also in their day-to-day concern for such signs of etiquette, for not all in-laws can legally enforce this prohibition, although minimally 'full' (Tbl: ma dutu) parents-in-law or siblings-in-law may legally fine offenders (i.e., one may fine one's spouse's full siblings or one's spouse's true parents, and reciprocally one's full sibling's spouse, or one's true child's

spouse). When truly wronged, however, one may say a sibling-in-law's or child-in-law's name in anger; this is considered justifiable self-redress. This occurred only once during my stay, at a tape-recorded and later transcribed adat trial for a person named Símon (→ Símono), where his offended mother-in-law clearly and slowly said "that Símono," then spit on the ground, before each of a long series of accusations of his faulty actions and character; meanwhile he stared at the ground and listened quietly. Informants later agreed he could not say his parent-in-law's name even if he were wronged, but that in this case, where he had wronged his wife's family, her extreme anger was justified.

In another case, however, I returned to Loleba from another village to find the town meeting-hall had not yet been cleaned up after a spontaneous party the previous night which lasted until early morning. As it turned out, two nights before I arrived Edik and his father-in-law (Mesak, nicknamed "Parito" - the name of a type of 'crab') were both quite drunk with Edik's palm-wine, when Edik apparently said one of his father-in-law's names, perhaps in another word or context. Then, as the story had it, Parito immediately said Edik's name, so both were guilty--but in good faith--and rather than one party bringing the other to an adat court, they decided to hold a party at considerable

cost to both, presumably on the analogy of a "peace-making" party in which two people who have long felt mutually wronged divide the costs of a feast between them, and make public their renewed peace. Both Edik and Parito later tactfully said that, when the event occurred, both were so drunk they did not remember who said whose name first.

The prohibition, then, primarily applies to the relation between a man or woman on the one hand, and his or her spouse's parents on the other; it is most strictly forbidden for one of these parties to say the name of the other. Names of more "distant" (Tbl: ikurutikáka, 'already far') in-laws (including full and especially even more distant sibling-in-law) are more negotiable. The names of such non-primary in-laws are often said when parties who might potentially be offended (including other in-laws) are not present; the name itself will not be used in reference to the individual involved (unless, after some circumlocution, the listener still does not know who is intended by the speaker), but words in which the sequence of phonemes making up one of the "distant" in-law's name occurs may be given normal pronunciation.

When full siblings-in-law or others who might be offended are present, speakers are more likely to use circumlocutions for any words in which the name of another (absent) in-law appears. Even in this case, however, it is polite and acceptable, when the name must be used for an innocent purpose (i.e., when not actually naming the individual involved, or when it is important -- after cir-

cumlocution fails--to identify the individual) simply to pronounce the name (or that word with the same sequence of phonemes as the in-law name) prefaced by the word tabea ('excuse me', 'I'm sorry'). The same word tabea is used, for example, if one accidentally drops something near a respected person (elders, in-laws, and guests or hosts), or takes something from near them, or mentions a shameful topic in their presence[9], or comes too physically close for some purpose (to remove an insect, get dust from the eye, etc.), or uses the left hand to take or give any object when the proper (right) hand is encumbered.

Four main forms of circulocution are available. To name an in-law one may name one's own kinsman through whom one is linked to that in-law, or alternatively the unrelated spouse of the in-law; thus the husband of my sister Meri will simply be called "Meri's husband" (Tbl: c ngo Meri ami rokata), both in direct address (to be more specific than geri → eri 'brother-in-law') and in reference. Secondly, spontaneously invented descriptions may make clear the individual or the object which may not be denoted by a term too like an in-law name. Thirdly, submorphemic parts of words may be pronounced, or certain sound sequences of an in-law's name may simply be hummed or skipped when pronouncing other words in which they occur. Finally, one frequently uses hohono (H,B. hohono = D. fosono) 'substitution words said to avoid saying an in-law name'. These hohono (cf. Galelarese: saali) are formed in Tobelorese

in much the same way that the missionary van Baarda described their formation in the neighboring Galelarese language, in a letter to H. Kern:[10]

> [1] For some words the Galelarese language possesses synonyms [dubbelgangers], which make the saali [name taboo] easy; for example, baba and ema 'father' . . . but these words are nevertheless few in number. [2] Other words are changed in such a way that they come to have a closely-related meaning; for example, po tagi 'go' [becomes] pa tjobo 'depart' . . . . [3] For some an independent noun is made from the action [of the verb], in order to name the implement of it; for example, o ngau 'ear' [becomes] o gogise 'hearer' (implement of hearing) . . . . [4] For general appellations, one can name a part which is contained in that meaning; for example, o igo 'coconut' [becomes] o gopoa 'unripe coconut' . . . . [5] In still other cases, a word may be exchanged with another one which implies a similarity of motion; for example, po odo 'eat' [becomes] po magese 'take toward oneself' . . . . [6] Other objects that must be named can be named by some noticeable characteristic or quality; for example, o lupu 'mouse' [becomes] o uru susuwo 'pointed snout' . . . . [7] For some, words are also taken from Ternatese or from another related dialect.
>
> (van Baarda [ms.], quoted in Kern 1893:199-200).

Yet even for relatively close in-laws, such circumlocutions are not always necessary. In several cases, two individuals had become linked as siblings-in-law by a bond in which one or both prospective in-laws was genealogically first cousin (only classificatory 'brother') to one of the spouses to the linking marriage, but these potential in-laws decided to avoid the mutual obligations of brothers-in-law by not concerning themselves with the in-law name prohibition. In addition, the fact that many distant in-laws will also

be distant blood relatives gives them an alternative to strict observance of the in-law name prohibition, for it provides a good reason not to actualize their potential in-law relationship by simply agreeing to say each other's names. Whether related or not, such potential in-laws are said to yo-ma-hi-ko-bohon-ua (they + for.their.benefit + cause + X + avoidance.of.some.behavior + do.not; i.e. 'they do not use avoidance [of saying each other's names]'), which they may do as individuals, without implications for kin linked through them, or members of their family linked in the same way as they by the same marriage.

More consequential decisions are made by those individuals distantly related by blood to both parties of a marriage (there are such individuals at almost every marriage within the village), who may choose to continue considering one spouse a blood relative, but to consider the other exclusively an in-law. In such a case he and the relative he now considers an in-law may decide to 'cut their origin' (Tbl: manga ahala yatoaka), because they no longer recognize (thus "cut") the kinship tie traced through a common ancestor ("origin"). Such decisions then affect any other individuals who would otherwise trace relationship through the now "cut" links. Though the problem of deciding at each such marriage which potential in-laws will be called and treated as in-laws is here relegated to a footnote[11], it is important to note that such arrangements further make the prohibition less rigid than it might seem.

Finally, if an individual simply finds the sequence

of phonemes making up the name of his in-law difficult to avoid, but still wishes to avoid using the name itself (as a sign of their in-law bond), he may "pay" (literally, Tbl: -fangu) for the right to use that sequence of phonemes in other contexts only. Because of the many factors which make the in-law name-taboo less draconian than it seems, this option is very rarely used. The one case I know of was at Wasile, where a man's sister-in-law's shortened name was "Mari," and his brother-in-law's nickname "Nohi". The combination kept him from saying several of the most commonly used words and phrases in either Indonesian or Tobelorese; the "Nohi" especially, would have ruled out a common suffix on most verbs or locative particles whose final consonant was "n". Having given several gifts for the privilege of pronouncing these names in non-naming contexts, he nevertheless referred to these in-laws only by circumlocution, and expected appropriate reciprocal obligations.

Thus the effect of the in-law name taboo is to encourage circumlocutions to avoid saying the names of a manageable number of close in-laws without good reason, especially when they are present. And despite several factors which mitigate the severity of the prohibition, Tobelorese conversations are often sprinkled with the tabea ('excuse me', 'I'm sorry') as a person wants to say a word which may contain an in-law's name, then -- sometimes helped by

listeners who have foreguessed what he will say -- comes up with a circumlocutory word or phrase, or simply a translation-word from Malay or another language, or in good faith just pronounces the word which might also be or contain his absent in-law's name.

The Tobelorese themselves also credit this name-taboo with producing the many synonyms for animal and plant names in their language, because alternative names must be invented as hohono. We can witness this process on a small scale, as at Pintatu village (Wasile District), where the word for 'coconut' (Tbl: o igono) has been completely replaced by NMM kalapa ('coconut') because, according to residents there, kalapa had long been used as a hohono word by many closely-related residents to avoid a former in-law's name, and continues to be used now though no longer necessary. More commonly, hohono are clearly recognized as such, and informants can state for a given hohono which word it replaces. Nevertheless, when alternative synonyms are available, the name-taboo presumably tends to reinforce them by slowing the disappearance of either alternative. As further evidence for the hypothesis that this custom is a source of historical vocabulary change, we may note that some words listed as hohono in Hueting's (1908c) dictionary (which emphasized the H dialect), have become standard (no longer circumlocutory)

in the B and D dialects. An example is daluku, defined by Hueting as palm-wine from the aren palm (here, Arenga pinnata Merr.), also used as a hohono for the aren palm itself. This second, hohono meaning in the H dialect has become a standard meaning of daluku in the B and D dialects; the original H word hepata -- for which daluku should merely substitute to avoid naming in-laws -- has been lost in the south. Finally, apparently since hohono words are likely to have specific relations to the words they replace (e.g. those identified by van Baarda, summarized above), Hueting also sometimes suggests the hohono in positing etymologies of analyzable words whose meanings seem only distantly related to that of their root (e.g. -hionoko Hueting 1908c: 158; cf. also Hueting 1910).

2.1.4 Speech Registers for Which Tobelorese Consider Their Language Inappropriate

Today the Tobelorese do not seem to feel their language is inferior to the other local languages around them (Ternatese, Tidorese, Galelarese, etc.). Yet some members of Tobelorese communities are always eager to learn words or phrases of Ternatese. In part this is perhaps merely due to the same curiosity that makes them find it interesting to incorporate a few basic words of several languages in their conversation. The main reason, however, is that, although there is no longer need to speak Ternatese, this is the main language of several speech "registers"

(Cardona 1976:182-190) requiring memorized phrases in a mixture of languages, chief of which is this language of the Ternatese Sultante which once ruled most of Halmahera. Ternatese predominates, specifically, in the language of many kinds of traditional chant , of incantations, and of the give-and-take of marriage consultations between families of the bride and groom.

The elders' traditional chants which I taped and transcribed at Loleba village are of eight types: (yo)-seri-seri, (yo)-jao-jao, (yo)-pangeo, (yo)-deki-deki, (yo)-mira, (yo)-totilao-lao, (yo)-nyoo-nyoongo, (yo)-bobasu, and (ya)-oda-odara. (I was unable to record several other types, and cannot specify their relationships to these.) The action of doing any of them is called (yo)-poaka, i.e. '(they) scream, yell' (an appropriate term for "chant" -- especially when heard by the unaccustomed ear).[12]

The proper setting for these chants is the proud festivity of the last step of the marriage process, when the new daughter-in-law arrives at the house of her groom's parents and (traditionally, for three consecutive nights) she is "displayed" perfectly motionless in her finest regalia of heirlooms (borrowed for the occasion from as many relatives as possible), constantly waited upon by her new sisters-in-law, while the older generation among her ecstatic male in-laws, chewing the slightly narcotic betel nut and drinking the palm-wine that ideally should flow freely on such occasions, sing their chants in Ternatese to the hearty beating of deer-skin drums and gongs. Each chant is sung about the same themes -- the joy of independent youth's spontaneous loves lost and gained, and the righteousness of following the heart despite the wishes of one's parents, a theme these elders sing so sincerely that one might forget the prolonged marriage negotiations to which they have subjected the principals of this very marriage feast!

While anyone may freely learn to chant -- this involves no esoteric information--only elders take much interest in it; younger enthusiasts reaching middle-age will learn as they beat the drum or gong for the chanters. At other times too, when a combination of good cheer, palm wine, and betel nut recalls something of this atmosphere, individuals may stumble home from the aren palm chanting, or strike up a chant among friends.

Incantations, on the other hand, appear to embody

the most esoteric of Tobelorese knowledge. An incantation in Tobelorese, like a chant in Tobelorese, would be inappropriate and virtually unheard-of. Unlike chants, an effective incantation allows no impromptu change to any of its parts. Like the chants, however, the incantations are in a so-called "Ternatese", though it is unsure to what extent bits and pieces of other languages are mixed into them. The net effect of the carefully memorized incantations is often to convey some tantalizing references to the purpose of the incantation using familiar Ternatese or other words which are apparent Tobelorese cognates, though the juxtaposition of these with apparently meaningless morphs, and the seemingly intended convolutions of syntax, make the incantations quite difficult for the Tobelorese to understand. But understanding the incantation is irrelevant to its effectiveness, and shamans who taught me some of their well-guarded incantations generally could not tell me their meaning; or if they guessed at the meaning, could not tell me how it was derived from the words spoken. Yet interestingly, some slight variations are considered acceptable; and in one case a person to whom I told an incantation said he thought it would be better said another way. These and other indications hint that there is some idea of proper syntax in these incantations which, on the surface, seem to recall Hueting's (1922:287) comment about the so-called "Ternatese" chants: "The language [of the chants] is an exceptional hodgepodge of almost all the Ternatese-Tidorese-North Halmahera languages, mixed here

and there with Malay."

Thus a greatly modified "ritual language", locally identified with Ternatese, is used for proverbs and chants associated with marriage ceremonies, and for magical incantations. Ternatese, in short, is the Latin of the North Moluccas. The comparison derives not only from the two languages' use in modified form for rituals, and from a former administrative use at the height of the Sultanate's power, but also from what we may call Neo-Ternatese word formation, which occurs both in the naming of plants and animals (see 3.3) and in the naming of places, technological items, and even personal names (cf. Fortgens 1911 on the latter). "Neo-Ternatese", like the"Neo-Latin" of modern scientific word-formation (Marchand 1960:6-8), treats compound-parts of varied origin as if they were Ternatese stems and combines them according to modified Ternatese rules of word formation. Unfortunately, present sources on the Ternatese language are quite insufficient for adequate investigation of this topic (for examples in the domain of names for BIOTIC FORM, see 3.3. below).

In conclusion, Tobelorese are by no means ashamed of of their language, but they do seem to consider it inappropriate for many speech registers. As noted previously (2.1.2.1), the language here called North Moluccan Malay may be considered a dialect of Indonesian partly because its speakers (including multilingual Tobelorese) consciously

switch to "proper" or "genuine" Indonesian for those contexts (including Christian church services, any marriage ceremonies conducted in Indonesian and village government meetings) in which the local dialect is considered inappropriate. Similarly (though, unlike NMM, Tobelorese is not considered "unrefined" or "substandard"), the coastal Tobelorese consider their own language less appropriate than Indonesian in areas specifically of Indonesian government and administration (although exceptional villages do hold village government meetings in Tobelorese). Such occasions for the use of Indonesian or North Moluccan Malay, in which virtually all coastal Tobelorese are relatively fluent, are contexts of use quite different from the very restricted registers of speech in which a ritual "language" or speech-form, apparently modified and maintained specifically for those speech registers, is considered more appropriate than the everyday Tobelorese speech, and suffuses the banal message of a chant or incantation with the power and suggestiveness of the special language itself.

Galelarese, on the other hand, is a language used in a context dominated by Tobelorese youths, who rarely concern themselves with the chants or the formalities of official match-making, but who celebrate their status at the apex of a life-cycle in which children look forward to growing up, and elders remember their youth. Their finest days are those of their own festivals, where, to the accompaniment of the hand-made bass guitar (whose wooden top doubles as a drum) and hand-held guitars which every young male in most villages can play, rotating pairs of old and young dancers dance the European-influenced North Moluccan "ronggeng" until dawn. Though increasingly pushed aside by popular Indonesian music learned from radio or cassettes, the moving love-songs that accompany the local ronggeng are most appropriately memorized in the Galelarese language, even where protagonists of the songs are of another ethnic group. Only rarely are such songs in Tobelorese. These songs constitute the only register in which Galelarese seems preferred. This current popularity of Galelarese in festival songs of the Tobelorese youth is of questionable antiquity, and may merely reflect the common opinion that the Galelarese do write the most moving and beautiful love songs set to the slow beat of the ronggeng dance.

2.1.5 Conclusion: The Tobelorese Language Situation and Tobelorese Folk Classification

This brief review of some diverse topics in the linguistic or sociolinguistic setting in which Tobelorese folk classification occurs, in addition to providing background relevant to later specific examples of dialect differences, North Moluccan Malay influence, Neo-Ternatese word formation, etc., has suggested several admittedly diverse observations regarding local presumptions about the nature and appropriate usage of, and about contact between, languages of the North Moluccas.

(1) The Tobelorese think of themselves as an ethnic group, and consider themselves to speak a single language, whose details vary from one village to another, but which is locally divided into heleworúru (H) dialect of the north and boeng(B) dialect of the south; following Hueting (1908c), we may further distinguish the divergent "Dodinga" (D) dialect, though it is considered "Boeng" by its own speakers. Thus Tobelorese have a clear idea of both "dialect" and "language"; and if linguists should choose to call e.g. Pagu and Kao the same language (based

perhaps on cognate basic vocabulary), this would not affect the fact that the two are locally considered distinct languages.

(2) Consistent with this assumption that Tobelorese is a single language, its speakers are anxious to "align" their own folk classification systems with those of other Tobelorese (cf. 5.2.1.1.2 below); they are concerned to explain dialectal differences when they come across them, but there is no such concern for the clearly divergent folk taxonomies of other ethnic groups.

(3) The long North Moluccan history of constant outside contacts has encouraged many foreign borrowings into Tobelorese and other regional languages. In the particular case of North Moluccan Malay borrowings, there appear to be two stages, which it is tempting to treat as historical phases: in the first (presumably before NMM was commonly spoken by Tobelorese), NMM words were assimilated into a Tobelorese phonological pattern; but now that bilingualism is common ("phase two"), NMM terms are pronounced in Tobelorese precisely as they are pronounced in NMM.

(4) While the strong influence of NMM may be invoked to explain particular details of Tobelorese folk classification, and is a source of considerable synonymy, even monolingual speakers of North Moluccan Malay must borrow heavily from Halmahera's indigenous languages for

terms in the BIOTIC FORM domain; and "proper" or "standard" Indonesian terms are locally rarely known. Even for newcomers from other ethnic backgrounds, Tobelorese must be the language for classifying much of Halmahera's fauna and flora; for Tobelorese themselves, the superiority of their own language (over that of newcomers as well as over NMM) for the classification of indigenous plants and animals and the complexity of their own ethnobiological classification are well known even among those who are relatively less familiar with its details.

(5) The in-law name taboo, which might be considered a sociolinguistic phenomenon of sweeping effect, turns out on examination to have a bark considerably fiercer than its bite. Because there are so many ways to avoid the taboo's apparently severe limits on the pronunciation of certain sound sequences, the prohibition in fact has relatively little effect on the free transmission of information even if in-laws are present, though it does assume enough familiarity with the language (and sometimes with the names of a person's in-laws) to allow the recognition of circumlocutions.

(6) There are some practical effects of the in-law name taboo on the description of Tobelorese nomenclature, because it requires special exceptions to most generalizations made below (3.2.) about word boundaries, "acceptable" and "non-acceptable" compounds, etc. Though in general a simple

word, for example (see 3.2.2.1), cannot be subdivided into parts, a person who is trying to avoid saying an in-law name may regularly say any word leaving out (or just humming) the syllables he must avoid; in fact, I have heard one woman refer to her son-in-law named "Leo" by simply pronouncing and holding the sound "L" (the initial sound in that word) until the person addressed figured out whom she meant and pronounced his name.

In addition, the taboo probably encourages the high degree of synonymy in the language, because alternative forms from Tobelorese or other languages can substitute for any word which would be disrespectful to pronounce.

2.2 Cultural Presumptions about Tobelorese Ethnobiological Classification

After first considering the range of culturally relevant uses of ethnobiological information (2.2.1), some Tobelorese presumptions about the origin and use of their system of folk biological classification are presented (2.2.2).[13]

2.2.1 The Cultural Relevance of Folk Biology

The study of folk classification is an analytically separable aspect of folk biology. Though this study primarily focusses on aspects of folk classification, due

to the latter's significance for understanding folk ideas regarding locally-distinguished classes of plants and animals, the Tobelorese system of classification cannot be studied (though to some extent it can heuristically be described) in isolation from those areas of Tobelorese cultural life in which their folk biological knowledge plays a major role. Some of the range of such locally significant areas of ethnobiological information may be mentioned.

(1) Subsistence and Diet

Both as sources of cultural information about local biota, and because cultural attention toward animals and plants is most generally directed toward important subsistence products, subsistence activities are important to local ethnobiological knowledge. Though there are few local staple crops (manioc, bananas, sago, and in some areas rice), the great many non-staple cultivated or tended varieties require considerable familiarity with each type and with its preparation and use. Extensive forest-product gathering, most often done by males on pig and deer hunts, requires another kind of specialized knowledge, as does off-shore fishing. Variations in each individual's familiarity with these areas of subsistence activity are reflected in knowledge of folk classification in those domains.

Cultural notions about a "proper" meal (here consisting of a starchy base [rice, manioc, bananas, or sago] plus

hiode, i.e. meat or vegetables to accompany starchy food), and about eating (among Tobelorese, food is often summarily eaten to quickly achieve a feeling of being "satisfied" or "full" [Tbl: inaapunuhoka]) also affect animal and plant exploitation.

(2) Ethnogeography

The intensive local familiarity with the coasts and jungles of this region is enriched by folk tales and myths about the many named places which make up the jungles' cultural topography (cf. Hueting 1908b). These geographical names are in most cases the names of plants or animals. The name may be of a plant prominent in the area, or of a plant or animal associated with the region in folklore. The collection and mapping of ethnogeographic locations and of the folk tales associated with them is in this region an important aspect of folk biology.

(3) Technology

Some recently outdated local manufactures (such as pre-nylon fishing line, or bark cloth) apparently required a specialized ethnobiological knowledge involving the choice of raw materials, and of technique to match the raw materials chosen. Still-active basketry and mat-making, the techniques for the manufacture of other utensils, houses, and boats, and decorative technology all require knowledge of particular local fauna and flora:

the best salt-water-resistant vine with which to tie an outrigger float to its connector and to the boom (and also the second best and third best, since one cannot always have first choice); the best (and second best, etc.) material for powerful deer-hunting bows and bow-strings, and for the lighter less powerful bows for killing birds; and similar specialized connoisseurship for hundreds of particular items.

(4) Magic and Medicine

Magic and medicine, undifferentiated in the single Tobelorese word o houru, are areas of carefully guarded esoteric knowledge heavily associated with an accurate knowledge especially of the plants used in curative and other magic, and with a good memory for the secret, suggestive but superficially nearly meaningless incantations in the heavily mixed Neo-Ternatese "hodgepodge" of languages mentioned above. Because folk medicine is esoteric, the names of medicinally useful plants are seldom freely discussed (cf. 2.2.2 below).

The Tobelorese o houru 'magic, medicine' is of two kinds, reflecting its two-word English gloss: o matarâa refers to 'magic'; the unmarked o houru$_2$ is 'medicine'. Any poultice, store-bought pill, or curative preparation not involving an incantation is o houru$_2$, whether it is intended to cure disease or injury to man or to animal.

The use of an incantation (simply referred to as 'speech' [ma demo]), whether for purposes of curing, for poisoning by magic, as a love potion, or for strength in fighting enemies, transforms 'medicine' into o matarǽa 'magic'. 'Magic' is closely-guarded esoteric information; the much less powerful everyday non-'magical' medicine is often common knowledge and not necessarily esoteric.

This field is especially rich for ethnobiological research not only because so many illnesses are cured by plants, but because sicknesses themselves are generally given the names of animals and plants to which they are likened. In these cases the animal or plant name is reduplicated and used as a passive verb to mean one has the sickness with characteristics of that animal or plant. For example: o hilowana means 'garfish' (Tylosurus sp.), the sleek long-bodied and long-jawed fish which sometimes races short distances along the sea's surface rapidly beating only its tail in the water while keeping most of its body and its long, sharply-toothed jaws above the surface, after which it disappears again into the sea. Reduplicated and used as a passive verb i-naa-ho-hilowana means to have the ear ailment characterized by occasional sharp pulsing pain in the ear which lasts a short while then disappears. Similarly, o wungama refers to the 'hermit crab', the crab which, at the slightest provocation, pulls its body deep into the univalve mollusc shell it

usually borrows (not having a strong carapace of its own), and patiently waits out any such disruption before again reappearing. I-naa-wunga-wungama refers to having the ailment characterized by muscle (?) pains in the back, shoulder, or chest which disappear quickly in response to other folk remedies but will always reappear until treated with the medicine specific to this ailment. In these and other examples the metaphorical identification of an ailment with a biotic form may extend to the cure. Thus one cure for in-naa-ho-hilowana (the first example above), involves heating some plant products between two small young leaves of a pineapple plant, held together so that (as the curer pointed out) the serrated edges of the pineapple leaves resemble the toothed jaws of the garfish; then the heat-released juices are allowed to run down the tips of these leaves into the patient's affected ear. (Both these ailments, and their symptoms and remedies, constitute esoteric information; knowledge of most remedies especially is carefully guarded .)

Each of these areas of cultural endeavor requires some specialized ethnobiological knowledge; any one of them could be the subject of major investigations. Though no systematic attempt is made here to outline conclusions or summarize data on these topics, their mention should indicate the local necessity of such an elaborate folk classification of BIOTIC FORMS; the fact that individual

Tobelorese specialize in particular fields leads to a differential knowledge of many details of the classification system. But one of the Tobelorese cultural presumptions about BIOTIC FORMS (cf. 2.2.2 below) is that most such differences of detail should be reconcilable.

2.2.2 Tobelorese Presumptions about their Folk Biological Classification

Presumptions underlying a system of classification can be inferred from the comments and behavior of the Tobelorese, with whom we may talk about our generalizations after they have been inferred. But in fact presumptions of the sort which underlie folk biological classification are so "basic" that they are rarely if ever locally stated or discussed in the summary form in which they may be briefly noted here:

(1) Plants and animals were named at some time past by "the Elders" -- ancestors of the Tobelorese who are considered to have been vastly more familiar with nature, magic, and all aspects of traditional knowledge than are their descendants today. Asked why a plant is given a particular name, Tobelorese often simply respond, "The Elders named it that; since then we follow after" (i.e., continue using that name).

(2) Thus there is popularly thought to be or to have been a <u>correct</u> name for any plant or animal (i.e., at least those large enough to be easily visible with the naked eye must have had at least one correct name).

(3) Tobelorese consider that the knowledge of the Elders is progressively diminishing, and today think they have relatively little of their ancestors' magical and other powers -- not just because many do not bother to study them, but because magic itself gets weaker as it is used, especially in return for payment.

Though surprising at first, it thus makes sense when, as often happens, old-timers who can barely still stand up answer an ethnographer's question saying, "You have to ask the old people" (i.e., the Elders); they may honestly add, "We children nowadays don't know anymore."

Once at Loleba village, as I brought out and asked about smaller and smaller insect specimens, trying to reach the limits of my informants' classificatory competence (or of their patience), one friend squinted down at a tiny beetle I produced in my hand and said, "You'll have to find someone who was friendly with Adam and Eve to tell you the name of <u>that</u>!"

(4) Tobelorese (with some exceptions) are generally careful not to give the "wrong" name to animals or plants, and will seldom proffer a name for an unfamiliar form.

(5) Tobelorese generally are, and feel they should be, willing to learn more about the proper classification of local biota (as well as about its uses and characteristics); they also usually stand ready to be corrected by the more knowledgeable on details of their folk systematics.

Though this seems to accurately portray the willingness of individual Tobelorese to revise and correct details of nomenclature and classification, there are also local conventions of etiquette which make younger people deferent toward and reluctant to correct their elders, and hosts similarly more likely to defer to rather than correct their guests.

(6) Rarely, an unfamiliar plant (FLORAL FORM) (not reported for 'animal') name may be revealed (presumably by a former "Elder") to a person in a dream, along with a "medicinal" use to which it should be put. The resulting personal "medicine" is regarded as exceptionally powerful; by custom, this medicinal use must be tried before telling anyone about its origin. But note that those who have this experience say that only the name is revealed -- they must seek the plant correctly so designated by inquiring of others, without giving any reason for their inquiry.

(7) Because folk medicine is esoteric, names of medicinally useful plants are seldom freely discussed. Thus many plants are only identifiable by practitioners of folk medicine, who are the best Tobelorese folk botanists; and in several cases no other villagers at a particular place knew the name for certain plant-types. In such cases the most convincing argument for presenting a name as the "proper" one is, "Ahi houru de!" 'It's my medicine!'

On the other hand, a village and church elder in one kampung of Tobelo District once told me that he used certain grasses I found there as his "medicine" but did not know their names. Other Tobelorese who did not know him later simply concluded he must have lied. They reasoned privately to me that the elder was either only pretending the grasses were his medicine, or that he purposely withheld the name.

(8) Widely varying names for small arthropods or aewani$_2$ 'mere animals' may also be known only to a few, simply because of the cultural insignificance of these animals and not because they are "esoteric". Yet the local presumption that even they must have names is undaunted.

Finally, note that we have here considered only some of the Tobelorese cultural presumptions which seem to underly folk classification, not presumptions about the classes of BIOTIC FORM themselves (cf. 4.2.3); some consequences of these presumptions will be noted when appropriate throughout the text that follows (cf. especially 5.2.1.5 and 5.2.2.5 on some effects of esoteric knowledge on classification; and 5.2.1.1.2 and 5.2.1.5 on local attempts to reconcile the assumption of a "proper" Tobelorese classification with observed dialectal differences).

FOOTNOTES

Chapter 2

1. "Indonesian" was proclaimed the language of the nation of Indonesia (before that country achieved independence) at the Second Youth Congress held in Jakarta in October, 1928. On that occasion, the country's youth movement set forth the role of an Indonesian language in their nationalist drive, and first used the word "Indonesian" to name the language which had previously been called Malay (the same language is also spoken in Malaysia as well as Indonesia). Not until the Japanese occupation of World War II, however, did Indonesian effectively replace Dutch as the language of national administration (see Alisjahbana 1962: 28-29).

2. Austronesian (AN) language vocabulary from various sources has been borrowed to such a great extent in the North Halmaheran (NH) languages that it may make determination of the relationships among members of the NH group difficult. C.L. Voorhoeve (pers. communication, letter of 5 June 1980) estimates that about 35% of NH basic vocabulary consists of AN borrowings from various sources. Dr. Voorhoeve is currently investigating these borrowings for clues to the migrations of early AN-language speakers, and exploring his hypothesis "that a relatively late migration of speakers of AN languages reached the Moluccan area from the eastern end of New

Guinea, an east-west movement through the Torres Straits which ended up in Eastern Indonesia and left its clearest traces in the NH languages" (Voorhoeve, ibid.).

3. These occasions for use of more rather than less "standard"Indonesian vocabulary and grammar do not all provide an equivalent forum for "genuine" Indonesian oratory. The more proper Indonesian is most thoroughly preserved in marriage ceremonies, such as the first of the series (Tbl: hodunia cf. Indonesian meminang 'request in marriage', the first formal encounter of bride's and groom's families), in which traditional Tobelorese marriages freely use Neo-Ternatese proverbs and other specialized speech forms, but which may be held entirely in Indonesian if a non-Tobelorese bride's family so dictates. I recorded and transcribed such a case when on August 30, 1978, a Tobelorese boy's family requested that he marry a Sangir girl (whose non-Tobelorese-speaking family arranged the procedures and language of the ceremony) at Loleba. The very formal language of the meeting diverges little from standard Indonesian. Preachers at the pulpit and especially charismatic village heads of government are more likely to consciously switch between the more specialized standard speech of government or church and the more day-to-day NMM speech in exhorting their congregations or constituencies to greater attention to Divine --

or Government -- Plans. Some villages (including Pasir Putih) hold village (government) meetings largely in Tobelorese, but that is now rare in the region.

4. We may compare this to the Sawai language situation in Lelilef, Weda district, central Halmahera. According to Michael Thomas, who completed fieldwork there in 1979, young people do not usually start speaking Sawai until their late teens, though they usually do learn to speak it at that point (M. Thomas, personal communication, 1979).

5. Or at least, speakers of Tobelorese who do not speak Indonesian; presumably some speak Buli and Sawai; and if they follow the pattern of coastal Tobelorese, use memorized Ternatese phrases in particular contexts (see below); the normal language of everyday use, however, is Tobelorese.

6. This is the case even though in Halmahera, as apparently through Indonesia (Haar 1948), in cases of adat marriage between members of two ethnic groups, the customary law of the bride's family or "group" regulates the steps to marriage and the marriage ceremony. The bride's family does not regulate linguistic or other accommodations made <u>after</u> marriage.

7. At his protest-ridden installation (at which some Talaud-Tobelorese ethnic tension was expressed) soon after my arrival in the village, he fulminated that he could do the Lord's work in Tobelorese as well as in Talaud or Sangir -- and in Tobelorese he challenged anyone who did not understand his sermon to ask him for a translated explanation, saying "We all can understand the Bible!" The upwelling of laughter following this exhortation was partly because he had used the Tobelorese exclusive rather than inclusive "we", giving his comment a sense opposite from that intended. (These two pronouns are not distinguished in North Moluccan Malay.) In short, many older newcomers are ashamed to make mistakes in the local language; others are quite the opposite.

8. This does not imply that the "ideal" described to me soon after arrival differs from the "practice" -- only that these early abbreviated "rule of thumb"-like statements about in-law name taboo inadequately describe the complexity of this phenomenon. When normal exceptions to such generalizations are pointed out to them, Tobelorese readily agree that these "exceptions" (to their own abbreviated generalizations) normally occur.

9. Which topics are considered "shameful" now depends largely on the age of the speakers. This may have

been the case also in the past, or perhaps the more "traditional" ways of today's elders reflect normal usage by young and old in the past. The words considered shameful by all today include 'feces', 'urine', 'female genitalia', 'male genitalia', 'buttocks'. In addition, older or especially polite younger people usually preface by tabea references to anything remotely recalling the words above considered most shameful ('hole', 'body hair', 'to reach into a tight-mouthed container [e.g. bamboo]') -- even though such words are used in their normal senses, not as euphemisms. Shameful topics should normally be avoided in polite conversation, but shameful words may still occur with other meanings (as 'buttocks' for 'base [of a basket]'), or in morphologically analyzable lexemes, including the surprisingly many animal or plant names containing "shameful" words in them.

10. Kern's "analysis" of this brief but interesting information received from van Baarda consists of collecting name-taboo stories from Madagascar to Fiji and the New Hebrides; and having identified the particle "li" in some (i.e. Galelarese saali -- actually not 'taboo' but 'substitution word'; but cf. Malay pemali 'supernaturally sanctioned prohibition'), he even draws together words containing li that have other meanings ('choose', 'buy'), suggesting the original "taboo" sense

of the particle has changed! Many cases of name taboo which he reviews in this article seem as unworkable as does Tobelorese in-law name avoidance, until the phenomenon is looked at more closely; perhaps, in some of these other languages also, the strict prohibitions formulated as rules of thumb do not tell the whole story.

11. Though the topic cannot be covered adequately here, the importance of deciding which potential in-laws will be considered in-laws lies not only in the linguistic usages associated with name taboos, but in a whole range of appropriate behavior between people who "call each other" in-laws. As with kinship relations, the Tobelorese themselves judge such appropriate behavior between individuals in terms of the kinship or affinal terms they apply to each other. For example, any male is expected to honor a request from a brother-in-law (who is, in turn, careful not to request unreasonably not only to remain on good terms but also because a reciprocal request could be made in response), subject only to the custom that some goods, which after van Wouden (1968 [orig. 1935]:34) we may call "masculine goods" (including fish, palm wine, and sagu) are expected from the "male child" and "feminine goods" (including rice, glutinous rice cakes, and basketry items) from the "female child". In fact, the latter will probably be made by the "female child's" wife, because a man is his wife's brother's "male child" or "son" (Tbl: o ngohaka o nauru); this latter is (not recipro-

cally!) his sister's husband's "female child" or "daughter" (Tbl: o ngohaka o ngoheka). This is one of a few cases in which terms from this Hawaiian kinship and affinal terminology are occasionally applied to the "wrong" generation -- i.e., an affine in ego's own generation is non-reciprocally referred to as a 'child' for this purpose only, though the normal self-reciprocal brother-in-law term geri is usually used. We may posit that the reference to 'child' identifies ego's brother-in-law with his father (i.e., ego's father-in-law); this would be further evidence that the parent-in-law / child-in-law bond is the primary bond between in-laws. Ego here is identifying himself with his wife, as the "child" of his wife's parents -- and, more generally, of her family.

This relation between brothers-in-law, characterized by joking and ideally flawless cooperation, also provides the mythical theme for the placement of many of Halmahera's physical geographic features, through the actions of the culture heroes Wato-wato and his brother-in-law Papudoo, culminating as each killed the other in a tragic battle, their complete extended bodies still visible as two of Northern Halmahera's mountain groups.

The decision about which distant relatives will be considered in-laws by marriage appears to be made at the time of the marriage and usually not renegotiated except by another marriage. Because of the expected behavior of in-laws, one unmarried informant from Wasile said that

when a pair of their relatives marry, the young people try to choose as an in-law the spouse who is the more kapala angin (Ind and NMM, < kapala 'head' + angin 'wind', i.e. 'rambunctious [esp. of children], unheeding to authority'), apparently so that this more "uncontrollable" relative will be more "controllable" as a partner in the in-law relation.

12. Forms for chants given here are third person plural verbs meaning 'they chant (that type of chant)'; the root is found by removing the yo- or ya- prefix. I did not find these used in a noun form for the chant; presumably the noun formed from the verb (e.g. ma seri-seri) would mean 'the chanting of the seri-seri chant'. In any case, the noun ma boaka (< -poaka 'to yell, scream') may be applied to the chanting of any chant; thus 'each of these chants is different from any other' is rendered by nenanga ma boaka imakehowono moi de moi (these the chantings mutually.different one and one).

13. Parts of this subsection appeared in my "Preliminary Report on the Ethnobiology of the Tobelorese of Halmahera (North Moluccas, Indonesia)" (Taylor 1980).

Chapter 3

Nomenclature

3.0 Introduction

The initial semantic and classificatory emphasis of this study may be justified (cf. 1.2) by the fact that our first and most continuous information about "native" ideational forms derives from the linguistic expression of those ideas in natural contexts, including conversations overheard (and later joined in) every day. Many Tobelorese decisions about technological, medicinal, or other uses of plants are frequently discussed, as are the linguistically expressed criteria for such decisions. In such contexts (including but not limited to the naming of particular items) the many Tobelorese groupings of plants and animals into classes are often lexically realized. While "folk classification" refers to the culturally shared set of relationships of these usually lexically labeled classes to one another, "nomenclature" refers to the system of naming these classes (cf. Lawrence 1954:3-4). Nomenclature is here considered first, because data from animal and plant nomenclature, and from other linguistic forms employed to describe local biota, will be among those used to investigate the system of classification (chapter 5) and even to more precisely specify the limits of the semantic domain investigated here (cf. 4.2).

3.1 The Identification and Importance of Lexemes

Our first task in understanding the chains of speech that form our primary data on ideational forms is like the task of the lexicographer: to separate them into their analyzable units and explore the interrelationships among

and the definitions of the classes those units designate. To describe the results of this process is to describe parts of a language; and in describing language, the most parsimonious description is the most preferable one. In the lexicon or dictionary part of a linguistic description, for example, one should not find a lexical entry such as the English "birds", since this plural form should be predictable from the singular entry "bird". Similarly, we can slash phrases like "a large bird" with Occam's same razor, since the meaning of the phrase is predictable from that of its component lexemes "a," "large," and "bird," and the productive grammatical rules of English. In other words, a lexicon (dictionary) should contain only lexemes[1], which are defined by Lyons (1977) as "minimum dictionary entries." As a corollary of this definition, it follows that a lexeme's "meaning cannot be deduced from its grammatical structure" (Conklin 1962:121). A good knowledge of the language and consideration of the full range of uses of particular forms is often necessary to determine their lexemic status, and certainly attempts to guarantee "objectivity" by confining oneself to strict interview situations or "elicitation techniques" seriously hamper such determinations.

3.1.1. Forms, Lexemes, and Expressions

In a dictionary, lexemes or "minimal dictionary entries" will usually be cited in only one "form" (the "citation-form"). (This distinction of forms, lexemes and expressions here follows Lyons 1977:18-25.) A "form" refers to one of the

ways in which the lexeme may be realized in the language; for example, the lexeme find ('discover', 'come upon') is cited in its present form "find", but may be expressed or "realized" in other forms: "finds", "found", "finding", etc. Lexemes may be phrases as well as words, as in the idiomatic phrases cited as "red herring" or "kick the bucket". In this sense, one may say that a lexeme is an abstract entity with no particular form, though it is generally cited with only one of its forms (the citation-form). Occasionally there may be variation in the choice of citation-forms (as in Latin, where verb lexemes are sometimes cited with the infinitive, sometimes with the first person singular). In practice, though, it seldom leads to confusion if we refer to "the lexeme find" rather than "the lexeme with the citation-form find"; or even if we say that in the sentence "he kicked the bucket", "kicked the bucket is lexemic" (rather than saying that it is "a form of the lexeme whose citation-form is kick the bucket").

In addition to lexemes and the forms of each lexeme, there are in any language "indefinitely many complex expressions, which are clearly not lexemes, but whose meaning is determined by the meaning of their component lexemes and the productive grammatical rules of the language" (Lyons 1977:24). Examples include "good child", "the box over there a moment ago", etc. Expressions also have forms ("good children" is a form of "good child") -- though in other languages there may be many more forms of one expression than is likely in English (e.g. the five cases of Latin).[2]

A minimal dictionary entry must contain information about its inflectional class; thus the entry for the verb "find" must include a statement that it is a (transitive) verb. There is also a noun "find" ('a thing which has been found'), but unless all verbs of the same class as "find" form nouns in a similar way, this noun must have a separate entry along with information about its own inflectional class. Thus unless the members of one inflectional class are predictable from those of another (e.g. verbs and participials in English) then these are best considered separate lexemes.

Each item occurring in the domain of Tobelorese BIOTIC FORMS is a noun; but we may illustrate a practical problem with determining whether sets of members of one inflectional class (in this case, a set of Tobelorese verbs) are predictable from members of another (Tobelorese nouns in the FLORAL FORM domain). Since Tobelorese nouns and verbs can <u>in general</u> be distinguished through the language (see 3.2.1. below), and because Tobelorese informants predictably vary in opinions about the acceptability of verbs formed from nouns for FLORAL FORMS, the distinction of Tobelorese noun and verb in a linguistic description should not be affected; but the details of this case may illustrate the problem involved, as well as one method of interpreting informant "variability" or <u>apparent</u> "disagreement".

It is problematic whether, in Tobelorese, <u>every</u> noun (i.e., every noun <u>word</u> not including phrases) which designates a plant (i.e. FLORAL FORM) type can also become a verb root.

Some informants maintain that it is possible to form from almost any plant name 'X' a verb meaning 'to throw X (or a part of X) at someone', on the model of o guawe 'mango' to-ni-guawe ('I'+'you'+'mango') 'I throw mangoes at you'; o lukama 'lansat fruit (or tree)' mo-hi-lukama ('she'+'me'+ 'lansat fruit') 'she throws lansat fruits at me', etc. This construction is normally used only for cultivated fruits, yet names for vines, small herbs, trees, aroid plants, etc., were also accepted as possible verb roots by one informant at Loleba village, though he realized they were rarely thrown, and in some cases virtually impossible to throw. "If we happen to reach the point where we throw them," he said, "we could say it that way." Other informants disagreed, though the boundary between what definitely could and could not be thrown was not clear.

In fact, though, no informant could accept the construction as meaning 'to throw X at someone' for some plant terms which, used as transitive verb roots, have other specific meanings, such as tiba (noun) 'Schizostachyum lima (Blanco) Merr. [a bamboo]; -tiba (verb) 'to cook inside tiba bamboo'; biáwa (noun)' '?Donax sp.', -biáwa (verb) 'to spear (something) with the sharpened stem of a biáwa plant', etc. For this reason, it seems impossible to treat the transformation of plant names into roots of verbs meaning 'to throw (that plant)' as a general rule throughout the full range of plant terms, especially since the construction's use for cultivated fruits seems so central to its meaning, and since the trans-

formation does not occur for most nouns other than plant names. More likely, we may consider the terms for 'banana', 'mango', 'citrus fruit', etc. to have the same forms as the roots of verbs (which are different lexemes) meaning 'to throw (those plants' fruits)'. For some Tobelorese speakers these may be the only nouns which form verbs in this way; but some are more willing than others to accept use of this transformation to spontaneously coin new lexemes having other plant-names as their roots. In the same way, some speakers of English may find it more acceptable than others to form verbs from "container" nouns like "tube" or "jar" on the analogy of verbs like "can", "bag" or "bottle".

The other way in which noun lexemes in the domain of Tobelorese FLORAL FORMS may have the same form as verbs (the only other inflectional class which nouns might become) are clearly very specific to particular plants or small sets of plants, and clearly best handled as separate lexemes. An example already mentioned (2.2.1) would be the reduplication of some animal and plant names to form the root of the passive verb meaning 'to have the disease with the characteristics of (that animal or plant)'.

3.1.2. The Lexemic Status of Homonymous and Polysemous Terms

Any particular form (even one that is monomorphemic) may also be the form of a different lexeme (e.g., "bank of a river" and "the bank on Main Street"). It is essential to separate out the different homonymous or polysemous "meanings"

which the forms in a semantic domain may have, though examples below will illustrate that it is often (fortunately!) not necessary to decide how many lexemes can be labeled by a particular form occurring in a domain to adequately describe that domain.

Two lexemes may be said to be homonymous if all their forms are the same, but they have unrelated meanings. Hunn (1977:36) instead considers different etymologies to be the determining factor. But the etymology of words has little to do with whether or not they should be considered homonyms in a structural description of the language as it is currently spoken. In some cases (e.g. the two senses of "found" in the example above) homonymy is historically a result of different etymologies, but in other cases (e.g. a part in a play vs. the part in one's hair', a tack 'insert a small nail into' and tack 'sail in a zig-zag fashion') the two words derived historically from the same root must nevertheless be treated as different lexemes in a description of modern English. In any case, in languages such as Tobelorese (or Tzeltal) without a long written historical tradition or extensive comparative data it is at present difficult to recognize or prove etymological relationships.

Polysemy, on the other hand, refers to related meanings of the same lexeme, as in the example of container words "glass", "bowl", etc., which also mean 'glassful' (of some substance)', 'bowlful', etc. (as in the sentence "I already drank three glasses").

There will clearly be some variation among those who describe a language (in this case, dictionary-writers) about whether the meanings of words having the same form are sufficiently dissimilar so that the words may be considered different lexemes, or sufficiently related that they may be considered particular related senses of a single polysemous lexeme. For example, one might present evidence for or against considering the mouth of a river or basket, or the eye of a needle, are so different from the mouth or eye of one's face that they should be different lexemes; though, in the analysis of particular domains it is often unnecessary to distinguish how many lexemes can be realized by a form occurring in that domain (though the problem must be taken up in a complete dictionary). For example, in describing the partonymy of the face, the lexemic statuses of "mouth" in "mouth of a river" and of "eye" in "eye of a needle" need not be considered, since they are irrelevant to the senses of "mouth" and "eye" which occur in the domain of investigation.

In many cases, though, the polysemy of such terms must be sorted out to avoid confusion even in analyzing a single domain. In American English, for example, 'fruit' and 'vegetable' seem to contrast as types of 'food' or 'prepared food'; but some informants may refer to 'tomato' or 'cucumber' as 'fruits' and 'vegetables', because in a partonymy of the plant both are in fact 'fruits' (not 'stems', 'leaves', etc.), but in a taxonomy of 'foods' they are 'vegetables' (see 4.2.2.1 below).

In such cases an important method of examining these different meanings in their contexts involves noting the various contrast-sets which include the same form. Such cases of possible confusion due to polysemy of terms for types of FLORAL FORM proliferate in Tobelorese without bothering native speakers in the least. A few may serve as examples of the use of contrast-sets to sort out polysemous meanings.

The three major or most inclusive named Tobelorese groupings of FLORAL FORM are o gota 'tree', o gumini 'vine' and o rurúbu 'herbaceous weed'. Each of these terms involves such polysemy that the membership of the lower-level "basic" (B^0) terms in these three major (B^{+1}) classes can initially be quite confusing: (n. = noun; vb. = verb):

gota$_1$ n. 'tree' (including saplings) contrasts with gumini$_1$ 'vine' and rurúbu$_1$ herbaceous weed' (excludes palms, cycads)

gota$_2$ n. 'large tree' (excluding undergrowth of saplings) vs. rurúbu$_2$ 'weeds, uncultivated undergrowth' and various cultivated plants

gota$_3$ n. 'lumber' (wood from a gota$_1$ 'tree' used for manufactures) contrasts with other materials of manufacture, e.g. katu 'thatch', paku 'nails', etc.

gota$_4$ n. 'firewood' vs. rage-rage 'kindling wood'

gota$_5$ 'woody tissue, wood' vs. kai 'bark', ngomaha 'throat (i.e. central stem tissue)', etc.

(i)-gota vb. 'to be woody, to have woody tissue' (from gota$_5$)

(ho-maa)-gota-gota vb. 'to gather firewood' (from $gota_4$)

$gumini_1$ n. 'vine' vs. $gota_1$ 'tree' and $rurúbu_1$ herbaceous weed'

$gumini_2$ n. 'rope'

(Note: gumini n. is also often used as a substitution-word to avoid in-law names; it may be used for either o kahitela-tonaka 'sweet potatoes' [Ipomoea batatas] or for o bidoho 'sirih' [Piper spp.]).

$rurúbu_1$ n. 'herbaceous weed' vs. $gota_1$ 'tree' and $gumini_1$ 'vine' (cf. H-dialect synonym momo)

$rurúbu_2$ 'weed, uncultivated undergrowth' (including 'tree' saplings, moss at the bases of small plants, vines growing among undergrowth, etc.) vs. $gota_2$ and various cultivated plants.

$-rurúbu_1$ vb. 'to be thick, dense (of hair, leaves, trees, undergrowth, houses, etc.)' (The noun rurúbu in senses 1 and 2 above probably derived from the abstract noun rurúbu 'thickness, density' from this verb in the B and D dialects which do not use momo in the sense of $rurúbu_1$)

$-rurúbu_2$ 'to be full of undergrowth or weeds' (from $rurúbu_2$)

(Each verb above also may form one abstract noun which is predictable from the verb and need not be considered).

As one might suspect from a glance at the definitions above one can easily find cases where the same object (or "token") may be designated by two or more of these B^{+1} terms. In its sense of 'firewood', tree-like palm or cycad "trunks" may be called o $gota_4$, yet palms and cycads are emphatically not in the 'tree' ($gota_1$) class. If the same palm "trunk" is to be used in any manufacture, however (such as making the floorings or walls of houses, gutter pipes, drum bases, etc.) it will not be called "gota" in that context -- that is, it will be strictly distinguished from $gota_3$ (here translated 'lumber' to emphasize its connection with manufacture, though in fact the product may be quite small), even though that palm may be said to -gota (vb.) 'be woody', or to have $gota_5$ 'woody tissue'.

Similarly, any young sapling may be called o $rurúbu_2$ in this word's sense of 'weed, uncultivated undergrowth'. Thus one often hears of a particular small sapling, o rurúbu nenanga o gota 'this weed ($rurúbu_2$) is a tree ($gota_1$)'; or, of the same small sapling, nenanga o rurubuua, o gota ho 'this is not a herbaceous weed ($rurúbu_1$), it is a tree ($gota_1$)'. If our informant were to then turn to his task of clearing forest or undergrowth, one might hear him say of the same steadfast sapling nenanga ma rurúbu toparihohi, botino daha ma gota totoyanga 'Now I'll just cut down this undergrowth ($rurúbu_2$ [-- i.e., the sapling]), later I'll cut down the trees ($gota_2$)'. Needless to say, without considering the polysemy of these terms (especially if the sapling specimen were only produced in a "controlled" interview context), one might be puzzled

at how a particular specimen could seem to be placed in both the "herbaceous weed" and the "tree" classes in one sentence, then said to be in the "tree" but not in the "herbaceous weed" class in the next sentence, then in the third breath apparently called a "herbaceous weed" again, and distinguished from surrounding "trees". But by considering the polysemy of the terms, and recognizing the contrast-sets likely to be used in particular situations, all three sentences make good sense.

In the example above, relatedness of meaning as the basis for considering these words polysemous rather than homonymous. As Lyons (1977:552) points out, there are several problems in the application of this criterion:

> The first of these is that relatedness of meaning appears to be a matter of degree; and it has yet to be demonstrated, and may in fact not be demonstrable, that the intuitions of native speakers coincide sufficiently for it to be worthwhile looking for some universally applicable and clear-cut distinction between polysemy and homonymy in the language-system. It has often been pointed out that some native speakers will claim to be a connexion between an ear of corn and the part of the body that is denoted by the noun 'ear', whereas other native speakers will deny that any such connexion exists.

Lyons notes that one might solve the problem either by considering each sense a different lexeme (giving far more lexical entries than usual, and forcing decisions about whether one or more lexemes are verbs in sentences like "She plays chess", "He plays Hamlet", etc.), or by simply considering any such forms which have the same inflectional class to be forms of a single lexeme. Finally (as is usually done), one can compromise between these extremes of maximizing for homonymy and maximizing for polysemy by weighing both the demands of parsimony and the demands of convenience for the dictionary's users.

Thus while admitting that the theoretical basis for distinguishing polysemy from homonymy (and thus for distinguishing lexemes) is problematic, the distinction should be made (insofar as it is useful or convenient) on the basis of relatedness of meaning. On this basis, the nouns gota, gumini, and rurúbu above are clearly polysemous. Their senses as defined above are distinguishable not only on the basis of native speaker's intuition (a difficult-to-use criterion which may vary with the informant), but also on the basis of the fact that the same forms occur in different contrast-sets (cf. 4.1.1.1). Each contrast-set reflects the use of the term (and others of the set) in a particular kind of cultural context.

The same phenomenon of a single term belonging in more than one contrast set occurs in the 'animal' domain too, as in the 'fish' class. In a taxonomy of hiode 'cooked fish, meat,

or "vegetables" eaten along with the starch staple at a meal', o nawoko 'fish' contrasts with o ngafi 'anchovies', as well as o ode 'pork', o manjánga 'deer', etc. But in the taxonomy of 'animal' types, o ngafi 'anchovy' is a type of o nawoko 'fish', locally contrasting with over a hundred other B^0 terms. Thus at mealtime one might say mia nawoko koiwa, ka o ngafi ho 'we have no fish, only anchovies'; but this could never be said (except as a joke) by people returning after catching anchovies with lift-nets, for example, at sea.

One interesting type of meaning "transfer" among the senses of one lexeme, or among identical forms of some of these lexemes which can be realized by identical forms, involves metonymy. Words are metonymously related when "we use [one] word not in its established sense but to name a category in contextual association with the category usually named by the word (Waldron 1967:186), such as "blood" to mean 'kin ties', or "house" to mean 'family'.

Examples of metonymous transfer of meaning include the above examples of plant names used as verbs (e.g. tiba n. Schiztostachyum bamboo' -tiba vb. 'cook inside tiba bamboo').

A quite different example of two metonymous nouns (here considered homonyms) involves o rai_1 (a kind of 'tree') and o rai_2 (a kind of edible 'mushroom' which in its short season is found growing only on the lower parts of the rai_1 'tree') (both species not collected). There is also o $ginene_1$ (a type of 'owl') (not collected) and o $ginene_2$ (a ghost which only takes the form of the ginene owl). Of course, at any particular sighting one never knows whether he is seeing o $ginene_1$

or o ginene$_2$!

Many of the cases of metonymy which might cause confusion in determining classificatory relationships involve the identification of the whole plant with the most culturally significant part or product of the plant. Thus the 'tree' called o fenga [Alangium griffithii (Clark) Harms] was often pointed out to me as o fenga ma dutu 'genuine fenga'. Usually this construction would imply a kind of markedness (see below), where *fenga might be the superclass, having the subclasses o fenga (ma dutu) '(genuine) fenga' contrasting with some other "marked" or individually named subclass. In fact they were pointing out the unmarked or "genuine" fenga, but not in a taxonomy of 'trees', because fenga$_1$ (the kind of 'tree') is distinct from fenga$_2$ 'shoulder straps for carrying basket'; it is in the latter sense of fenga$_2$ that there are many subtypes based on the 'tree' or 'vine' used to make this strap. Of these, the unmarked (and locally considered best) is the inner bark of the fenga$_1$ 'tree' (this part is also called the fenga$_3$ 'inner bark' of the tree). Thus occasionally even the tree type itself (as well as the strap made from this tree) may be called o fenga$_2$ ma dutu 'genuine carrying-basket strap'.

Ignoring this kind of polysemy or homonymy brought about by a part-whole metonymic transfer may sometimes lead to positing named intermediate classes between the basic B^0 and major plant group B^{+1} terms (though there are none in Tobelorese). For example, o hilo$_1$ designates a class of

'dammar trees' (Agathis spp.), and hilo$_2$ denotes the'dammar' (resin from the dammar tree). (Since dammar was formerly used in the manufacture of long-burning torches, the word o hilo$_3$ also has come to mean 'lantern', including kerosene pressure-lanterns.) In the taxonomy of 'trees', o hilo$_1$ has two subclasses, o iru and o molefaono (see appendix). But in the taxonomy of o hilo$_2$ 'dammar (resin)', which is subdivided on the basis of the kind of 'tree' from which the dammar is tapped, several other 'trees' which are not types of o hilo$_1$ 'dammar tree' are referred to in the same o X o Y construction used, for example, in o hilo$_1$ o iru 'the iru dammar (tree)', and might be mistakenly taken as evidence for including these in the hilo$_1$ class. In fact, they refer to types of dammar resin only, not to types of 'tree'.

There are many other such cases, including the rattan known as riwoto$_1$, which is different from riwoto$_2$ 'frame for a flat or bowl-shaped open basket'. This sense of riwoto$_2$ apparently derives from the preferred use of riwoto$_1$ for the frames of winnowing baskets, though the word is used for frames of basketry sieves which are seldom if ever made from o riwoto$_1$. Thus one might hear ma riwoto nenanga o iwi 'this basket frame (riwoto$_2$) is (i.e., is made of) iwi [another kind of rattan, Calamus sp.]'; this is certainly not evidence that iwi is in the riwoto$_1$ class!

In conclusion, more than one lexeme can be realized by the same form. Though it is sometimes difficult to distinguish

polysemy (related meanings of a single lexeme) from homonymy (unrelated meanings of more than one lexeme where all forms of each lexeme are the same), the criterion of distinction should be relatedness of meaning. The separation of homonymous lexemes from polysemous senses of the same lexeme is an important (though problematic) task of the lexicographer. Neverthelesss, it is fortunately seldom necessary when analyzing a particular domain to distinguish the lexemic status of every possible "meaning" of a form which occurs in that domain, as long as those "meanings" which if conflated might confound the analysis are separated out. It is suggested that a useful way to separate such senses of terms is to examine the various contrast-sets in which they occur in natural contexts. In many cases (including examples reviewed above), failure to distinguish the polysemous or homonymous meanings of terms may lead to misinterpretation of classificatory relationships.

3.1.3. Recognizing Lexemes Which Have the Same Form as Non-lexemic Expressions

In addition to the problems of distinguishing multiple sense of the homonymous or polysemous lexemes, other difficulties arise in identifying lexemes in which the formation of the word or phrasal lexeme parallels in morphological and syntactic structure the formation of "expressions" (Berlin et al. [1974:51] call this the problem of recognizing "descriptive phrases"). In English, stress is often considered indicative of lexemes in such cases, as in Bloomfield's well-known example black bird (an expression, 'bird that is black')

vs. blackbird (a lexeme); modification of the attributive is also restricted, thus "the word black in the phrase black bird can be modified by very (very black birds), but not so the compound-member black in blackbirds" (Bloomfield 1933: 232). The former criterion only distinguishes compound words, but the latter criterion also distinguishes lexemic phrases. Thus one may not say *very black market, *very Black Sea, etc., while the stress in these phrases black market, Black Sea does not follow the blackbird stress of compound words (Marchand 1960:11-20).

Nevertheless, though a few questionable potential lexemes would remain uncertain, most lexemes can be identified by morphological or syntactic criteria in English, such as compound-word stress (blackbird), unacceptable phrasal syntax (easy-going, lack-luster), or unacceptable modification of of attributives (*very black market).

It is by no means certain, however, that such indicators will be found in every language, and considering the long, faltering history of attempts by native-speaker linguists to find them in English and German (Marchand 1960:ibid.), and the continuing debates on such criteria in these well-studied languages, ethnographers may be forgiven for failing to find them in other languages. Berlin, Breedlove and Raven admit that they "have not been ingenious enough to discover simple, nonarbitrary linguistic criteria by which such expressions may be distinguished"; thus they posit the lexemic status of such terms partly based on "the reliability and stability of a particular linguistic designation over time and across informants," asserting that "descriptive phrases are con-

siderably less stable" (1974:51).

Among the Tobelorese such "naming responses" do seem more reliable in the case of lexemes as determined by other tests -- though many of the attributive, non-lexemic phrases might be considered reliable too. A plant-type said to have a name like "the red X" or "the X", for example, could be called either "the red X" or "the X" whether or not the term "red X" were lexemic (so long as this plant is in fact red in color).

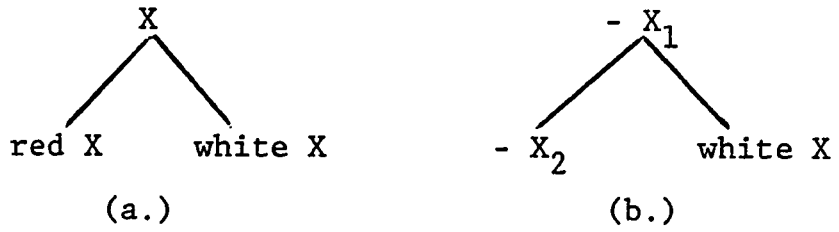
Another exception involves the disambiguation of polysemous terms, such as those associated with a marked/unmarked distinction (Greenberg 1966). For example, totaleo$_1$ 'bird' may be distinguished from totaleo$_2$ 'chicken' by phrases such as o totaleo ihohóho 'the (bird) which flies' vs. o totaleo hotofo-tófo 'the (chicken) which one feeds'; or alternatively, o totaleo o fonganika 'the jungle (bird)' vs. o totaleo hopopaliára 'the (chicken) which we tend' and others. Note that in these cases, another test for lexemic status will sometimes make these non-lexemic expression appear lexemic; i.e., changing "the state or characteristics of the referent to require a change in the attributive" (Berlin et al. 1974:51). When informants are asked of such descriptive phrases if, for example, a (chicken) flies or lives untended in the jungle, is it still a '(chicken) we feed' or '(chicken) we tend, they sometimes answer yes -- though both expressions are not lexemic -- because they are trying to make us understand that they are distinguishing two classes of animal,

rather than just distinguishing "the class of all birds that can fly" from "the class of all birds which we feed". (Others may try to be more helpful or explanatory, saying "it lives untended in the jungle but it's just it, the (chicken), but we don't tend it anymore; we would tend it but it ..." and so on.)

Of course, these widely varying descriptive phrases are not lexemic, as Berlin, Breedlove and Raven's criterion of "reliability of naming responses" predicts. But in other cases where similar markedness occurs, the non-lexemic descriptive phrase to disambiguate the lower-level unmarked form is almost "implied" by the marked form. Thus if the marked one of two subclasses is referred to as "the jungle X", the unmarked subclass "X_2" with which it contrasts may reliably be disambiguated from the higher-level "X_1" using an attributive which is the local "opposite" of 'jungle' (such as 'shore').

It might seem that since these "opposite" characteristics are usually predictable, there is no reason to distinguish predictable and reliable expressions from lexemic (though unmarked) terms. To do so, however, would imply that some unified definition of such attributives could be found, even though their only common feature when they are applied to disambiguate so many unmarked classes is that they are not the "oppposite" attributive. Thus informants may say that a plant type " is subdivided into "the red X" and "the white X". On the one hand, "red" might here be an attributive because some part of the plant or animal so designated is in

fact reddish in color. But it might also be given as an attributive to disambiguate a polysemous, unmarked "X" term, simply because the other subclass with which "red X" contrasts is called "white X" (perhaps because of exceptionally light coloration of plants in that subclass), and "red" is locally the most likely opposite of "white". The alternative interpretations are shown below:



If diagram (b.) illustrates the relationship of these classes, it is very likely that the unmarked X_2 will reliably be disambiguated by the "opposite" of 'white' -- which, in Tobelorese plant nomenclature, is 'red'. (Exceptions occur in classes such as those labelled o bangata and o gurabati, where parts of the plants designated clearly have another color strongly different from 'white'; thus 'black' vs. 'white' bangata and 'white' vs. 'green' gurabati'; see Appendix II). Unfortunately, I realized (using field data) that several such reliable disambiguating expressions were probably not lexemic only after returning from the field, and this has made it difficult to give unitary definitions of the Tobelorese concepts of 'redness' or of terms for other attributive qualities.

For a similiar reason, discussion in this study of the Tobelorese concepts of 'male' and 'female' is made more difficult by the fact that greater attention in the field is probably needed to the distinction between marked and unmarked subclasses. Though several plant characteristics which emphasize the "strength" of the plant seem generally to be considered properties of 'male' forms (including thorniness, hirsuteness of the leaves and usefulness in "medicine", as well as elongation or pointedness of leaves, redness of the medicinally important growth-point, and uprightness of the stem), while other characteristics seem archetypally 'female' (especially fruit-bearing, also other productive uses as food and twine, roundedness and smoothness of leaves, "whiteness" of [i.e. paleness of the greenish] growth-point, and non-uprightness of the stem), it is difficult to find any single characteristic without exceptions (although heavy fruit-bearing for the 'female' plant, and thorniness of the 'male' plant, would appear to be the strongest determinants in those cases where they occur).

It rather seems that predictions about which plants will be considered 'male' and 'female' can be better made by first considering the unmarked form of each class (whatever its characteristics -- male-like or female-like) then comparing this to the other form it contrasts with. In some groups, such as grasses and sedges (the smaller 'herbaceous weeds') the "usual" or unmarked subclass is the <u>female</u> one, the more common or difficult-to-find of the two is male (though information on the 'male' forms is often esoteric in these cases),

as though these 'herbaceous weeds' should be female, and the unusual or occasional species which form the marked subclasses will be considered -- by those familiar with such esoteric things -- to be male, and presumably of medicinal value.

In short, the problem of determining exactly how Tobelorese decide which of a contrast set is 'male' and which is 'female' might be solvable by greater attention to markedness of subclasses (as it does not seem satisfactorily solved by other means).

On the chance, however, that some descriptive definition of both the color terms and the terms for 'male' and 'female' can eventually be found (such that all these terms may be considered to be applied to objects because those objects fit the criteria of the terms' definitions, not just because each is a convenient "opposite" of another term), and also because terms optionally used to disambiguate unmarked classes can usefully be included in a description of those classes, all these terms are treated as lexemic here.

Berlin et al. (1974:50) also offer some morphological and syntactic tests for the lexemic status of some Tzeltal 'plant' names, specifically the distribution of possessive pronoun affixes and the shortening of attributive expressions in that language.

It is disappointing that in Hunn's (1977) analysis of Tzeltal folk zoology, virtually no attempt at distinguishing lexemes on a linguistic or even semantic basis was made, perhaps because of the author's unfamiliarity with the Tzeltal language. He states, for example (1977:26), that the dis-

tribution of possessive affixes as an indicator of lexemes is "of limited use in folk zoology, since the possession of wild animals is a semantic absurdity," though this assertion is surprising since the test had been applied to wild plants!

Instead, Hunn most heavily relies on another test of lexemic status:

> A technique not discussed by Berlin and his colleagues involves the assumption that most taxa are characterized by multiple criteria . . . . Descriptive phrases, on the other hand, refer to categories defined more simply, i.e., by the addition of the features implied by the parts of the phrase. Thus a black bird is a bird that is black. Nothing more is implied. However, the term blackbird, for me at least, implies a bird that is typically black, though not necessarily so, with a characteristic range of shape and size, distinctive vocalizations, distinctive habits, and perhaps other characteristics of which I am not aware.
>
> One can test this factor in ambiguous cases by enquiring about attributes other than those implied by the informant's naming response.
>
> (Hunn 1977:26-27)

Thus, rather than ask if a 'yellow butterfly' dyed red would be a 'red yellow butterfly', Hunn inquires about characteristics of the butterfly other than yellowness, on the assumption that a natural subclass of animals will be defined by many features. But the additional assumption seems to be that all the features will be at the tip of the informant's tongue, though in fact only the "yellowness" may come to mind (as in English, not everyone can state the defining features of a gray squirrel other than grayness).

Hunn's failure to use linguistic or semantic tests to try to distinguish lexemes from non-lexemic "expressions" has

the same unfortunate effect as so much of his methodology: to guarantee that his data will be pressed into the service of his conclusions. Thus, since the "yellow butterfly" term fits no biological taxon, it is considered a "deductive category" rather than a "name" (i.e., a label for a "taxon" which, as Hunn defines it, should be "inductively" defined). But when similar attribute + head constructions label scientifically recognized taxa, as in the Tzeltal terms for types of 'robin' ('red robin', 'yellow robin', etc.) which are said to correspond to recognized species of the genus Turdus, Hunn considers them "names" (i.e. lexemes). If we define types of linguistic signs in terms of the types of objects they denote, it is useless to then study the relationship between the types of signs and the types of objects, since the relationship has been defined by fiat. Thus Hunn's conclusion that names for folk taxa also generally label scientifically recognized biological taxa, insofar as this conclusion refers to "names" ("lexemes") as he distinguishes them by this method, is as vacuously as it is obviously true.

3.1.4. Conclusion: The Identification of Lexemes

In summary, lexemes are here considered the minimal entries needed in an adequate dictionary of a language, and must be distinguished from the "indefinitely many complex expressions . . . whose meaning is determined by the meaning of their component lexemes and the productive grammatical

rules of the language" (Lyons 1979:24). While recognizing that a dictionary could arrive at an adequate representation of a language by maximizing polysemy or by maximizing homonymy, the fact that either a polysemous lexical entry or a set of homonymous lexical entries will always designate more than one class of objects implies that definition of each of those classes should be entered in an adequate dictionary, except (1) when extension of the designatum from one class of objects to another is completely predictable for all classes of objects designated by a class of terms (in which case one could more parsimoniously write a general rule for the class of terms than a separate lexical entry for each extended sense of every term) and (2) when the extension from one class of objects to another might be considered spontaneously metaphorical, and presumably the product of some other complex rules about possible metaphoric formation; one could hardly hope to list all such utterances. While these special problems of polysemy arise for lexemes labelled by the same form, the problems are in effect usually quite irrelevant to the analysis of particular contrast-sets, where only one sense of the form usually appears.

The recognition of lexemes whose structure parallels that of non-lexemic phrases or compounds may depend partly on morphological criteria (such as stress in English or possessive affixation in Tzeltal), and also on syntactic criteria such as the unacceptable phrasal syntax of the English compounds easy-going and lack-luster, or the un-

acceptable modification of attributives (*very black market). Where no such criteria are available, one may "change the state or characteristics of the referent ... in such a way as to require a change in the attributive" (Berlin et al. 1974:51); thus a baby great blue heron dyed yellow is at best a "small yellow great blue heron"! Since such analyzable (3.2.2.) lexemes usually have a limited number of ways most are constructed, one may in practice recognize whether phrases constructed in one of these ways is lexemic by noting "the reliability and stability of a particular linguistic designation over time and across informants" (Berlin et al. 1974:51), but this latter is a less-than-reliable general "rule of thumb", not a true test of lexemic status; and, as shown above, is misleading when applied to the non-lexemic expressions which may regularly be used to disambiguate polysemous (e.g. unmarked) terms.

3.2. Types of Lexeme

In this section, a typology of lexemes based on their morphosyntactic structure is presented. This typology is compared with those offered by Conklin (1962) and Berlin, Breedlove and Raven (1974), both of which involve consideration of semantic relations of the classes designated to other classes, as well as morphosyntactic structure of the lexemes; and reasons for not considering semantic relations among classes in the typology proposed will be enumerated. Finally, some of the non-lexemic ways of disambiguating polysemous Tobelorese terms will be reviewed.

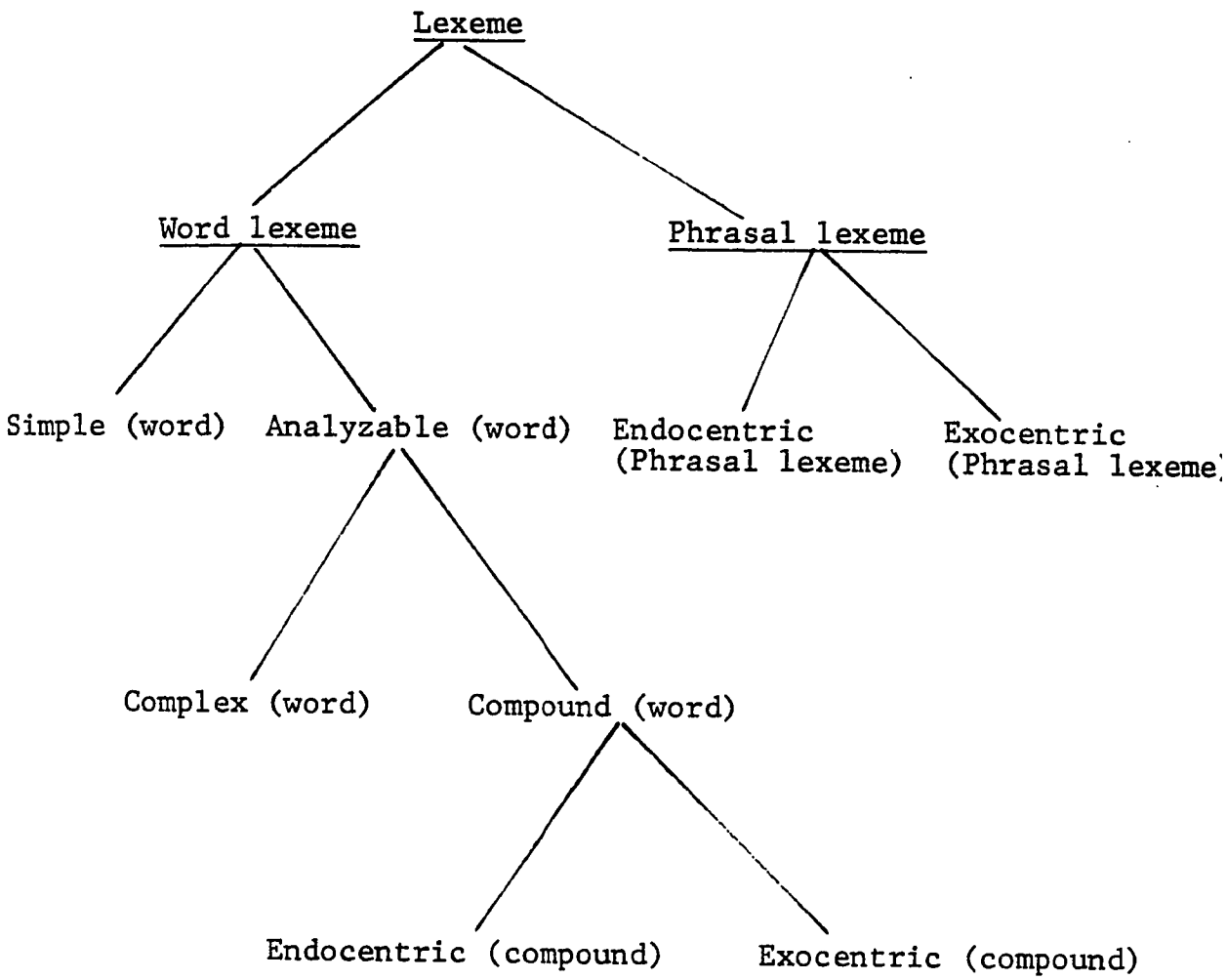


Diagram 1 : Types of lexeme

3.2.1. Words and Phrasal Lexemes

Lexemes may be immediately subdivided into two types: words (word lexemes) and phrases (phrasal lexemes), each subdivided into other types based on morphologically and syntactically acceptable ways to form compound words or phrases (Diagram 1). This immediately raises the problem of recognizing word boundaries in Tobelorese.

3.2.1.1. Word Boundaries: (1) Tobelorese Verbs

Almost all Tobelorese words are either nouns or verbs, the former recognized by a noun marker (o or ma), the latter having minimally either a passive prefix or one prefix from either of two sets of nine subject prefixes (most verb roots can take both sets of subject prefixes as well as many more affixes in this highly agglutinative language).

When Tobelorese who have learned to write Indonesian turn to writing Tobelorese, they themselves, like Dutch translators of Bible stories (Nederlandsch Bijbelgenootschap 1905, Ellen 1933) have great difficulty consistently separating the chain of spoken morphs into written words. Often (perhaps on the analogy of Indonesian subject pronouns?) the subject prefixes (but not other prefixes) are written as separate words, except when they are elided before some vowels. The o and ma noun-markers are very often written as prefixes (though, if this transcription is accepted, they would be the only prefixes which did not elide like the others).

In general, we can consider all root words plus verb affixes to be single words (verbs), and that all particles which (1) can elide either with the verb or with an affix which elides with the verb, or (2) which can come between two such eliding particles or between such a particle and the verb root, are affixes (rather than separate words) with respect to the word boundaries of the verb.

This hypothesis, then, presents only the minor problem of whether the paradigm of six locative "suffixes" are really affixes at all, or whether they are separate words. These affixes express directionality of a verb's action:

(1) to-boha-ika (I-hit-that direction) 'I hit (in a horizontal plane)'

(2) to-boha-iye (I-hit-upwards) 'I hit (in an upward direction)'

(3) h-a-nikut-ino (we-it-tie-this direction) 'We tie it (in a horizontal plane)'

(4) h-a-nikut-úku (we-it-tie-downwards) 'We tie it (down to something else below it)'

Many verbs, however, have "expected" directions of their action:

(5) to-ma-idu-iha (I-X-sleep,recline-landwards) 'I am sleeping (reclining)'

(6) i-hi-laket-úku ([passive] - [causative] - hang-downwards) 'It is hanging'

(7) wa-nahir-óko (he-swallow-seawards) 'he swallows'

Because the double-underlined locative particles can elide with the verb (hanikutu + ino — hanikutino, etc.), and because the locative particle can precede other verb suffixes, they must be affixes if the above hypothesis of verb word-boundaries is correct. One might contend, though, that these 'affixes' are in fact separate words elided to the entire verb phrase in the examples (8 and 9) below, and that in the examples (1 through 7) above the verb phrase just happens to consist of only one verb:

(8) ta-poha ma bebeno-ika (I-hit the wall-that direction)
'I hit the wall (in a horizontal plane)

(9) ho-ĥi-nikutu o gota ma jaga-úku (we-[causative]-tie a tree [poss.] branch-downards) 'we use (it) to tie (something) down to a tree branch'

Such an exception to the use of elision as indicator of a verb's word-boundaries seems arguable only for the locative particles, especially since these may be used alone as separate imperative "words" meaning 'Go ahead (and do some action in the X-direction)!'. However, there is good reason to think that these particles, which can elide with the verb, should be considered affixes, syntactically and semantically different from the locative particles which may be elided after the end of the noun phrases (including the objects of

the verb phrases). Both homonymous locative particles can be used in the same sentence; and in many (not all) sentences, translation can illustrate their distinct meanings. For example:

(10a) ma dangiri ta-poha-úku (the platform I-hit-downward)
'I hit the platform (until it broke down)'

(10b) ma dangir-úku ta-poha (the platform downward I-hit)
'I hit (in a downward direction) the platform'

(11a) o tau ha-make-ika (the house we-find,see-that direction)
'We see the house off in that direction'

(11b) o tau-ika ha-make (X house-that direction we-find,see)
'We usually find (or see) it in houses'

(12a) ma giama ma-díngi-úku (its sleeve she-sews-downward)
'She sews the sleeve (so that it's done, over with)'

(12b) ma giam-uku ma-díngi (its sleeve-downward she-sews)
'She sews the sleeve (downward, from top of sleeve to bottom of sleeve)'

These differences in meaning, though they do not always occur in sentences where they are easily identifiable, indicate that the locatives elided with the verb form a distinct syntactic use of the particles, associated with a distinct meaning, and that in this usage they may be considered affixes. Of course, they are not verb affixes simply by

virtue of the fact that they have a meaning distinct from that of locatives elided to nouns, but rather this distinct meaning of locatives attached to verbs indicates that they are distinct lexemes from those attached to nouns. Having determined that they are distinct, we can then consider them affixes because they fit the general affixation rule of elision with the verb.

Thus we may conclude that the word-boundaries of verbs (other than participials) are recognizable by their affixes. Minimally a verb root takes as an affix a subject prefix or a passive prefix; further affixes are recognizable by their predictable elision with verbs or with other affixes, and by their placement with respect to those other affixes and the verb root.

3.2.1.2. Word Boundaries of Tobelorese Nouns

Nouns, however, can not so easily be distinguished by inflections, as seen in those sentences above (8 and 9 for example) in which a locative particle is elided with an entire noun phrase rather than with a noun. We may transcribe the locative, negative, and other particles elided to the ends of noun phrases as though they were suffixes (as the Dutch transcribers did and as Tobelorese always do), though these examples illustrate that they are syntactically not noun affixes at all:

(14a) o tau-oka (X house-at) 'at the house'
=== ==

(14b) o tau ma doka-dokar-oka (X house X which.is.red-at)
'at the red house'

(15a) t-oiki ahi redi-iha (I-go my field-landward)
'I go to my field (landwards of here)'

(15b) t-oiki ahi redi ma ago-agom-iha (I-go my field X X-which.is.big-landward) 'I go to my big field (landwards of here)'

(16a) nenanga o aewani-ua (this an animal-not) 'this is not an animal'

(16b) nenanga o aewani ma alu-aluh-ua (this an animal X X-small-not) 'this is not a small animal'

Thus these morphological suffixes, though transcribed as part of the noun, might be more properly be transcribed with apostrophes (as in French elisions in the sentence il n'en a qu'un). (It is interesting the Hueting often transcribes elided verb prefixes with apostrophes but never does so for noun phrase elisions.) Note, though, that they would have to be transcribed with apostrophes even where no elision caused the loss of the final vowel of the noun phrase, because the locative particle changes the stress on the word to which it is attached. Thus rédi 'field' + -óka 'in, at' — rédióka 'in the field'. Under such circumstances it seems easiest to simply transcribe these particles as suffixes on whatever words they follow while recognizing that they are not syntactically part of the word. Those few cases in which the locative particle has become "frozen" as part of a compound,

however, can be recognized because another "contradictory" particle can be added, thus: o bobokumiye 'folding sleeping mat' (with partial -iye 'upward' as part of the compound), vs. o bobokumiye-iha (folding.sleeping.mat—landward) '(in a reclining position) on a folding sleeping mat'. Except in such cases, we cannot use these particles to determine word boundaries.

In general we may instead consider that a noun is the unit which takes a noun marker (o or ma) or one of the possessive pronouns[3]. Nouns can then be consistently written as words. Noun phrases of more than a single noun can be recognized because (unlike compound words) they have complete verbs, participials, locative and other participials or other nouns (with their own noun-markers) in them. Thus constructions like o wakomumu (< wako' intertwine [vb.] ' + mumu 'leaf axis [of palm leaf]') 'hand-held lift trap for small fish made of palm-leaf axes' will be considered a compound noun (because mumu has no separate noun-marker and wako is incomplete because it has no verb prefix). Compare the phrase o peda ma hoka ma mumu (X sago-palm [poss.] leaf [poss.] leaf-axis) 'the leaf-axis of the leaf of the sago palm' (separate possessives or noun-markers for each noun in the phrase).

This method of separating (noun) words from phrases will adequately delimit word boundaries for all but a residual class of nouns in the language. As it happens, though, that residual class involves the most common type of compound construction in the domain of FLORAL FORMS -- and, though it

commonly occurs in other domains, seems nowhere else to be so frequently selected. Like the last example above, it involves noun + possessive pronoun + noun constructions. Where these are lexemic, they might either be considered compound words or phrases. It is common in place names and names for artifacts, as well as plant and animal nomenclature:

o ingiri ma gegéhe (X 'tooth' [poss.] 'scrubber') 'tooth-scrubber' Leucosyke capitellata (Poir) Wedd.

o ngo bao ami bahuku ma otini (X [feminine proper name marker] 'Bao [woman's name]' [poss.] axe [poss.] 'handle') 'Bao's axe-handle' Euodia aromatica

o dodiha ma kobongo (X 'snake' [poss.] 'bones') 'snake's bones' Ipomoea quamiclit L.

Such names should be considered compounds rather than phrases for the following reasons:

(1) Though no inflectional pattern can mark the word boundary of these nouns, other analogous constructions of the type "possessor + possessive pronoun + possessed object" are treated as single roots in the formation of verbs. Two examples from the set of terms for ripening fruit are:

A_1 (phrase-like construction): o kabingi ma iyoko (X goat [poss.] feces) 'goat droppings'

A_2 (used as verb root): ma hohoko i-kabingi-ma-iyok-oka (the fruit X-goat-[poss] -feces-already)

'the fruit (buds) are already the size of goat droppings'

B_1 (phrase-like construction): o hiba ma gogo (X '[green parrot] Geoffroyus geoffroyi' [poss.] 'feathers') 'feathers of the parrot G. geoffroyi'

B_2 (used as verb root): ma hohoko i-hiba-ma-gogo-oka (the fruit X-green.parrot-[poss.]-feathers-already) 'the fruit has already turned the color of the green parrot's feathers (i.e. almost ripe)'

(2) Many of the elements making up the compounds with this kind of construction -- especially in the area of animal and plants names -- have lost their meaning, and are only preserved as compound-parts. Under such circumstances it seems difficult to consider them independent words, rather than elements of a compound.

(3) Finally, these may be considered compounds rather than noun phrases because they may not be permutated, nor may other morphs be inserted into them. For this reason they can be distinguished from noun phrases with similar construction.[4] While the previous two reasons for considering such constructions compounds only applied to possessive constructions, this applies to subordinate phrases and participials. Two of the very few examples of these in plant-name nomenclature are the following (lexemic) compound words. They may not be interpolated nor can morphs be inserted in them:

(1) o ngutuku ma gogurati (X root X which.is.yellow) 'yellow-root' Fatoua pilosa Gaud.

(2) o gaili ma doka-dokara (X worm X X-which.is.red) 'red-work' (a type of 'rice') Oryza sativa L. var.

(These two appear to be the only examples in the 'FLORAL FORM' domain in which the participial expressing color is part of a compound word.[5]

Examples of noun phrases having similar construction (and which are also lexemic) are:

(3) o hulahi ma doka-dokara 'red(-flowered) hulahi' Occimum sanctum L.

(3b) o hulahi ma gare-garehe 'white(-flowered) hulahi' Occimum sanctum L.

(4a) o digo ma beka 'female digo' Sida acuta Burm. f (Malvaceae)

(4b) o digo ma nauru 'male digo' Sida rhombifolia L. (Malvaceae)

(4c) o digo ma gilaongo 'digo's servant' Pseudelepanthopus spicatus (B. Juss. ex Aubl.) C.F. Baker (Asteraceae)

(5) o bangata o dotoika 'bangata (tree) found at capes' Plectromia sp.

These noun phrases may all undergo permutation or insertion of other morphs (unlike the compound words in examples 1 and 2)' e.g.:

(3') o hulahi kanohioriki? Nenanga moi ma doka-dokara, dokaanga moi ma gare-garehe 'Do you know (recognize) the hulahi (tree)? This is

the red (one), the one over there is
the white (one)'

(Though not necessary to show here, this test of interpolation or insertion of morphs also will not contradict our previous hypotheses regarding word-boundaries of verbs and nouns.)

In conclusion, Tobelorese word boundaries can be consistently distinguished for verbs and nouns (and--though not shown here--for other words as well). Both word lexemes and phrasal lexemes (3.2.2) are further subdivided into types below.

3.2.2 Types of Word and Phrasal Lexeme

We may first distinguish "simple" words (those which cannot be analyzed into constituent parts; i.e., in which only the stem and no other morph is present), from other ("analyzable") words. "Analyzable" words may be either complex (i.e., derived from a single stem by the addition of a derivational affix or by systematically modifying the stem in some way), or compound (combining two or more stems) (Lyons 1977:521-550).

simple	complex	compound
tight	tightly	tight-rope
sing	sang	sing-along
name	naming	nickname
release (vb.)	release (n.)	hair-release

The example release above (acceptable if we consider that release in modern English is no longer analyzable into the etymologically important morphs re + lease) indicates that "simple" here is strictly different from "unsegmentable" (cf. Conklin 1962:122), because (1) "frozen" segments which are no longer meaningful but which are etymologically recognizeable are considered part of the stem (cf. also Marchand 1960); and (2) words derived by the addition of a zero-morph ("zero-derivation") are complex, though homonymous with the simple stem from which they were derived. According to Lyons (1977:523), nouns like 'release' and 'attempt' can be considered derived from the verbs 'release' and 'attempt' by the suffixation of a zero-morph, because . . .

> . . . they belong to the same sublcass of nouns as 'extension', 'justification', 'arrangement', etc., which are clearly deverbal and derived by suffixation: deverbal nominalization is characteristically a matter of suffixation in English. . . . [I] t is usually, though not always, clear which of the pair of lexemes related by [zero-derivation] is simple and which is complex in terms of the general patterns of derivation manifest in the language.
>
> (Lyons 1977:523)

3.2.2.1 Simple Words, Including Foreign Compound Borrowings

Since simple words are (by definition) not built up from simpler forms, there are no "types" of simple word-formation, as there are for complex or compound words. Nevertheless, there are foreign compound words which have been borrowed from other languages and may be treated as simple words in a typology of Tobelorese word formation. The degree

to which these original compounds are recognized as of compound origin may vary. Examples include:

o ate-jáwa (< Ternatese compound hate 'tree' + jawa 'Java, Javanese'; 'Javanese tree')

o baru-bongana (< baru '[a tree, Hibiscus tiliaceus]' + bongana, said to be from Tabaru 'jungle') 'jungle baru' (N.B.: not in the baru class in Tbl)

o pala-patani (< Indonesian pala 'nutmeg (Myristica frangrans)' + patani 'Patani district (probably Patani, Halmahera [?])', 'Patani nutmeg'

We can clearly consider the first example a simple word, because the original Ternatese hate jawa has been modified to ate-jáwa, and the foreign component ate- has no Tbl cognate. The second example is more problematic since bongana is locally recognizable as 'jungle' (cf. Tbl H: o hongana, B. and D.: o fongana). The third can scarcely be called a simple word since the Indonesian head pala is now a synonymn (o pala) for the original Tbl o gohora 'nutmeg'. Such problems in the "degree of foreignness" of foreign compounds are common in typologies of English word-formation also (Marchand 1960:6-8)

A similar area of uncertainty involves reduplicated words, which morphologically seem like complex rather than simple words. But some probably are borrowed into Tbl as reduplicated forms. For example, Tbl: o efi-efi '(a mangrove tree) Avicennia sp.' might presumably be a reduplicated Tbl noun or verb *efi or *-efi (such a word was unfamiliar to

Tbl informants); but more likely it is cognate with the term api-api widely used through Malaysia, Indonesia, and the Philippines to designate members of this genus. The "original" term api-api reflects its preferred use as firewood (cf. Malay api 'fire'). Such cases must be considered simple until proven otherwise, though in cases of word compounding involving a "possessor + possessive particle + possessed" construction, the compound structure is so clear that they may be considered compounds even if the meaning of a compound-part is not locally known.

Though we may illustrate "degree of foreignness" by informants' ability to recognize parts of words, we can not rely entirely on local recognition to determine types of word formation, unless we wish to consider certain word-lexemes "simple" for some people and "complex" or "compound" for others! Thus the grass called o aerani (cf. Appendix) was thought to be labelled by a simple term by my B- and D-dialect informants, though in H dialect the word appears to be a noun from the verb -aerani 'to be strange, wonderful'; as such, it may be considered a complex word (Type 4 below, formed by zero-derivation).

3.2.2.2 Types of Complex Word

Complex words may be distinguished into several types, here illustrated with examples:

Complex, Type 1. Reduplication of the verb X (or its participial) to form the subordinate clause meaning 'which does X'.

Examples: o maa-maata (< vb. -maata 'to be cold') 'which is cold' (several species, see Appendix)

o bo-bobira (< vb. -bobira 'to have pimples' [cf. n. bobira 'pimple']) 'having pimples' Jussiaea suffruticosa L.

o gare-garehe (< participial of reduplicated verb -arehe 'to be white') 'which is white' Peperomia pellucida (L.) H.B.K.

Complex, Type 2. Reduplication of noun X to mean 'rather like (an) X'

Examples: o kaca-kacanga (< n. kacanga 'peanut' Arachis hypogaea L.) 'rather like a peanut[-plant] (Phaseolus group, cf. Appendix)

o lobo-loboro (< n. loboro 'one-tenth guilder coin [of the Netherlands East Indies]) 'rather like a one-tenth guilder coin' (refers to small size and coin-like shape of leaves)

o pine-pine (< n. pine 'rice' Oryza sativa L.) 'rather like rice' Brachiaria paspaloides (Presl) C.E. Hubb.

Note that in a very few cases, however, the reduplicated

and non-reduplicated forms of a noun are synonymous. For example, a do-dataiti is a synonym of the simple word o dataiti (see Appendix for species determinations).

Complex, Type 3. One-syllable reduplication of verb X forming an agentive noun meaning "the thing used to do X". (see Appendix for species determinations of examples below):

Examples: o ciciru (< vb. -ciru 'to scrape, gouge') 'scraper, gouger' (so-called because of leaf's resemblance to coconut-scraping tools)

o gogiooko (< vb. -kiooko 'to be tired, sleepy') 'sleep-inducer' (so called because the entire small plant is placed under the pillow to induce sleep)

o dodófo (< vb. -tofo 'to feed') 'thing used to feed' (i.e., a fire) (i.e., both 'tree' and 'vine' dodófo are used to feed a fire to drive out ghosts)

Complex, Type 4. Abstract noun formed from verb root X, meaning "X-ness". (Note that the Tobelorese abstract noun is often translated by the English adjective, thus o ngohaka ma iteteke [literally: 'the child's smallness'] 'the small child').

Examples: o gurati (< vb. -kurati 'to be yellow') 'yellowness' Curcuma longa L. ('turmeric')

o riidi (< vb. -riidi 'to be silent') 'silence' (see Appendix)

o aerani (< vb. -aerani 'to be wonderful, strange')

'wonder, strangeness' (two forms, see Appendix)

o biru (< vb. -biru 'to be blue') 'blueness' Indigofera tinctoria L.

Complex, Type 5. "Causative" prefix and verb root X meaning "to cause to do X". (Only two definite examples, both in the FLORAL FORM domain. The actual relation of this -hi- prefix to the verb's meaning requires further study).

Examples: o hitadi (< -hi- ["causative" prefix]+ -tadi 'slam down') 'slam down' (so called because the banana fronds will drop from the stalk of this variety if the stalk is slammed down on the ground) (a type of banana)

o hijai-jai (< -hi- ["causative" prefix]+ reduplicated vb. -jai 'rush, hurry') 'rush, hurry' (a type of 'banana') (refers to fast growth and early harvestability of this banana)

Complex, Type 6. Negative suffixation of verb or participial X meaning "(does) not X"

Examples: o kokihua (< vb. -kokihi 'to have an inflorescence [said of banana plants]'[cf. n. kokihi banana inflorescence'] + -ua 'not') 'not having any inflorescence' ('horn plantain' -- a type of 'banana').

o ngoerua (< vb. participle [?] ngoere 'dried out [e.g., in the sun]' + -ua 'not') 'not dried out (in the sun)' (a type of 'rice') (so called because this variety need not be sun-dried before storage).

Note that the first example above is most likely formed from a verb, not a noun. Though noun + -ua can be used in Tbl word formation (e.g. Nyawaua 'not a human' [name of an island at 0°53'N, 127°42'E]), this construction does not appear in terms for animals or plants.

3.2.2.3. Endocentric and Exocentric Compound Words and Phrasal Lexemes

Though the definition of "endocentricity" and "exocentricity" for phrases may differ from that for compound words, it seems reasonable to use the same terms for this opposition in reference to words or phrases, because of the fact that in both types of construction, "endocentricity" implies that one part is syntactically equivalent to the entire construction, while any such construction (word or phrase) which is not endocentric is termed "exocentric". Specifically, "a phrase is said to be endocentric if it is syntactically equivalent to one of its immediate constituents" (Lyons 1977:391). A compound word, similarly, is endocentric if one stem of the compound (its "head") is syntactically equivalent to the entire compound. Phrases (and words) which are not endocentric are exocentric by definition.

Examples of endocentric phrases include "the white house", "the horse they both bet on", "walk slowly"; examples of syntactically endocentric compound words include "White House", "race-horse", and "sidewalk". The heads of these compounds (House, horse, walk), if substituted for the compounds in every sentence in which they occur, will be syntactically acceptable. An exocentric phrase like "at his farm", on the other hand, has no such substitutable part; the phrase could instead be replaced by a locative adverb, (e.g. "there").

One might also use semantic criteria to define endocentricity (Conklin 1962, Nida 1951). Thus while silverfish is morphosyntactically endocentric, it might be considered semantically exocentric, because a silverfish is not a type of 'fish'. One might object that this use of the term ignores the etymological meaning of the word "endocentricity" (which refers to a phenomenon "centered" or located within the compound), but this would only be an objection to the use of the term, not to the distinction being made.

A more serious difficulty with the distinction, for which I do not use it here, involves its dependence on hyponymic (taxonomic) relations. Though applicable to many Tobelorese compounds, this distinction is difficult to apply to many others, even in a domain consisting only of nouns constructed in a limited number of ways, such as the set of plant and animal names.

In many cases, the semantic relationship of the class

designated by a morphosyntactically endocentric Tobelorese compound to that designated by its head is not clear. We would not want to consider halale ma ngutuku ('bad luck' + [poss.] + 'root') 'bad luck's root' (Oxymitra sp.),so called because its root is used to ward off bad luck brought about by a personal misdeed, a "semantically endocentric" compound because the plant class designated is not a class of 'root'. But what of buhuru ma houru (< buhuru 'swelling in the lower stomach area' + [poss.] + 'medicine') 'buhuru's medicine' (a shelf fungus, not in the FLORAL FORM class) which is used as medicine for buhuru? Or aunu ma dodogumu ('blood' + [poss.] + 'stopper') 'blood stopper' (Ageratum conyzoides L.) used to stop the flow of blood from a wound. These plants might be considered subclasses of a class of 'medicine' or 'stopper', thus "semantically endocentric"; on the other hand, it might be considered that only part of the organism is used in these cases also (as in o halale ma ngutuku above), so they should be semantically exocentric. Trying to decide such questions for the many compounds in the domain considered here can become a metaphysical chase after the "true natures" of the objects denoted, and seems to deny language's habit of always singling out specific aspects of things (even if we call a plant the 'X-plant', this is in a way still as incomplete as the 'X-decorative-flower' -- the latter fails to note many other parts of the plant; the former fails to note that the plant is also food, medicine, and other things, has certain characteristics, etc.).

Finally, it is difficult to include both semantic and morphosyntactic criteria of endo- and exocentricity in a more comprehensive classification of lexemic types. Some compounds can be clearly called "semantically exocentric" but morphosyntactically endocentric, e.g.:

o kuho ma haeke 'kus-kus's head' (type of 'banana')

o totaleo ma uru 'chicken's beak' (type of 'banana')

o karafe ma gumi 'rat's whiskers' Fimbristylis ovata (Burn.f.) Kern.

o ngohaka ma iyo-iyoko 'baby's feces' Garcinia dulcis (Roxb.) Kurz.

(The first two examples refer to the shape of the banana fruit, the third [at Loleba] to the whisker-like pairs of opposite leaves on stems of this fern, the fourth is said to refer to the yellowish color of the exuding sap of this tree.) Others are clearly "semantically" and morphologically endocentric, such as the second of each pair in the examples below:

o ngulu	(simple)	Spondias pinnata (L.f) Kurz
o kaho ma ngulu	'dog's ngulu'	Spondias cf. dulcis Saoland ex Park.
o bidoho	(simple)	(several Piper spp.) 'sirih'
o tokata ma bidoho	'ghost's sirih'	Piper caninum Bl.

Both these examples designate classes of inedible fruits closely related to edible ones (cf. Burkhill 1935:1742 for Malay term sireh hantu 'ghost sireh' Piper caninum). (Though a voucher of o kaho ma ngulu has been tentatively identified as Spondias cf. dulcis, the fruits of plants so designated are not locally considered edible.)

Finally, the following examples will illustrate morphsyntactically and "semantically" exocentric compounds:

o ngoerua ('dried' + 'not') 'not dried' (a type of 'rice')

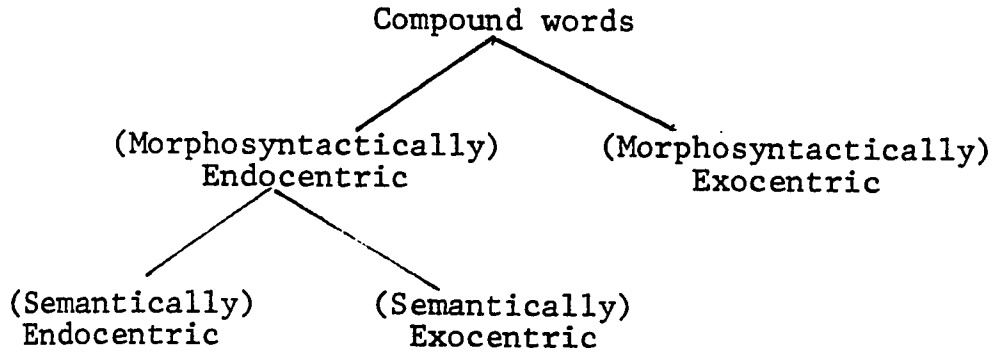
o ngofawoe ('child' + 'many') '(having)many children'

o kokihua ('have inflorescence' + 'not') '(having) no inflorescence' ('horn plantain')

o lakodoto ('eye' + 'to be sharp') 'eye (is) sharp'

(The first refers to a variety of rice said not to need drying in the sun before storage; the second refers to a tree which generally has many sprouts ['children'] at the base, and by imitative magic is considered a cure for childless women; the third refers to the 'horn plantain' [cf. Yoshida 1979]; informants consider it likely that the fourth refers to a medicinal use of this plant, though I did not discover the medicine involved).

Note, however, that it is impossible to have a morphosyntactically exocentric but "semantically endocentric" Tobelorese compound word, despite the fact that the criteria for determining endocentricity are different. This follows, however, from the definition of a semantically endocentric compound as a compound some part of which designates a superclass of the class designated by the compound. Because morphosyntactically exocentric but semantically endocentric compounds are precluded by this definition, it follows that all morphosyntactically exocentric compounds must be semantically exocentric as well by definition (i.e. exocentric is defined as "not endocentric"), it seems tautological to try to include both criteria in a more comprehensive classification of compounds, a possibility displayed below:



Because of these problems with applying the notion of "semantic endocentricity", the term will no longer be used here. Thus "endocentric" and "exocentric" used alone only refer to morphosyntactic endo- or exocentricity of either compound words or phrases.

Finally, it should be noted that since all (but one) phrasal lexemes in the BIOTIC FORM domain consist of a noun + subordinate phrase, all these phrasal lexemes are endocentric. Here as elsewhere, though, the Tobelorese seem to abhor a rule without an exception: of all terms for animals and plants, only one term which is in the 'snake' (o dodiha) domain, is an exocentric phrasal lexeme: o gohi ilahi-lahiri (X egg x-which.swallows) 'which swallows eggs'; this term is a common synonym (at Loleba) for o ngohokumu (simple word lexeme); both terms designate only the single biological species Boiga irregularis. Non-lexemic exocentric phrases are often used to refer to plants whose names cannot be pronounced because of the in-law name taboo; this single exception may be a lexicalized phrase originally used for that purpose.

A few types of endocentric and exocentric compounds, and of endocentric phrases, can be distinguished on morphosyntactic grounds:

Endocentric Compound, Type 1. Head noun + modifying noun

Though this type of endocentric compound formation is very common in Indonesian (and apparently also in Ternatese), it is rather rare in Tobelorese, except in foreign words. As a phrase, the head noun + modifying noun would keep the o noun-marker of the modifier, but in some cases these have been reduced to compound words of this type; thus the noun phrase o X o Y has been lexicalized as a compound o X-Y. For example, o lulewi o papua (Casuarina cf. equisetifolia) is a phrase sometimes reduced to the compound o lulewi-papua (which is then synonymous with the B^{-1} term o papua). The conditions under which such non-lexemic phrases or the compound can be used to designate the same class (as in this lulewi-papua example) will be considered below (5.1.3.3):

Examples: o lulewi-papua (< n. lulewi 'Casuarina spp.' + o papua [here: 'C. cf. equisetifolia']) 'Casuarina cf. equisetifolia'

o hale-gumini (< n. hale '(a 'tree') Eugenia sp.' + gumini 'vine') 'vine hale' (so called, presumably because of its resemblance to the hale 'tree', though not now considered in the hale class; thus *o hale o gumini is not now considered acceptable) 'Derris trifoliata Lour.'

o bete-beloho (< n. bete 'Colocasia spp. + beloho 'stake, pole;) 'stake Colocasia' (Colcasia sp.) (alternatively: o beloho or o bete o beloho)

Endocentric Compound, Type 2. Possessor (noun) + (possessive pronoun) + possessed (noun)

By far the most common compound, this type might be separated into two subtypes on purely morphosyntactic grounds, as follows:

(A) (simple possessor + poss. + possessed) (most common subtype)

Examples: o dodiha ma kobongo (X snake [poss.] bone) 'snake's bones' (Ipomaea quamiclit L.)

o moholehe ma yaho (X maiden [poss.]calf) 'maiden's calf (of leg)' (a type of banana')

o halale ma ngutuku (X bad.luck [poss.] root) 'bad luck's root' Oxymitra sp.

o ngo beye ami sogo (X [feminine proper name marker] grandmother [poss.] pubic.hair) 'Grandma's pubic hair' (?Cynancha sp. or?Parsonia sp.)

In some cases, the "possessed noun" designates a superordinate class:

o ode ma biáwa (X pig [poss.] '?Donax cannaeformis') 'pig's biáwa' (a type of biawa)

o nyawa ma biáwa (X human [poss.] biáwa '?Donax cannaeformis') 'human's biáwa' (a type of biawa)

o jara ma rurúbu (X horse poss. herbaceous.weed)
'horse's herbaceous weed' Zoysia matrella (L.) Merr. var. pacifica
(a type of rurúbu 'herbaceous weed')

o kaho ma ngulu (X dog [poss.] [ngulu, unmarked: 'Spondias pinnata (L.f) Kurz'])
'dog's ngulu' (Spondias cf. dulcis Saoland ex Park.)

(B) "Possessed noun" reduplicated.

Lexemic reduplication of nouns seems to generally indicate a widening of their meaning such that particular attributes of the objects denoted are emphasized. This expansion of meaning and emphasis of particular attributes seems to emphasize the metaphoric nature of the term. Thus o dodiha ma kobongo ('snake's bones', subtype A above) is also sometimes called o dodiha ma kobo-kobongo (literally: 'snake's bones-bones'). Reduplication of 'bones' seems to emphasize the identification of this plant's pronounced leaf-axes of its regularly-spaced leaves with a snake's bones; i.e., to emphasize the fact that this vine (Impomoea quamiclit L.) is only metaphorically somewhat like a snake's bones.

This explanation seems much more likely than the also-possible 'snake's separate (or individual) bones' (another possible but non-lexemic meaning of the reduplicated noun); the latter interpretation would not explain other examples, such as:

o busu ma dalu-daluku (X [a red parrot, Lorius

garrulus garrulus] [poss.] palm-wine- [redup.]) 'red parrot's palm-wine; Mucuma sp. (refers to this bird's habit of congregating at the tree when its flowers are in bloom, as people congregate to drink at the tapped Arenga pinnata palm).

Endocentric Compound, Type 3. (only one case) possessor (noun) + possessed (noun)

This construction is found only in the term designating a class of fern-types, o karafe-gumi (literally: X 'rat'-'whiskers' (several types, cf. Appendix); perhaps it was coined or has survived borrowing without the possessive ma in order to distinguish it from the quite different plant (Cyperaceae) designated o karafe ma gumi ('rat's whiskers') Fimbristylis ovata (Burm.f.) Kern.

Exocentric Compound, Type 1. Noun + verb root.

This is the only type of exocentric compound in the PLANT domain. Since only the verb root is present (without subject prefix) these can not be mistaken for phrases. The most common compound-parts involve a noun which designates a plant part (or object in association with the plant) and a verb which indicates a state or quality of that part or object.

Examples: o ngofawoe (< ngofa [abbrev. of Tbl-D ngofaka] 'child, shoot, sucker' + -woe vb. 'to be many') 'many children (i.e. shoots at base of tree)' (Lithocarpus sp.)

o hokaregi (< hoka 'leaf' + -regi 'to be lobed')
'(its) leaves are lobed'
o gagilamo (< gagi [abbrev. of gagini]'dew' +
-lamo [abbrev. of -lamoko] 'to be much')
'(having) much dew' (two types, cf. Appendix)

In a few cases, however, the noun indicates a human body part, the verb a quality for which the plant so designated presumably has some medicinal association (this is, at least, the folk etymology of such terms):

o guluihuputu (< gului 'buttocks' + -huputu 'come undone, come out') 'buttocks come out' (a disease; hemorroids?)
o lakodóto (< lako 'eye' + -doto 'sharp') 'eyes (are) sharp'

Endocentric Phrase, Type 1. Head + reduplicated "participial".

Phrasal lexemes having this form can almost always take the form of Type 2 (subordinate clause) also. Thus o baya ma doka-dokara 'red baya' may also be realized as o baya itoka-tokara 'red baya' (i.e., 'baya which is red' (Amaranthus hybridus L.). The only case in which Type 2 endocentric phrases can not be realized as Type 1 reduplicated participials is when the head is not a subject of the subordinate clause (e.g. o balibi hadato-datomo 'cultivated balibi', but literally: 'balibi which we plant', Averrhoa bilimbi L.).

In calling such phrases "participial", one can emphasize the analogy between participle and subordinate clause reflected

in English "the chopped wood" vs. "the wood which he chopped". In fact, though, there are many similarities of this "participial" to the abstract noun. For example, the verb 'to be red' -tokara forms its abstract noun dokara 'redness' is the same way the subordinate clause -toka-tokara 'which is red' forms the so-called "participial" doka-dokara. Thus this "participial" may, after further research in Tobelorese verb morphology, be shown to be an abstract noun '(its) being red'. Since this interpretation is problematic, however, the construction may be temporarily called a "reduplicate participial" here.

Since the same lexeme may be realized either as a Type 1 or Type 2 endocentric phrase, the latter will also be considered before examples are given.

Endocentric Phrase, Type 2. Head + subordinate clause

In Tobelorese, clauses are made subordinate by reduplication of the verb (e.g., o gota to-toyanga 'I chop down the tree' vs. o gota to-toya-toyanga 'the tree which I chop down').

A Type 1 "Reduplicated participial" may be derived from this head + subordinate clause construction if the head is the subject of the clause, as in these examples which relate to "surface quality" or color; each pair here represents two realizations of the same lexeme (not contrasting lexemes):

Type 1: o fahihúku ma doka-dokara 'red fahihuku (tree)'
Type 2: o fahihúku itoka-tokara 'fahihuku (tree) which is red'

Type 1: o ligua ma gare-garehe 'white ligua (tree)'

Type 2: o ligua iare-arehe 'ligua (tree) which is white'

Also a reduplicated participial may be formed from other subordinate clauses within the phrase, the subject of the clause then becoming the head of the participial phrase (like 'trunk' or 'leaves' in examples below; each pair again represents two realizations of the same lexeme:

Type 1: o mayoro ma roehe ma doka-dokara 'mayoro (tree) (with) red trunk' (or): 'red-trunked mayoro'

Type 2: o mayoro ma roehe itoka-tokara 'mayoro whose trunk is red'

Type 1: o gamonua ma hoka ma alu-aluhu 'small-leaved gamonua (tree)'

Type 2: o gamonua ma hoka ialu-aluhu 'gamonua whose leaves are small'

Finally, in a few cases, which seem best considered non-lexemic, the subject of the subordinate clause is 'we (inclusive)', which may be translated by the impersonal 'one'. This seems to be used primarily to disambiguate polysemous words; thus totaleo$_2$ 'chicken' is often called o totaleo ho-tofo-tofo (literally: 'the chicken which we [incl.]feed') 'domesticated chicken', to distinguish it from totaleo$_1$ 'bird'. In the FLORAL FORM domain, such phrases include ha-dato-datomo ('which we plant', i.e. 'cultivated'), or even rather long phrases spontaneously coined to disambiguate terms on particular occasions ('which we saw yesterday by the path that goes...' etc.).

Endocentric Phrase, Type 3. Locative Phrase.

This commonly-used type of phrase indicates "normal" habitats of the plant- or animal-types which it designates. It consists of the head word plus attributive; the latter consists of a habitat term plus a locative "suffix" (or, "morphological suffix", see section 3.2.1.2 above). Different Tobelorese dialects use the same set of six locative suffixes in slightly different ways for this purpose. The system in use at Loleba village (B-dialect) seems most widespread for forming lexemic phrases, so it may be considered first. That used at Pasir Putih represents the D-dialect.

In B-dialect, the habitat-noun (such as gahi 'shore, sea', fongana 'jungle, forest', etc.) takes a suffix -ika 'in that direction', which is unmarked with respect to other suffixes. In order to more specifically emphasize the "normal" direction towards habitats of objects in that class, the noun may alternatively take another (marked) suffix implying movement in the direction toward the habitat (-ika implies this only in a general way). Thus 'jungle X' may be realized as either o fongan-ika 'jungle in that direction' (unmarked) or, if the speaker is in a coastal village, o fongan-iha 'jungle landwards' (marked); cf. also o aker-ika 'in (fresh) water that direction' vs. o aker-iha 'in (fresh-) water landwards'. In the latter example, the marked o aker-iha appears to be more commonly realized than the unmarked form, presumably because the 'landwards', suffix disambiguates which of many bodies of 'water' might be referred to[6]; the marked

fongan-iha 'jungle-landwards' is less common; and the marked gahi-óko 'sea seawards' is very rare, apparently because the sea's direction is least ambiguous. The above is true for all habitats which humans can reasonably reach (thus excluding only the "deep" sea and -- in domains other than that of BIOTIC FORMS -- the sky; but the tree-top habitat of epiphytes, and the habitats of worms or grubs underground or inside dead-wood are treated as "reachable"). For "unreachable" domains, the appropriate suffix has the meaning 'from (that domain)', that is, the suffix for movement away from that domain in a direction towards the speaker. Thus 'deep sea X' (where X is a plant- or animal-type) is rendered (literally) '(sea's) depth landwards X' (o X o luku-iha) (but cf. "reachable" 'sea X' literally 'the sea in that direction X' o X o gahi-ika, or the more specific but seldom-used o X o gahi-óko 'the sea seawards X').

In D-dialect, on the other hand, the normal form for these attributive phrases for terrestrial habitats uses the habitat noun and the suffix -ino 'in this direction'. To more specifically emphasize the direction from which the organisms of that type "normally" come, the direction suffix from that habitat towards the speaker is used; thus 'jungle X' is normally rendered 'jungle-in.this.direction X' (o X o fongan-ino) (unmarked); or, if the speaker is on the coast, 'jungle-seawards X' (o X o fongan-óko) (marked) -- exactly opposite directional suffixes from those used in B dialect! (This is true even if the speaker is inland, in

the jungle; where only the unmarked and not the 'seawards' suffix may be used, however.) For non-terrestrial habitats, the -ika ' that direction' suffix is usually used of 'sea' creatures (o X o gahi-ika 'sea-that.direction X'); and the -iha 'landwards' suffix is used to refer to "freshwater" creatures (o X o aker-iha 'water-landwards X'), probably for the same reasons as those suggested for the B-dialect. D-dialect speakers find it absurd that their northern B-speaking neighbors do not distinguish gahi in its senses of 'sea' and 'shore' through the locative suffix. For D-speakers, the former is a non-terrestrial habitat usually rendered o gahi-ika 'sea-that.direction'; the latter a terrestrial habitat rendered with the unmarked o gahi-ino 'shore-this. direction' (i.e., 'from shore'). More commonly, however (perhaps to disambiguate the polysemous gahi), 'shore X' is rendered by the marked o X o gahi-ie (D. -ie is equivalent to B. -iye 'upwards'; thus 'shore-upwards X'). This presumably is because the Tobelorese 'upward' and 'downward' refer to movement southward and northward (respectively) along or parallel to the coast.

Finally, some fish in the Kao Bay are recognized as coming (especially during heavy north winds) from the much stronger seas of the Moluccan Passage, Weda Sea, or the Pacific, collectively referred to as o gahi ma nauru 'male sea', in contrast to Kao Bay's relatively tranquil o gahi ma beka 'female sea'). In all dialects such fish are referred to with the attributive o gahi ma nauri-ino 'male

sea-this.direction' (i.e. 'from the male sea'). When Tobelorese cross the six-kilometer isthmus of Dodinga and catch such fish in the 'male' seas of the Moluccan Passage, they refer to these fish with the fish-type name X and the attributive phrase, e.g. o X o gahi ma naur-ika 'male sea-that.direction X' (i.e. 'the X [fish] normally found in the male sea') -- thus using a different suffix depending on where the animal is located, though both locations seem "reachable" by man.

The preceding discussion should show that, as with lexemes realized as either reduplicated participials or subordinate clauses, a single lexeme can be realized in several predictable forms, both within the same dialect and among dialects. Though we need not consider the locative "morphological suffix" part of the lexeme, the terms are lexemic nevertheless, and, to re-phrase Shakespeare, a Tobelorese 'shore' or 'jungle' rose (if there were one) might smell as sweet in any other place, but must go by the same name (in one of its forms).

Because -ika 'that direction' seems unmarked relative to others, it is generally used as the citation-form (except e.g., o aker-iha ' fresh.water-landwards') as in the following examples:

o tarate o tonak-ika (orchid ground-that.direction) 'ground (-dwelling) orchid'

o oaha o fongan-ika (oaha jungle-that.direction) 'jungle oaha' Diospyros cf. heterocarpa

o oaha o gah-ika (oaha shore-that.direction) 'shore oaha'

Endocentric Phrase, Type 4. 'Male' and 'female', 'good' and 'bad'

These might or might not be considered morphosyntactically the same as phrases of Type 5 below, because the words for 'male', 'female', 'good' and 'bad' here might be considered nouns and the headwords of the phrase. While this is certainly a possibility, the fact that (1) the morphosyntactic status of abstract nouns (e.g. ma oa 'good') used as attributives is not clear, and (2) that these phrases are semantically quite different from those of Type 5; and (3) that they behave differently in the rule for "sequencing" lexemes (5.1.3 below), all lead us to temporarily consider these as a separate type, and to consider that the phrasal parts meaning 'good', 'bad', 'male', or 'female' are "attributives" rather than the heads of the phrases (e.g. for purposes of the "sequencing rule" of 5.1.3 below), while Type 5 phrases are not.

Unlike phrases of Type 5, these phrases all have "classificatory significance", that is, they label the subdivisions of a class into a pair of contrasting subclasses. Some of the classificatory significance of these forms will be considered below (5.2.1).

Examples: o digo ma nauru 'male digo' Sida rhombifolia L. ssp. rhombifolia

o digo ma beka 'female digo' Sida acuta Burm. f.

o rukiti ma oa 'good rukiti' Gnetum sp.

o rukiti ma dorou 'bad rukiti' Gnetum gnemonoides Brongn.

Endocentric Phrase, Type 5. Possessor (noun) + (possessive pronoun) + possessed (noun)

These phrases have a construction like that of a Type 2 endocentric compound word. The fact that the headwords of this type can substitute in sentences to designate the same class designated by the whole phrase, however, indicates that (unlike words) these phrasal lexemes can be permuted, and that other morphs can be inserted in them. The "possessor" here, though, is always a 'living thing' and only three "possessed (nouns)" occur: (ma) gilaongo '(its) servant' and (ma) dofa '(its) counterfeit' in either FLORAL FORM or 'animal' domain; and (ma) ayo '(its) mother' in the 'animal' and 'mollusc' domains.[7]

It will be shown below (Chapter 5) that the relations of a class to its 'seaward', 'counterfeit', and usually 'mother' class is not a taxonomic one, and in the case of 'servant' and 'counterfeit' is only a metaphorical relation. These phrases are the only ones which function as "basic" (B^0) terms; and they are the only ones which are not "attributive phrases."

Examples: o kane-kane 'weaver-ant' Oecophylla smaragdina Fabr.

o kane-kane ma ayo 'weaver-ant's mother' (i.e. the winged forms of weaver-ants)

o digo Sida spp.

o digo ma gilaongo 'digo's servant' (Pseudelepanthopus spicatus (B. Juss. ex Aubl.) C.F. Baker

o cengke 'clove' Eugenia aromatica Kuntz

o cengke ma dofa 'clove's counterfeit; false clove; Syzygium aromaticum (L) Merr. & Perry

3.3. Foreign Borrowings in Tobelorese Nomenclature

As noted in Chapter 2 above, Ternatese is the language to which Tobelorese often turned for naming places, persons, animals, and plants. Here some observations about such "foreign" influences on Tobelorese nomenclature may be briefly mentioned:

(1) Several examples above illustrate that it is sometimes difficult to distinguish Tobelorese from Ternatese compounds. While this matter cannot be explored fully, it is based on the fact that many Ternatese words are predictably like Tobelorese words. A Tobelorese word with a final [...V_aCV_a#], especially, often has a Ternatese cognate without the final syllable:

Tobelorese:	Ternatese:	English:
giama	gia	hand, arm
-lamoko	-lamo	big
ngauku	ngau	ear
aunu	au	blood

In Tobelorese compounding, this dropping of the final unaccented syllable occurs even for Tobelorese roots. For example, a folk class of 'bat' (comprising several species)

is called o ngunuhago (ngunu < Tbl ngunungu 'nose' + hago 'to be twins') 'twin nose' (so called for the strongly cleft snouts of these bats).

In such cases it seems likely that dropping the unaccented final syllable is done in imitation of Ternatese, even when Ternatese stems are not known. Compounds of this form, then, are examples of what we may call "Neo-Ternatese", the widely-used "language" also used in incantations and ceremonial chants. I have suggested the term "Neo-Ternatese" for this ceremonial and ritual language of the North Moluccas because, like the "Neo-Latin" used in modern scientific naming (Marchand 1960:6-8), compound parts of varied origin are treated as Ternatese (or Latin) stems and combined according to modified Ternatese (or Latin) rules of word formation. Adequate study of this topic, however, requires study of Ternatese; presently available sources on that language are far too sketchy to rely upon.

(2) The languages of Tobelorese borrowings vary from one area to another. Heuting's (1908c) dictionary, based on the northern H dialect near Galela, lists many Galelarese words with which informants at Loleba were unfamiliar. At Loleba, on the other hand, the many migrants from Pagu and Modole areas from the opposite side of Kao Bay had brought some of the folk terms from these languages into currency at Loleba. In examples below the "true" Tbl term known throughout the region is on the left, the term alternatively used at Loleba (originating from Pagu-speaking areas) is in the center (English at right):

o gilitopa	o papaceda	'Scaevola taccada (Gaertn.) Roxb.'
o kaahóho	o boto-bóto	'grasshopper'
o lefere	o dadaka	'(certain) millipedes'

In D-speaking Pasir Putih (the closest Tobelorese village to Ternate), however, Ternatese compounds are more often used to name folk biological taxa.

Nevertheless, Tobelorese emphasize that these are just foreign synonymns for the true Tobelorese names. Daily use of such synonyms is probably much higher than my data indicate, because Tobelorese usually tried to use "proper" animal or plant names with me. In general, synonymy seems high due to high mobility and multilingualism, and to in-law name taboos.

(3) Two clearly distinct phases of borrowing from Indonesian are distinguishable. These may have to do with borrowings which took place before and after bilingualism became common.

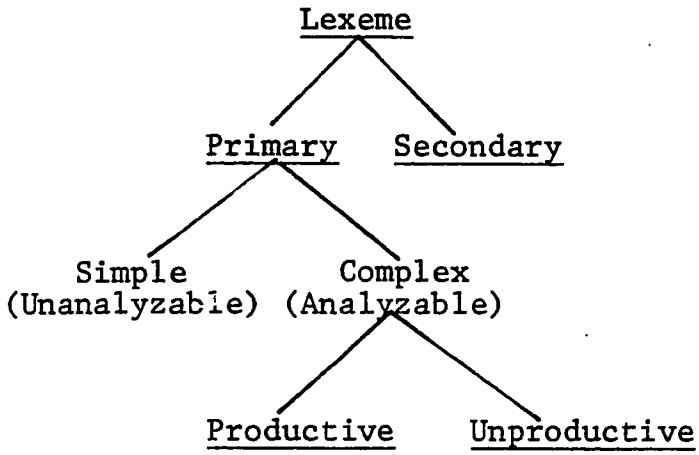
In Phase I (one can hardly resist calling this the "first phase" -- though the relation of these modes of borrowing to historical time has not been proven), Malay-Indonesian words are assimilated to Tobelorese phonology: /s/ becomes /h/, CC is fit into the CVCV pattern of Tbl, and so on. Today, however, (Phase II), this is very seldom done, and the Indonesian word is simply pronounced as it would be pronounced in NMM, though unfamiliar words may be changed in the process. The few exceptions may be considered

accidental; for example, a new variety of 'pineapple' (o manahi), said to be developed by researchers at Bogor (West Java), and called in Indonesian nanas Bogor 'Bogor pineapple', became metasthesized in many Tbl villages as o manahi o borgo ' borgo pineapple', probably due to unfamiliarity with the word "Bogor" rather than assimilation to Tbl phonology (to which bogor, or *o bogoro, would have been closer).

3.4 A Note on Berlin, Breedlove, and Raven's Proposed Classification of Lexemes.

Berlin, Breedlove, and Raven (1974) have proposed a classification which has often been used by recent ethnobiologists interested in presenting a semantic analysis of the domain of plants or animals, or of some subdomain of these. The distinctive, contrasting set of "basic" (their "generic") terms, which had long been identified in folk biological domains (see 5.1 below) was there largely defined with reference to the type of lexeme with which the "generic" terms were labelled. The proposed classification has especially been used by those associated with the Language Behavior Research Laboratory at Berkeley.

The classification they proposed may be summarized using the diagram below (from Berlin et al. 1974:29):



As more succinctly defined in a later article by Berlin (1976), "secondary lexemes" are

> . . . linguistically analyzable expressions which (1) include one constituent that labels an immediately superordinate taxon and (2) occur in contrast sets whose members are also labelled by secondary lexemes which include an identical superordinate constituent.
>
> (Berlin 1976:397)

"Primary lexemes" are all the other lexemes. They may be "simple" (term used as in this chapter), or "complex":

> At least two types of linguistically complex lexemes have been recognized. One type includes constituents none of which mark a category superordinate to the form in question, e.g., poison oak, hens-and-chickens, . . . , etc. Such expressions can be called unproductive (complex) primary lexemes. A second type of complex lexeme includes expressions in which one of the constituents marks a category superordinate to the form in question but which nonetheless contrast directly (occurs in the same contrast set) with simple or unproductive complex lexemes, e.g., tulip tree (which contrasts with oak, maple, etc.), puncture vine (which contrasts with ivy, passion flower, etc.), or creosote bush (which contrasts with rock apple, broom, etc.). Such expressions can be called productive (complex) primary lexemes. Some productive primaries may be abbreviated (e.g., pine tree ⟶ pine); others may not (e.g., tulip tree ⟶ *tulip).
>
> (Berlin 1976:397)

The major problems with this set of definitions involve (1) the fact that these definitions are introduced only for "ethnobiological lexicons", a limitation which, like others in Berlin's analysis, falsely isolates the domain of folk systematics as if it necessarily functioned unlike other domains of language; (2) the definitions' reliance on taxonomies, so that they are misleading (even in Berlin, Breedlove, and Raven's own work) when applied to the many other types of folk biological classification (as in their own discussion of developmental stages of plants [1974:64-68], which seems to include many non-lexemic forms). (3) The failure to determine word boundaries, or distinguish compound words from phrases -- though they appear enviably easy to distinguish in Tzeltal -- leads to no interpretation of the "abbreviation" of "primary lexemes". If as a group the primary lexemes are more "psychologically salient" than secondary lexemes (more readily elicited, more easily recalled, learned earlier by children, etc.) (Berlin, Breedlove, and Raven 1974:31-32), this may be because they are more likely to be words rather than phrases.

Also, (4) as noted in section 3.2.2 above, "complex" words should be distinguished from "compound" words (throughout a language, not just in any particular domain).

Finally, (5) it is unfortunate that by using the terms "primary", "secondary", "productive", and "unproductive" as names for types of lexeme, Berlin, Breedlove, and Raven

have taken words that already have precise meanings and applied them to other phenomena within "ethnobiological lexicons". This is not a criticism of their classification, but only of the terms used for types of lexeme. The problem is heightened by use of the same term in different senses in their book; thus "productive" and "non-productive" are used, apparently in a still unusual sense, to mean 'applicable to many referents' vs. 'applicable to one or few referents':

> Some forms [for plant part names] are productive in that they may refer to a certain appropriate area of any plant part with total freedom of occurrence. Others are nonproductive and are restricted to a particular plant part or parts.
>
> (Berlin, Breedlove, and Raven 1974:69).

In view of problems with this classification of lexemes, however, it may be simpler to use another classification than to change the terms for this one. Hopefully other systems proposed for classification of lexemes on semantic grounds will avoid over-reliance on taxonomic relations, which are difficult to use in the many languages like Tobelorese in which a single "basic" class may belong to more than one superordinate class, and in which other types of relationship among classes may always be conveyed by regular nomenclatural patterns.

FOOTNOTES

Chapter 3

1: For convenience of the users, however, a dictionary often contains irregular forms of a lexeme, such as "saw", the irregular past tense of "see".

2: The term "expression" here appears to have the same meaning as Berlin et al. (1974:79) or Hunn's (1977:26) term "descriptive phrases". Not all non-lexemic expressions, of course, are "descriptive", but the term as used by these authors seems to refer primarily to phrases used in naming plants and animals.

3: This immediately raises the question of whether o and ma are both noun-markers (of which the latter is homonymous with the non-human possessive pronoun ma 'its') or, is only o a noun-marker, while ma is a possessive pronoun which just has a wider range of applications than the English possessive "its"? The latter is probably true, though difficult (and inappropriate here) to adequately prove. But in one of its senses, at least, as a marker of a proper name or title, ma is probably not best described as a possessive, and may be thought of as a noun-marker in the H and B dialects. This very special use of the word ma is best illustrated in the D dialect, in which ma can be used along with o only in this sense, as in Tbl(D): ma o Hanihi

'Hanihi (proper name)' (cf. H or B dialect: ma Hanihi). Minimally, references here to "both" o and ma as noun-markers may refer to this special use of ma in two of three Tbl dialects.

4: Of course, this does not consider the very special case of in-law name avoidance, where a compound-part may simply be skipped or hummed if it also names an in-law; in such cases, even a single phoneme may be isolated to stand for the whole word (see Chapter 2).

5: The latter example has the shortened synonym o gaili 'worm' (a type of 'rice'). In calling the longer form a compound I am interpreting it as "red-worm rice" rather than "red worm-rice", because according to D-dialect speakers at Pasir Putih there is no other-colored "worm-rice", nor any other subclass that would contrast with a "red" subclass of the latter. If, for example, a 'white worm (rice)' were also found at another village, it might indicate that 'red worm (rice)' is a phrase instead of a compound; but it is nevertheless treated as a compound at Pasir Putih village where the rice is grown.

6: The word o akere means both 'water' and 'liquid'. The word o gahi may mean 'salt', 'salt-water, sea' or 'shore', and is considered a type of o akere in at least one of the latter term's senses, though rarely called that.

Thus the riddle: dai ma romanga ma genanga, dina ma romanga ma genanga. 'Seawards it is a type of it, landwards it is a type of it' (literally: 'seawards its name is that, landwards its name is that'). Answer: o akere 'water'.

7: The Tugutil of upriver Dodaga use the (ma) ayo '(its) mother' relation among plants. Coastal Tobelorese even at Dodaga were surprised when I told them this. Tugutil dialect, however, is nowhere considered here.

Chapter 4

The Domain of the BIOTIC FORM, and other Posited Covert Classes

4.0 Introduction

The previous chapter has identified the types of lexemes used to designate classes of what biologists consider plants and animals. But before proceeding to discuss "folk" classification --or the set of relationships the Tobelorese posit among those classes -- we should consider whether this assortment of terms for "plants and animals" name classes of objects grouped together or even considered similar by Tobelorese themselves. Just as Tobelorese 'fish' (o nawoko) includes all local sea mammals (not considered "fish" by biologists) but does not include pipefish or sea horses, so the Tobelorese class of "biotic forms" (if there is one) might well include objects which biologists do not recognize as forms of life or it might exclude some plant and animal species. Our first task, then, is to establish the local "folk" concept of the "living thing" or "biotic form" which is the semantic "domain" or class whose subclasses will be further analyzed here.

4.1 Establishing the Domain of BIOTIC FORMS

In this section I will first (4.1.1) illustrate the lack of high-level terms for "biotic form" or even "plant" in Tbl, and the polysemy of those terms which occur; then (4.1.2) argue for the necessity of positing "covert" classes in Tobelorese and (4.1.3) review faulty attempts to establish such "covert" domains and classes in other analyses. In this

way the reader may note that there are many problems in establishing the domain of our study, but that its establishment is a necessary prerequisite to our investigation; and that methods previously suggested for arriving at such a domain are either seriously flawed or inappropriate to the Tobelorese case.

In the next section (4.2) I propose a method which, though admittedly problematic, posits higher-level classes in a more "natural" (or non-artificial) way, and, I shall argue, in a way which is more appropriate to a linguistic description, and which more likely reflects the covert classes which the Tobelorese themselves might use.

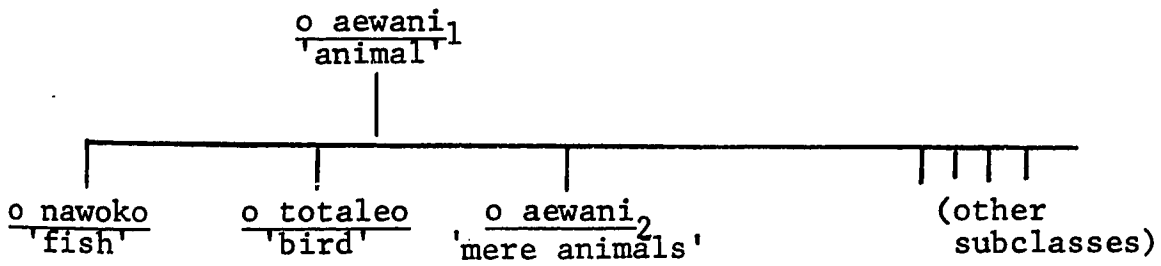
4.1.1 Highest-Level Terms for "Plants" and "Animals"

In the above example of the 'fish' domain in Tobelorese, we may find this domain's limits simply by asking whether particular named animal types are subclasses of the 'fish' (o nawoko) class.[1] Unfortunately, the lack of high-level terms for "plant" or "living thing" make these questions impossible to ask about such concepts. And the polysemy of those relatively high-level terms for 'tree', 'vine', and 'herbaceous weed' (see 3.1.2 above) can make it difficult even to ask about membership in these named classes. In the 'animal' domain we do find an Arabic-derived but fully Tobelorese B+2 term o aewani 'animal'; which also, however, has more than one sense. The most relevant are:

o aewani$_1$ 'animal' (contrasts minimally[2] with o bianga 'mollusc'; includes 'fish', 'bird', and other subclasses)

o aewani$_2$ 'mere (nondescript) animal' (contrasts with 'fish', 'bird', etc.; includes 'ant', 'gecko', 'centipede', etc.)

This may be diagrammed as below:



In addition, many metaphorical extensions of the term occur. One might ask about any small moving inanimate but unrecognized object (a piece of nylon cord tossed by wind, for example) either o kia genanga (?) 'what is that (?)' or o aewani o kia genanga (?) 'what animal is that (?)'. In the latter idiomatic expression aewani would metaphorically (perhaps jokingly) denote the object. Since the question applied to a real 'animal' asks the name of the animal, this stock question applied to an unrecognized (and especially small or moving) object seems to ask "what kind of thing is that" in this language without words for "kind of" (in the sense "general sort of" rather than subtype) or "thing" (or "is" either, for that matter).[3] (If asked only 'what is that', the inanimate object or non-aewani$_1$ may not be denoted an an aewani in response).

It is interesting that the word aewani and its cognates in the other North Halmaheran languages all have a primary meaning of 'just an animal' or 'mere (nondescript, insignificant) animal'. This seems to indicate a separate borrowing of the Arabic haywān 'animal' from that of Malay/Indonesian, where the cognate hewan denotes domesticated -- and thus most significant -- animals. The Malay term for 'animal' is binatang, and it is frequently substituted

in Halmaheran languages for both aewani$_1$ 'animal' and aewani$_2$ 'insignificant animal' (apparently it has largely replaced the aewani cognates in Pagu and Ternatese). The Indonesian term binatang has a pejorative connotation of 'worthless' or 'inhuman, vicious' when applied to humans, and angry Tobelorese may occasionally use it in this way (o binatang or o binatanga), though they generally consider it a translation of both senses of aewani, also having that term's primary meaning of 'insignificant animal' (or 'bug', including insects, spiders, worms, and even small lizards, myriapods, etc.).

This local primary sense of even the borrowed Indonesian term for 'animal' as 'insignificant animal' may cause confusion for outsiders. A hilarious story of such an incident is still told at Loleba about a former village head who met an Indonesian army sergeant who was visiting Loleba on a hunting trip in the 1960's. The sergeant reportedly asked the village leader (in Indonesian[4]) "Chief, are there deer around here?" The chief proudly replied "Oh, sir, deer around here are just like animals." The chief meant, of course, that deer were as numerous as bugs; but in standard Indonesian binatang 'animal' can not only be a pejorative term, it also does not primarily apply to "insignificant" animals. In Indonesian, a deer is an 'animal', in the primary sense of the word! (As it is, in fact, in the derived or extended higher-level aewani, sense of the term in Tobelorese.)

Thus we have seen that the highest-level Tobelorese terms of biotic forms ('animal', 'tree', 'herbaceous weed', etc.) have many senses, and that there is no named higher-level "plant" class or named class of "living things".

It may here be noted that I have been unable to find any distinctive grammatical treatment of 'plant', 'animal', 'animate object', etc., in Tobelorese (cf. e.g. the Tzeltal numeral classifier for "plants" used to posit a covert 'plant' domain; Berlin, Breedlove, and Raven 1974:30).

Ethnobiologists commonly face this lack of high-level terms, as Levi-Strauss has noted:

> It has long been the fashion to invoke languages which lack the terms for expressing such a concept as 'tree' or 'animal', even though they contain all the words necessary for a detailed inventory of species and varieties. But, to begin with, while these cases are cited as evidence of the supposed ineptitude of 'primitive people' for abstract thought, other cases are at the same time ignored which make it plain that richness of abstract words is not a monopoly of civilized languages . . . . Further, even if [this] observation about so-called primitive languages . . . could be accepted as it stands, one would not be able to conclude from this that such languages are deficient in general ideas. Words like 'oak', 'beech', 'birch', etc., are no less entitled to be considered as abstract words than the word 'tree' and a language possessing only the word 'tree' would be, from this point of view less rich in concepts than one which lacked this term but contained dozens or hundreds for the individual species and varieties.
>
> (Levi-Strauss 1966 [orig. 1962] : 1-2)

4.1.2 Why Posit Covert Classes?

From the previous discussion we can see that if we only consider lexically labelled classes in our study of Tobelorese folk classification, we must content ourselves with either (1) studying the relationship among those Tobelorese classes which happen to contain objects biologists consider "biological" -- and call this the study of "Tobelorese" ethnobiological classification, or (2) consider that each highest-level term in the language -- including 'tree', 'vine', and many "basic" classes -- is a separate highest-level (or "unique beginner") domain. The serious problems with either alternative preclude any recourse except positing covert higher-level classes, for the following reasons:

(1) The first alternative is adopted in one of its forms by Hunn (1977) and implicitly conceded by many ethnobiological studies which delimit the subject-matter of "folk" biology as the range of "folk" ideas about the subject matter of our Western biological science (i.e. the animal and plant "kingdoms"). But any analysis which claims to be "semantic" or to study meanings of terms and relationships among native classes cannot take as its point of departure a class whose membership is based entirely on a translation from another language or system of thought. To do so in this case would clearly risk analyzing relationships among "native" ideational forms already collected together in a way which is foreign to Tobelorese language and culture.

Hunn (1977), however, argues that since the choice of

a "unique beginner" is "arbitrary", we might as well use the domain of Western biology to investigate folk ideas of plants and animals:

> Insisting that the unique beginner be named results, in many cases, in the definition of unique beginners such as "tree," "snake," "corn," etc., ad absurdum. On the other hand, if we accept a covert unique beginner at a level comparable to "animal" or "plant", we must be ready to accept yet more inclusive covert taxa as well . . . [such as] "sentient being," "natural object," or "phenomenon." Such groupings tend to be vaguely defined at best. It seems preferable to accept the arbitrariness of the choice of unique beginner.
>
> (Hunn 1977:44)

But we need not despair of finding a natural "unique beginner" or highest-level class simply because even higher-level classes one might posit are "vaguely defined". Hunn's argument seems to assume that there is no method of testing whether domains such as "plant" -- posited by the analyst -- are actually used by "natives". In any case, we could arbitrarily decide to study relations among classes in, say, the domain of "utensils found in a garage" or "objects smaller than a breadbox" -- or any other arbitrary domain -- if we considered it useful. But we would have to leave aside any claim that such classes form a culturally significant unit or domain to the "natives" who use them. And the terms within such a domain can hardly be said to "contrast," since semantic contrast (Conklin 1962) refers to the same-level contrast among subclasses of a semantic (not an "arbitrary" or contrived) class.

(2) The second alternative, that of considering each highest-level term in the language a separate domain of

investigation, is not acceptable in the Tobelorese case for many reasons:

1. In the area of what we consider "plants", for example, there are minimally the named groups of 'tree', 'vine', and 'herbaceous weed', and also there are over 80 "basic" classes (having over 200 terminal classes) which are unaffiliated with these major plant groups and would need to be considered separate "unique beginners". Yet in fact Tobelorese themselves seem to recognize -- and to express in non-lexemic ways -- some higher-level groupings. Thus an unfamiliar or distant bamboo can be denoted a hoka a tiba-oli '(an object) rather like a tiba [Schizostachyum lima (Blanco) Merr.; a bamboo], this whole phrase being sometimes substituted in sentences for the name of a particular bamboo variety, or even used to refer to more than one variety. Such regular non-lexemic phrases might be considered evidence for the existence of a covert class (i.e. the phrase may be a non-lexemic realization of the covert BAMBOO class in this example). While this is an important argument for the existence of covert classes, it is not reliable -- in the Tobelorese case -- as a method of finding or positing them, since similar phrases ('rather like an X') are frequently made up for special purposes and without reference to generally used covert classes. But when a phrase such as that given for bamboos above has wide usage in many contexts we can certainly use it to help confirm that a covert class exists (after it has been found or posited by some more reliable means), and that the covert class may be designated by that phrase.

2. A second frequently-cited argument for positing covert classes may be briefly paraphrased here. There are so many similarities among classes not grouped together by any higher-level class that we would expect those similarities to be conceptually recognized in any system of classification. Continuing the above example, the various labelled varieties of what we call "bamboo" are more like each other than like 'rice', 'sugar palm', 'cycad' and other "basic" plant classes they seem to contrast with. This similarity is recognized in biology and seems so obvious that it must be clear to folk classifiers; our analysis can represent their presumed consensus on this obvious similarity by positing a covert class of BAMBOO. In an effort to more rigorously delimit classes based on such perceived similarity, numerous "tests" have been applied (see 4.1.2 below for a critique of these methods of establishing covert "classes" or "complexes"). Though this arument can easily be abused by the gimmicry of "psychological tests" of perceived similarity, it does seem that it might be useful to folk classifiers to recognize the similarity among types of "plants" or "bamboos"; just as it seems reasonable for an analysis of a system of classification to somehow put together classes of objects which have so much in common.

In natural conversations such perceived similarity is often expressed. For example, when Tobelorese are asked about whether certain biotic forms - such as 'starfish' or 'molluscs' - can be considered in the 'animal' class, they

often point out the similarity of these non-aewani$_1$ to 'animals' (e.g., 'they walk [i.e. have directional movement of the whole body]', 'they breathe', etc.). Though partly due to the polysemy of the highest level terms, such comparisons illustrate the great perceived similarity between members of the "named" 'animal' class and other classes of object.

Though they suggest that positing covert classes could be worthwhile, both these arguments are hardly sufficient reason in themselves to posit such classes, let alone to delimit their boundaries or determine their definitions. In the next subsection (4.1.3) many unconvincing attempts to posit classes using these rationales will be reviewed. There are, however, two other reasons for considering that covert classes can be posited for Tobelorese BIOTIC FORM -- and that they are required by that data. Though evidence for the classes posited is given in more detail below (4.2), these additional reasons for including covert taxa in the analysis may be briefly reviewed here:

3. Terms which can be shown to be a contrast-set must label contrasting subclasses of a higher-level class. We can see that the polysemous terms for 'tree', 'vine', and 'herbaceous weed' form a contrast-set in one of their senses (gota$_1$, gumini$_1$, rurúbu$_1$) (see 3.1.2). This implies a higher-level domain, which we can label the PLANT or FLORAL FORM domain, in which these three terms contrast as subclasses. Though these facts do not delimit the boundaries

of any such FLORAL FORM domain, they do indicate that any analysis of these data must posit such a domain containing (minimally) these three named subclasses. Further reasons for including other basic terms (other than those in these three labeled subclasses of the FLORAL FORM class) will be discussed below.

4. Finally, the method of positing the required covert classes which I outline in more detail below (4.2) can be justified by recognizing that an adequate description of the Tobelorese animal or plant domain is only part of the larger task of describing the entire Tobelorese language. Many Tobelorese words which are not names for animals or plants nevertheless have classes of biotic forms as part of the definitions of those words. We can use these related words to posit the covert classes implied in their definitions. In short, it may be more parsimonious to posit a set of covert classes and then use them in the definition of "related" terms, than to independently define the set of objects each of those "related" terms may apply to.

Thus we can conclude that, though positing covert classes may seem to violate the requirement of parsimony in a linguistic description, it is not only required by the data, but may also be the more parsimonious path to a complete description of the language.

4.1.3 Some Questionable Paths to the "Covert Class"

Finding that confining their analysis of Tzeltal folk taxonomy to labeled categories would be too restrictive, Berlin, Breedlove, and Raven (1968) suggest techniques for discovering "many meaningful and culturally revealing categories related by inclusion that are not conventionally, monolexemically labeled" (1968:209). Due largely to these authors' work, the search for covert categories has become common in descriptions of folk taxonomies. But there are serious problems with each of the methods proposed there and elsewhere (e.g. by Hays 1976; or Hunn's [1977] "chaining" and "covert complexes"). To be sure, "categories" may be recognized, some of which may even have some "psychological reality", but it is far from certain that they are (1) "meaningful", or (2) "culturally revealing", or (3) that they fit in any taxonomic hierarchy, or (4) that they are classes which properly belong in any linguistic description at all.

Though a review of techniques proposed will indicate that any collection of objects (or of classes of objects) can be grouped by such methods into categories, (1) such "covert categories" can hardly be considered "meaningful" if no distinctive features can be found which might provide a definition of the class. (2) Similarly, they cannot be considered "culturally revealing" when often their only cultural "use" is their sudden appearance to the investigator as a result of tests designed to find them. And (3) even if commonly recognized similarities among several "plant"

classes (for example) could be represented as a folk "category", that does not prove that all such categories fit into the "plant" taxonomy being described, because the perceived similarities among plants may not be the same ones used in hierarchically related taxa of "plant". This objection is sometimes raised as the problem of "special purpose" categories, based on various types of perceived similarities, invading a "general purpose" taxonomy presumed to always be based on morphological features of the plants (e.g.c. Brown 1974, cf. reply Berlin 1974), though such phrasing of the question is inappropriate here because several clearly-labeled Tobelorese taxonomic groupings seem to be based on non-morphological similarity (cf. e.g. 5.2.2.1 below); and in any case the most encompassing taxonomy of FLORAL FORM as a subclass of BIOTIC FORM -- the taxonomy we are describing here -- is in many details a "special purpose" taxonomy, relating to medicine, for the Tobelorese (cf. 2.2 above).

Finally, (4) covert classes posited only on the basis of perceived similarities among objects -- even if "validated" by "psychological tests" -- do not necessarily belong in a linguistic description. Of course, we are interested in the "psychological" and cultural relevance of our descriptions of linguistic domains; but we can only discover these by firstly (and independently) arriving at adequate linguistic descriptions of the semantic domain in question, and only then looking around for psychological or cultural "correlates" of the system described.

One technique often called upon to determine covert categories involves the use of "folk keys" constructed by informants:

> Keys are routinely employed for biological purposes and consist of a series of successive binary divisions of a set of organisms, the characteristics used for each division being specified, until each organism in the set has been distinguished from all others. In our field procedure, an informant was presented with a set of plant names that he had earlier isolated as being cognitively similar to one another. He was then asked to construct a key for this set of organisms, accounting for all the included forms. By this means, the informant was required to verbalize all of the conceptual distinctions he has utilized in making the divisions. Such keys provide useful data when compared with the results obtained by other tests.
>
> Berlin et al. 1968:293

But these authors do not mention that in folk as in biological keys more than one of these artificial arrangements of binary oppositions can be used to "key out" or arrive at the same set of items. More importantly, even if the keys did represent the way "folk" actually identify classes of organisms (that is, if the binary oppositions used, and the order in which they occur, were actually those natives used to identify objects), it still does not follow that the higher-order oppositions are those which form the most inclusive classes.

In biological systematics, where classification attempts to represent phylogenetic relationships among organisms, it is possible to write a "natural key" (Simpson 1961:15-16) in which the key first "keys out" higher-order phyletically determined taxa, then keys out the lower-order taxa in the order in which they subdivide the highest level taxon. But

most biologists who want to use keys to identify specimens would never bother with such a cumbersome arrangement (as folk classifiers probably would not either). For example, in a key of insect families the aberrant "wingless" Lepidopteran family Geometridae may more parsimoniously and conveniently be keyed out separately from the other Lepidoptera. Many keys will separately key out adult and larval forms of all Lepidoptera, as they also separately key out the wingless female ants (Formicidae) from the rare winged female or winged male forms, though of course they are phylogenetically related! Thus biologists need not write keys that first distinguish the orders Lepidoptera, Diptera, etc.; then distinguish each family within these; then each genus within these, and so on. They can and usually do more parsimoniously write keys that directly distinguish the insect families, or genuses -- noting after each of the latter to which order it belongs. (There is no reason not to, since an artificial key's order of paired oppositions does not represent a taxonomic hierarchy).

Among the Tobelorese -- and I suspect others too -- it seems that informants' stated reasons for grouping organisms together (whether for a folk key or for some other purpose) are often not really statements of the distinguishing feature of that class, but rather "rules of thumb" (see Goodenough 1951) which will be found not to hold true in all circumstances; just as an American asked to list the features of a "door" might give answers without taking "sliding doors"

into account.

In natural conversations, Tobelorese regularly want to figure out what kind of unfamiliar animal or plant was sighted by someone (often me) who did not recognize it; where no hint except that it was a 'tree' or 'animal' was available, their first questions usually asked its habitat -- e.g. where I saw it. Questions might involve the animal's behavior, the time of day sighted, how it moved, and similar queries which clearly could not be references to the distinctive features of the class, because a night bird (such as an owl) is still an owl at noon; a 'jungle bangata' is still a 'jungle bangata' if one happens to grow by the shore, and so on. If such natural (and serious) versions of our game "Twenty Questions" are a guide to folk keys actually used, they bear much more resemblance to the multiple-approach keys sometimes included in field guides, in which oppositions need not be binary, the key need not key out all possible taxa, and an observer may key out a specimen in more than one way with each of several types of key. For example, The Pocket Guide to British Birds (Fitter 1953) describes its key in this way:

> The key . . . is meant to help you by making suggestions as to which birds have the features which you happen to have been able to see in the brief view which was all you had before the bird disappeared. Therefore it is arranged in the form of lists of birds which have various more or less striking characteristics, such as a red bill, white underparts, a hovering flight, a tendency to dive from a perch, a liking for stony mountain tops and so forth.
>
> (Fitter 1953:178-9).

The key is arranged into four subdivisions: "Plumage", "Structural features", "Behavior features", and "Habitats",

each of these allows the birdwatcher to key out a bird observed in several ways; "Structural Features", for example, deals with "the sizes and shapes of bill, head, neck, wing, tail and legs"; the same bird can often be keyed out using more than one of these subdivisions of the key. If such non-binary, multiple-approach keys represent one way Tobelorese might identify specimens, as natural conversations indicate they might, then clearly folk keys constructed by informants may not be aimed at keying out taxonomic groups in their hierarchical order, but instead may, if properly representative of folk identification, only provide one of several ways natives identify specimens and place them in terminal classes in their taxonomy.

In short, an adequate folk key, which took into account that natives may have more than one means of arriving at a determination of the classes in which a given specimen belongs, could potentially be a useful tool in the study of an aspect of folk biology which is not considered here: folk identification. If, as I have suggested, the questions asked in natural conversation reflect pathways in such folk keys, a careful collection of them (which I did not attempt) might yield reliable and interesting results -- but those results would still not constitute a classificatory structure such as a folk taxonomy; and in the meantime, should not be mixed up with one.

Finally, Berlin et al. suggest finding covert categories through the experimental study of perceived (or

"psychological") similarity among classes of organisms, as though such similarity were necessarily the result of taxonomic, and not other, relations among those classes. Quoting again from Berlin, Breedlove, and Raven's early-article:

> Our third procedure consists of paired comparisons of all lexical items in a particular delimited set of plant names. In completing this task the informant was requested to compare all logical pairs in any set in terms of all the similarities and differences that he felt were relevant for any pair. Such characteristics as the manner of stem growth, size and shape of the stem and leaves, internode length, and fruit size and shape have been utilized in these discriminations. Responses obtained by this method can later be converted into a standard notation for distinctive features that allows the investigator to scan "componential definitions" of a set of terms, and, as a consequence, bring together those terms that are most similar in terms of those features judged important by the informant.
>
> (Berlin, Breedlove, and Raven 1968:293).

We might suspect, though, that the "features" arrived at by this means are quite different from the "distinctive features" used in a componential definition of any posited class, because (1) as in the case of folk keys (above), informants' statements about similarity among members of a class often reflect "rules of thumb" rather than the features which actually discriminate the class; and (2) the features used and referred to most often are not necessarily those which are "judged important [i.e. for defining the covert classes?] by the informant"; though presented as a means of recognizing more "important" features, this technique assumes that all the attributes distinguishing one class from another were equally "weighted" or distinctive

(as well as equally likely to be verbalized), and thus could be compared by simply counting the number of times they are invoked in judging the dissimilarity of classes.[5]

In their later monograph (1974), these three authors credit D'Andrade (n.d. [1962?]) with the earliest attempt at discovering covert classes by means of paired comparisons. This early paper is one of a very few that published actual data on the clustering observed in one form of this "test of triads" or "method of paired comparisons". By asking one informant to perform this task for only 18 tree types (for which 760 triads are possible), D'Andrade did find "clustering" of trees into groups; but it is important to note from his results (ibid., Table 3) that no two Tzeltal 'tree' types were ever consistently accepted (or consistently rejected) as the two which should always be paired (or never be paired) in every triad. Such hazy "clusters" of tree types so little resemble semantic classes that they hardly fit a "classificatory" structure at all. Later work with this technique among the Tzeltal, including the tests which presumably underlie covert categories posited in Berlin, Breedlove, and Raven's (1974) monograph of Tzeltal Plant Classification, are not published in such detail; but the "covert categories" referred to there, insofar as they result from paired comparisons such as those displayed in detail by D'Andrade, are probably similarly hazy "clusters" of plant types perceived as similar -- as any two such classes might be -- for reasons which may have nothing to do with folk classification,

but instead can reflect similiarities based on different attributes for each possible pairing. "Clusters" or "categories" so formed are far different from semantic classes, because even if some distinctive features can be found (a requirement often ignored), we still have no reason to believe that such "categories" are ever lexically realized or referred to, or of any cultural importance. I am not here arguing that we should abandon positing covert categories on the basis of perceived psychological similarity: but rather only that any classes so posited -- if useful ways are found to posit them -- have no place in a semantic description.

Furthermore, as Hunn (1974) correctly recognized, perceived similarity among such naturally diversified organisms as animals and plants is not just a simple matter of similarities among whole well-defined groups of classes ("covert categories"). Hunn, however, envisions handling this problem by recognizing that the degree of differences among named classes forms a continuum, which he proposes to represent by linking them into "chains" or "complexes":

> "[H]orizontal" relationships of relative similarity and difference within a contrast set are a significant feature of folk-biological classification. These relationships may generate covert complexes of minimal distinctiveness . . . Such groupings may be distinguished as "chains" . . . .
>
> Thus relationships of similarity between pairs of taxa may be clearly apparent, but such relationships are not nomenclaturally recognized due to the absence of a "decided gap" isolating a group of associated taxa. (Hunn 1974:55).

Hunn gives the example (p. 55) of the 'slug' class, which is allegedly perceived by his informants to "link" the 'snail' class (or "complex") with that of the 'worm'. Though the three are not sub-classes of any higher-level named class, this worm-slug-snail "chain" is allowed to creep into the posited taxonomy of named forms, leaving its trail of fragile posited link-ups so unlike Hunn's clear-cut taxonomic class-inclusion relationships into which it and the other "chains" have slithered. In short, if covert "classes" or "categories" or "chains", posited because of informants' perceived similarity among taxa, serve to give us more information about the way natives "perceive" or "feel about" these taxa, then they might usefully be included in ethnobiological studies alongside information on how the plants and animals are used, where they grow, how often natives see them, etc. - but all that information does not have to be forced into a description of the natives' classificatory system, alongside the clear relationships of class inclusion which are expressed (even if all those other things are not) in a folk taxonomy.

Hays (1976) has proposed another alternative way of arriving at "unnamed conceptual groups of plants on the basis of patterning of informants' disagreements in plant naming tasks" (1976:489 [abstract]). There are limitations to Hays' methods, especially his reliance on the naming of pressed vouchers in an unnatural context, which probably increased the variability of naming responses (see 1.2); but even if these substantial methodological problems could be surmounted, several assumptions remain questionable:

> Assuming that my informants perceive their world and conceptualize it according to similar, though not identical, information-processing rules (i.e., that there exists, in some sense, a "shared culture"), much of the variability in their statements and acts is likely to be patterned in discoverable ways. I suggest that one of the patterns in plant naming responses is that, far from indicating random guesses, the diverse names offered tended to form relatively small sets whose members tended to co-occur regularly. Multiple instances of such co-occurrences, I propose, may be taken as evidence of conceived similiarity among the categories designated by the names such that their tokens were readily "confused" with each other, whether by several informants when presented with a particular plant to identify or by the same informant when presented with the "same" (or a very closely related) plant on different occasions. The categories designated by these co-occurring names, then, may be considered as conceptually grouped, whether the grouping itself is habitually named or not; when it is not, it may be referred to as a covert category of complex. (Hays 1976:503)

Here again we find the implicit assumption that native information-processing rules are like "natural keys", processing information about the taxa to which particular objects belong in order from the most inclusive to the least inclusive taxon -- a common assumption for which there is no evidence. There is also the assumption that such "conceived similarity among the [named] categories" is sufficiently like those named taxa that they should be considered taxa themselves.

Finally, any discussion of the use and abuse of covert categories should mention that Berlin, Breedlove, and Raven (1968:297) find support for their "intermediate" covert categories in Wallace's (1961) Hypothesis that man cannot store and process information about a contrast set containing over 2^6 entries:

> Should this interpretation be correct, i.e., a maximum number of 64 items in any particular

> contrast set, our data concerning unnamed categories would tend to support Wallace's position. Thus, conceptually, each of our multi-membered "named" contrast sets are in actuality subdivided into several more cognitively amenable contrast sets, many of which are included in unnamed taxa. By recognizing unlabeled taxa, our data show clearly that no contrast set exceeds 64 items, while most contain considerably fewer than ten.
> (Berlin, Breedlove, and Raven 1968:297)

But (1) Wallace's (cf. Miller [1956]) limitation only concerns the storage and processing of information in short-term memory. Anyone can certainly imagine more ways to explain how Tobelorese might "store and process" information (perhaps by "cross-indexing" it [D'Andrade n.d.], or by arranging multiple-approach keys of the kind discussed above) about the roughly 300 "basic" classes which subdivide the Tobelorese 'tree' class (for example) without stuffing them all into their short-term memories at the same time!

Nor do they need to stuff in the entire definition of any particular class. Wallace's figure of 2^6 derives from the conclusion that there could not be "more than six orthogonally related binary dimensions for the definitions of all the terms" in the contrast set (Wallace 1961:462). But not all the features used in defining a class (even if all the features were binary) need to be used to identify any particular member of the class; a type of 'tree' may be defined by characteristics of the bark, pith, flower, leaves, etc. -- but in fact the Tobelorese and others can, for many kinds of "tree", identify its leaves, or its bark, or its wood, etc. -- without reference to the whole tree. Of course, as less information is available, misidentification (which

could presumably be corrected) is more likely.

Also, (2) as stated frequently above, a description of a semantic domain should be a linguistic description (of part of a language); any adequate linguistic description risks presenting explanations that a psychologist, neurophysiologist or cybernetician will have difficulty interpreting in the light of his specialization; but we need not choose one of his many possible interpretations and tailor our linguistic description to fit it. We should instead first describe language in linguistic terms, then consider other types of interpretation; rather than jumble them together from the start.

Considering all the problems with the many attempts made to posit unlabelled (covert) classes from folk keys, "perceived similarity", and so on, one might wish to simply ignore any unlabelled classes in the description of an ethnobiological domain. But for reasons stated above (4.1.2) we must still try to posit them -- though with techniques other than those reviewed here. Though any class so posited must have at least one distinctive feature which makes it acceptable as a semantic class, and which is shared by its subclasses, the converse is not true: we cannot posit a class simply because its presumed subclasses share a feature (even when that feature is a basis for some locally perceived "similarity").

4.2. The Tobelorese Class of BIOTIC FORMS and its Covert Subclasses

This section presents methods and results of an attempt to posit several unlabelled hyponymically-related classes, which will justify treating the "basic" terms for plants and animals collected here as subclasses of a single semantic domain having relevance in Tobelorese culture and language. After summarizing the methods used and conclusions reached (4.2.1), the limitations and details of the methods proposed will next (4.2.2) be explored with examples; and finally (4.2.3) a brief overview of unlabelled and labelled Tobelorese classes of BIOTIC FORM above the level of the basic term will illustrate points made here, and will introduce the closer look at Tobelorese principles of classification (focussing mainly on labelled classes) below (chapter 5).

4.2.1 Summary of Methods and Conclusions

Though mindful of local "hints" (e.g., apparent lexical realizations of unlabelled classes, or local statements of similarity among taxa; see 4.1.2 above) that labelled biotic classes might be related as subclasses of a higher-level unlabelled or covert class, the only such covert classes posited in this description are those justified by either of these two types of evidence:

1. Semantic contrast: Classes which are clearly in semantic contrast are (by definition of semantic contrast) subclasses of a superordinate class (or "superclass") which immediately includes them. Even if the superordinate class is not

labelled, it may still be posited when the contrast among its subclasses is clear.

2. Definitional implication: A group of covert semantic classes may be posited in a linguistic description whenever, by positing those classes, the description of the language is more parsimonious than it would be if the classes were not posited. (The more parsimonious description is, of course, the better one.) Since an adequate description of any language must include a statement of the definition of each lexeme, that description is justified in positing semantic classes whenever the latter are required as features in the definitions of terms. Especially when several terms require the same covert class as a feature in their definitions, the alternative to positing that class would effectively be a more repetitious (thus less parsimonious) definition of that covert class within the definitions of each one of those terms separately. Also, some terms discussed below (such as 'male', 'female', or 'fat [of FAUNAL FORMS]') seem to label classes partly defined by the class of objects to which they are presumed to apply, rather than by any identifiable characteristics of the class labelled by the term itself.

Though these justifications for positing unlabelled classes are admittedly problematic, they are used here only as more likely candidates than any other solution reviewed so far for solving the practical problem of adequately describing what appear to be covert folk classes relevant to Tobelorese culture. It should also be noted that attention to covert classes so posited in the field is helpful in

finding lexical realizations of them (i.e., cases in which the posited class is locally used or referred to). In practice, of course, the order of procedure may be reversed: such references can tip the ethnographer off to look for the class in the first place.

The results of making these assumptions about positing unlabelled classes may be seen in Diagram 1. The diagram clearly distinguishes such posited unlabelled classes from labelled classes (as I have distinguished them throughout the text) by using upper-case letters (e.g. BIOTIC FORM), so that those who, after reading the ensuing discussion, do not accept the assumptions or the evidence for classes posited here may simply ignore them and concentrate on the named classes. I will argue below for several other points which this diagram endeavors to illustrate, and I will similarly suggest how readers who do not accept those arguments might also simply interpret the diagram in different ways, which evidence given here might also support, but which are (I think) less amenable to the data or the description presently offered. Before proceeding, the reader should briefly survey this diagram (including the preceding explanation of symbols used) because much of the following discussion refers to it.

LEGEND

The Tobelorese Classification of BIOTIC FORMS
(Diagram 1, Chapter 4)

This diagram illustrates taxonomic relations among subclasses of the posited Tobelorese covert class BIOTIC FORM. UPPER-CASE letters indicate covert classes; labelled classes are in lower-case. The "basic" level is marked B^0 at the far left; higher levels (B^{+1} to B^{+6}) are similarly marked. Subclasses below B^0 are not shown.

The extension of the horizontal line connecting terms in immediate contrast (5.2.1.3.) to the right of the subclasses shown (e.g. to the right of the three subclasses of o nawoko 'fish' in the diagram) indicates that other classes of that contrast set could be added though they are not illustrated here (thus it is unnecessary to include terms for all 146 contrasting basic classes of 'fish' on this diagram).

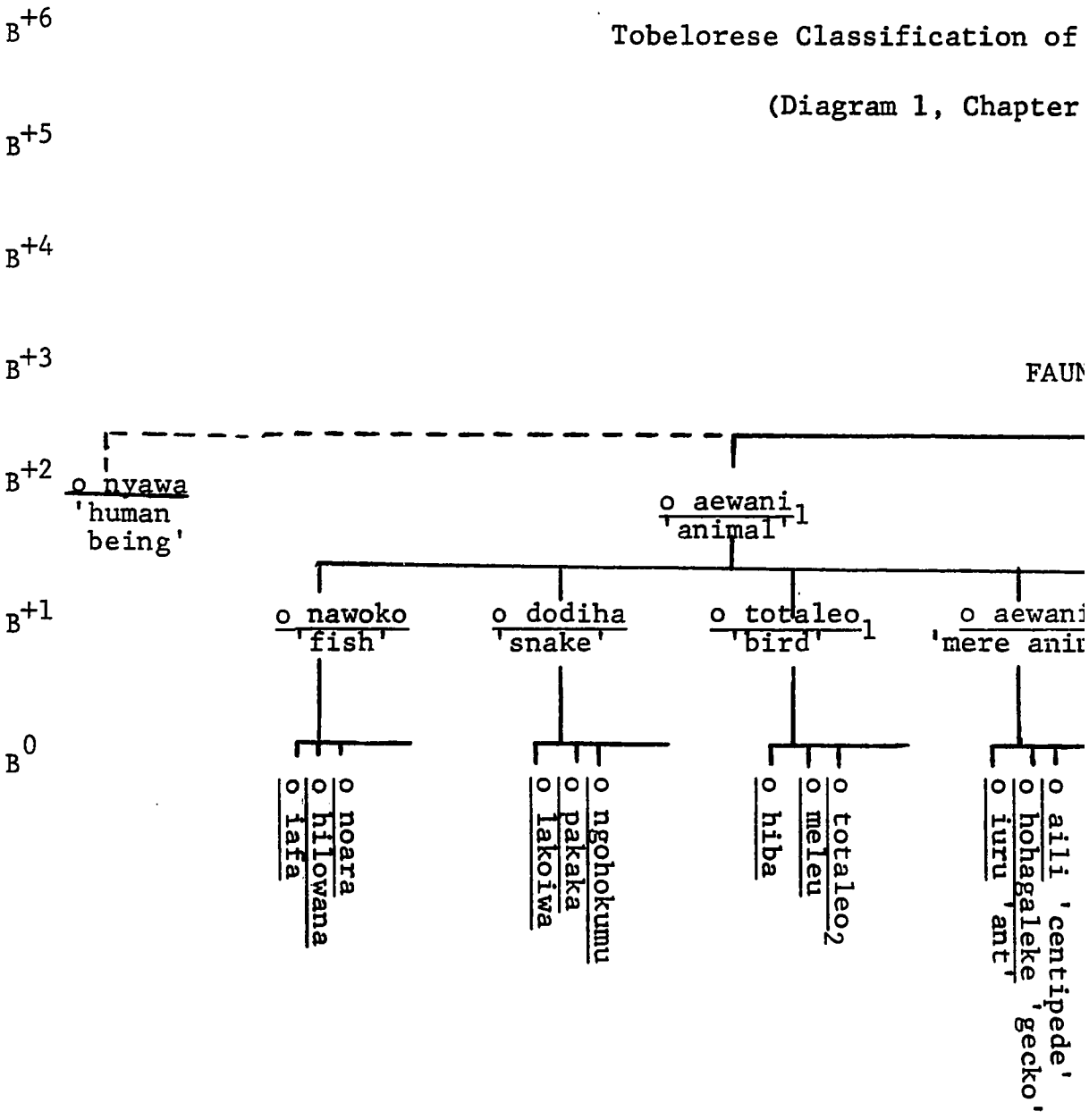
Two numbers separated by a slash (/) appear along the bottom of the diagram below each of the major FAUNAL and FLORAL FORM classes. The first of these indicates the number of basic classes (not terms) within the superordinate B^{+1} class; the second similarly indicates the number of terminal classes (thus 'fish' is subdivided into 146 B^0 and 212 terminal subclasses). Such numbers are also indicated for the sets of B^0 subclasses of FAUNAL FORM and of FLORAL FORM (e.g. o manjánga 'deer') not included in any labelled or posited B^{+1} class. These numbers are only intended to give an approximate idea of the number of subtaxa within each group, though an appropriate count is complicated by many factors. For example, some classes are at B^0 in one dialect but at B^{-1} in another (cf. Appendix); one might also count B^0 classes having ambiguous B^{+1} membership (5.2.1.4.) or having cross-cutting B^{-1} subclasses (5.2.2.1.) under both (or, as here, neither) B^{+1} class; or one might include more subtaxa within the apparently "intrusive" DECORATIVE FLOWER class (cf. 4.2.3.2.).

The significance of the broken line connecting the o nyawa 'human being' subclass to FAUNAL FORM is discussed in 4.2.3.3.

Tobelorese Classification of

(Diagram 1, Chapter

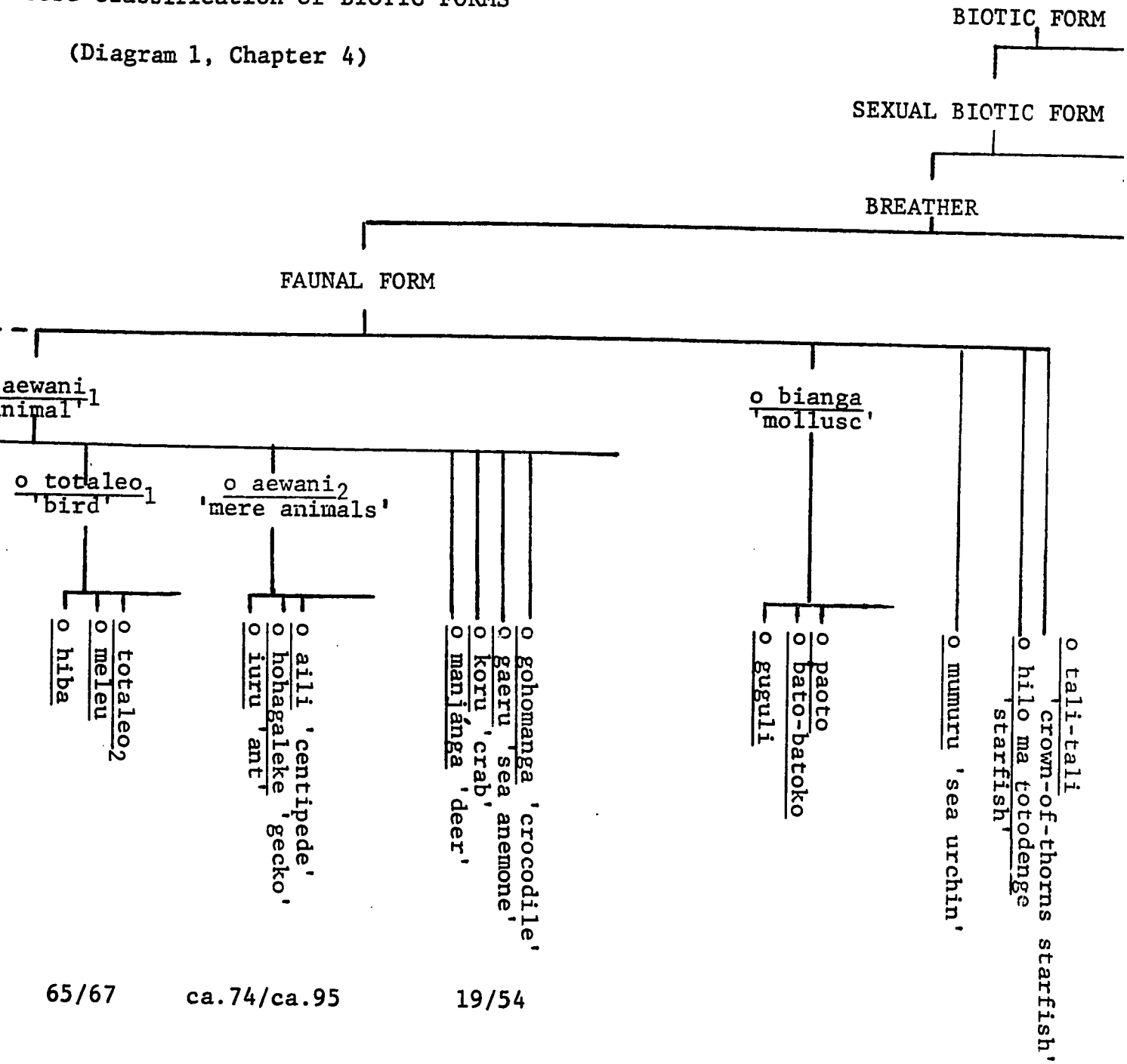
FAUN



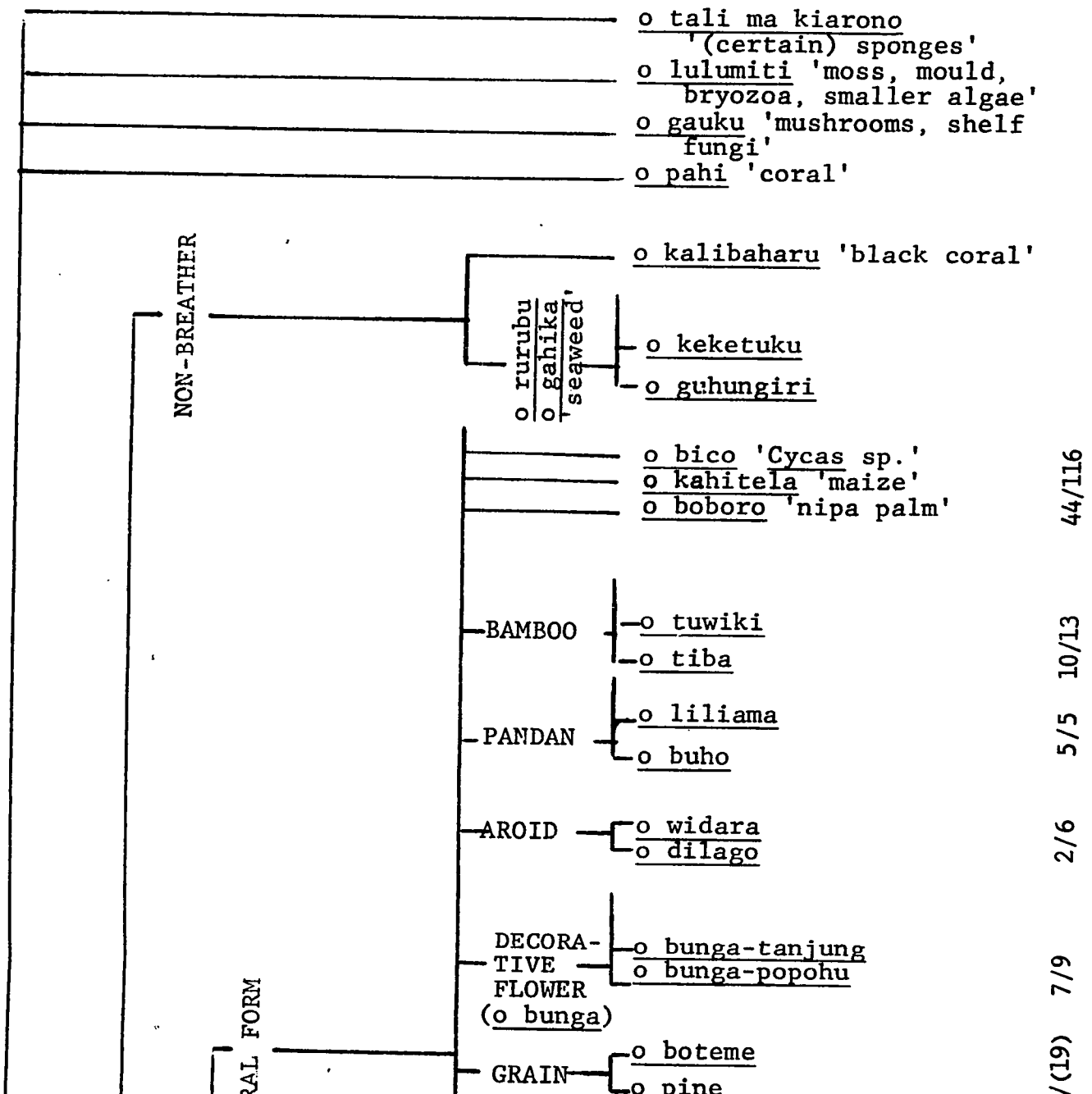
146/212 10/15 65/67 ca.74/ca.9

lorese Classification of BIOTIC FORMS

(Diagram 1, Chapter 4)



BIOTIC FORM
SEXUAL BIOTIC FORM
BREATHER
FLORAL FORM
o tali-tali 'crown-of-thorns starfish'
o hilo ma totodenge 'starfish'
o mumuru 'sea urchin'
o gota 'tree'
o malepuutu
o fahihuku
o namo-namo
o gumini 'vine'
o bidoho
o ai-aili
o hurutu
o rurúbu 'herbaceous weed'
o jela-jela
o takiu
o hae-haeke
GRAIN
o boteme
o pine
DECORATIVE FLOWER (o bunga)
o bunga-tanjung
o bunga-popohu
o dilago
291/381
81/114
99/127
(3)/(19)
7/9
2/6


o tali ma kiarono '(certain) sponges'
o lulumiti 'moss, mould, bryozoa, smaller algae'
o gauku 'mushrooms, shelf fungi'
o pahi 'coral'
NON-BREATHER
o kalibaharu 'black coral'
o rurubu
o gahika 'seaweed'
o keketuku
o guhungiri
o bico 'Cycas sp.'
o kahitela 'maize'
o boboro 'nipa palm'
44/116
BAMBOO
o tuwiki
o tiba
10/13
PANDAN
o liliama
o buho
5/5
AROID
o widara
o dilago
2/6
DECORA-TIVE FLOWER (o bunga)
o bunga-tanjung
o bunga-popohu
7/9
GRAIN
o boteme
o pine
/(19)
RAL FORM

4.2.2 Limitations of the Methods Used

4.2.2.1 Semantic Contrast

The first type of evidence here used to posit covert classes involves taxonomic contrast. When the superclass is labelled (e.g. 'animal' in Tobelorese) the status of its subclasses ('bird', 'snake', etc.) as contrasting subclasses of it can simply be asked about and discussed. There are also, in natural Tobelorese conversations, observed statements or questions like 'What [kind of] animal is that, a centipede or a worm?', which seem to imply that these terms also contrast. But such statements are not reliable substitutes for directly asking about class membership; not only may they be made about objects not apparently in any direct contrast (as in English, "Are you a man or a mouse?"), but Tobelorese are not as careful as ethnobiologists might like in keeping taxonomic levels straight when they contrast terms in natural sentences (e.g. 'bird' and 'bat'; but also 'hawk' and 'bat'). Though close attention to such naturally-occurring contrast is essential for recognizing certain types of contrast (e.g., 'We have no fish, just anchovies', indicating that 'anchovy' is not a 'fish' in at least one of that term's senses), it is not sufficient to always assume that where such contrast occurs in sentences it is necessarily a contrast between taxa at the same level. So that when an alleged superclass is unlabelled, and cannot be asked about, we may suspect but not prove its existence by the fact that its presumed subclasses are contrasted in natural sentences. For this reason,

we also cannot use such terms which contrast in natural Tobelorese sentences to infer precisely which classes are included (e.g. 'moss', 'mushroom', seaweed', etc.) within any FLORAL FORM class we might posit.

We can, however, use a demonstrated case of semantic contrast to posit a FLORAL FORM class, because we used the notion of a contrast-set to separate the various senses of the Tobelorese 'tree', 'vine', and 'herbaceous weed' terms. Thus gota may have the senses of 'tree', 'large tree', 'lumber', 'firewood', etc., but these senses are best separated by noting what each sense of gota contrasts with. In one of each of these polysemous terms' senses we posited that the terms must form a contrast-set gota_1, gumini_1, rurúbu_1, in order to explain the range of ways these terms were used (see 3.1.2 above). Because each of these is generally subdivided as a taxonomy ("generally" because the folk taxonomy has some non-taxonomic features, cf. 5.2 below) it seems likely that this contrast-set can be considered a taxonomic one (i.e. that these three classes contrast as taxa on the same level in a taxonomy). This implies a higher-level domain, which we can label the FLORAL FORM (or PLANT) domain, of which these three terms label subclasses. Thus in these senses only gota_1, gumini_1, and rurúbu_1 contrast as FLORAL FORMS (rather than as construction materials, undergrowth, or in any other way).

We might compare the polysemy of Tobelorese words for 'tree' or 'vine' with the ambiguity of the English word tomato, which has a position in more than one system of classification. Thus informants might disagree on whether

"tomato" is a type of "fruit" or "vegetable". In fact, the term tomato designates a parton (the fruit) of a tomato plant (constrasting with the leaf, the stem, etc.) and also designates a type of "vegetable" in a taxonomy of prepared foods, contrasting with "spinach", "succotash", etc. Both "tomato" and "spinach" - but not "succotash" - are also "basic" taxa in a taxonomy of English "plants". By separating the multiple senses of these terms into those of their different contrast sets, we see that "tomato" occurs in one set of terms which contrast as subclasses of an unnamed or "covert" higher-level class (which we could here give the non-lexemic label "prepared foods"). Having posited a prepared food class based on some of the contrasting subclasses it contains, an analyst could go on to explore the limits or boundaries of the class, and could keep his ethnographic attention focussed on this area of our culture to try to find cases in which his posited covert class is "realized" in natural conversations and behavior.

Given that a domain (FLORAL FORM) must be posited, consisting minimally of the contrast-set 'tree', 'vine', and 'herbaceous weed', the problem remains: what does it include? Because of cross-cutting subclasses of many "basic" classes (see 5.2.2.1 for details), it is difficult to posit that only the three named B^{+1} classes subdivide the FLORAL FORM domain (that is, in many cases a basic class will have e.g. a "male" subclass in one of the three named B^{+1} classes, and a "female" subclass which is "unaffiliated" or not a subclass

of any of these B^{+1} major groups, but is nevertheless presumably a subclass of some more inclusive FLORAL FORM class).

4.2.2.2 Covert Classes Implied in the Definitions of Lexemes

The search for covert classes "implied" in the definition of terms here assumes that the definitions of at least some lexemes can include other classes. (Alinei 1976 [cf. Taylor 1977], whose ideas heavily influenced those expressed in this section, offers a systematic attempt to similarly identify what he calls the underlying "lemmatic structure" of lexemes in the Italian language.) It is clear that the definition of hyponymically related classes, for example, may include the superordinate class in the definition of the subordinate one (e.g. bird might have "animal" in its definition). More importantly, "bird" will probably also be found in the definition of at least the primary senses of other words too. It is the implied class of subjects of verbs like tweet or chirp (cf. hoot and its implied subject "owl"); it is also likely to be found in a definition of beak, (to) perch, or feather. If, in English, we happened to have names for the various types of bird (robin, sparrow, etc.) but no word for "bird", we could still posit a BIRD class because that class seems to be implied in the definitions of these other terms. And it is more parsimonious to posit the class and then use it in those terms' definitions than it would be to repeat in each term's definition a statement of the class of objects (i.e., birds) to which each of those terms can apply. This point should

be valid regardless of the validity of the particular example given here.

I have similarly posited biotic classes apparently implied in the definitions of a wide variety of Tobelorese terms as part of this description of the folk classification of biotic forms. Wherever possible after doing so I "looked and listened" for lexical realizations of the classes so posited. It is important to note, though details are here relegated to a footnote, that this final analysis of data on the covert classes was mostly done after returning from the field, and that it requires confirmation during another planned field-work period.[6]

With the help of my Tobelorese assistant, I systematically went through both Hueting's (1908c) Tobelorese-Dutch dictionary as well as my own data on terms relating to plants and animals, picking out several hundred terms for plant and animal parts and products; for cutting, processing, cultivating, or handling plants, animals, or their products; for sounds or actions done by, or characteristics of, animals or plants: in short, any term that seemed related to living things and which might possibly contain them as part of its definition. These were quickly narrowed down to a small fraction of the number originally investigated.

An example involving the polysemous terms gota 'tree, lumber, firewood, etc.' and rurúbu 'herbaceous weed, undergrowth, etc.' will illustrate the method. Of roughly a half-dozen Tobelorese words which often could be translated

by the English 'cut' (or 'cut down', 'cut apart', etc.), two are of interest here because they relate to cutting back or cutting down plants, often in the context of opening up or re-using a swidden. (Note that these words for 'cut' are not mentioned as a group here for any reason except that each happens to sometimes translate that English word.)

-toyanga 'to cut down relatively large trees (i.e., gota$_2$), to fell'

-pairi 'to cut down undergrowth (i.e., rurúbu$_2$), to slash'

These verbs, then, imply the classes 'relatively large tree' (gota$_2$) and 'undergrowth' (rurúbu$_2$), which are usually cut in different stages of swidden clearing (if they are not, though, the verbs are still chosen with reference to the object cut, not to the stage of swidden-clearing). One might suspect that the verbs should be defined with reference to the method of cutting (perhaps 'a single swishing stroke cutting a non-resistant object' versus 'a repeated chopping stroke cutting against a resistant object', or some such phrasing), but exceptions can be found which disprove such possibilities (e.g., the war-magic which allows the enraged fighter to cut down [-toyanga, NOT -pairi] giant trees with one stroke). In short, attention to the class of objects implied by the verb not only helps us properly define the verbs in question, it also provides more evidence that the terms gota$_2$ and rurubu$_2$ were correctly considered (in 3.1.2 above) to have meanings separable from other senses of those terms and to be in contrast.

But the great majority of terms relating to biotic forms do not, when adequately defined, turn out to contain in their definitions any class of biotic forms. Some examples of the many words rejected will illustrate limitations on the use of this method.

One important limitation is the working assumption that posited covert classes which we can use in a taxonomy will not cross-cut any of the labelled taxa. While this seems reasonable to assume for any taxon (covert or otherwise), it will be seen below (5.2) that, in making this assumption, we are holding our posited covert classes to stricter standards of taxonomic class-inclusion than those to which Tobelorese ever hold their labelled classes. For example, in the case of the parton ma gaahúhu (cf. D. dialect ma gaafúfu) 'wing'; if one term were used for the wings of 'birds', and one for wings of 'insignificant animals (including insects)', still another for those of 'bats', etc., we might be able to say that the word does not reflect different structures of what we call 'wings', but rather that it reflects only the class of animal having the wing. But in fact, there is only one Tobelorese word for 'wing', which, as in English, means 'an appendage used for flying' (thus neither the skin flap of "flying" phalangers nor the extended skin of local "flying" snakes [Macrolephis halmaherica]qualify as 'wings').

The recent introduction of airplanes flying over Halmahera on their gaahúhu 'wings' also makes an "animal" feature in the definition of that term difficult

to defend. Nor can this term be used to posit any lower-level class of 'winged animal', because it cuts across labelled taxa ('bird', 'bat', 'mere animals', etc.).

A great many other lexemes must be rejected for the same reasons: leoho 'woody corm', dengo 'septum (of bamboo, some 'vines', etc.)', igutu 'nest', -temo 'speak, make noise', -utuku '(to) harvest, pluck', etc.; though a complete analysis of the proper definitions (including all the distinctive features) of the many other lexemes found unproductive for positing covert classes cannot yet be presented, it can at least be stated (after making the attempt) that such terms can be defined without reference to covert classes of biotic forms.

At first sight, rough translations of the terms gogo 'body hair, feathers, fur' and mehanga 'plant hair, fur- or hair-like substance on plants' might seem more likely to be candidates for terms with 'FAUNAL FORM' vs. 'FLORAL FORM' implied in the definitions. It turns out, however, that the fuzzy hair-like substance (elongated scales) on the wings and bodies of some moths (e.g. the Noctuidae) is also called mehanga. Though most Tobelorese when asked will insist that gogo refers only to animals and humans, not plants, such a statement would in fact just be another "rule of thumb". Where it occurs, at least, the tree-fern called o wugu-wúgu (Cyathea sp., voucher collected ca. 8 km. upriver from mouth of Domene

River, Jailolo District) is locally said to have gogo rather than mehanga. Considering these "exceptions", it is clear that the distinctive features distinguishing gogo and mehanga do not involve FAUNAL vs. FLORAL FORMS. Rather, mehanga designates generally small hair-like covering of plant or animal which covers all or most of the body, some of which comes off at the touch (it is often also thought to cause itching); but gogo designates hair or hair-like covering of a plant or animal which covers all or most of the body; where the "hairs" are set individually into the body; and do not come off at the touch . It happens that the only plant I found in Halmahera meeting the latter criteria was the wugu-wugu fern (Cyathea sp.), and the only animals which could meet the former criteria were some Lepidoptera -- but these exceptions are enough to show that neither 'FAUNAL FORM' nor 'FLORAL FORM' is a distinctive feature in the definition of these terms which both happen to be translated by the English "hair". (The inclusion in the definition of gogo that the hairs are set individually into the body excludes the so-called "bark hairs" covering e.g. the aren palm [Arenga pinnata Merr.][such "hair" is called o kudófo] ; cf. also tadauru or utu '[human] head hair'; gumi '[human] facial hair').

In defining words (and thus also in identifying implied covert classes in those definitions) it is necessary to distinguish "central" senses of terms from idiomatic or metaphorical ones (which should be handled as separate

lexemes). Luckily, the highly "agglutinative" Tobelorese language, which allows any verb root a vast range of meanings derived by affixation, seems to be far more restrictive with the relatively few idiomatic expressions which occur. Thus, for example, the idiomatic use of the verb 'make a mistake' (-howono) to mean 'commit adultery' can take relatively few affixes, including the nine grammatically possible subject and nine object prefixes (though the non-human [i-] prefix and its object appear to be semantically unacceptable, leaving only eight of each paradigm likely to be used), and unlike other verbs allows no prefix at all (e.g., -maa- 'for the purpose or benefit of the subject', or -make- 'to or with each other') between subject-object prefixes and the root word.[7]

Similarly, the noun haki 'fat' and verb -haki 'to have fat (on the body)' seem to be terms which define the covert class I have called FAUNAL FORM, yet the noun has another sense here considered idiomatic. Though one might suspect there are other terms which have "FAUNAL FORM" in their definitions[8], none are as clear as 'fat' in distinguishing this potential covert class because (1) 'fat' is locally thought to be a property of all FAUNAL FORMS (including even the non-'animal' starfish, sea urchins, and molluscs), and not to be a property of any other biotic form; and (2) it is difficult to think of a definition of haki 'fat' which would allow examination of an object to determine in all

cases whether that object met the criteria of the definition; i.e., whether 'fat' was present. In some organisms, such as Halmahera's wild pigs or the puffy, delicious rhinoceros beetle larvae locally eaten, the 'fat' is apparent; but Tobelorese nevertheless assume it to be present in ants, starfish, mosquitoes, craneflies, and other FAUNAL FORMS on which it could scarcely be observed. Thus, though it can sometimes be observed, 'fat' is only assumed to be present throughout much of the class of biotic forms in which it is expected to occur (i.e., the FAUNAL FORMS). Thus 'fat' is more difficult to define by its characteristics alone than by including in the definition a statement of the class of objects expected to posses it: thus haki may be defined "the substance located immediately beneath the skin of all FAUNAL FORMS"

The above discussion only considers the "central" or "primary" meaning of haki. There is another sense in which the noun haki refers to that part of a hardwood tree between the inner bark (ma kai ma oa 'good skin'; cf. ma kai ma dorou 'bad [i.e. outer] skin') and the hardwood (ma siho). This term haki is not used to refer to any part of a sapling that will become a hardwood 'tree', or any trees without hardwood). It is here considered that this use of the noun haki is an idiomatic one which bears a meaning so unrelated to the word's central sense that it must be considered a separately defined lexeme. Like other idiomatic expressions, the word in this special sense cannot

be transformed as can the word in its central sense: in this case, the verb -haki cannot be formed from the idiomatic sense, though this verb meaning 'to have fat' can be formed from the term in its central sense.[10]

4.2.3 The Subclasses of the BIOTIC FORM above the Level of the Basic Term

This section examines first (4.2.3.1) the covert subclasses of the BIOTIC FORM above level B^{-2} (which is the highest level in which any labelled class occurs); then (4.2.3.2) the covert B^{+1} classes of FLORA FORM. Finally, (4.2.3.3) the special case of the 'human being' (o nyawa) class is considered.

4.2.3.1 Distinctive Features of the Covert Subclasses of BIOTIC FORM above Level B^{+2}

A very large number of "basic" (see 5.1 below) terms familiar to the Tobelorese label subclasses of a single domain. That domain may be defined as the covert class of BIOTIC FORM, which is the class of implied "subjects" of the Tobelorese verb lexeme -wango 'live' (and also of its antonym -honenge 'die'). This root feature and other features we can use to subdivide the class of BIOTIC FORM may be considered in order:

1. Living vs. Non-living [+L vs. -L]

Organisms which can be said to 'live' ($-wango_1$) or 'die'

(-honenge$_1$) constitute the class of BIOTIC FORMS. However, any particular part of such an organism can also be said to 'live' or 'die', but the required possessive pronouns such as ma distinguishes things locally considered "parts" of objects or organisms from the independent objects or oganisms themselves (e.g. ma hoka 'leaf, leaves'; cf. o hoka [rarely encountered], which could only be used in very restricted contexts as in the sense '[pile of] dried leaves [e.g., brought together to be disposed of, used, etc,; but no longer "part" of any other object]'). Thus the various locally-named fungus- or tapeworm-induced 'skin diseases', and some lichens and fungal growths on stems or leaves of plants, are not included here because Tobelorese consider them parts of the organisms on which they grow, even though biologists will recognize them as distinct organisms.

There are, in addition, some "idiomatic" uses of these verbs recognizable by their characteristically restricted number of derived forms. Thus a motor may be said to -wango$_2$ 'live' or -honenge$_2$ 'die' (i.e. 'be running' or 'stop running'; probably from Indonesian hidup and mati), as may a fire ('be burning', 'stop burning'), but the participial form ma ngango 'living' (and its antonym ma honenge 'dead') can refer only to BIOTIC FORMS and not to these special cases.

A disease or recurrent sickness, as well as any of over a dozen locally-named varieties of o tokata 'ghost' may be

said to -wango$_3$ 'act up, flare up' -- i.e., 'be temporarily active' (though the form -honenge is not applied to the apparent disappearance of either of these): but these may never be considered ma ngango 'living'.

There is in addition another sense, -wango$_4$ 'to grow (of its own accord)', which contrasts with -datomo 'plant, cultivate'. Thus if one asks about a tree in the jungle nadatomoka(?)'did you plant it(?)', Tobelorese may reply kouwa, kaiwango dika 'no, it just grew (-wango$_4$)' (though of course planted or cultivated crops do -wango$_1$'live'); no participial like ma ngango 'living' can be derived from this lexeme (-wango$_4$).

2. Sexual vs. Non-sexual [+S vs. -S]

The class of SEXUAL BIOTIC FORMS contains those BIOTIC FORMS which are expected to have 'male' (ma nauru) and 'female' (ma beka) subclasses. It includes both FAUNAL and FLORAL FORMS, as well as the 'seaweeds' and 'black coral'. Only o pahi ('coral'), o gauku 'mushrooms and shelf fungi', o lulumiti ('moss, mould, bryozoa, smaller algae'), and o tali ma kiarono ('[certain] sponges') are not expected to possess this distinction.

While the male-female distinction is recognized as one associated with mating and reproduction at least among aewani, 'animals' (and of course humans), male and female plants are not considered to mate for reproduction; at least, as one young Loleba villager told me without euphemism,

plants -- unlike animals -- have never been caught in flagrante delicto! Instead, when Tobelorese occasionally speculate on the meaning of this male-female difference in plants (which is also widespread in Austronesian languages including Indonesian), they refer to the relative "strength" of two forms of the plant class as important to the Elders who named them.

Many Tobelorese from several villages have volunteered the information that all 'trees', 'vines', and 'herbaceous weeds' have both 'male' and 'female' forms of each "basic" class. (Such 'male' and 'female' forms are different biological species in all non-cultivated plants as well as the seaweeds and 'black coral' investigated.) But seemingly contrary to this popular local presumption, basic plant classes which are sub-divided into 'male' and 'female' subclasses are far from the majority, and probably always involve linguistic markedness (Greenberg 1966).

Among 'animals' (aewani$_1$) also, Tobelorese seem to assume there is mating and reproduction among 'male' and 'female' forms of each of these FAUNAL FORMS, and sometimes they are perceptive enough to recognize valid morphological signs of these organisms' sex (e.g. the widened abdominal segments on the undersides of female crabs); but for most insects, worms, fish, and other animals they are quite at a loss to recognize whether any particular organism is in fact 'male' or 'female' (as we discussed this once at Loleba

however, one old man interjected with a smile that he could recognize the female fish: "You see, the ones with all the eggs inside are female"); yet the presumption here again is that there must be 'male' and 'female' forms.

The primary sense of these nouns 'male' and 'female' is here assumed to refer to the SEXUAL BIOTIC FORMS; but this involves considering several other particular uses of the term idiomatic. Thus the sea (o gahi) is locally considered divided into open sea (o gahi ma nauru 'male sea' such as that found in Moluccan Passage to the west or the Pacific Ocean to the east of Halmahera), and the protected sea (o gahi ma beka 'female sea', such as that found in Kau Bay in northern Halmahera). This distinction between 'male' and 'female' seas is, however, widespread in this region and not only found among Tobelorese. Various paired technological items are considered 'male' or 'female', such as o nanawoto 'bamboo fire-slats', in which one slat (the 'female') is laid on the ground while the edge of the other ('male') slat is rubbed crosswise against a slit carved into the 'female' to kindle a spark which can ignite a fire (cf. Tobelorese specimen of this device, Yale Peabody Museum Anthropology Division, no. 248777). Prehistoric stone tools locally called o dodotoreke ma ingiri 'thunder's teeth' (thought to come from lightning and rarely found on the Island) are also known to come in 'male' (elongated) and 'female' (not elongated) forms.

Note that the four basic classes of BIOTIC FORM which are not also SEXUAL BIOTIC FORMS (i.e., o pahi 'coral', o gauku 'mushrooms, shelf fungi', o lulumiti 'moss, mould, bryozoa, smaller algae', and o tali ma kiarono '[certain] sponges') are not brought together here into any posited *NON-SEXUAL BIOTIC FORM class. Other than the fact that all are BIOTIC FORMS, these basic classes appear to have no feature in common except the negative feature of not being "sexual". While it is certainly possible to posit a folk class whose definition includes one or more such negative features, there is no reason to assume that in this and other cases of "residue" remaining after a subclass has been removed from a higher-level class (as here, the SEXUAL BIOTIC FORM class has been "removed" from the BIOTIC FORM, and the "residue" remaining seems completely subdivided by those four named basic classes), such residue should necessarily be considered a semantic class having any cultural relevance for Tobelorese or any place in a linguistic description (cf. 5.2.1.2 below).

Those who instead think that such classes should be posited regardless of any apparent cultural relevance or any unifying non-negative features which will define them (perhaps on the grounds that any description of hyponymically related classes should require that the immediate subclasses [5.2.1.3] of any class all be at the same level) can, by positing these extra classes, make their posited folk taxonomic structures more "ideal" (5.2.1.1), and can improve the symmetry of their diagrams of those structures.

But since the present analysis attempts to posit only covert semantic classes likely to be used by and culturally relevant to Tobelorese, classes without any unifying set of non-negative features need not be included here. Anyone who feels that an ideal or a proper description of classificatory structure should be more "symmetric" is free to draw in these extra classes in all such cases (i.e., cases of what is below called "immediate disjunctive contrast", in which a class is subdivided into immediate subclasses at more than one level; see 5.2.1.3) on his or her own copy of Diagram 1. In so doing, however, he or she should carefully distinguish them from the kind of covert class posited here, and should also decide how to handle cases of immediate disjunctive contrast in labelled (not just covert) subdomains (cf. 5.2.1.3).

3. Breathing vs. Non-breathing [+B vs. -B]

The BREATHERS, including all FLORAL and FAUNAL FORMS, form a subclass of SEXUAL BIOTIC FORMS defined by the ability to 'breathe' (-womaha). Ability to breathe implies possession of a 'throat' (ma ngomaha, derived from -womaha 'breathe'). Perhaps considered the breathing organ, the ngomaha 'throat' refers to the esophagus and windpipe of vertebrates and to the esophagus of other animals, and to the stem cavities or the central core of stem tissue in vascular plants. It seems to be considered an organ of central importance to the survival of plants and animals (when I asked if the various bamboos, 'trees', insects,

etc., all had 'throats' the frequent response was 'If they didn't have throats they couldn't breath!').

It might be argued that, if we can define the FAUNAL FORM and FLORAL FORM classes, we do not need to define any class which includes them both (i.e., BREATHERS), because we might use "FAUNAL FORM" and "FLORAL FORM" in our definition of 'breathe' and 'throat' such that the organ is defined in one way for FAUNAL FORMS and in another way for FLORAL FORMS -- thus not bothering with any BREATHER class. That alternative is unacceptable because (1) it would imply that the terms -womaha and ngomaha labelled two separate lexemes, one referring to FAUNAL FORMS and one to FLORAL FORMS, whereas the Tobelorese concept of 'breathing' seems to be a unitary one; and (2) the BREATHER class contrasts with the class of NON-BREATHER because of this important feature (i.e. 'breathing'), and this greater degree of difference between the NON-BREATHERS on the one hand and the FLORAL and FAUNAL FORMS on the other happens to be better expressed in our analysis if we posit the BREATHER class (which we must posit for the reason above anyway) than if we did not posit it.

It may here be noted that, in discussing the SEXUAL BIOTIC FORM class, it was considered inappropriate to class together the asexual biotic forms into an *ASEXUAL BIOTIC FORM class because those forms had no feature in common other than the negative feature of not being "sexual". The reader may

wonder, then, why the class of non-'breathing' organisms is here considered a covert NON-BREATHER class. In fact, though the "non-" prefix in the name seems to imply that the class is only negatively defined, the members of the class have much in common: both the larger'seaweeds' and the 'black coral' (in their male and female forms, which in these cases are represented by different biological species) are plant-like organisms living attached in similar ways to the sea floor or to objects on the sea floor, in addition to their other shared characteristic, the mutual lack of 'throats'.

Within the NON-BREATHER class, an anomaly occurs which should be considered here. As can be seen from Diagram 1, the B^{+1} 'seaweed' class, a subclass of the NON-BREATHERS, does not seem to contrast with any other class at the B^{+1} level; instead, the only remaining subclass of NON-BREATHER is the 'black coral'(o kalibaharu), a "basic" (B^{o}) term. Yet o kalibaharu could scarcely be considered anything but a B^{o} term; the most convincing evidence for this is that it has both 'male' and 'female' forms (as no B^{+1} term does). Yet the term o rurúbu o gahika 'seaweed' is anomalous in other respects as well. (1) It is a locative endocentric phrase (X herbaceous.weed X sea-that.direction) thus literally 'sea (herbaceous) weed', a construction otherwise only found at levels below B^{o} (2) A Dodinga dialect synonym is o waye o gahika 'sea trash', having the same

construction (waye is 'trash' such as ash, papers, etc.) The two dialectal variants appear to be independent translations of the Indonesian rumput laut (literally, 'sea weed'), because Indonesian rumput (cf. NMM rumpu) includes the meanings of both Tobelorese words o waye 'trash' and o rurúbu 'herbaceous weed'. The evidence, therefore, is strong that these anomalies can be explained by considering the 'seaweed' class a recent intrusion into the Tobelorese folk classification by an Indonesian term which was translated into Tobelorese to label a superclass containing all the previously-named B^{o} 'seaweed' subclasses of this NON-BREATHER class. In local NMM, 'black coral' is not considered a type of 'seaweed' (though I am not sure to what extent this reflects other Indonesian dialects or only Tobelorese influence). One can speculate that the economic importance of seaweeds as food for many Indonesian peoples (though it is not, to my knowledge, eaten among the Tobelorese), and of 'black coral' (specifically the 'female' form) as an item of jewelry, might encourage 'seaweed' and 'black coral' classes to remain distinct if their divergent economic usages influence the classificatory relations.

4. Fatty vs. Non-fatty [+F vs. -F]

As already discussed above (4.2.2.2), the adequate definition of the term haki 'fat' seems to require positing a class of BREATHERS which have 'fat', or rather are presumed

to have 'fat', because the term seems to be defined partly by the class of objects to which it is presumed to apply. We have called that class FAUNAL FORM.

All those BREATHERS which are not FAUNAL FORMS are classed together as FLORAL FORMS, and are characterised by the lack of 'fat'. As with the NON-BREATHER class, however, the FLORAL FORM class <u>does</u> have features capable of giving it a unitary definition, without having to rely on the negative feature "<u>not</u> FAUNAL FORM". Thus rather than consider the "opposite" of the "fatty" feature to be "non-fatty" we might alternatively write "Fatty vs. Having leaves and roots" [+F vs. -F]. Though less catchy, such phrasing would emphasize that FLORAL FORMS do share some features, rather than that they merely suffer together (so to speak) from the lack of one. Of course, 'seaweed' is also locally considered to have 'leaves' and sometimes 'roots' (i.e. the root-like projections fastening the organism to its substrate) and even 'fruit' (i.e. the "floats" of some seaweeds); but this difference is still representable by unitary definitions (the opposing features of which, though sometimes abbreviated with minus as well as plus signs [e.g. "-F" or "-B"], are not simply "negative" features) for both classes; i.e. NON-BREATHER (including 'seaweed'): [+L, +S, -B]; FLORAL FORM: [+L, +S, +B, -F].

Another reason for positing the class FLORAL FORM, as explained above (4.2.2.1), is that the contrast set <u>gota</u>$_1$-<u>gumini</u>$_1$-<u>rurúbu</u>$_1$ 'tree'-'vine'-'herbaceous weed' requires

positing a higher-level superclass (FLORAL FORM), and the cross-cutting subclasses of the basic classes within these prohibit positing that superclass to include only those three B^{+1} classes.

Nevertheless, at the time I first posited the FLORAL FORM (or PLANT) class, I found no term in the Tobelorese language which seemed to require it for its definition, nor did I find any lexical realization of the class. But one of the advantages of positing classes is that, after we have posited them based on the evidence at hand, we are more able to recognize the importance of new data such as other lexemes which require those classes for their definition, and especially previously unobserved lexical realizations of the covert class. This situation occurred when, after positing a FLORAL FORM class, I reconsidered the various definitions of the lexemes having the form utu (see footnote 6 above). (The two lexemes described below happen to have the same form as the nouns utu 'head hair' [though this has largely been supplanted in the B and D dialects by the word tadauru], and utu 'little bit', as well as the particle utu 'some [of a set or group of objects]').

The particle utu is an optionally used "counter" or "classifier" for certain plant types as well as long cylindrical objects (at least in B and D dialects, but cf. Hueting 1908c:388 who records H dialect sentences with utu used as counter for 'house' and 'needles'; it seems

unlikely that the term's use as counter is related to the sense 'head hair', because the latter takes a different counter). The stems (ma roehe) of plants are also usually counted using the "counter" term utu; for example:

o gota o utu moi (X tree X utu one) ' one tree' (cf. o gota hinóto 'two trees' [though without the counter utu this might denote two pieces of lumber planks, for example, rather than two long cylindrical objects such as living 'trees']).

o igono o utu hinóto (X coconut X utu two) 'two coconut palms' (cf. o igono hinóto 'two coconuts' [but without utu this could ambiguously denote either a pair of the palms or a pair of the nuts from the coconut palm]).

This sense of utu as counter does not seem useful to define the FLORAL FORM class, because some plant types apparently cannot take that counter while some non-FLORAL FORMS do so (in addition to the fact that Hueting's data indicate H dialect uses this counter in a different, yet insufficiently known, way). For example, all the following "counters" followed by moi 'one' indicate an individual organism :

o tiba o lifunu moi 'one tiba [bamboo, Schizostachyum lima (Blanco) Merr.]

o buho o aka moi 'one buho [Pandanus sp.]'

o dilago o aka moi 'one dilago [Colocasia sp.]'

Both counters above (aka and lifunu) are also used only for certain FLORAL FORMS. The lifunu appears to be used for

BAMBOO and GRAIN, ' sugar cane', 'pineapple', and others, and refers to an individual plant with a dense clump of many straight shoots; aka is apparently used for those FLORAL FORMS other than 'trees' which branch or produce shoots at or near the base, having few or no single straight main stems. The term utu, then, is the counter for the remaining FLORAL FORMS; i.e., those with a single main stem, and for all 'trees' (as well as dialectally for some non-FLORAL FORM items). The counters are optional, and most often used to reduce ambiguity that might result if only the plant name and number were given. Sometimes (as with the 'banana' plant) either utu or aka or lifunu may be used, depending upon the "stem" or "trunk" characteristics of the particular plant in question.

There is another sense of utu however which we may consider a separate noun lexeme and gloss the 'body or entirety of a PLANT (i.e. FLORAL FORM) on which a PLANT part is located '. Thus leaves, roots, flowers, etc., may be said to be ma utu-oka 'on the plant' (even though they are not on the main stem of the plant). This sense of utu is a separate lexeme which requires the covert class FLORAL FORM in its definition. (No "part" of any branch, hollowed-out bamboo water vessel, or any other long cylindrical object can be said to be ma utu-oka, except FLORAL FORMS; thus e.g.'mushrooms' also are excluded from this covert class). Though in this sense the term does not label

a taxon or function like the noun 'animal', it is often translated correctly by the English "plant". Thus to distinguish the tobacco plant (o tabako) from the cigarette (also o tabako in Tobelorese), I have observed Tobelorese partially switch to Indonesian to explain ma utu, ma roko-ua (its entirety.of.PLANT, its roko.[<Ind. rokok 'cigarette'] -not) 'the plant, not the cigarette [Ind.: rokok]'. Even those FLORAL FORMS which do not usually take utu as counter can all be referred to by the noun utu in this particular sense, for whose definition it is necessary to posit the class of FLORAL FORMS.

To summarize the discussion of classes at the B^{+3} level and above, we may offer the following componential definitions of the covert classes posited. The fact that such definitions can be arrived at indicates that these are classes which could be used by Tobelorese themselves, though we have not posited them simply because we have found features capable of grouping together the disparate "basic" classes. All these classes except the NON-BREATHER class were found necessary to posit in order to define lexemes in the Tobelorese language. The NON-BREATHER class has so many distinctive features, and the separation of its 'seaweed' and 'black coral' subclasses seems so atypical and probably intrusive, that the class has been posited here for those reasons, even though no lexeme has been found which requires this covert class in its definition.

Because no "positive" feature could be found to group the asexual biotic forms into one class, the four "basic" classes having the features +L (living) and -S (non-sexual) have not been grouped into one posited class, and do not appear in the summary here:

Level	Covert Class	Componential Definition
B^{+6}	BIOTIC FORM	+L
B^{+5}	SEXUAL BIOTIC FORM	+L +S
B^{+4}	BREATHER	+L +S +B
B^{+4}	NON-BREATHER	+L +S -B
B^{+3}	FAUNAL FORM	+L +S +B +F
B^{+3}	FLORAL FORM (=PLANT)	+L +S +B -F

4.2.3.2 The Covert B^{+1} Classes of FLORAL FORM

In addition to those classes at level B^{+3} or higher posited above, there is some evidence, requiring further confirmation, for five covert classes of FLORAL FORM: BAMBOO, GRAIN, DECORATIVE FLOWER, AROID, and PANDAN. One should expect that lexical realizations of posited covert classes at level B^{+1} could be observed contrasting with the o gota 'tree', o gumini 'vine', and o rurúbu 'herbaceous weed' classes on that same level. It must be admitted from the outset, though, that only for two of the five classes posited here (DECORATIVE FLOWER and

BAMBOO) have contrasts with labelled B^{+1} classes been observed in natural conversations. Nevertheless, lexical realizations for all five classes have been observed, even though in three cases they have not been observed contrasting with other B^{+1} terms.

There seems to be no clear justification for positing any covert classes of FAUNAL FORM, though data on definitions of some lexemes in this subdomain which might imply such classes are still incomplete.

1. DECORATIVE FLOWER (o bunga)

Readers may wonder why the posited covert class of DECORATIVE FLOWER in Diagram 1 seem to be lexemically labelled by a Tobelorese term (o bunga). In fact that term, somewhat like the 'seaweed' term, seems to be intrusive in Tobelorese ethnobiological classification, just as the concept of planting flowering plants for purely decorative purposes, though commonly found in Halmaheran villages, seems to be intrusive in Tobelorese culture.

The Indonesian bunga 'flower' (i.e., both the flowering plant and the "flower" or part of the plant) has been borrowed into Tobelorese and many other North Halmaheran languages, though in Tobelorese its use as 'flower' (i.e., part of a plant) is usually restricted to beautiful or attractive flowers (even of wild plants). Another (apparently native) term huri (and verb -huri) refers to the flowers of trees, coconut, papaya, and other plants. Thus

the flower of an uncultivated wild plant such as o hayamami may be called ma bunga 'its flower', though o hayamami itself is still in the gota 'tree' class. Similarly, the flower of a 'herbaceous weed' may be called its bunga 'flower', even though it is not in the DECORATIVE PLANT class. But (if we consider decorative plant cultivation very recent) we may imagine that, when the planting of decorative flowers was introduced, they could hardly be put into the 'herbaceous weed' class because they were intensively cultivated, nor, since most are herbaceous, did they fit the 'vine' or 'tree' classes. One villager told me of o bunga-tanjung [Catharanthus roseus (L.) G. Don.], "If we saw it in the forest we would call it a rurubu [herbaceous weed], but we cannot do so because we plant [i.e., cultivate] it." The proof of this can be seen in local variation in the placement of the "basic" class o tahubé (Canna sp. or spp.) at the B^{+1} level: in Loleba village, where it was introduced in 1979 by newcomers from the Sangir Islands as a decorative flower planted around their homes, Tobelorese recognized it and generally thought that this new bunga 'flower' should not be called a rurúbu; in Pasir Putih village, on the other hand, where I found the same species, given the same Tobelorese name, growing wild, villagers clearly preferred to consider it (and call it) just a rurúbu ('herbaceous weed') like so many others.

Another reason for considering this class to be intrusive

is that all the "basic" terms labelling subclasses of it are foreign compounds, usually including the Indonesian bunga followed by another Indonesian word, though the two words have become a single compound in Tobelorese e.g.:

o bunga-tanjung (< Ind. bunga 'flower' + tanjung 'cape') 'cape flower' Catharanthus roseus (L.) G. Don.

o bunga-pot (Ind, < Ind. bunga 'flower' + pot 'pot' [orig. Dutch pot]) 'potted flower' Gomphrena globosa (L.)

o bunga-popohu (< Ind. bunga 'flower' + popohu [not Ind.; etymology unknown, not recognized as Tbl]) 'popohu flower' Ipomoea fistulosa Mart. ex Choisy.

Most of the plants cultivated for purely decorative purposes in Halmahera are, as noted above, herbaceous. If all were herbaceous, we could consider bunga a non-covert class of 'decorative herbaceous plants' contrasting with 'herbaceous weeds' and 'trees' and 'vines'. But in NMM and Indonesian, the term bunga 'decorative plant', can denote plants which are also 'trees' or 'vines'. In Tobelorese, which has assimilated the word, it seems that those decorative plants which are not herbaceous and which are subclasses of some named B^{+1} class are considered to be members of that other named class (e.g. 'tree', 'vine' etc.); but (perhaps because the word is being used in an Ind. or NMM sense) may also be referred to as bunga, e.g. nanga bunga 'our decorative plant'.

Note also that the same term bunga (< NMM bungan, not bunga) means 'decoration' of any sort, such as the colorful patterns on decorative winnowing baskets, cloth, salawaku shields, etc. It is not clear to what extent this usage of the term interfered with my understanding of informants' responses when I asked if 'trees' and 'vines' planted as decorations around houses could be considered bunga.

In the city of Ternate, one strong influence from the Dutch colonial period is the vast array of herbaceous and other decorative plants cultivated in the gardens of city-dwellers; some families regularly obtain seeds or tubers of flowers from Java or even the Netherlands. Though still relatively less common among Tobelorese villagers, some Halmaherans -- especially Chinese traders -- bring this custom to their homes on that island. The Indonesian name for any one of these cultivated plants can now be directly borrowed into Tobelorese, with its NMM pronunciation, and without assimilation into Tbl phonological patterns. Thus this class of DECORATIVE FLOWER is only limited in Tobelorese by the great number of such "flowers" Tobelorese are likely to see and have occasion to discuss in their wanderings, but I have only included here (see Appendix) seven basic classes which I found growing in Loleba or Pasir Putih

villages, and whose position in the Tobelorese classificatory structure I can substantiate with sufficient first-hand data. Though relatively few are cultivated by Tobelorese themselves, the total number of flowering decorative types seen, discussed or known by some Tobelorese in Ternate and other cities is likely to include most of the decorative flowers in the North Moluccas, so it seems unnecessary to inflate the number of plant types "recognized and distinguished by Tobelorese" (though arriving at such a number is not a major goal of this study, cf. 1.1) with large numbers of clearly non-Tobelorese terms.

2. BAMBOO

The posited BAMBOO class is lexically realized by the form hoka o tiba-oli 'rather like a tiba [Schizostachyum lima (Blanco) Merr.] bamboo', and includes 10 B^{o} classes. Like the non-lexemic phrases which lexically realize the other covert classes of FLORAL FORM (except bunga, a simple lexeme, which seems to sometimes realize the DECORATIVE PLANT class), the phrase means 'rather like' the most culturally important basic class of plants within that covert class. The o tiba, the strongest and largest local bamboo with a wide variety of uses in local technology and whose shoots may even be used as food, and with other uses in addition (it is even used in artificial divination [Tbl: -mongoo] of the sort widely practised in Indonesia, in which a shaman poses lots to be tested by stretching the

hands to see whether the bamboo length equals the length from one outstretched arm's finger-tip to that of the other arm; cf. Indonesian depa).

Another possible realization of the BAMBOO class derives from the word for the edible young shoots (B: ma jibúru; cf. D.: ma dibúru) of certain bamboos. The best young edible shoots are those of the bamboo called o auló́to [Gigantochloa atter (Hassk.) Kurz ex Munro]. At Loleba (though apparently this is not the case at Pasir Putih), I was told that all those BAMBOOS whose young shoots are considered edible may be called o jibúru ma oa ('good jibúru [young shoots]') while those BAMBOOS whose young shoots are considered inedible can be termed o jibúru ma dorou. Note that the use of the o noun-marker rather than the possessive ma seems to indicate that the entire plant, rather than the shoot (or part of the plant) is being referred to here. Yet I never in fact observed, or got them to accept, the use of jibúru in this way when in the field directly pointing at e.g. un-identified or distant types of BAMBOO — though the phrase 'rather like a tiba' was used. At the least, the BAMBOO class may be posited because it is required for the definition of jibúru or dibúru (since no other plant's shoots are termed this), and at most these words may, upon further investigation, prove to label the class.

In addition, as stated above, though the BAMBOO class need not be posited in the definition of the term o lifúnu (the "counter" for a single individual organism, cf.

"counters" utu, aka, etc. above), it must however be posited in the definition of o ngafiri, another "counter" meaning a single stem of bamboo (e.g. o tiba o ngafiri moi 'one stem of tiba [bamboo]', even if many such stems rise from the same individual).

Finally, Hueting (1908c:22 and 325) lists the terms o badiku and o tabadiku, which he notes are of Ternatese origin, and which he translates "bamboo, general name" and "bamboo" respectively. Perhaps this Ternatese word is used as a lexemic label for the covert class BAMBOO posited here by the H-dialect speakers with which Hueting spoke, but it was unknown to my B- and D-speaking informants.

3. GRAIN

The "basic" class o pine 'rice' has two B^{-1} cross-cutting subclasses (cf. 5.2.2.1) at least among H and some B speakers: o pine o fonganika 'jungle rice' (an undetermined graminaceous plant in the rurúbu 'herbaceous weed' B^{+1} group, and the unmarked o pine '[genuine] rice' (Oryza sativa L.) in the posited GRAIN covert class. The 'genuine rice' class is subdivided into 15 B^{-2} subclasses. Though undoubtedly others could be found if all villages were investigated specifically for 'rice' varieties, these are all the varieties familiar to villagers at Loleba or Pasir Putih (neither of which relies on rice as a major staple).

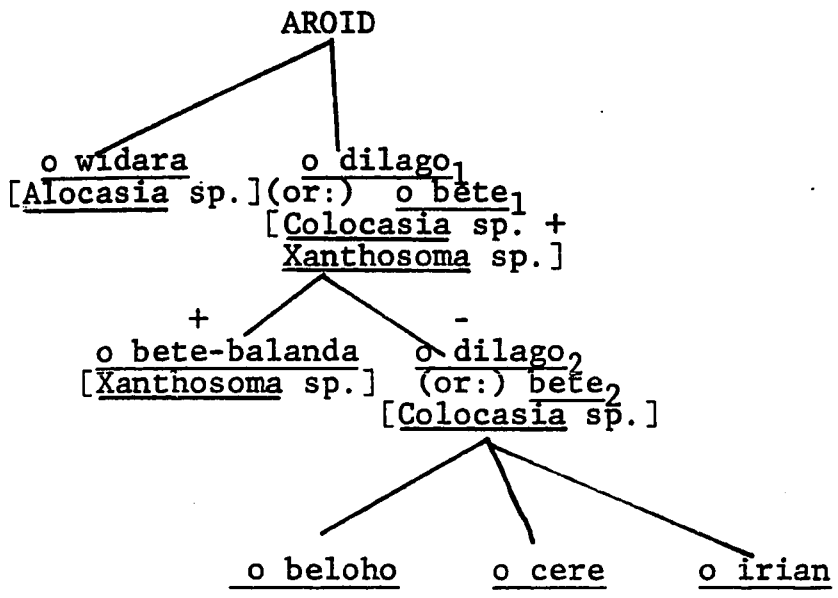
This possible GRAIN class now includes only two subclasses (but cf. also the no longer cultivated GRAIN[?] o guapo [Appendix]): that part of the cross-cutting 'rice' class which is not

in the rurúbu 'herbaceous weed' class, and o boteme 'Italian millet" (Setaria italica Beauv.).

The class may be realized by the phrase hoka o pine-oli 'rather like rice', though admittedly I have only heard this phrase used to refer to o boteme, but not to rice or to the GRAIN CROPS. It appears to be necessary to posit the class in order to define the term (ma) afa 'chaff of GRAIN CROPS' (maize is neither a GRAIN CROP nor does it have afa). No further evidence has emerged for the class posited here, which of course therefore requires further confirmation; despite investigation in the field of terms associated with these GRAINS and their cultivation, I found only the single afa 'chaff' term which applies only to these crops.

4. AROID

This covert class of taro-like or AROID crop plants includes only two basic subclasses: o widara 'Alocasia sp.' and o dilago$_1$ (cf. very common synonym used in both NMM and Tbl: o bete$_1$) 'Colocasia and Xanthosoma spp.'; the latter is subdivided into the unmarked o dilago$_2$ or o bete$_2$ (Colocasia sp.), and the marked o bete-balanda (NMM [< NMM bete 'Colocasia sp.' + balanda 'Dutch'; 'Dutch Colocasia'] Xanthosoma sp.). The unmarked subclass is further subdivided into three varieties: o beloho, o cere, and o irian, as diagrammed below:



The lexical realization of the class is hoka o bete-oli 'rather like a Colocasia sp. [bete$_2$]'; I have observed o widara called this without prompting as the plant was pointed out, to distinguish it from surrounding cultivated and non-cultivated plants. Unfortunately, however, no further evidence for this posited covert class is available, and it thus requires more investigation.

5. PANDAN

Like the AROID class, PANDAN is posited here as a covert class even though no term has been found which definitely requires it for its definition. Though such a contention requires further investigation under field conditions, however, it appears that the verb -hakoto which can only be used for the PANDAN class, may be glossed 'to gather PANDAN leaves. The word apparently may not be said of even the superficially similar gathering of o boboro

'Nipa palm' (Nipa fruticans Wurmb.). Even if the term proves to be used only for PANDANS, however, careful attention to the way PANDAN leaves are cut, handled, stacked for carrying, etc., may show that another way of defining the term -hakoto accounts for the fact that only the several types here grouped as PANDAN happen to be -hakoto 'gathered' rather than -toomu-ino 'gathered', without having to actually posit a PANDAN class in the definition of the former term.

In any case it seems likely that more evidence for the posited class will be found, simply because it has a common apparent lexical realization: hoka o buho-oli 'rather like a buho [Pandanus sp.] '. As in the case of the lexical realization of the AROID class ('rather like a Colocasia sp. [o bete]'), this phrase could hardly be considered the realization of any covert class if it were only used to describe the non-members of the class by making a comparison with the proper denotata of the class (as if, in English, we were to describe a pencil by saying "rather like a pen"). Instead, the phrase seems to be used to indicate "the class of plants that is rather like the focal subclass X (including X)". When used in this way, it is often preceded by an Indonesian form borrowed into Tobelorese: o hagála (< Ind segala) 'every kind of'. To illustrate this fact, we may consider the steps in the preparation of any pandanaceous plant to be used in the making of mat or basketry materials:

(1) -hakoto 'gather the leaves', (2) -woere 'dry out

[the leaves]', (3) -pali 'roll them into a single roll', (4) -hakai 'boil the roll ', (5) -gare 'cut into strips', (6) -woer(-oli) ' dry out (again)'. Each step may be said to be done to "all PANDANS" using the phrase hoka o buho-oli 'rather like a buho'. Thus "we must gather the leaves of all sorts of pandanaceous plants" is rendered o hagála hoka o buho-oli ma hoka kiani hoye (X all.kinds like X Pandanus.sp.-rather its leaf must we.get). In this sentence the phrase 'rather like a buho' (i.e., like X Pandanus.sp.-rather) appears to designate the entire PANDAN class; and if the same proposition were stated only of e.g. the single Pandanus sp. labelled o buho, that single word could be substituted for the phrase.

Though most covert classes discussed here (with the exception of BAMBOO and DECORATIVE FLOWER) were posited only after returning from the field (primarily using field data), and these conclusions drawn only after fieldwork was completed, the advantage of positing such classes as part of the analysis of field data is not only, as attempted above, to organize that material, but also to suggest those interpretations requiring confirmation from new field data.

4.2.3.3 The 'Human Being' (o nyawa) as a FAUNAL FORM

One very outstanding feature of all the BIOTIC FORM domain is the contrast of a very large number of "basic" classes at the level here termed B^o (cf. 5.1 below). Only

the single 'human being' (o nyawa) stands out as having no "basic" term; and we, the denotata of this class, are treated throughout the Tobelorese language quite differently from any other labelled class of BIOTIC FORMS (for example, a set of eight prefixes are used for human subjects and eight for objects of verbs, while all non-human forms [animate or inanimate] take only one subject and one object prefix).

No North Halmaheran language preserves a non-Malay word for 'human being'. Ternatese for example has adopted the Malay manusia 'mankind', while Tobelorese adopts Malay nyawa 'soul'. Hueting (1921:251ff) has offered highly speculative but interesting suggestions to explain why the 'soul' term was adopted, to substitute for what he considers the original term o gikiri, for which he suggests the translation "living thing, material as well as non-material" (p. 252). Hueting's explanation reflects his familiarity with a then-active native Tobelorese religion which has largely disappeared from coastal regions,[12] but even if we accept his hypothesis that Malay nyawa 'soul' was adopted because it is most like gikiri (or rather, most like some former meaning of gikiri, part of which is now taken up with the Malay borrowing), the fact is that o nyawa is now used with no connotation of 'soul', but would most simply be translated 'person', 'individual', 'human being'; e.g.

o nyawa yowoe kangano yaino (X person [s] they.were.many earlier.today came.this.direction) 'many people came here

earlier'. Also, Heuting's suggestive explanation, though attractive for its useful attempt to connect the historical adoption of this Malay word with the native Tobelorese religion with which we was so familiar, seems to assume that the Tobelorese must have had some word for 'human being', but that nyawa later substituted for that. In fact, it seems that this noun is quite dispensable; the Tobelorese sentence above, for example, could also be rendered yowoe kangano yaino 'many [people] came here earlier', the human rather than non-human verb prefix [yo-] clearly indicating that people (not non-humans) did the "coming". Similarly, the question ya-muruono doka (they-are.how.many there) 'how many [people] were there?' is normally answered either using wo-matengo (< wo- [sing. masc. prefix] + -matengo 'to be alone') 'one [male person]', ya-hinóto (< ya- [plural human] +-hinóto 'to be two' [< hinóto 'two']) 'two [persons]', ya-ruange (< ya- [plural human] + -ruange 'to be three' [< hange 'three']) 'three [persons] ', and so on. Thus this and most other sentences requiring 'person' in English are generally rendered without such a noun in Tobelorese. Also, the fact that no other North Halmaheran language retains a non-Malay term for 'human being' makes it less likely that the various Malay forms borrwed into them substituted for some other common original form.

The above discussion has addressed the assumptions behind Hueting's historical argument (which speculates on the original Tobelorese concept of "human being" on the basis

of the Malay term adopted for it) by pointing out that the Tobelorese language might very well not have had (and could still with a little effort do without) <u>any</u> 'human being' term. Like more recent adoptions (such as the still very seldom-used Malay <u>waktu</u> 'time') the noun (which some of us cannot imagine a language lacking) may be an introduced way of expressing a concept which Tobelorese language and thought handles (or handled) differently. In any case, <u>o nyawa</u> is now the Tobelorese word for 'human being'.

If one considers (as I do not) that the purpose of positing higher-level covert classes above the B^{+2} level is just to show the classificatory associations of all the <u>basic terms</u> in the domain, then we need not concern ourselves with whether any posited class contains the subclass 'human being', because it is not a basic term. If instead we understand the purpose of positing such covert classes to be one of identifying the defining features and the range of denotata of all semantic classes of BIOTIC FORM in the language, we must include 'human being' in our analysis simply because it meets the defining features of one class (FAUNAL FORM) which we have had to posit anyway for other reasons (cf. 4.2.3.1). I have stated here, in the text of the analysis, why it is different from other named classes, and represented that difference in Diagram 1 by connecting the 'human being' class to the others with a broken line. It is, after all, just a diagram. Someone who perhaps considers evidence for the

distinctiveness of the 'human being' class discussed here insignificant to his own ideas of proper ethnobiological analysis would of course be free to touch up the internal consistency of this analysis or of the diagram by either erasing that broken line or simply connecting its broken segments on his own copy of that page -- so long as in so doing he at least considers the additional information offered here.

FOOTNOTES

Chapter 4

1. The polysemy of even this term, however, may obscure its subclass membership; see 3.1.2 for the opposition between 'anchovy' and 'fish' as types of hiode or 'cooked fish, meat or "vegetable" eaten along with the starch staple at a meal'.

2. We may say that it contrasts "minimally" with o bianga 'mollusc' because it may also contrast with o nyawa 'human being'. While some examples in normal Tbl speech do contrast 'man' and 'animal' in this way, often only the 'we (incl.)' pronoun is used rather than the noun o nyawa (cf. 4.2.3.3 below). The contrast between 'animal' and 'mollusc' is very frequent; thus, e.g., looking for hermit crabs to use as bait, Tobelorese may say of any living gastropod 'it hasn't become an animal [i.e. hermit crab] yet; it's still a mollusc'. I never observed a natural case of contrast between 'man' and 'mollusc', which might be implied by considering the three terms a contrast-set (though admittedly no occasion for such a contrast arose). This problem of the status of the o nyawa 'human being' class is considered further below (4.2.3.3).

3. These surprising statements about "things", "to be", or "kind of" may need some qualification, lest they be considered evidence for any lack of Tobelorese abstracting ability! "Something" (or "some things") is rendered by o kia-naga (also used by Bible translators to translate what God created: "all things") (< kia 'what' + naga '[to be] present'). It would make no sense, though, to say that any stone, leaf, or other recognized object is an o kia-naga. The word naga petrified in that compound is a particle which most closely translates the verb 'to be'. It seems to emphasize presence at the time of speaking when another locative particle or phrase is used with it (or implied by context) specifying the place (relative to the speaker) in which something is "present". For example: (question) 'where is (or was) X's house?' (answer): dina '(at a place) landward' (or, alternatively): dina naga '(it is now present at a place) landward'. Only the former answer would be appropriate even if the house had previously been torn down, but in either case a locative such as dina '(at a place) landward' is required to locate the "presence" of the object. In short, given any possible translation of the proposition "I think, therefore I am," Tobelorese would presumably find Descartes' logic preposterous, since one might very well think someplace else.

Though there is a word (H,B: o hara, cf. D: o fara 'subtype, type') for 'type' or 'kind' of a thing (i.e. a

subclass) a superclass (e.g., "what kind of thing is an X") is difficult to directly ask about. Superclass membership of an object is generally asked only by asking if the object's "name" is that of the superclass; 'is this a kind of tree?' can be asked nenanga ma romanga o gota (?) (literally:) 'this its name (is) a tree?'. As may be imagined, these two senses of "name" ('name' and 'superclass, kind of') may lead to ambiguity (e.g. that of some favorite Tobelorese riddles), and the normal way of asking is instead simply nenanga o gota? '(Is) this a tree?'. "All kinds of tree fell down" may be rendered 'Their names (are) tree all fell' (ma romanga o gota mata-mata irubaka).

4. In Indonesian, (Sergeant): "Bapak Kepala, disini ada rusa?" (Chief): "Ah, Bapak, rusa disini sama dengan binatang."

5. The extent to which each statement of similarity seems to be treated as equivalent to any other may be clearer in this quote from their later monograph:

> In completing this task the informant was requested to compare all logical pairs in any complex in terms of all the similarities and differences that he felt were relevant for any pair . . . Responses obtained by this method allow the investigator to consolidate those terms that are most similar with regard to the number of shared characteristics of any two taxa. (Berlin, Breedlove, and Raven 1974:61).

6. When I left the field in July 1979 the problem of delimiting the boundaries of the domain of investigation, particularly the PLANT or FLORAL FORM domain, was still a vexing one, though I had collected evidence for possible lexical references to covert classes, and had already considered that the contrast-set 'tree'-'vine'-'herbaceous weed' required positing a PLANT domain. I did not find a solution to the problem of delimiting the boundaries of this domain until after I returned to Yale. There, as part of a project to develop my own card-file Tobelorese dictionary, my Tobelorese research assistant Siber Sasamulare and I began transferring Hueting's (1908c) dictionary onto file cards, and carefully reconsidering his definitions in light of my data. Only at that point did I consider that covert classes implied in some definitions could present a solution. Then I systematically went through Hueting's and my data looking for examples. Though it was possible to posit some covert classes, I regret that the fact that I had already left the field severely reduced chances to find lexical realizations of them under "natural" conditions -- and also made such confirmation overly dependent on my single informant.

Yet even so, the continued daily natural conversations in Tobelorese led to important discoveries in this and other areas of the language. For example, I found no lexical realization of the FLORAL FORM class (explained more fully below) until after I had posited it, when one day as winter approached my research assistant mentioned how few leaves were

'still on the plant(s)' (ma utu-oka-hi). Though I recognized the expression, the fact that I had posited a PLANT class led me to investigate and discover that, though the word does not label a taxon or function like the Tobelorese word for 'animal', utu 'body or entirety of a PLANT (on which a PLANT part is located)' can be used in this sense for all PLANTS, and only for PLANTS (not for mushrooms, mosses, lichens, seaweeds, etc.). The best test of the covert classes posited here will similarly be the observation and investigation of lexical realizations of them in natural conversations after I return to Halmahera where any observations can be confirmed in many contexts among many native speakers.

7. The -bori- in the dialectal -borihowono 'to commit adultery with each other' is an exceptional form able to occur in so few verbs that it is difficult to analyze it as an affix. Perhaps -bori- is a foreign affix borrowed into Tobelorese, though this awaits further study.

8. After positing the covert class of FAUNAL FORM the ethnographer should begin waiting (so to speak) for lexical realizations of that posited class, and for other words which may contain that class in their definitions. But though informants' statements about the class's defining features are certainly worth considering, they are often wrong because informants have not analyzed their own language. For example,

the verb -tagi 'walk' can be more fully glossed 'to self-propel the entire body in some direction'; as such, it is often used to distinguish FAUNAL FORMS; thus when I asked informants why 'coral' (o pahi) or o tali ma kiarono 'certain [drum-shaped] sponges' were not aewani 'animals', I was often given the answer i-tagi-ua 'they don't walk (i.e., move directionally)', as though this were one of the features of the 'animal' class. Of course, humans, 'molluscs', and 'starfish' or 'sea urchins' all are not 'animals' but can be said to -tagi, therefore we might suspect that this is a feature of the FAUNAL FORM class. Unfortunately, though, a few sessile aewani$_1$ 'animals' (such as the sea anemone) never have any directional movement, and these apparently cannot be said to -tagi, so the observed use of this feature by informants to explain why an organism is not in the 'animal' class must be considered another "rule of thumb", and not an indicator of one of the defining features of the class. (Also, the fact that boats, and now cars and airplanes can be said to -tagi does not necessarily indicate that this latter sense involves a separate lexeme, since we may alternatively argue that use of this verb indicates that the Tobelorese consider directional movement of those objects to be self-propelled.)

9. We may compare this with a term like ahuhu meaning 'buttress root' (of the kind found on many tropical trees). One would not want to posit a class of *BUTTRESS-ROOTED TREE because (1) if the term is defined as a large tree's

root having particular characteristics, without including any further statement of the biotic form in which such roots occur, there would already be enough information to distinguish "buttress roots"; and (2) in any case, these trees only develop buttress roots after they reach a large size, yet saplings without the buttressing are no less saplings of the same class of 'tree'.

10. The term haki 'fat' is more useful than akeme 'flesh, meat' to define the FAUNAL FORM class because the latter term's range of denotata include some which are not faunal forms, but cannot easily be shown to be idiomatic. One can dismiss the term's occasional sense of 'female genitalia' as a separate lexeme (though this sense makes both the word and its Indonesian translation daging socially quite unacceptable in the presence of elder in-laws, whose children-in-law often substitute the Indonesian isi 'contents'); but its apparently primary sense of 'flesh, meat' includes what we also call the "meat" of fruits. The verb -akeme 'to have meat, flesh' also can be said of either animal "meat" or of fruits, thus the application of the term to fruit does not seem "idiomatic" or derived (cf. the above example of -haki 'to have fat', a verb which cannot be formed from idiomatic senses of the noun haki 'fat'), and therefore the term cannot be used to define a covert class of BIOTIC FORMS.

11. Though the name o aulóto is used both at Loleba (B dialect) and Pasir Putih (D dialect), the synonym o gaáwo is often heard at Loleba. The latter term at Pasir Putih, however, designates the class called o kakale (Schizostachyum sp.) at Loleba, and sometimes alternatively called o kakale at Pasir Putih also. Because the aulóto is the preferred source of dibúru, or edible young bamboo shoots, the aulóto class is often called o dibúru ma dutu ('genuine dibúru'), or simply o dibúru, at Pasir Putih. At Loleba, however, informants denied that this term 'genuine dibúru' could be used to mean o aulóto, while recognizing that aulóto's edible shoots were preferred, and offering that fact as an explanation for why villagers at Pasir Putih used the term differently. Though they did not except jibúru [=D. dibúru]' as synonym for the aulóto class, they did seem to accept the the use of it as a lexicalization for the entire BAMBOO class, as stated below.

12. My own informants did not accept the word gikiri as applying to all living things (cf. -wango 'live' or participial ma ngango 'living'); its meaning is now associated with shamanism, at least in my coastal field site villages. Several particular phrases, however, including the one reproduced by Hueting to the effect that an ant's nest 'has gikiri' (de ma gikir-oka), i.e., has 'living things' [ants] in it, indicate that this word formerly may have

had a wider meaning, which has left its mark on these idiomatic expressions. This important topic could most adequately be investigated among non-Christian Tugutil populations of highland Halmahera.

Chapter 5

The Folk Classification of BIOTIC FORMS

5.0 Introduction

In this final chapter we at last take up matters of everyday Tobelorese conversational interest, and present conclusions some of which (if they could be adequately translated) Tobelorese themselves would, I think, happily discuss and expertly argue without even the slightest training in any methods of analysis used here. While nomenclature is so basic as to be taken for granted, and covert categories do not easily become topics of conversation, the "proper" names for and boundaries of folk segregates (cf. 2.1.5) and the classificatory relationships among classes of plants and animals -- especially those at or closest to the "basic" (B^O) level -- are matters of considerable local concern.

Much of the discussion to this point has referred to the "basic" term or level; the first section (5.1) of this chapter presents the evidence for its distinctiveness; the second section (5.2) reviews the Tobelorese "classificatory framework", or the framework of structural relations among Tobelorese folk classes. That framework consists of a wide, shallow set of taxonomic relations, which however varies considerably from "model" taxonomies (5.2.1.1) because of the "residue" of higher-level terms (5.2.1.2), non-symmetric contrast (5.2.1.3), ambiguous class membership (5.2.1.4), and the occasional dual position held by a single class in the same classificatory structure (5.2.1.5). Within that framework, other non-taxonomic relations among

classes occur, such as cross-cutting subclasses of the B^0 term (5.2.2.1), 'mother'-'child' relations (5.2.2.2), growth stages or size classes (5.2.2.3), intersecting subclasses of a folk class (5.2. 2.4), and some classes which seem only to be "posited" by the Tobelorese -- i.e., predicted by their own complex system of ethnobiological classification but never yet observed (5.2.2.5). Evidence below from specific subdomains of FLORAL and FAUNAL FORM will illustrate the co-occurrence of these various types of classificatory relation.

5.1 The "Basic"-ness of the Basic Term

The distinctiveness of one "level" of terms (which we may call "basic terms" [Conklin 1954:163]) in folk biological classification has long been recognized (e.g. Bartlett 1940; cf. Berlin 1976:385-386).[1] Whatever its value as a "universal" of folk biology, there is ample evidence that this level is distinct to the Tobelorese. Attempts to define the "basic" level by nomenclatural properties of the basic term are quite useful though of limited applicability in the Tobelorese case (5.1.1). Further evidence for the distinctiveness of the "basic" term and level is suggested by the usage of these B^0 terms in natural contexts (5.1.2); also (5.1.3), by the distinctive treatment of the basic term in Tobelorese noun "sequencing", or noun post position modification by other nouns.

5.1.1 The Limited Applicability of Nomenclatural Criteria for Distinguishing "Basic" Tobelorese Terms

Berlin, Breedlove, and Raven (1974) suggest that in folk taxonomies of plants and animals the basic ("generic") terms can be identified on the basis of their distinction between "primary" and "secondary" lexemes:

> Some taxa marked by primary lexemes are terminal or immediately include taxa designated by secondary lexemes. Taxa satisfying these conditions are generic; their labels are generic names.
>
> (Berlin, Breedlove, and Raven 1974:29)

Though I have expressed serious reservations above (3.4) about this distinction between "primary" and "secondary" lexemes, more immediate problems with relying on this distinction to recognize the basic level are (1) that it cannot determine the level of terms such as Tobelorese 'starfish', 'mushroom', or 'black coral' which have no named superclass or subclasses (this, however, is a problem for any nomenclatural basis for distinguishing the B^0 level, including the generalization proposed below); and (2) it admits exceptions where, for example, a single culturally important class of plants may have many "species" (B^{-1} classes) labelled by primary terms -- without providing directions on how such exceptions may be recognized (other than the easily recognizable exceptions such as those of unmarked terms [Berlin's "type specifics"]):

> Type specific monomials, however, do not exhaust the inventory of monomial specific names in Aguaruna. In several important cultivated plants, specific taxa labelled by primary lexemes have

> been elicited which cannot be analyzed as examples of type species. This nomenclatural feature is especially common for the critical cultigens banana, manioc, yam, and cocoyam (Xanthosoma) . . . . Data from Terrence Hays on the Ndumba of New Guinea and Nancy Turner's materials from the Pacific Northwest also include cases of monomial specific names which are not analyzable as labels for type species. However, such expressions occur in a predictable fashion, and it now appears that where a generic taxon is further partitioned into specific classes, and one or more of the included species are monomially designated (type specifics excluded), the monomial(s) will invariably refer to a taxon of major cultural importance. One will not find, in light of this hypothesis, monomial, non-type-specific names for organisms which lack major cultural significance. (Berlin 1976:391-393, emph. in original)

But any prospective basic ("generic") class's degree of "major cultural importance" seems difficult to quantify and compare with that of others in order to determine its level. Thus the o noara 'ray' class (clearly a basic term, contrasting with 145 other terms as immediate subclasses of o nawoko 'fish') is immediately subdivided into 10 B^{-1} terms, all labelled by primary lexemes; yet it is difficult to judge to what major cultural importance they owe this honor (they are sometimes eaten but so are other fishes). (Several other basic 'fish' classes are also subdivided into B^{-1} classes labelled by primary terms.) Based on this criterion, the 'crab' and 'shrimp' classes (whose B^{-1} terms are also labelled by primary lexemes) would be at the B^{+1} level, unless we considered the fact that they are sometimes eaten evidence of overwhelming cultural importance -- but then what of the 'bat' class (o manoko), immediately subdivided

into seven subclasses labelled by primary terms (one unmarked subclass, two subclasses labelled by terms which have the 'bat' term as head of the compound or phrase, and four subclasses in which the higher-level 'bat' term does not appear). The bats in only two of these subclasses are occasionally eaten (the unmarked subclass [simple word] and one labelled by an endocentric compound having manoko 'bat' as its head); the others have no apparent cultural importance or use. One might argue that o manoko 'bat' is then a B^{+1} term, and this would explain the "primary lexemes" at the level of its subclasses; but the fact that one of those subclasses is labelled by an endocentric phrase and that o manoko 'bat' behaves like a basic term in noun "sequencing" (5.1.3; e.g., o aewani o manoko [literally:] 'bat animal'), militates against such an interpretation. A similar argument could be made in the FLORAL FORM domain for considering Tobelorese 'banana' (o bole) a B^{+1} (Berlin's "life form") rather than a basic term. Yoshida (1979 ms.) has argued precisely this point for the banana class (also Galelarese o bole) in the very closely-related Galelarese (or Galela) language, also spoken in north Halmahera. While that might be true of Galelarese, it is as tempting for me to read Tobelorese information into his largely cognate Galelarese data as it undoubtedly would be for any student of that language to find Galelarese echoes in Tobelorese data presented here. Based on such a reading, I can only suggest that if the same evidence presented there for Galelarese were similarly presented for the Tobelorese 'banana' class, it would

remain unconvincing. Aside from other evidence from the Tobelorese "sequencing" of nouns (which may not apply to Galelarese), Yoshida's data indicate that Galelarese 'banana' (o bole) is immediately subdivided into 'cultivated' and 'wild' bananas (as are Tobelorese forms). Unlike this class in Tobelorese, however, 'cultivated banana' is immediately subdivided into 'male' and 'female' varieties (respectively, Gal: o bole ma nau and o bole ma bedepa). Ignoring another level of covert categories which Yoshida inserts into the taxonomy, it should be clear that, unless other B^{+1} classes in Galelarese (such as 'tree') can be subdivided into the cultivated/wild and the male/female dichotomies, which they apparently cannot (and certainly cannot in Tobelorese), then positing 'banana' as a B^{+1} class implies that it is the only B^{+1} class for which such dichotomies normally used to subdivide the "basic" term may apply to a higher-level plant group! Comparing Galelarese with Berlin, Breedlove, and Raven's (1974:415, 432-8) Tzeltal data, Yoshida notes:

> The difference between the Galela case and the Tzeltal case appears to depend on the number of terminal taxa (15 terminal taxa in the Tzeltal case) and the abbreviation of the labels of the varieties of banana. (Yoshida 1979 [ms]:15)

As noted above (3.4) the distinction between "primary" and "secondary" lexemes insufficiently handles the phenomenon of so-called "abbreviation". But even though Yoshida's evidence that 'banana' is a B^{+1} term is considered unacceptable here, he is quite correct in asserting that, if

Berlin's own nomenclatural basis is our criterion for distinguishing the "basic" level, then our only evidence for placing a class like Galelarese (or Tobelorese) o bole 'banana' at either the B^{o} or B^{+1} level consists in counting subclasses (the "number of terminal taxa") of these "culturally important" types. But classificatory relations among folk segregates should surely be determinable without reference to the number of subclasses any folk class has. (Other evidence for considering o bole 'banana' a basic term in Tobelorese can be derived from the "sequencing rule" below [5.1.3].)

In order to distinguish basic terms on a nomenclatural basis, a hypothesis is here proposed which appears valid for Tobelorese, and which does not use the "primary"-"secondary" distinction. Of course, those who prefer to use the latter distinction will undoubtedly prefer to interpret this generalization in the light of that typology of lexemic types; and though in most cases the same terms would be determined to be at the basic level, defects with that dichotomy of lexemic types (see above, 3.2.2.3) would require that any nomenclatural hypothesis presented here be rephrased.

The nomenclatural hypothesis to be proposed is in fact derived by generalizing from all those cases in the Tobelorese BIOTIC FORM domain in which basic (B^0) classes can be recognized by any other (non-nomenclatural) linguistic criteria. The latter include the "sequencing" rule (5.1.3.), as well as the fact that most basic terms clearly stand out as those belonging to the very "wide" contrast sets which immediately subdivide the labelled B^{+1} classes of FAUNAL and FLORAL form ('fish', 'bird', 'tree', 'vine', etc.). As a generalization which holds for all cases in which the level of Tobelorese terms is known, and as a hypothesis extended to handle those terms whose level would otherwise be indeterminate, we may state that, among Tobelorese terms labelling subclasses of BIOTIC FORM, lexemic phrases which are morphosyntactically endocentric, and in which the head consists of a term for a class superordinate to the class labelled by that endocentric phrase, can only be used to label B^- classes (i.e., subclasses of "basic" [B^0] classes). Thus, continuing a previous example, endocentric phrases such as o bole o fonganika 'jungle banana', in which the head (bole 'banana') consists of a term labelling a class superordinate to that labelled by the phrase, are hypothesized to occur at B^- levels only. Thus the class immediately superordinate (o bole 'banana') cannot be a B^{+1} term (and is presumably, then, a B^0 term).

This generalization assumes that yeha or ayo 'mother' is the head in phrases such as o iuru ma yeha 'ant's mother' (most winged forms of Formicidae), the 'servant' is the head in basic terms such as o digo ma gilaongo 'servant of digo' [Pseudelepanthopus spicatus (B. Juss. ex Aubl.) C.F. Baker] (3.2.2.3). Examples of endocentric phrases in the BIOTIC FORM domain were given above (3.2.2.3), where it was noted that such phrases typically are used only below the B^0 level.

There is some truth to the possible objection that when emphasis is here placed on the "endocentric phrases" which label subclasses of a basic class, I am simply substituting one classification of lexemic types (based on slightly different distinctions) for the admittedly suggestive "primary" vs. "secondary" distinction frequently used. This may be true for many cases in which a B^- term is labelled by an endocentric phrase which would also be considered a "secondary lexeme" in Berlin's typology. It is not, however, relevant to cases (such as the 'bat' example above) in which some terms of a contrast-set are simple words and others are endocentric phrases. In such cases, Berlin's criteria would require that all such terms be considered "primary lexemes" and of indeterminate level, despite the fact that endocentric phrases having higher-level terms as heads in Tobelorese are only found at levels below B^0, indicating that such a contrast-set must be of B^- terms.

Statement of the generalization as presented here in turn implies how the "cross-cutting" classes (5.2.2.1)

(which would otherwise be at indeterminate levels) should be placed in the classificatory structure. For example, the apparently basic-level class o rukiti 'Gnetum spp.' is subdivided into two subclasses, one of which (o rukiti o gota 'tree rukiti') may alternatively be referred to as 'good rukiti' (o rukiti ma oa), while the other, 'vine rukiti', may also be called 'bad rukiti' (o rukiti ma dorou). Both these terms using 'good' and 'bad' as attributives are endocentric phrases labelling B^- classes; the fact that in this and other cases they are synonymous with phrases such as o rukiti o gota 'tree rukiti' indicates that the latter phrases must also label B^- classes, even when they have no synonymous endocentric phrases using attributives like 'good' or 'bad'. Though terms for cross-cutting subclasses can be identified on morphosyntactic grounds as endocentric or exocentric phrases, note that it would be difficult to determine if they are "primary" or "secondary" lexemes, since that distinction is based on ideally taxonomic relations among classes, and may not apply to non-taxonomic "cross-cutting" (5.2.2.1) cases.

Admittedly, however, though the hypothesis presented here can determine the level of many terms, it (like the primary-secondary lexeme distinction) is limited in application, because some terms of indeterminate level may not have any subclasses lexemically labelled by endocentric phrases with that superclass as their head.

5.1.2 "Contextual" or "Cultural" Reasons for Distinguishing the "Basic" Level

During everyday fieldwork, a most strikingly distinctive characteristic of the Tobelorese basic (B^0) terms recalls that which Berlin, Breedlove, and Raven have described for Tzeltal:

> [O]ur research indicates that generic taxa form the basic core of Tzeltal plant taxonomy. The names for such fundamental categories are those most readily elicited from Tzeltal informants and most easily recalled by them, suggesting that they are highly salient psychologically. (1974:31-32)

In natural conversation and other contexts, the basic term is the one most commonly used by Tobelorese to refer to plant and animal types (except aewani$_2$ 'insignificant animal') unless the basic type is unrecognized (e.g. a distant 'bird'), or some lower-level term is specifically required. In the latter case the basic term is still often introduced in the conversation first, then qualified by introducing its subtype (e.g., 'for that medicine one uses o totabako -- but it must be the male [ma nauru]'). Also, informants seem unperturbed by the fact that some basic classes (e.g. o digo [Sida spp.]) can ambiguously be considered either in the 'tree' or the 'herbaceous weed' superclass; nor do they seem to mind that they are unfamiliar with the 'male', 'female' or other subclasses of so many local FLORAL FORMS; but they can and do willingly argue about the "name" (i.e. the basic term) which properly denotes any particular organ-

ism. It is as if the elders were especially careful to name all the organisms with basic terms, and now their less gifted descendants are expected to carefully learn those, but to partly just fend for themselves at the higher and lower levels.

The basic level is also distinctive because it contains contrast sets with far more terms than any other level of the BIOTIC FORM domain. While some of the contrast sets below the basic level may contain over a dozen terms, their size is paltry compared to the "basic" terms labelling subsets of the 'fish' (146 basic terms), 'bird' (65), 'tree' (291), 'vine' (81) or 'herbaceous weed' (99) classes. While this characteristically wide, shallow level is common or perhaps universal in ethnobiological classification, and clearly emphasizes the distinctiveneness of the basic level, it does not determine the level at which terms not found in such contrast-sets should be placed (e.g., terms like 'banana', or 'rice', unaffiliated with any named B^{+1} class).

5.1.3 The "Sequencing" of Hierarchically Related Forms as an Indicator of the Basic Level

In Tobelorese, there seems to be an expected order of what we may call the "chaining" of hierarchically related terms for BIOTIC FORMS; just as, in English, there is an expected order of juxtaposed locational terms for which "Chicago Illinois" is acceptable while "Chicago America" or "Omaha United States" seems unacceptable. In naming hierarchically related locative terms, the county level

may optionally be "skipped" while the state level may not.

Of course, comparison with locative terms in English is only meant as an illustration, and the expected order of Tobelorese hierarchically related terms is a phenomenon of the Tobelorese language, regardless of the validity of any English examples. In fact, Tobelorese is less restrictive than English in allowing the juxtaposition of terms for BIOTIC FORM. Though there are occasional cases in English in which a basic term may precede its hierarchically superordinate class label (e.g., "pine" or "pine tree") any Tobelorese basic term may be preceded by any of its B^{+} class labels. Thus the dove called o ngoku (Ducula bicolor), the wood-swallow called o kapa-kápa (Artamus leucorhynchos leucopygialis), or the rail called o hetaka (Gymnocrex plumbeiventris) may also be referred to with o totaleo 'bird' preceding their basic term (e.g., o totaleo o ngoku, o totaleo o kapa-kápa, o totaleo o hetaka); or alternatively may be preceded by o aewani (o aewani o ngoku; 'ngoku animal'), or even by both in order from highest to lowest levels (e.g., o aewani o totaleo o ngoku) whereas English does not permit *dove bird, *dove animal, *dove bird animal. Below the basic level, also, the higher-level term precedes the lower-level one: o wama 'Citrus spp.' (or alternatively, o gota o wama 'Citrus tree') and o wama o giranga ('giranga [variety of lemon] Citrus'), or o gota o wama o giranga (' giranga [a variety of lemon] Citrus tree').

5.1.3.1 Acceptable and Unacceptable Sequences of Terms

The distinctiveness of the basic term is clearly shown by the fact that in this ordering of terms from highest to lowest level, only the "basic" level may not be omitted between higher- and lower-level terms. To continue the last example, *o gota o giranga 'giranga [variety of lemon] tree' is not acceptable. Thus in this case, if we consider the B^{+1} term "W", the B^{0} term "X", and the B^{-1} term "Y", the following are acceptable"

o X o Y

o W o X

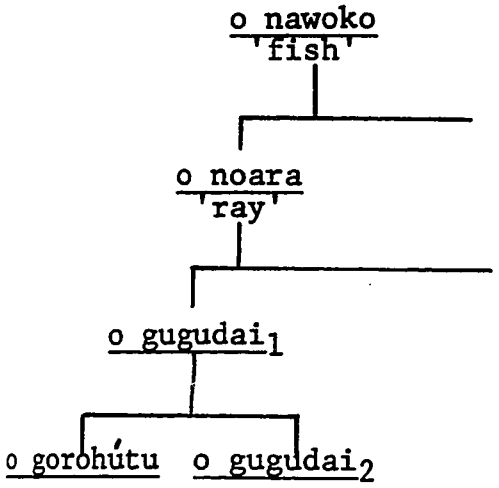
o W o X o Y

-- but the combination of o W o Y is not acceptable, any more than e.g. English *collie animal.

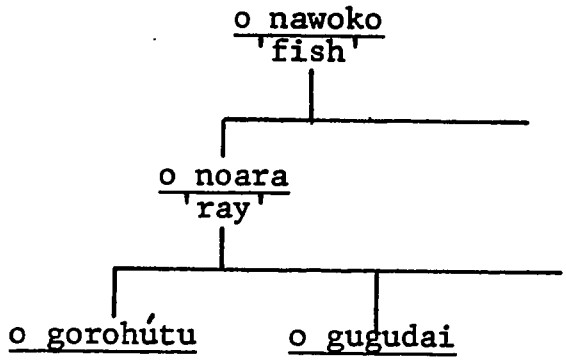
Frequently only two or three terms are ordered in this way. In the BIOTIC FORM domain, it is rare to find even four lexically labelled hierarchically related terms other than phrases or compounds which use a higher-level term as the head of the phrase or compound. Phrases and compounds of that kind must be excluded from any sequencing rule, because Tobelorese does not allow orderings of the form e.g. *o bole o bole o fonganika '*jungle banana banana'. I have not found any clearly acceptable juxtaposition of five such terms (i.e., o V o W o X o Y o Z, where "X" is the basic term), but there are very few candidates for such a line-up; up to three at a time is common. Since only the FAUNAL FORM class has named B^{+2} terms within it, one should expect to find such chains of terms there. Though data are insufficient for the o bianga 'mullusc' class, only a few types of

o nawoko 'fish' in the o aewani$_1$ 'animal' class have B^{-2} terms which are not phrases or compounds having higher-level terms as heads. Of these, all but one involve growth stages or size classes of fish (5.2.2.3); it might be argued that the B^{-2} term (o Z) may not be appended to the chain because of this fact (i.e., the growth-stage or size class it not a "normal" subtaxon). This leaves the one questionable exception: the record is held by o gorohútu [B^{-2}] (apparently the 'blue-spotted fantail ray [Taeniura lymna]'), which is sometimes considered a type of o gugudai [B^{-1}] (apparently including this species and one other local unidentified spotted species of fan tail ray) which in turn is a type of 'ray' (o noara) [B^{0}], which is a type of 'fish'(o nawoko) [B^{+1}], which is a type of 'animal' (o aewani$_1$) [$B^{+}2$]. Thus none of five hierarchically-related terms contains a higher-level term as compound of phrasal-part within it.

Unfortunately, I never inquired whether a five-term expression juxtaposing all these could be considered acceptable. In any case, some but not all informants at Loleba and Pasir Putih do not accept o gorohútu as a type of o gugudai, instead apparently considering it a separate B^{-1} term. The alternatives can be diagrammed below (the horizontal line extended to the right indicates that some other class or classes of the contrast set indicated by that line are not included in the diagram):



(A)



(B)

Informants who do consider o gorohútu to be a type of o gugudai$_1$ (as in A above) say they will accept the four-term expression o nawoko o noara o gugudai o gorohútu; but others insist that (as in B above) o gugudai and o gorohútu contrast as types of 'ray'. The latter opinion (B) is normally expressed by a sentence such as idadiua hato o noara o gugudai o gorohútu 'one cannot say o noara o gugudai o gorohútu'. Note that any other way of expressing the same point (e.g., o gorohútu o gugudai-ua 'a gorohútu is not a gugudai') would be ambiguous because a listener could mistakenly understand the word gugudai in that sentence to refer to a presumed lower-level unmarked sense (gugudai$_2$ of A at the left above), which (the speaker is saying) would be incorrect; thus the expression would be insufficient to make his point. This example illustrates how, in this and other cases, the juxtaposition of hierarchically related terms

seems often to be contextually related to expressing an opinion about -- or clearing up -- ambiguities of some kind. This fact may explain the apparent redundancy of these expressions. If disambiguation is the function of such expressions in natural contexts, this may also explain why "chains" of four terms (e.g., o V o W o X o Y) are so rarely heard (though nevertheless considered acceptable): offhand, it is difficult to imagine what term or combination of terms would need disambiguation at all four levels.

By considering all those sequences of terms which can occur, it appears that though the B^0 term may not be omitted between terms of levels higher and lower than it, any other term at any other level may be so omitted. Thus if we indicate the basic term by "X" (as above), the following are possible sequences of hierarchically-related terms, excluding phrases or compound words having higher-level terms as their heads:

o V o W o X o Y

o V o W o X

o W o X o Y o Z

o V o X

o W o X

o X o Y o Z

o X o Y

o X o Z

also: o V o W

o Y o Z

The following, however, are unacceptable:

* o V o Y

* o W o Y

* o W o Z

(Because, as stated above, there are very few [all questionable] cases of <u>five</u> such labelled hierarchically related classes, and apparent contextual restrictions on their use would be great, no information is available on the unobserved sequences o V o X o Z, o V o Z, or o V o W o X o Y o Z.)

By displaying the possible sequences as above, the distinctiveness and "centrality" of the basic term ["X"] can be visually emphasized; though of course it is not necessary for Tobelorese to memorize any rule in this form. The same information on acceptability of sequences could be stated in several other ways, all equally capable

of saying the same thing, and all equally without any justifiable claim to representing the "process" by which Tobelorese store this rule in their memories or with which they make any particular utterance.

As noted above, an important restriction on the applicability of this rule is that it does not apply to any phrase or compound which uses a higher-level term as the head of the phrase or compound. Thus, for example, the basic 'tree' class o hulahi (Occimum sanctum L.) is subdivided into two B^{-1} classes: the 'red hulahi' (o hulahi ma doka-dokara) and the 'white hulahi' (o hulahi ma gare-garehe); if the rule for sequencing B^0 and B^{-1} terms were allowed to apply to such cases, sequences such as *o hulahi o hulahi ma doka-dokara (*'the red hulahi hulahi') could occur.

Though the rule above was formed specifically for classes of BIOTIC FORM, it could presumably be considered one of many cases covered by some more general rule regarding the modification of nouns by postpositioning. Thus each of several types of cutlass or long knife (o dia) may be referred to by sequencing, e.g., o dia a humaranga ' humaranga long knife' (where such phrases indicate types of o dia 'long knife'). It should also be noted that phrases of the sort o gota o rukiti 'rukiti tree' (Gnetum sp.) [i.e., B^{+1} followed by B^0] do not seem syntactically different from o rukiti o gota 'the tree rukiti' [B^0 followed by B^{+1}']. The former names a type of 'tree' (i.e., the rukiti tree), while the latter names a kind of rukiti, i.e. the 'tree

rukiti' (which contrasts with one other subclass of rukiti, i.e. o rukiti o gumini 'the vine rukiti' Gnetum gnemonoides). Thus both cases exemplify the modification of nouns by the postposition of other nouns. These observations are made to indicate that the "sequencing" of hierarchically related nouns is not restricted to the BIOTIC FORM domain; and in a more complete explanation (which is not offered here) would be considered in the wider range of its use.

Two further comments are required about the sequencing of nouns in the BIOTIC FORM domain: the first (5.1.3.2) regards the degree to which foreign compounds may be treated as compounds having a hierarchically superordinate class as their head (for purposes of the above rule); the second (5.1.3.3) considers those conditions under which the sequence of B^0 followed by B^{-1} term may be made into a Type 1 endocentric compound (see 3.2.3 above) synonymous with the B^{-1} term (i.e., the sequence o X o Y becomes the compound o X-Y, synonymous with o Y).

5.1.3.2 Foreign Compounds in the Sequencing Rule

It was noted above (3.2.2.1) that some foreign compounds are best considered simple Tobelorese words, rather than

compounds, in a description of Tobelorese; but that the "foreignness" of these foreign compounds is a matter of degree. This is directly related to the extent or degree to which such foreign compounds fit the conditions of the rule for "sequencing" of hierarchically related nouns. Whereas Tobelorese compounds and endocentric phrases which have the higher-level term as their head cannot be sequenced like other terms, the degree to which foreign compound words may be similarly sequenced depends upon the degree to which such compounds are considered foreign (as opposed to Tobelorese) words. Thus, for example, the originally Ternatese compound o ate-jáwa (< Tte hate 'tree' + jawa 'Java, Javanese'; 'Javanese tree') may be considered a simple Tobelorese word, both on nomenclatural grounds (cf. 3.2.2.1) and because it is possible to say o gota o ate-jáwa 'atejawa tree' (if the form ate were recognizable as the hierarchically related 'tree' it could not be used in this way). But in some cases the degree of "foreignness" is not so clear. For example, the Ternatese compound-part gorango- of gorango-húhu (literally, 'milk shark') is easily recognizable as the Ternatese word for the cognate Tobelorese garangoto (or dialectally gorangoto)'shark'. Thus one is unlikely to hear the phrase *o garangoto o gorango-húhu, although some informants say that this phrase is possible. Similarly, several recently introduced subclasses of the cash crop o gohora 'nutmeg' class (some-

times referred to by its Indonesian synonym pala) include the Indonesian word pala 'nutmeg'; yet because pala is sometimes used as a Tobelorese word and is in any case an easily recognizable Indonesian word, it is very unlikely (though, according to some informants, not impossible) that one would hear a phrase such as *o gohora o pala-patani (< Tbl: gohora 'nutmeg', Ind pala 'nutmeg' [Myristica fragrans] + patani 'Patani district' [probably Patani, Halmahera?]) 'patani nutmeg nutmeg'. In short, the degree to which such compounds (or phrases) are considered unacceptable varies with the degree to which the heads of such compounds (or phrases) are considered Tobelorese terms (and thus not affected by the "sequencing" rule above) rather than foreign forms.

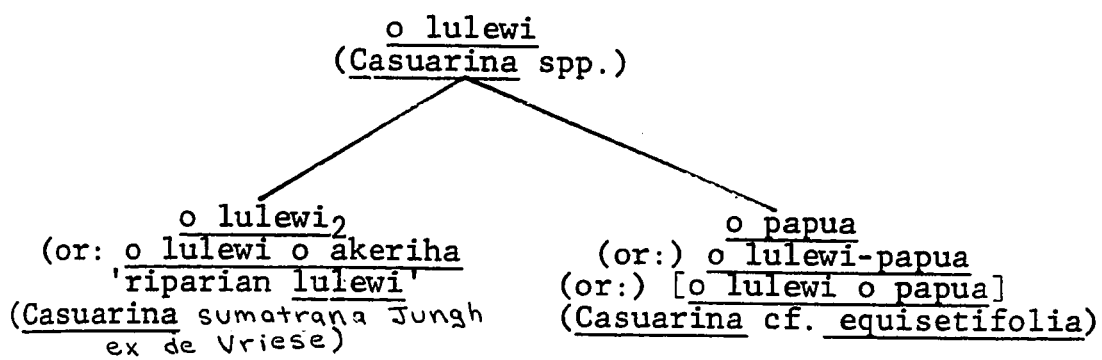
5.1.3.3 Restraints on the Freedom of Occurrence (Non-boundness) of Single Lexemes

The preceding discussion has been concerned with outlining a rule by which terms for hierarchically related classes may be "juxtaposed" or "sequenced" in Tobelorese. It has been presumed (as one might expect, since each term is here considered lexemic) that any term at any level can also stand alone (e.g., o W, o X, or o Z). Even this, however is subject to some restraints. We may consider these restraints rather than rules following Bazell's (1964, quoted in Lyons 1977:549) distinction between constraints "imposed by the language system" and restraints "to which

users of the language-systems will normally conform" (cf. also Haas's [1973] distinction between rules and tendencies).

By treating the generalizations to be made below as restraints, moreover, we can explain the fact that some (but not all) speakers will consider the use in isolation of certain lexemes to be unacceptable: such non-bound lexemes are, in effect, acceptable in limited contexts, but highly "restrained".

Such restraints should explain the fact that some simple word lexemes below the level of the basic term seem bound to the basic term (o X o Y). In some cases the B^{-1} term (o Y) is so closely bound to the B^{0} term that it is most frequently said as a compound (o X-Y). An example is the B^{-1} class o papua (or o lulewi-papua) (Casuarina cf. equisetifolia) which contrasts with the unmarked o lulewi_2 (alternatively designated by the phrase o lulewi o akeriha 'freshwater [i.e., riparian] lulewi') (Casuarina sumatrana Jungh ex de Vriese) as a subclass of the "basic" class labelled o lulewi (Casuarina spp.). In this case, the B^{-1} term o papua is so closely tied to the B^{0} term that the simple word o papua is almost never heard. Informants much more readily accept (as they often do in these cases of rather highly bound B^{-1} terms) the endocentric compound o lulewi-papua than they do the B^{-1} simple word as a label for the class. This subclassification of o lulewi (Casuarina spp.) is diagrammed below (the acceptable sequence o lulewi o papua is in brackets because such a sequence is predictable for every such term, and is therefore neither lexemic nor limited to this case):



The B^{-1} term o papua, then, is here considered one of the B^{-1} terms labelling this class -- though in fact it is only likely to be used when the two types of o lulewi are being compared. The facts (1) that even in this restricted context the simple word o papua is considered acceptable by Tobelorese, and (2) that each lexeme has its own noun-marker [o] indicate that o lulewi o papua is a sequence of the B^0 B^{-1} type [o X o Y] described earlier; yet the fact that o papua is used alone in so few contexts can be explained by the following restraints (note that these restraints, like the sequencing rule, do not apply to phrases or compounds in which the head of the phrase or compound is the term for some superordinate class):

1. All else being equal, a B^- term which denotes a relatively more familiar organism is less bound to its superordinate B^0 term than one which denotes a relatively less familiar organism. "Familiar" organisms are those commonly known and used in a wide variety of cultural contexts (e.g., eaten, cultivated, or tended). Thus o giranga (a cultivated lemon variety), or the names of varieties of 'banana' are B^- terms which are less bound to the higher-

level term than terms for the wild plants, such as (o lulewi) o papua (Casuarina sp.), a tree found only in high jungles. The latter terms are the most bound, and in some cases, such as (o lulewi) o papua, the normal designation of the class takes the form of a compound (o lulewi-papua).

2. All else being equal, a B^{-1} term is least bound when it is least polysemous; these terms are most bound when they are most highly polysemous. (This is a powerful restraint throughout the language, not just in this domain.)

Either or both restraints may operate in any particular case. The form o papua, for example, has the additional structurally unrelated meaning 'New Guinea' (as in several Eastern Indonesian languages from which the English word "Papua" originates). However, the apparent "boundness" of this word seems to be due primarily to the relative unfamiliarity of the plant rather than to its slight polysemy (cf. Anonymous [1883] on the term papua).

Other examples will illustrate the necessity for positing these restraints on the freedom of occurrence of a single lexeme, and the apparent boundness of some forms to their hierarchically superordinate terms (the B^0 term with its noun-marker [o] precedes a B^- term in examples below; see Appendix for species determinations):

1a.	o dowora o helehekú	'(Dutch gin-) flask dowora'
1b.	o dowora o komene	' komene (a basic plant class, including Morinda sp.) dowora'
1c.	o dowora o papua	'Papuan [?] dowora'
2a.	o gofasa o hakaru	'stone gofasa'
2b.	o gofasa o utongo	'sago.leaf-stalk.petiole gofasa'
3.	o oenge o koᶠere	(unanalyzable simple words)
4a.	o bidoho o ɪ ra	(unanalyzable simple words)
4b.	o bidoho o fongoro	(unanalyzable simple words)

Examples 1 (a-c) and 2 (a-b) consist of contrast-sets of types of the basic 'tree' class o dowora and o gofasa (see Appendix) respectively. The B^{-1} terms are very unlikely to be used alone except specifically in the context of speaking about types of dowora or gofasa (while cutting wood, for example), because each is polysemous and could cause confusion if used alone (komene [1b] for example, is a basic term for another plant type, to which this subclass of dowora is nomenclaturally being compared). Examples 3 and 4 (a-b), by contrast, involve B^{-1} terms which are unanalyzable and unlike 'rock', 'flask', etc. in the first two examples, do not denote objects unrelated to the class in question. Thus these may be easily isolated from the basic term and often occur in conversation without being preceded by the basic term. Though there are few such cases to consider, the restraints involved here are apparently not limited to B^{-} terms; even basic terms which have other common meanings are likely to appear more bound to the B^{+1} term: for

example, the 'tree' called o kafo (Embelia sp.), because that term is homonymous with the word for 'ash', is more likely to be referred to with the full phrase o gota o kafo 'kafo tree'.[2]

5.1.4 Conclusion: Distinguishing the Basic Terms

This section has reviewed several justifications for, on the one hand, treating the "basic" (B^0) classes as a distinctive level within the Tobelorese classification of BIOTIC FORMS, and, on the other hand, considering particular terms or expressions to be "basic" or non-"basic": the nomenclatural observation that endocentric phrases having terms for superclasses as heads only occur in the levels below that of the basic term; the characteristic uses of the basic terms in natural contexts; and particularly the sequencing of terms for BIOTIC FORM, in which the B^0 term seems to have a distinctive function. The final discussion of restraints on the free occurrence of certain lexemes, while it may have seemed to detour from the discussion of the "basic"-ness of basic terms, illustrated how some apparent exceptions to the preceding generalizations (e.g., the B^- terms which seem bound to the B^0 term) are really not exceptions at all; it also provided another example of how apparent disagreement among informants (in this case, about the acceptability of certain expressions) can be treated as variations explained within the same wider framework, rather

than dismissed as idiosyncratic variation (though the latter, of course, also does occur).

Though the distinctiveness of the basic level has been shown, it may be noted that some "fringe" classes of BIOTIC FORM, especially the asexual classes (such as o lulumiti 'moss, mould, bryozoa, smaller algae', and o pahi 'coral' -- but not o gauku 'mushrooms, shelf fungi'[3]), and even some FLORAL and FAUNAL FORMS (such as o hilo ma totodenge 'starfish', o bico 'Cycas sp.') which have no named superordinate or subordinate classes, cannot by any of the means discussed above definitely be considered "basic" or non-"basic" terms. I treat them as basic here simply because the objects denoted by these terms can only be denoted by these terms (not by any higher- or lower-level label). If one should prefer to consider classes such as o lulumiti 'moss, mould, etc.' or o pahi 'coral' to be at some higher level, perhaps contrasting with FLORAL and FAUNAL FORMS, or with BREATHER and NON-BREATHER, for example, he might willingly do so without jeopardizing any of the present generalizations about basic terms or classes. Since these few terms might conceivably be placed at any level, the change would at best effect a merely aesthetic difference in this semantic description, and would also require further exceptions to only one admittedly rough generalization (to which the aewani$_1$ 'mere [nondescript] animal'

term already serves as an exception) which states that in most natural contexts, objects which are members of the BIOTIC FORM class are usually denoted with the basic term unless a term at some other level is specifically required.

5.2 The Classificatory Framework

In this section the classificatory "framework", by which I mean the total set of structural relations which classes of BIOTIC FORM may have with each other, is outlined. Of these, the taxonomic relations (5.2.1.1) stand out as those which constitude a wide (i.e. having many members of contrast-sets at the B^0 level) and shallow (i.e. having few levels) structure within which other types of regular relation among classes occur. Though taxonomies are often defined and could heuristically be restricted to those of a "model" type (5.2.1.1), which can be represented by logical statements of class inclusion, the Tobelorese apparently were never informed of how their taxonomic structure should work, for among its non-"model" elements we find "residue" as well as "residual classes" (5.2.1.2), non-symmetric and disjunctive contrast (5.2.1.3), ambiguous superclass-subclass relations (5.2.1.4), and dual structural positions of a single class in the taxonomic structure (5.2.1.5). In addition to such modified taxonomic relations, Tobelorese also use several non-taxonomic relations to structure relationships of folk classes to each other,

including cross-cutting subclasses of the B^0 term (5.2.2.1), the 'mother'-'child' relation (5.2.2.2), growth stages or size classes (5.2.2.3), intersecting subclasses of a basic class (5.2.2.4); and in a few cases all these taken together may lead them to posit classes of BIOTIC FORM which they have never actually observed.

5.2.1 Taxonomic Relations

Conklin (1962: 128) defines a folk taxonomy as "a system of monolexemically-labeled folk segregates related by hierarchic inclusion." Because this definition requires taxa to be "monolexemically labeled," covert classes of Tobelorese BIOTIC FORMS posited here could not be considered part of the folk taxonomy. Others (Keesing 1966, Berlin, Breedlove, and Raven 1968) question this restriction. As the discussion above (Chapter 4) noted, covert classes are here considered necessary in the description of the BIOTIC FORM domain and of the Tobelorese language. Such classes have also been shown to exhibit taxonomic relations (i.e. hierarchic inclusion) with non-covert and with other covert classes. Whether or not we define "folk taxonomy" so as to include them, we must in any case present them in an adequate description of Tobelorese folk classification.

5.2.1.1 "Model" and "Non-Model" Features of a Taxonomy

Some of the other characteristics of "model" or "regular" taxonomic systems which may distinguish them from folk taxonomies, include:

> . . . (1) at the highest level, there is only one maximal (largest, unique) taxon which includes all other taxa in the system; (2) the number of levels is finite and uniform throughout the system; (3) each taxon belongs to only one level; (4) there is no overlap (i.e., taxa at the same level are always mutually exclusive). Folk systems vary widely with respect to these more specific "requirements," but the presence of hierarchically arranged though less "regular" folk taxonomies is probably universal.
> (Conklin 1962:128).

As for the first requirement of an "ideal" taxonomy, the class of BIOTIC FORM - here considered to delimit the boundary of a domain under consideration - is covert and as such little discussed by Tobelorese. But among lexemically labelled taxa, Tobelorese do not bother to conform consistently to the other three requirements of such "model" taxonomic systems.

Nevertheless, the Tobelorese folk classification of BIOTIC FORMS can be described as a system of hierarchically related folk classes having eleven levels: the widest or "basic" (B^0) level, along with six levels above (4.2.3) and four below that basic level. Levels B^{+3} through B^{+6}, however, contain only posited covert classes; the FLORAL FORM subdomain, in fact, has no named class above B^{+1}. Some classes at each level (except of course the lowest [B^{-4}]) may be subdivided into hierarchically subordinate classes, every member of which will also be a member of the superordinate class. Thus this hierarchic structure represents

an (admittedly non-"ideal") framework of taxonomic relations within which other types of relation may also occur.

5.2.1.1.1 The Taxa and their Definitions

Considering the hierarchic structure in which these classes of BIOTIC FORM occur, it is very likely that each class (except the highest) will contain the immediately superordinate class as a distinctive feature of its definition. Thus the o noara 'ray' is a kind of 'fish' (o nawoko), but it is also very likely to contain 'fish' as a distinctive feature of that term's definition; i.e., a 'ray' is a 'fish' with certain other characteristics. Those characteristics might be enumerated as other additional features, or even defined as a single gestalt-like feature "ray-fish-ness" -- but (though the attempt to define them is not made here) it is still very likely that 'ray' and the 145 other basic terms which immediately subdivide the 'fish' class will all contain 'fish' in their definitions.[4]

It might be argued that the B^0 classes having ambiguous superclass membership (5.2.1.4) (e.g., a basic plant type which can be considered either a 'tree' or a 'herbaceous weed'), even though such classes are relatively rare, nevertheless prove that at least these B^0 classes do not contain any features of a superordinate class as distinctive features (i.e. neither 'tree' nor 'herbaceous weed' will be a distinctive feature of such a "cross-cutting" class). If

this argument is correct, one could still treat these classes as aberrant and consider that the objection is irrelevant to the great majority of cases in which a basic class is unambiguously included in only one superordinate class. Alternatively, one may treat these classes as aberrant only because the distinctive features of two (or more) superclasses (rather than those of just one superclass) are likely also to be distinctive features of the B^0 class; thus members of the latter may be members of more than one superclass. This explanation (offered in 5.2.1.5 below) allows the treatment of "ambiguous" membership in the same terms of hierarchic class inclusion used in describing taxonomic relations. Such cases, however, are not ideally taxonomic, and indicate that contrast sets occur in which each member (e.g., 'tree', 'herbaceous weed', etc.) is defined such that the sets in contrast are "not quite" mutually exclusive (see 5.2.1.5).

5.2.1.1.2 Some Signs of Tobelorese Preference for "Ideal" Features of Taxonomies

Two types of evidence may be adduced indicating that, though the Tobelorese use non-taxonomic features in their folk classification, they seem to overwhelmingly prefer a taxonomic structure, and, at levels below the basic term, do try to "straighten out" several non-ideal features of their folk taxonomic system: (1) The number of classes

related in non-taxonomic ways (e.g., having "cross-cutting" subclasses) is small relative to the number of those only taxonomically related. (2) In the many instances in which Tobelorese individuals are faced with more than one way of subdividing a basic class, they consciously try (and naturally discuss their attempts among themselves) to arrange the variants in taxonomic fashion (e.g., by considering some terms synonyms, or by positing that one of the variant contrast-sets must subdivide another).

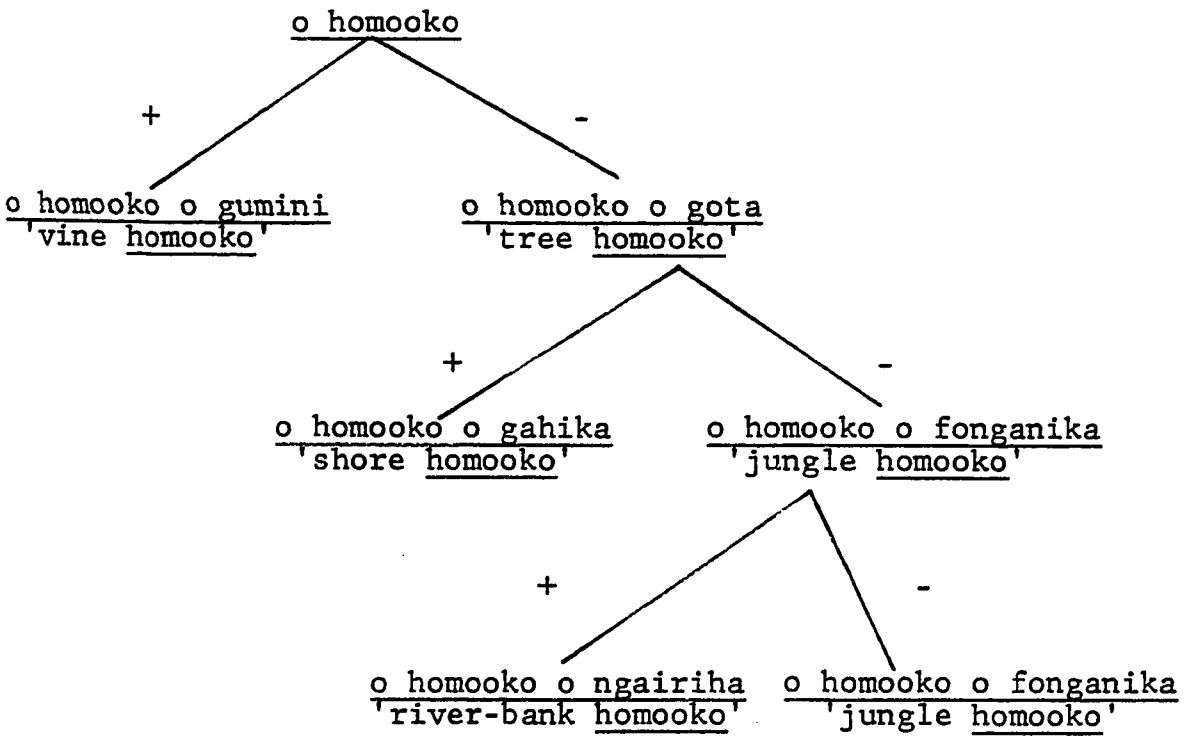
(1) Though similar compilations have not been done for the FAUNAL FORMS, the quantification of basic FLORAL FORM classes by B^{+1} superclass will illustrate the relative uncommonness of non-taxonomic features. Of 584 basic classes of FLORAL FORM, 540 (or 92.5%) are either unaffiliated with any named B^{+1} class, or are subclasses of <u>one</u> of the named B^{+1} classes ('tree', 'vine', or 'herbaceous weed'). Only 34 of the basic classes (5.8%) have subclasses which cross-cut the B^{+1} classes (a non-taxonomic feature). And only 10 of the basic classes (1.7%) can ambiguously be considered to be included in more than one B^{+1} superclass. Other non-taxonomic or non-ideally taxonomic features of the Tobelorese folk classification are also relatively quite uncommon (though often culturally important), such as the dual structural positions of a single class (5.2.1.5). Intersecting subclasses of the basic class (5.2.2.4) have only been observed in one case. Thus, though Tobelorese seem unconcerned about

the lack of some "model" taxonomic features (such as maintaining a uniform number of levels throughout the system), they clearly prefer that each taxon belong to only one level and that taxa in the same contrast-set be mutually exclusive.

(2) Although Tobelorese are generally quite familiar with a few of the non-taxonomic features of their classificatory system (e.g., the cross-cutting subclasses of a basic term [5.2.2.1]), they generally try to assimilate newly observed types of plant or animal or newly-learned terms for BIOTIC FORMS into a taxonomic framework. Some examples will illustrate their own attempts to do so (though in several cases biological species determinations are incomplete [cf. Appendix]):

After arriving by boat in Fayaul village from Dodaga (Wasile District) in May, 1979, I left three local assistants (who had family at Fayaul) to collect plants there, while I walked alone to a festival at Wasile village's Christian section five kilometers to the south. After returning by way of the beach during low tide the next day, I reviewed the previous day's vouchers and field notebook, finding the new term o homooko o ngairiha 'riparian homooko' listed (V #2635, Premna odorata Blanco). Upon inquiring, I got back a flood of information from my assistants (from D-speaking Pasir Putih in the south) and their H-speaking families at Fayaul. The problem had arisen in my absence that the homooko class of 'trees' is divided at Pasir Putih

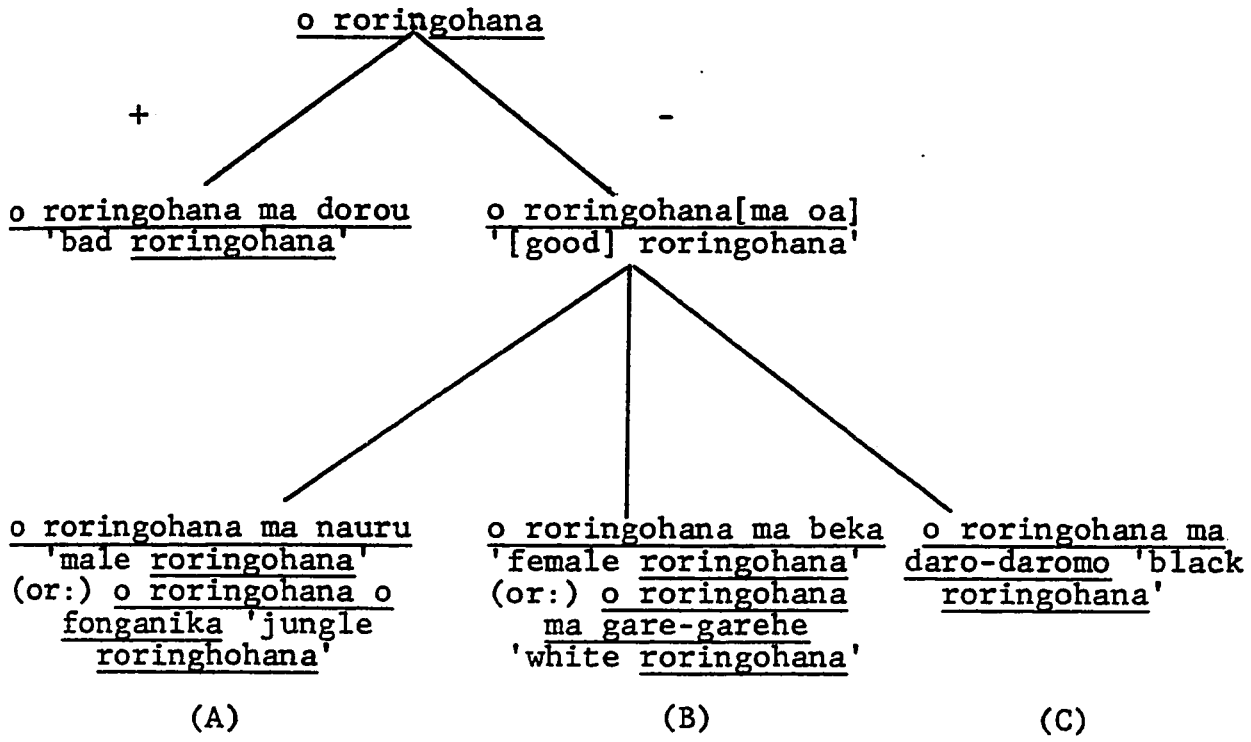
into 'shore homooko' and 'jungle homooko'; but the specimen from Fayaul was neither; inquiring about its name, my assistants discovered that their families called it 'jungle homooko' contrasting apparently with an unmarked homooko in that region. After their families at Fayaul had heard of Pasir Putih's 'shore homooko' the two had to be reconciled. In short, all had agreed that the Fayaul specimen must be another kind of 'jungle homooko', thus introducing a new B^{-2} level into the classification of this basic plant class, in which the 'true jungle homooko' (the unmarked form at Fayaul, or the 'jungle homooko' of Pasir Putih) contrasted with the 'riparian (or river-bank) homooko', a new term invented that night to distinguish the specimen called 'jungle homooko' at Fayaul from the 'jungle homooko' familiar at Pasir Putih):



(The minus [-] signs above indicate unmarked forms; the plus [+] indicates marked forms.)

I regret that I was not present for this local "revision" of the homooko (?Premna spp., cf. Appendix) group, but it is quite possible that if I had been present inquiring about the "proper" name for the newly observed type the hosts might not have wanted to contradict their guests (or the younger assistants their family elders) in my presence, and the revision would perhaps never have been made. Though still probably not widespread, the subdivision of the B^{-1} 'jungle homooko' into two B^{-2} classes is clearly preferable to the unreconciled dialectal alternatives for these Tobelorese who decided upon it, and the example illustrates how they generally try to assimilate new data into a taxonomic structure.

Another example involves the Tobelorese preference not only for "neat" taxonomic subdivisions but also for dichotomous oppositions ('male' vs. 'female', 'good', vs. 'bad', etc.). The subclassification of the basic plant class o roringohana may be diagrammed as below (this was carefully checked at Pasir Putih village; there may be variations elsewhere):



(No markedness has been observed among the three subclasses of the '[good] roringohana', but since two of those subclasses involve a 'male'-'female' distinction, one would expect to find that one of those two was unmarked relative to the other [cf. 4.2.3.1].)

Like o homooko, this term o roringohana is a basic term having subclasses which cross-cut the B^{+1} groups; the "normal" (unmarked) o roringohana is a 'tree', while the marked o roringohana ma dorou 'bad roringohana' (Justicia sp.) is a 'herbaceous weed'.

Note that if the three subclasses of the 'tree' or 'good' o roringohana are labelled A, B, and C (as on the diagram above), we have more than one dichotomous opposition:

A vs. B 'male' vs. 'female'

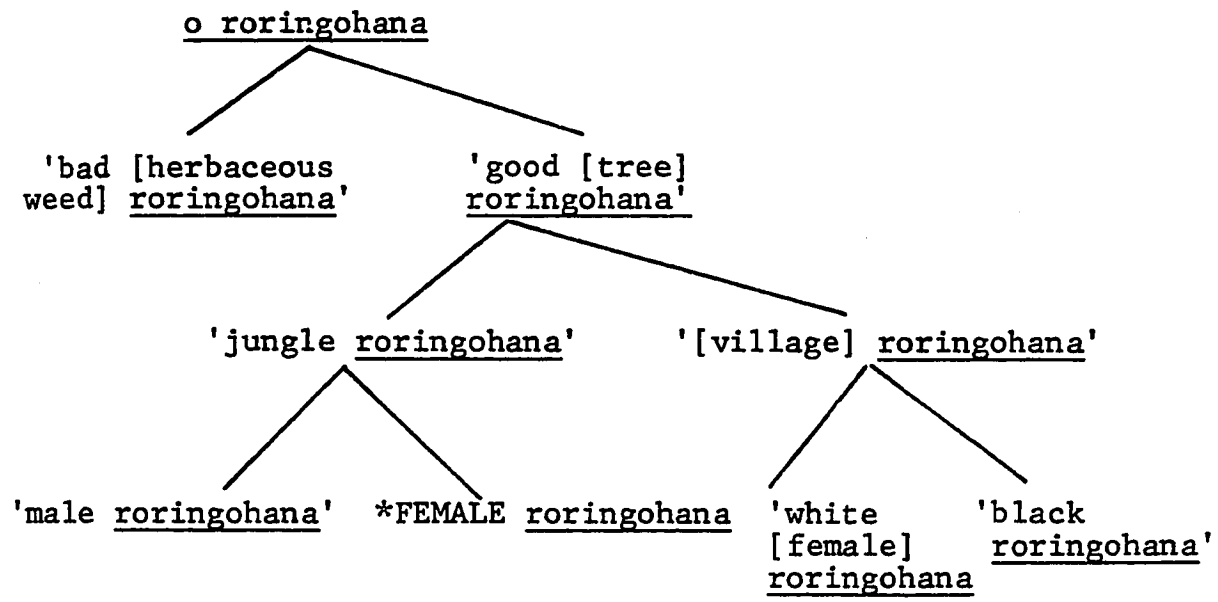
B vs. C 'white' vs. 'black'

A vs. B & C 'jungle' vs. [not-jungle] (informants said the habitat of B and C was o kapongoka 'in the village [area]')

The first opposition would lead us to suspect A and B are subclasses of a superclass contrasting with C; the second would instead lead us to suspect that B and C are subclasses of a superclass contrasting with A.

Though clearly not "neat", the diagram and terms correctly represent the classification of this class at Pasir Putih, as discussed with local people with the plants themselves (or specimens from them) nearby. To try to solve the problem I asked several elders once, when we collected the "A" form (Pittosporum ferrugineum W. Ait.), whether C was male or female; and what was the color of A? They re-described the classification as shown above, then after some silence one man unexpectedly said, "There must be in the jungle, landwards, a female roringohana." The comment was met with a reaction showing it was plausible to the others, although no one had observed such a female form. The man's comment, however, indicated not only that he realized a problem with the classification of roringohana then known in the village, but also proves he was independently attempting to find a solution which would predict the terms used in the village by means of a very neat, taxonomically related

group of paired dichotomous oppositions. His own posited solution as fully expressed in the quotation above is diagrammed below:



(The class he posited is shown with an asterisk [*] and upper case letters. Note that his solution would imply that the 'black roringohana' is also 'male'.)

In addition to these examples of Tobelorese observed in the field working out "revisions" or positing details of their system (such observations are very rare even though in this case fieldwork in their villages was intensive and relatively long-term), many other local indications of a preference for formally "neat" taxonomies are clear. Thus in an experiment recounted below (5.2.1.5), I asked a group of village elders at Pasir Putih about 'male' and 'female' subclasses of many basic terms recorded at Loleba, implying that Loleba villagers could distinguish 'male' from 'female' of all these classes (in fact, they cannot).

Among the frequent responses, Pasir Putih villagers often tried to "line up" local dichotomous oppositions (such as 'red' va. 'white', or 'good' vs.'bad') by trying to equate them with Loleba's alleged distinctions of 'male' and 'female'.

This discussion has implications for the interpretation of the many "loose terms", i.e. terms which are recognized as plant or animal names (or probable names) by Tobelorese informants, but whose denotata are unknown to everyone I asked about them. ("Loose terms" are not included in the Appendix below.) One must carefully resist the tendency of Tobelorese informants to try to make such loose terms fit the folk taxa with which they are familiar; in this area too Tobelorese are likely to suggest that an unknown subclass of a basic term is "probably" the same as a known subclass -- I appreciate such suggestions more when the "probably" is emphasized, but it is always better to ask if the informants are sure!

5.2.1.1.3 The Folk Taxonomy as the General Framework for Tobelorese Ethnobiological Classification

In treating taxonomic relations as the "framework" within which other types of structural relations among classes occur, no attempt is made to say that "ideal" taxonomic relations are somehow more "correct" or that they are signs of widespread clear thinking despite occasional

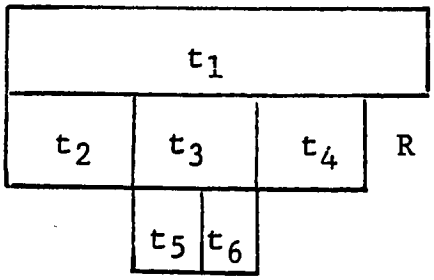
native lapses into "aberrations" like ambiguous class membership or cross-cutting subclasses of basic terms. The folk taxonomy is instead here treated as the general framework for Tobelorese ethnobiological classification for these reasons: (1) From a heuristic point of view, the complex Tobelorese classificatory structure can be more easily described by first calling up a model taxonomic structure and then substantially modifying it by non-"ideal" elements and other non-taxonomic structural principles. (2) From a structural point of view, if we set up an initial "framework" of any other structural principle, such as the cross-cutting subclasses of the B^0 terms (5.2.2.1), not only would the framework contain very few classes, but also adequate discussion of it would presuppose ideas of taxonomic class-inclusion (because each cross-cutting B^{-1} class is a subclass of the same B^0 class, even though the former are subclasses of different B^{+1} classes; see 5.2.2.1). Thus taxonomic (even if not "model" taxonomic) relations are not only the most common kind of relation among classes; they appear to be structurally primary as well. (3) Furthermore, the covert classes posited here (Chapter 4) are also taxonomically related although this is perhaps largely due to the method used to find them, which emphasized the validity of positing super-classes for a particular contrast-set and rejected positing covert classes (for this domain) which cross-cut named taxa (see 4.2.2.2 above). Those who accept

the previous justifications for positing such covert classes will recognize that they add more justification for considering the basic framework of the eleven-level Tobelorese classificatory hierarchy a taxonomic one, albeit one in which other non-taxonomic principles operate.

Lest anyone suppose that non-taxonomic principles, or non-"ideal" features of a taxonomy, indicate aberrational lapses into fuzzy thinking, examination of these cases will hopefully reveal their clear "alternative" logic.

5.2.1.2 "Residue" and "Residual Taxa"

If we think of a class of BIOTIC FORMS (at any level) as designating a set of "objects" or "tokens" (organisms), then each of its subclasses designates a subset of that set (this can be diagrammed by means of the box diagram below, where t_1 is a taxon and t_2, t_3 and t_4 are subtaxa; t_3 is further subdivided into t_5 and t_6):

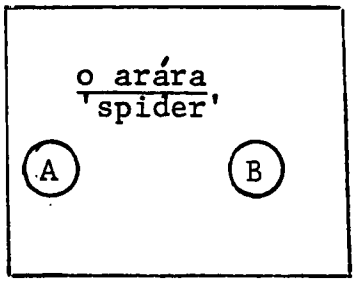


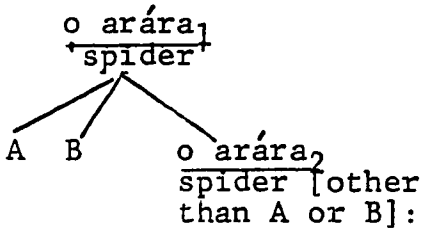
The diagram illustrates a frequent non-"ideal" occurrence in folk taxonomies: the contrast-set t_2-t_3-t_4 does not adequately subdivide the t_1 domain; the "residual" area representing those objects which are members of a set designated by t_1, but not of any of its subsets, is marked "R". When we consider the size and variation within certain groups (such as the Insects) it appears likely that any folk taxonomy contains contrast-sets which inadequately subdivide the animal kingdom, leaving residual organisms to be designated by high-level terms such as 'animal' or 'bug' rather than by basic terms. As coastal people the Tobelorese are familiar with marine and terrestrial fauna and flora of the large area of great biological species diversity which they inhabit. New organisms recognizable as members of the 'fish' or 'mollusc' or 'mere animal' class, but for which no local names are known, are constantly observed; and (for lack of a more specific term) they are referred to simply as 'fish', 'mollusc', or '[mere] animal'.

In other cases, particular subclasses are "singled out" within a larger basic class. For example, out of all the vast array of biological species, genera, families, and even Phyla in the folk class o lulumiti 'moss, mould, bryozoa, smaller algae', only one is singled out: a light green moss (species undetermined) which hangs from trees and is referred to as o aunu ma dodogumu 'blood stopper'. It apparently is distinguished because of its medicinal importance (implied by the name) in stopping the flow of blood from cuts (cf. the 'herbaceous weed' class of this name). All other o lulumiti

are simply referred to by the higher-level term.

Another example is the basic class o arára 'spider' (within the B^{+1} o aewani$_2$ 'insignificant animal' class). There are only two subclasses of 'spider', however, and these seem "singled out" because they are exceptional in some way, while the vast majority of Arachnids are simply called by the higher-level 'spider' term. Those subclasses (indicated in the Venn diagram below left as A and B) are: o oanga 'wolf spider' (Lycosidae), locally known for its especially painful bite, and o guhuru ma dadagoko [literally: 'fly (Muscidae) catcher'] 'jumping spider' (Salticidae), though the reason for this spider's own distinguished name is less clear.[5]





The Venn diagram (left above) presents one way of interpreting the relations among these three classes, expressing the presumption that there is only one o arára 'spider' class, with two subclasses which inadequately subdivide it; remaining 'spiders' are simply called by the higher-level term. The alternative taxonomic tree diagram at right posits that the spiders which are neither 'wolf spiders' nor 'jumping spiders' form an unmarked taxon o arára$_2$ 'spider (other than

wolf or jumping spiders)'. In particular cases it may be difficult to decide which is the more accurate representation of relations among the folk classes. But the two diagrams clearly represent structurally different alternatives. To posit a second lower-level o arára$_2$ "residual class" (as at right) implies that this is in fact a semantic class having distinctive features, and likely to be sometimes lexically realized. While it is logically possible to posit such features as (1) spider, (2) not 'wolf spider', and (3) not 'jumping spider'; a residual class so defined would be "logically quite different from most taxa, i.e., it is defined by the absence of any distinctive perceptual unity" (Hunn 1976:511). Under such circumstances it seems that the only reason to posit such a residual class would be to maintain the ideal taxonomic structure, rather than represent semantic classes used by Tobelorese. Since the Tobelorese themselves seem less concerned about the idealness of their folk taxonomy it seems best not to posit such a class for reasons external to Tobelorese semantics (like filling out a taxonomic diagram on paper), unless some more appropriate unifying features of any *arára$_2$ class can be found.

Such features need not be consciously realized by Tobelorese, but neither could we expect to always find them by an "objective" examination of the organisms in question (this was also the case for distinctive features of covert categories posited in Chapter 4). For example, it may be noted that both jumping spiders and wolf spiders do not spin "normal" webs for catching their prey (though they spin

small cocoon-like webs for sleeping). This might suggest that we could posit a class containing all spiders except wolf and jumping spiders, i.e., o arára$_2$ 'web-spinning spider'. If it could be shown that Tobelorese think that all other spiders spin webs (though in fact many spiders do not), and that they consider the 'web' (ma igutu) of jumping spiders or wolf spiders to be of a different kind or to serve a different purpose than the 'web' (ma igutu) of all the other "residual" spiders (though in fact Tobelorese whom I asked did not point out any such difference), then we would have a good argument for considering that *o arára$_2$ 'web-spinning spider' contrasts with o guhuru ma dadagoko and o oanga as types of o arára$_1$ 'spider'. This example illustrates kinds of evidence to consider when looking for distinctive features of folk classes; if some unifying features of an *arára$_2$ "residual" class do happen to be found later, this still will affect only the interpretation of relations among these folk classes, though the validity of the distinction between "residue" and "residual taxa" should still be clear regardless of the validity of this particular example. (Some informants, also, do not consider o oanga a subclass of o arára$_1$; this will not affect the argument here because another class [o guhuru ma dadagoko] is also "singled out" leaving either the residue or the residual class of 'spiders'.)

Some treatments of folk classification (e.g., Berlin 1976, Hays 1976) treat any case in which a folk taxon is inadequately subdivided by its subclasses as if the residue of that taxon were necessarily a "residual taxon". Thus even while he recognizes that such taxa are logically different from others in the structure, Hunn (1976:511) writes, "In strictly taxonomic terms, residual taxa must be treated as specific [i.e. B^{-1}-- PMT] taxa . . . ." [italics added]. Berlin (1976: 391) also considers such residue to always form a taxon whose label is polysemous with the higher-level term. If our "strictly taxonomic" structure requires that every class be completely subdivided, then we are forced to posit residual taxa rather than just note the residue; but when we also admit (as Hunn has) that no distinctive feature can be found (and from this must conclude that the class is required by our method but could not be a semantic class used by the Tobelorese), it seems simpler and more consonant with ideas of a semantic class (1) to consider such cases residue rather than a residual class; and (2) to consider therefore that the higher-level term denotes "residual" organisms simply because there is no lower-level term to denote them, not because the higher-level term is polysemous with a lower-level "residual" semantic class.

Finally, it seems surprising that those who encourage treating the residue of inadequate subdivision among subclasses as a residual subclass (or taxon) are often those

who emphasize "cognitive validity" of the structures they propose. It may seem reasonable to think that Tobelorese can remember a three-feature definition of any posited residual 'spider$_2$' class (e.g., [1] spider, [2] not wolf spider, [3] not jumping spider). But even the best folk biologist could scarcely remember how to recognize a basic (B^0) residual 'tree$_2$' taxon (i.e. 'tree$_1$'; as in English: not oak, not pine, etc.); such a definition would also vary greatly among informants depending on the number of basic classes of 'tree$_1$' with which each is familiar.

The discussion above indicates that, while "residual folk classes" are a logical possibility, we should only posit them (1) if there is clear evidence that the "residue" left after removing one subclass from another is in fact treated like a semantic class by speakers of the language (e.g., lexically realized and referred to, since such evidence would force us to presume it is a semantic class even if we were not yet able to find other reasons for doing so); (2) if the proposed class appears to be capable of definition by a set of features which is <u>not</u> just a simple statement of the features of the higher-level class plus a statement of the latter's subclasses which were <u>removed</u> from it leaving only "residue".

An example of such a residual <u>class</u> is found in the Tobelorese <u>o iuru</u> 'ant' basic class. This term denotes wingless forms of all ants except 'weaver ants' (the latter

are in the contrasting basic class o kane-kane 'weaver ant' [Oeconophylla longinoda]), as well as winged forms of certain species (possibly Monomorium spp.?). The o iuru$_1$ basic class is subdivided into at least four B^{-1} subclasses: two labelled by simple words, one by an endocentric phrase, and finally one residual class o iuru$_2$. (See 5.2.2.2 below for further discussion of the o iuru$_1$ 'ant' class and the 'mother'-'child' relations between its winged and unwinged forms.) In this case, the residual class is recognizable because it is divided into two subclasses plus "residue" (not another residual class) at the B^{-2} level. The o iuru$_2$ class may be considered residual for two reasons: (1) it is clearly treated as a semantic class, because only such a class could have subclasses; and (2) the distinctive feature of the class is the tiny size of these ants. Thus the "larger" ant types are removed from the higher-level 'ant' class but there remains the residual B^{-1} class which we may gloss 'tiny ant'.

5.2.1.3 Non-symmetry and Immediate Disjunctive Contrast

Contrary to any "model" taxonomy of the sort used by biologists, the number of levels in the Tobelorese folk classificatory structure is not "finite and uniform throughout the system" (Conklin 1962: 128). While most basic classes are terminal, some (often those with great cultural significance, as well as morphological variability of the organisms being classified), may be subdivided by rather large contrast sets at the B^{-2} level

(cf. in Appendix: o bole 'banana', o pine 'rice', o tahubí 'manioc'). Only one basic class (o bole 'banana') has any subclasses at the B^{-4} level, and B^{-3} terms are also rare.

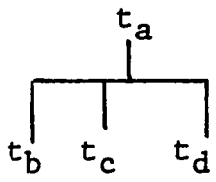
Above the basic level (as seen in Diagram 1, Chapter 4), several cases of non-symmetric contrast occur. The greatest contrast sets are only found at the basic level; above that, there are many subdivisions of the domain in which a disjunctive contrast of from one to five levels occurs. For example, the posited SEXUAL BIOTIC FORM class (B^{+5}) does not contrast with any class other than the four non-sexual basic (B^0) classes glossed '(certain) sponges', 'moss, mould, bryozoa, smaller algae', 'mushrooms, shelf fungi', and 'coral'. Since definitions of terms used in taxonomies (e.g., by Kay 1971) so often presume some kind of symmetry, alternative definitions are offered here specifically for non-symmetric taxonomies such as that of the Tobelorese BIOTIC FORM. We may call such contrasts both disjunctive and immediate.

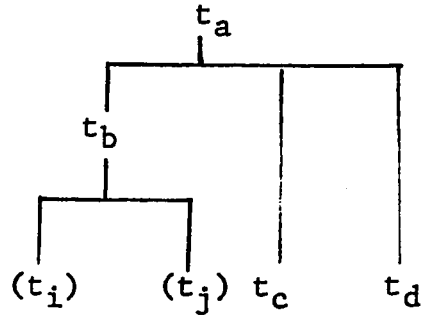
Immediate contrast: If T is a set of two or more taxa, $\{t_1, t_2, t_3 \ldots t_n\}$, all of which are subclasses of a higher-level taxon t_a; and if no other taxon t_z can be found which is both a subclass of t_a and a superclass of any of the taxa in set T, then that set T of taxa is in immediate contrast. (For purposes of this and the following definition we exclude considering a class a subclass or superclass of itself.)

From this definition it can be seen that, in a symmetric taxonomy, immediately contrasting taxa will be at the same

level; but in a non-symmetric taxonomy they might not be. Thus, in both diagrams below,

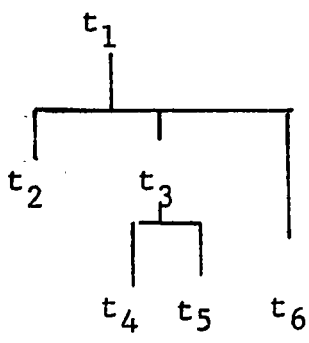
t_b , t_c , and t_d <u>immediately contrast</u> :





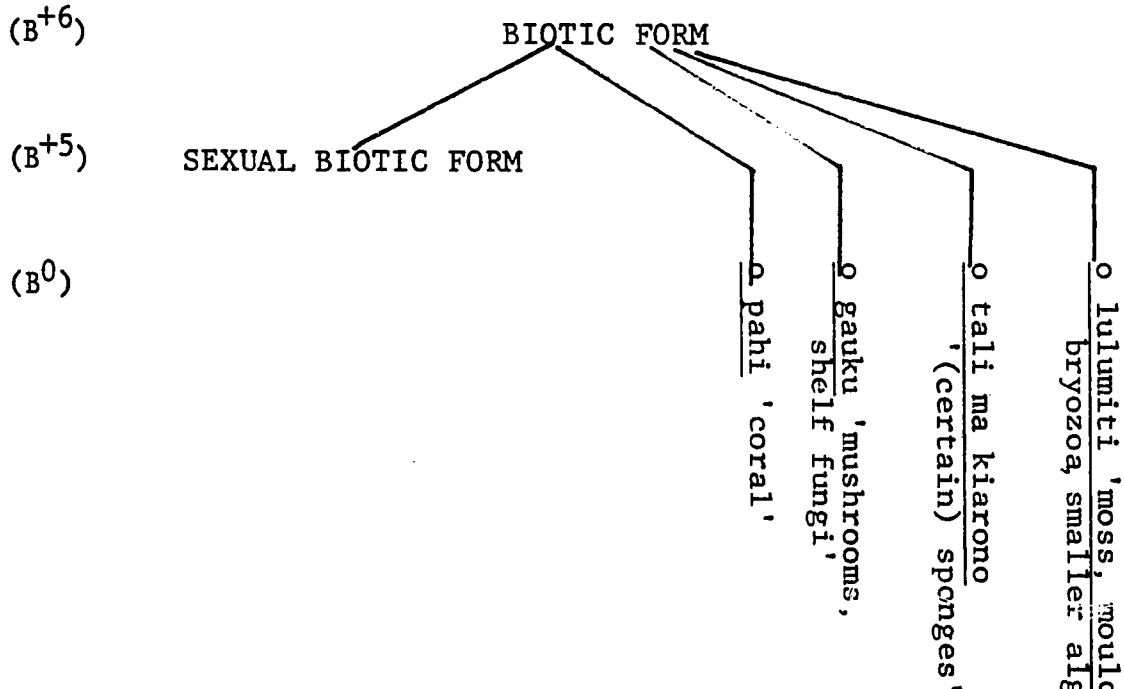
<u>Disjunctive contrast</u>. A set of two or more taxa $\{t_1 , t_2, t_3 \ldots t_n\}$ are in <u>disjunctive contrast</u> if no taxon in the set is a subclass of any other (see note above on the exclusion of treating a class as sub- or super-class of itself), <u>and</u> all taxa in the set are subclasses of some other taxon t_a, <u>and</u> some pair of taxa t_i and t_j can be found such that t_i is at a <u>different</u> taxonomic level from t_j. For example, in the diagram below, only the following are in disjunctive contrast:

$\{t_2 , t_4\}$; $\{t_2 , t_5\}$; $\{t_2 , t_6\}$; $\{t_3 , t_6\}$; $\{t_2 , t_4 , t_5\}$; $\{t_2 , t_5 , t_6\}$; $\{t_2 , t_3 , t_6\}$; and $\{t_2 , t_4 , t_5 , t_6\}$.

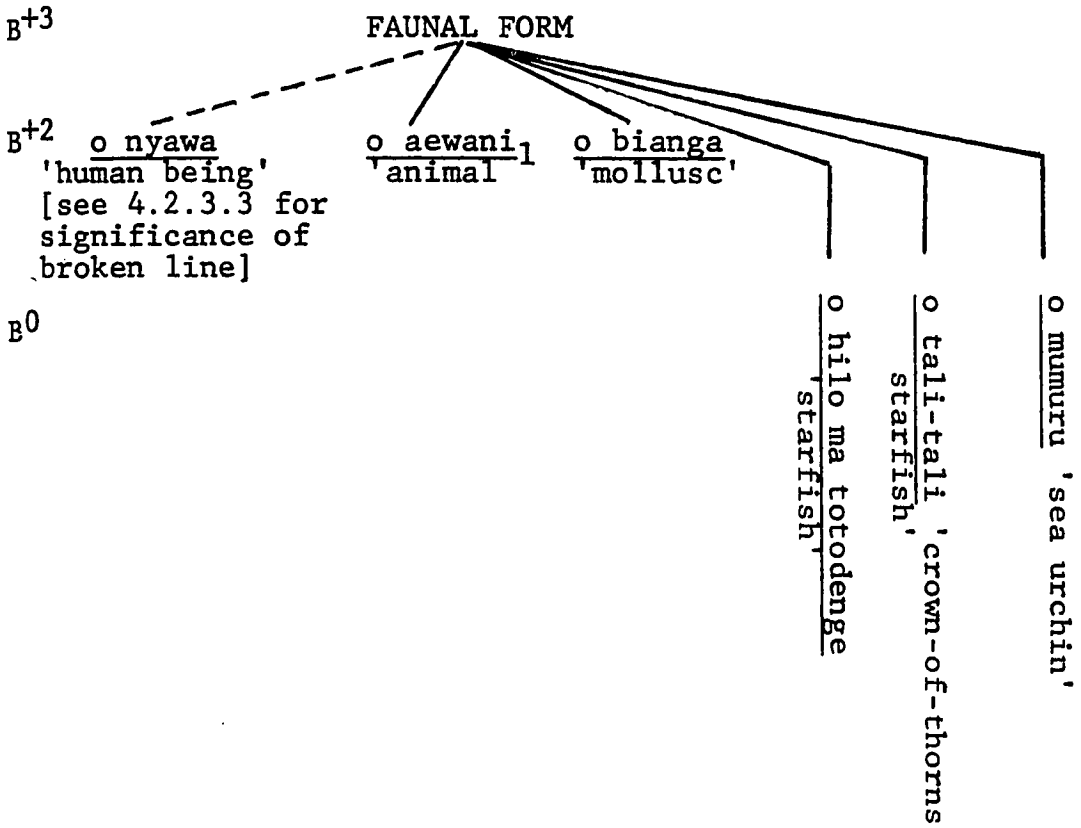


By combining these definitions we may arrive at the definition of a type of contrast which often occurs in the Tobelorese BIOTIC FORM domain, and which is applicable to non-symmetric taxonomies. We shall say that taxa are in immediate disjunctive contrast if they are in immediate contrast and in disjunctive contrast. (In the last diagram above, only the taxa $\{t_2 , t_3 , t_6\}$ are in immediate disjunctive contrast.)

By defining the number n of an "n-level immediate disjunctive contrast" as the difference in the number of levels between the highest taxonomic level and the lowest taxonomic level in which taxa in immediate disjunctive contrast occur, we may measure and describe the asymmetry of the non-symmetric taxonomy. For example, note there is one set of taxa in 5-level immediate disjunctive contrast (highest level B^{+5}; lowest level 5^0).



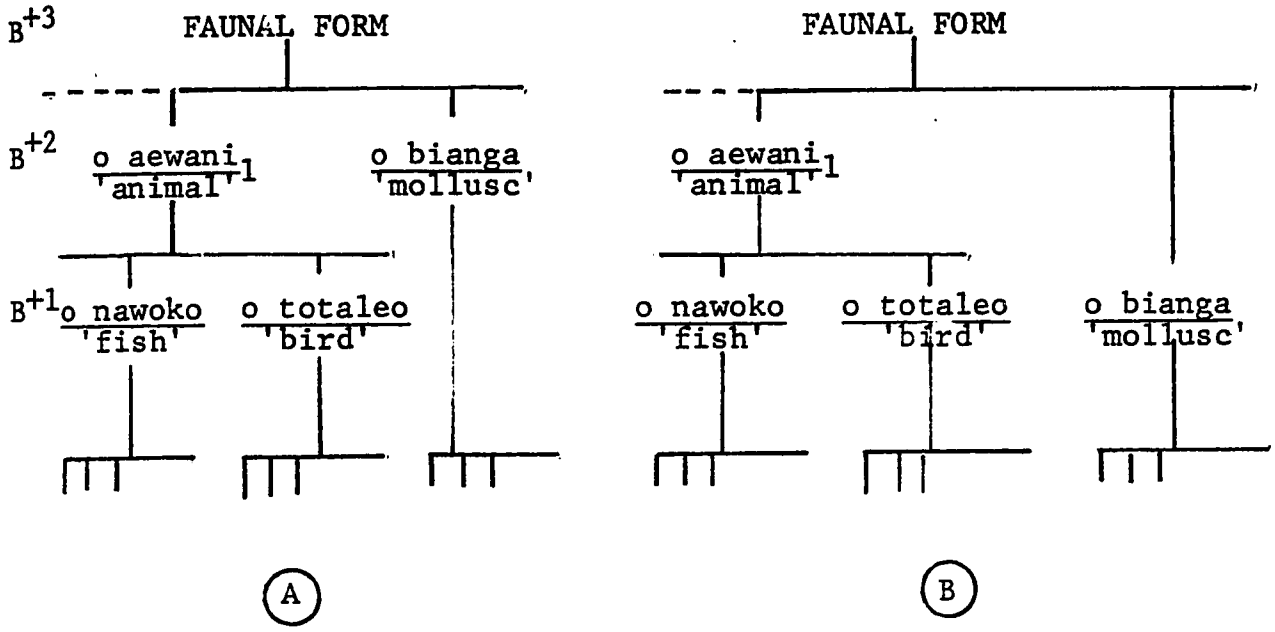
There is also one case of two-level immediate disjunctive contrast:



Finally there are two cases of one-level immediate disjunctive contrast: one within the FLORAL FORM class (where B^{+1} classes like 'tree' and 'vine' are in disjunctive contrast with B^{0} classes like o boboro 'nipa palm' which are unaffiliated with any B^{+1} class), and the other is in the aewani$_1$ 'animal' class (where B^{+1} classes like 'fish' and 'bird' are in disjunctive contrast with B^{0} classes like 'crocodile' or 'crab'). Both these cases involve lexemically labelled classes (and, in the case of the aewani$_1$ 'animal' subclasses, even the superclass is labelled). For those who commendably consider any argument which draws heavily on covert classes suspect,

these lexemically labelled subdomains (e.g. o aewani, 'animal') should reassuringly confirm that immediate disjunctive contrasts are at least possible in the Tobelorese BIOTIC FORM domain.

In the above cases of 5-level and 2-level immediate disjunctive contrast, at least one of the higher-level subclasses (e.g., SEXUAL BIOTIC FORM in the first example, or aewani$_1$ 'animal' in the second) is further subdivided at each level down to the basic (B^0) one. This raises a question which is partly only one of drawing aesthetically pleasing diagrams, but also one of accurately characterizing contrasts among folk classes: If a non-symmetric taxonomy allows immediately contrasting classes to be disjunctive, then at what level do we place classes which are immediately subdivided at the second descending level? The 'mollusc' (o bianga) class, for example, has been placed at the B^{+2} level, but it is immediately subdivided at the second descending level, having "skipped" one level (B^{+1}) entirely (diagram below left). Though 'mollusc' seems to contrast with 'animal', a non-symmetric taxonomy could allow the 'animal'-'mollusc' contrast to be disjunctive (diagram below right):



A similar case could also be made for placing the FLORAL FORM class at level B^{+2} rather than letting it "skip" that level (as depicted in Chapter 4 diagram 1, in which it shares level B^{+3} with FAUNAL FORM).

In fact, however, that alternative is not adopted here for the o bianga 'mollusc', the FLORAL FORM, or the NON-BREATHER classes (these are the only three classes immediately subdivided at a descending level greater than one), for three reasons: (1) In the case of o bianga 'mollusc', evidence has been presented to show it is naturally used in contrast with o aewani$_1$ 'animal'; this close contrast expressed in natural language can be expressed in an analysis by considering the two classes at the same level. (2) More importantly, the covert NON-BREATHER and FLORAL FORM classes were posited on the basis of distinctive features which distinguished

each of these from the other class it contrasts with; since those features distinguish these other classes at levels B^{+4} (BREATHER) and B^{+3} (FAUNAL FORM), the close relationship of the classes in question can be better expressed by considering them in immediate contrast at the same level. (3) Finally, the only reason there can be immediate disjunctive contrasts at all in this domain is that we are presuming a recognizable "basic" (B^0) level of labelled classes; the level at which immediate superclasses are placed is more an artifact of our analysis of the entire domain than it is an expression of any characteristic of that superclass. If only the 'mollusc' subdomain were being described, we would not need to point out that in a complete analysis of the BIOTIC FORM domain 'mollusc' must be two levels (rather than one) above the basic terms. On the other hand, if the Tobelorese were to suddenly start dividing all 'fish' into, say, 'cartilaginous fish' and 'teleostean fish', every level from B^{+1} to B^{+6} would simply be "moved up one" to make room for the new level containing only those two new subclasses of the 'fish' class. (Thus 'snake', 'bird' and other B^{+1} terms would be moved to level B^{+2} along with 'fish', and FLORAL FORM would have to be moved up along with its contrasting FAUNAL FORM; all subclasses of FLORAL FORM, however, would be unaffected.) This would not affect any of the posited relations among the other

classes, because no claim for the "distinctiveness" of any level above the basic one is made here, and because the number of levels "skipped" between a superclass and its immediate subclasses is here intended to be irrelevant to the class inclusion relation. Those who do claim some distinctive characteristics of levels above the basic class (e.g.C.Brown 1977, 1979) presumably can identify those levels to which their generalizations apply.

In conclusion, all sets of classes in immediate disjunctive contrast in this domain include one or more classes at the same non-basic level and one or more basic classes; in other words, no more than two levels (one of which is the basic level) are involved.[6]

5.2.1.4 Ambiguous B^{+1} Class Membership

One of the exceptional characteristics of the "basic" level noted above (5.1.2) is that Tobelorese seem most concerned about the proper "name" of a plant at the basic level, though it does not seem to bother them if a particular basic class is ambiguously a member of either one of two higher-level classes. Thus if someone holds up the branch of a Cassia occidentalis L. and asks the 'name' of that plant, he will be told it is a dadatara. Though informants agree on the basic term for this plant class, they do not agree on a single B^{+1} class to place it in. Because of its small but woody stem, the dadatara

may be considered either a 'herbaceous weed' (o rurúbu) or a 'tree' (o gota). Perhaps because of a dialectal difference in the definition of the 'tree' class, this Cassia is more likely to be considered a 'tree' at Loleba village (Boeng dialect) than at Pasir Putih (Dodinga dialect); but it is still interesting that at both villages some informants recognize its ambiguous superclass status and, in this and other instances, discuss such ambiguity as a matter of interest. A rather similar example already discussed above (4.2.3.1) involves o tahubé [Canna coccinea Mill.], considered a 'herbaceous weed' at Pasir Putih, where it grows wild; but considered a 'decorative plant' [o bunga] at Loleba, where it was recently introduced as a cultivated ornamental. After I pointed it out, this discrepancy became a matter of some local interest, though its cause was obvious (i.e., the same plant grew wild in one village but was a cultivated ornamental in another). Some such "discrepancies", however, are locally well-known; especially cases like o dadatara (Cassia occidentalis L.), o kokereehe (Crotalaria retusa L.), o ngutuku ikokurati (Fatoua pilosa Gaud.), and other such slightly woody small suffrutescent plants which can ambiguously be considered 'tree' or 'herbaceous weed'. "We can call it tree or herbaceous weed, it doesn't make any difference," one informant said of one

o digo (Sida sp.) at Loleba. 'Vines', however, are clearly labelled o gumini 'vine' no matter how woody their stems become; in this case, the stem habit takes precedence over woodiness in the definition of the terms 'tree' and 'vine'.

Other cases of ambiguity are brought about by one of the defining features of o rurúbu 'herbaceous weed', which states that plants in that class are not cultivated or culturally important. Minimally tended and occasionally cultivated medicinal or marginally edible plants, such as o maa-maata o gota 'tree maa-maata'[7] (medicinal), or the edible o bibiti (uncollected), both of which morphologically appear to be rurúbu 'herbaceous weeds', are often locally placed in that class, though some informants point out that they are cultivated and should be considered unaffiliated with the 'herbaceous weeds'. As in the previous examples, such cases do not represent any substantive "informant disagreement," since informants can quickly point out why o bibiti (for example) might or might not be called a 'herbaceous weed'. This fact recalls one informant's comment regarding a decorative flower (quoted in 4.2.3.1 above): "If we saw it in the jungle we would call it a 'herbaceous weed'; but we cultivate it so we call it a 'flower' " .

Within the FAUNAL FORM domain, no basic classes have been observed which are ambiguously members of more than

one of the B^{+1} classes 'fish', 'bird', or 'snake'. Note that any ambiguity of membership in the aewani$_2$ 'mere (insignificant animal' class is more difficult to inquire about than is its FLORAL FORM counterpart, because any animals which are ambiguously "significant" or "insignificant" will still be in the o aewani$_1$ 'animal' or higher-level class labelled by the same form. Thus, when asked if a particular plant such as o bibiti is a 'herbaceous weed', informants may distinctly say no. But when asked if a 'crocodile' is an "aewani," informants could either say "yes" (because it is an aewani$_1$ 'an animal') or "no" (because it is not an aewani$_2$ 'a mere animal').

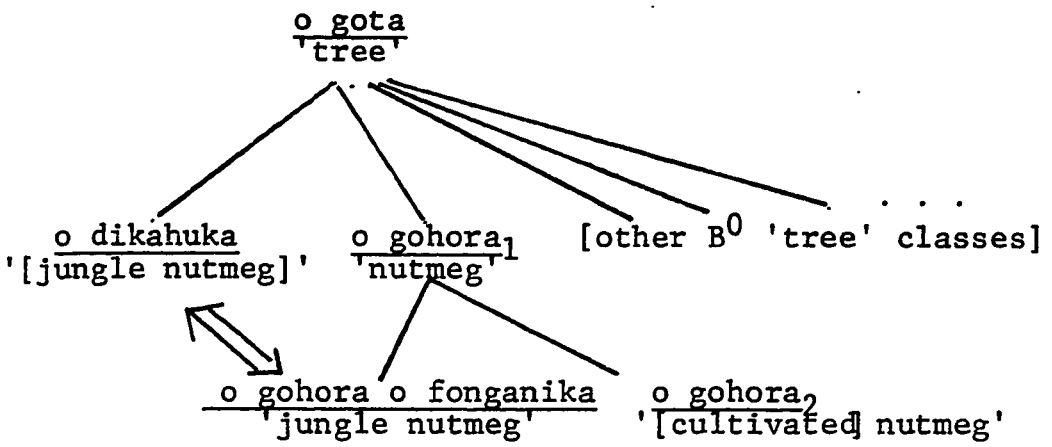
Finally, it should be noted that ambiguity caused by the polysemy of the B^{+1} terms themselves must be distinguished from ambiguous class membership. This problem frequently arises when plant types which are said not to belong to any named B^{+1} class are referred to in natural conversations as rurúbu--not in that word's sense of 'herbaceous weed', but rather 'undergrowth'. Tobelorese themselves are of course familiar with the polysemy of their terms and can easily disambiguate them upon inquiry. For example, the unmarked or 'female' form of the B^0 class o jara-jára [Spinifex littoreus (Burm.f.) Merr.], a plant of sandy beaches apparently excluded from the 'herbaceous weed' class because of its unusual shape, might still be called

rurúbu 'undergrowth', though not e.g. *o rurúbu o jara-jára '*jara-jára herbaceous weed'; certainly not o jara-jára o rurúbu 'the herbaceous weed jara-jára' (the latter term instead denotes its 'herbaceous weed' male or unmarked counterpart [Rhyncospora rubra (Lour.) Makono], also called o jara-jára ma nauru 'male jara-jára').

5.2.1.5 Dual Structural Positions for the Same Class

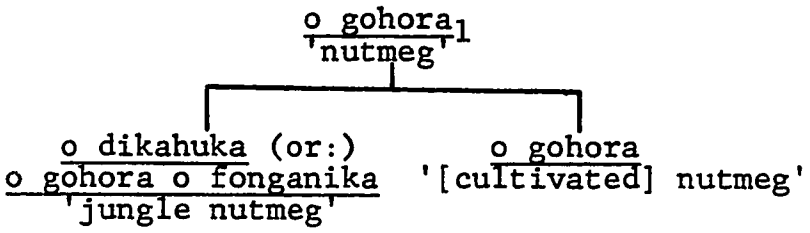
There are few definite cases of dual structural position for a single Tobelorese folk class in which the subclassification of that class is widely known or agreed-upon by Tobelorese. But even if we include some additional "esoteric" or "idiosyncratic" examples of this phenomenon (i.e. those which are not widely known or agreed upon), the small number of cases which occur belies the great importance of the structural principle involved.

The 'tree' class labelled o dikahuka (species determination unavailable) exemplifies this dual structural positioning, for it appears to have two structural positions consistent with the two widely-known terms labelling the same class: the basic (B^0) class labelled by the basic term o dikahuka, and the B^{-1} class labelled o gohora o fonganika 'jungle nutmeg'. The latter is a B^{-1} subclass of the o $gohora_1$ 'nutmeg' class, and contrasts with the other (cultivated) unmarked $gohora_2$ 'nutmeg' (Myristica fragrans L.). In the diagram below the symbol ($\Longleftrightarrow$) connects the two structural positions of the same folk segregate.[8]



Before considering the characteristics of this anomolous 'jungle nutmeg' class, we should first dismiss two incorrect interpretations which, if adequate, would admittedly be simpler and preferable to any offered here. First, this dual structural position does not result from dialect or idiolect differences or disagreements among informants, though superficially similar situations could be interpreted in that way (cf. the alternative placement of o gugudai 'blue-spotted fantail ray [fish]' at B^{-1} or B^{-2} level, though this class does not have a dual structural position [see 5.1.3.1]). Further research may turn up dialectal differences in the specific 'jungle nutmeg' example given, or even find that such "anomalous" features of the taxonomic structure vary greatly among dialects; but the example was nevertheless investigated in the field at Pasir Putih, where many informants agreed with the evidence presented here.

Secondly, it does not seem possible to interpret o dikahuka as a B^{-1} term (synonymous with o gohora o fonganika) rather than B^{0}, an alternative which is diagrammed below:



This interpretation is unacceptable because it implies that it is possible to form the phrase *o gohora o dikahuka '*dikahuka nutmeg', because a basic term can always precede a term for its subclass (within the limits of restrictions mentioned above [5.1.3]). If dikahuka were not a basic term, one should also expect to be unable to form the phrase o gota o dikahuka ' dikahuka tree', though in fact that expression is possible. In short, the two terms o dikahuka and o gohora o fonganika do not act like they should be at the same structural position, though they both label the same class. In this case, the discrepancy could be partly explained as influence from NMM, in which this folk segregate is designated pala hutan or pala utang (literally: 'jungle nutmeg'). Historically it may be that some formerly distinct B^{0} class labelled o dikahuka is now becoming a B^{-1} subclass of the gohora 'nutmeg' class due

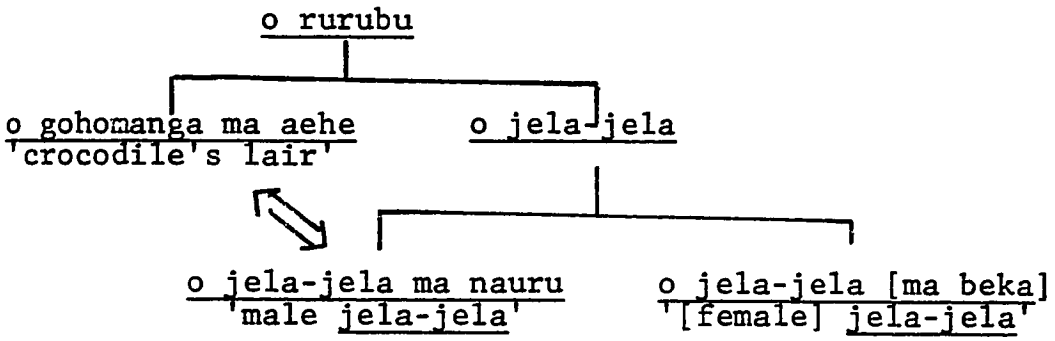
to NMM influence, but in fact a synchronic description must note that it seems to retain its B^0 status as well. Other widely-known examples of dual structural position are similar to the 'nutmeg' example above: a basic (B^0) class subdivided into marked and unmarked B^{-1} classes, of which the marked B^{-1} class is alternatively referred to by a basic (B^0) term. Thus one marked B^{-1} subclass of o hitakono (a 'tree' type) is both a B^{-1} class referred to as a o hitakono o gahika 'shore hitakono' as well as a B^0 class labelled by the term o kapuraca (species determinations unavailable).

Note, however, that "dual structural position" of any class should refer to structural positions (like those in the examples above) of a class recognized in a single dialect; there are a few cases in which, for example, folk classes of FLORAL or FAUNAL FORM are treated as basic terms in B dialect but as B^{-1} terms in D dialect (cf. Appendix, o dodófo, o bobaharama), though such cases are different from those being considered here.

Some admittedly more "esoteric" examples will illustrate the same dual structural position but (unlike the 'nutmeg' example above) cannot be interpreted as influenced by translation, and may provide illustrations of how such dual structural positions might originally come into use.

By "esoteric" examples I am referring to examples of structural relations among classes, or of classes themselves, which are "esoteric" or known only to a few. Such classes or relations among classes are especially likely to be found among plants having medicinal value. Though Tobelorese seem to presume a "male" and "female" form for every basic class of BREATHER, they cannot always be sure which is the 'male' or 'female' of all animals or plants. Since the male-female opposition is associated with "strength" of medicinal uses of plants (cf. 4.2.3.1), and since medicine is an esoteric matter (cf. 2.2.2), the male and female members of a basic class may be esoteric information. Thus the grass called o gohomanga ma aehe 'crocodile's lair' (an undetermined graminaceous plant) is commonly known, but its 'male' or 'female' form is not. The same is true of the common grass called o jela-jela (Paspalum conjugatum Berg.) One elderly woman at Pasir Putih told me, however, that the 'male' jela-jela was in fact o gohomanga ma aehe. In confiding this esoteric information to me, she is in effect expressing her particular "esoteric" or idiosyncratic solution to the problem of the 'male' and 'female' forms of these basic classes. That she still considered both basic classes is shown by the fact that she (like others) could not accept the phrase *o jela-jela o gohomanga ma aehe (just as dikahuka could be called 'jungle nutmeg' but not 'dikahuka

nutmeg'). Thus the folk segregate labelled o gohomanga ma aehe by all the Tobelorese had (in the idiosyncratic and esoteric knowledge of this individual) two structural positions (one commonly shared but one esoteric), each with its own label:



(Such idiosyncratic information is not included in the Appendix.) As she was familiar with traditional cures, it was thought by others that the plants she called 'male jela-jela' might have some medicinal importance for her.

Soon after arriving at the D-dialect-speaking village of Pasir Putih (after I had been studying at Loleba [B-dialect] for over a year), I tried an experiment. With many of the village elders gathered around I asked about the local presence of 'trees' from a long list of their B-dialect names from Loleba, in an effort to compare dialects. After some time I began to add 'male' and 'female' to each tree name, as though the local villagers'

Boeng-speaking colleagues had fully solved the problem of determining the 'males' and'females' of each kind. Though this slowed down progress through the lists, it enlivened discussion. In general, Tobelorese elders are reluctant to categorically state there is no 'male' or 'female' of a plant type, just as they are reluctant to state that a plant has no medicinal value. But faced with an apparently overwhelming knowledge of the various male and female 'tree' forms, these particular Tobelorese did not seem to want to be outdone. (More than simple competition was involved; there are also presumptions about "proper" names, handed down by elders, cf. 2.2.) For several of the familiar basic terms I listed, they either pointed to a locally used opposition (e.g., 'red' vs. 'white', or 'shore' vs. 'jungle') suggesting this might correspond to Loleba's male-female distinction, or they claimed the plant simply must not grow in the Pasir Putih region because they were not familiar with it. But for many of the classes I named they simply said the plant was not normally called the 'male' or 'female' form. Thus basic (B^0) classes were suggested as the possible 'male' and 'female' forms of other basic classes! As they made such suggestions, villagers made it clear they were imagining what Lolebans must mean by the elaborate 'male' and 'female' subdivisions of the basic classes I was presenting. But note that they seem to have imagined

dual structural positions for the same folk class (as in the jela-jela example above), perhaps because this structural principle is heavily relied upon for "esoteric" idiosyncratically-posited relations among other "basic" classes. It also seems to provide part of the locally presumed solution to the "problem" of locating all the missing "male" and "female" plants. Any individual Tobelorese may already know two basic 'tree' classes, for example, without realizing one is "male" or "female" of the other; it is possible that the constant possibility that such esoteric dual structural positions of basic terms can occur may help to encourage the presumption (held in the face of relatively little evidence) that all FLORAL FORMS have a male and a female form.

Finally, not all examples of dual structural position involve the 'male'-'female' opposition. Based apparently on a morphological similarity of the two classes, one elder at Pasir Putih told me he thought that o ngo beye ami sogo (a 'vine' type) was the 'red hero ma rako' (i.e., the "red" form of another vine type); it is not known how he fit this idiosyncratic association of the two 'vines' into the already-complex subclassification of o hero ma rako in that village and elsewhere (cf. Appendix; also for problematic species determinations).

In conclusion, as a source of continued credibility for the folk notion of 'male' and 'female' plants, and as

an expression of idiosyncratic esoteric knowledge, this principle of dual structural position of the same folk class seems more significant to Tobelorese thought than the few widely-shared examples would indicate. The surprising thing about those few examples, (including o dikahuka 'jungle nutmeg') is less that they have dual structural position, than that they are not esoteric.

5.2.2 Non-taxonomic Structural Relations

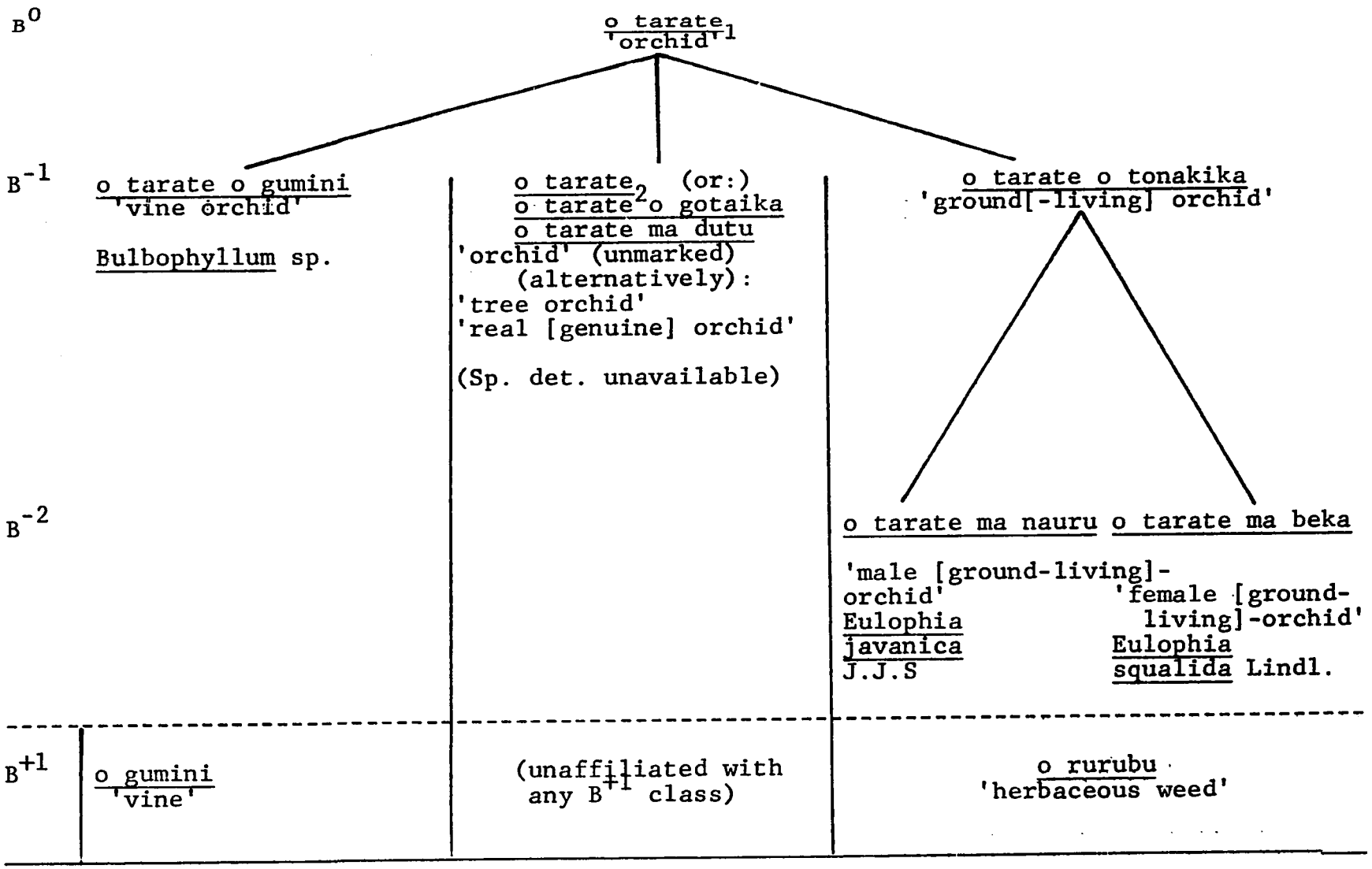
This section briefly reviews several types of non-taxonomic structural relations: the cross-cutting subclasses of the B^0 term (5.2.2.1); the 'mother'-'child' relation (5.2.2.2); growth stages or size classes (5.2.2.3); and a case of intersecting subclasses of a basic class (5.2.2.4). All these non-taxonomic relations are of much more restricted application than the (admittedly non-"model") taxonomic ones considered above. For this reason, these non-taxonomic structural relations among classes are best thought of as a few exceptional special relationships connecting particular subclasses of the BIOTIC FORM domain within the context of the wider structure of modified taxonomic relations considered above.

5.2.2.1 Cross-cutting Subclasses of the Basic Class

Allusion has already been made to many pairs of opposites, such as 'male'-'female', which neatly subdivide the basic class into two subclasses. Nevertheless, these certainly cannot always fit into a broadly based taxonomic structure, because in several cases, although both subclasses are clearly members of the same superclass labelled by the "basic" term, each subclass will belong to a different major plant group ('tree', 'herbaceous weed', or 'vine'). Of course, such relations must be distinguished from simple homonymy, in which a kind of 'tree' and a kind of 'vine', for example, both happen to be named with the same term, but without implication of classificatory significance. Since the male-female and color distinctions used lexemically always have classificatory significance, and since Tobelorese themselves can distinguish such homonymy from cross-cutting classes, and since the (admittedly non-taxonomic) logic of such arrangements can be seen by noting distinctive features of the class other than features of the major plant group classes, simple homonymy must be ruled out.

Thus although many basic classes of FLORAL FORM in Tobelorese are not subdivided at all, there are 34 basic classes (or only 5.8% of the total basic classes of FLORAL FORM) with this non-taxonomic internal complexity, in which subclasses of the B^0 class cross-cut the B^{+1} classes

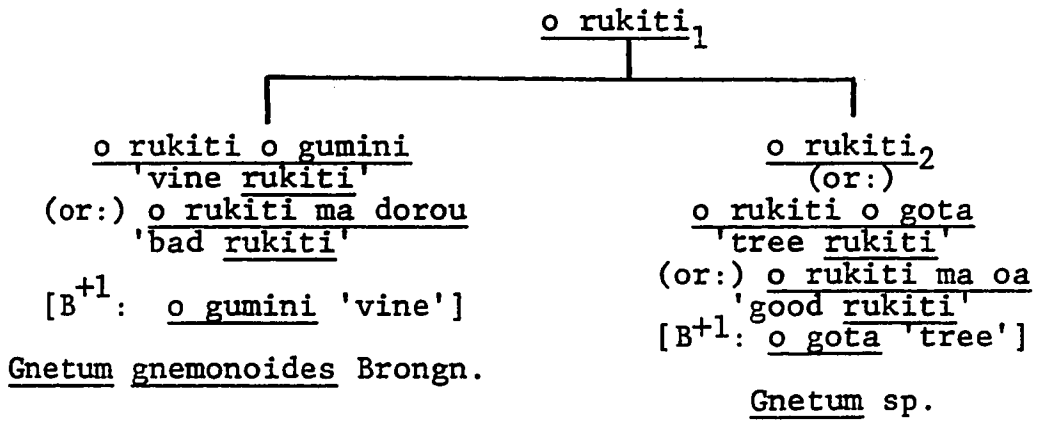
of the wider taxonomic structure. An example diagrammed here involves four terminal classes which in this case happen to label four different biological species of Orchidaceae: Note that the three B^{-1} subclasses of o tarate, 'orchid' are included within different B^{+1} classes; thus the subclasses of $\underline{\text{o tarate}}_1$ may be said to "cross-cut" the larger folk taxonomy:


B0
o tarate1
'orchid'
B-1
o tarate o gumini
'vine orchid'
Bulbophyllum sp.
o tarate2 (or:)
o tarate2 o gotaika
o tarate ma dutu
'orchid' (unmarked)
(alternatively):
'tree orchid'
'real [genuine] orchid'
(Sp. det. unavailable)
o tarate o tonakika
'ground[-living] orchid'
B-2
o tarate ma nauru
'male [ground-living]-orchid'
Eulophia javanica J.J.S
o tarate ma beka
'female [ground-living]-orchid'
Eulophia squalida Lindl.
B+1
o gumini
'vine'
(unaffiliated with any B+1 class)
o rurubu
'herbaceous weed'

Though the o tarate$_1$ term is here translated 'orchid', not all the Orchidaceae are in this class. Note also that the 'male' and 'female' of this basic class refer only to one of its three B$_{-1}$ subclasses: o tarate o tonakika [< tarate ground-that.direction] 'ground[-living] orchid', so called because these forms grow directly from the ground and are not epiphytic on trees. In addition to a superficial morphological similarity and a similarity of habitat, the two forms may be classed together because a convenient locally used glue can be made from the slightly tuberous root of both the taller 'male' form (which has long, thin leaves), and from that of the shorter, more ovately-leaved 'female' form.

In many cases, one of the cross-cutting B^{-1} classes will be the 'male' or 'female' form, or the 'good' or

'bad' form. An example cited above is the basic class o rukiti (Gnetum spp.), in which the cross-cutting feature of Tobelorese folk classification allows the system to re-unite two biologically closely-related species, one of which happens to be a 'vine' and one a 'tree':

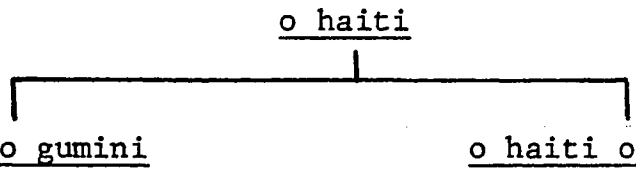


Note that in this case the endocentric phrases meaning 'good rukiti' and 'bad rukiti' are synonymous with the phrases 'vine rukiti' and 'tree rukiti'. This is further confirmation that o rukiti$_1$, the superclass containing both 'vine' and 'tree' forms, is the basic term, because the endocentric phrases can only occur at levels below the basic term (5.1.1). (The "good" rukiti can be used for twine and as food, the "bad" rukiti cannot; usefulness is the criterion of the "good"-"bad" opposition.)

Though in some cases (as in the above examples) phylogenetically closely related taxa may be brought together

by this cross-cutting feature, in other cases taxa from quite different biological families are brought together because of locally perceived similarities, such as the elongated and similarly-pointed leaf shape of both the unmarked 'female roma' (Flagellaria indica L.) (a 'vine') and the 'male roma' (Spathoglottis plicata Bl.) (a 'herbaceous weed'). The latter is of the family Orchidaceae, the former of the Flagellariaceae (cf. also Appendix, e.g., o tutulaka [Orchidaceae, ?Euphorbiaceae], o guleulá [Acanthaceae, Euphorbiaceae], o haiti (Fabaceae, Incacinaceae]).

Since the cross-cutting classes are clearly B^- classes in each example where they occur as synonyms of endocentric phrases, we can assume that they are probably all B^- classes in other cases (where no endocentric phrases are used) as well. One example of that is the basic class of plants labelled o haiti:



Iodes philippinensis Merr. Desmodium gangeticum (L.) DC.

In this case, there are no synonyms for the classes, no equivalence to 'male' and 'female' forms, and in fact there is very little evidence for any markedness. The superficial morphological similarity of leaf shape and position is far from overwhelming, but the two plants are very closely associated in "medicine" as plants used (with equal strength--note the absence of a "stronger" male form) to exhort ghosts from a possessed individual.

Similarly, both the o dodófo o gumini ('vine dodófo' [uncollected]) and the o dodófo o gota ('tree dodófo' [det. problematic; cf. Appendix]) have the same cultural utilization: as plants burned so that smoke will keep away ghosts of all kinds. Here again the superficial morphological similarity is not overwhelming, but there might be some more culturally relevant similarity, such as sameness of scent when burned, which overrides morphological differences or at least reinforces the minimal morphological likeness.

In most cases, though, only morphological similarity provides a unifying feature to the class (of course, there might always also be an esoteric use shared by cross-cutting subclasses, though when morphological similarity is clear and no evidence for such a cultural use is found, we need not invoke esoteric similarities of usage). Sometimes, also, the morphological similarity of the cross-cutting subclasses is implied in the basic term itself (cf. e.g., o tutulaka in Appendix).

5.2.2.2 The 'Mother'-'Child' Relation

The distinction between 'mother' (dialectally H: ma λeha; B,D: ma yeha, or B: ma ayo) and 'child' (the unmarked form of the pair, but to make the contrast more explicit the 'child' term is dialectally B,H: ma ngohaka, D: ma ngofaka) classes is used by almost all Tobelorese only in reference to animals. However, the Tugutil of upriver Dodaga (whose folk classification is not considered here because of insufficient data on this and other differences between Tugutil and "coastal" populations) use this distinction for plant classes as well. Coastal Tobelorese, even those at Dodaga village, were uniformly amazed that any plant could have a 'mother' form among the Tugutil[9], so despite this anomaly among Tugutil it seems clear that for coastal Tobelorese the distinction only applies to FAUNAL FORMS, and it will only be considered in relation to FAUNAL FORMS here.

The same forms used to mean 'mother' and 'child' in this special sense are used (apparently in two out of three dialects) to mean 'mother' and 'child' in the more normal sense of the progenitrix and her offspring; the two senses, however, do appear to be quite different lexemes labelled by the same forms. As in some other areas of language (cf. e.g., 3.2.1.1.2, footnote 3), one of the three dialects distinguishes these more clearly than the others. If we consider only the normal usage of the term for 'mother',

we find that D-dialect prefers ayo 'mother' in the sense of progenitrix but yeha 'mother' for this special mother-child relation among FAUNAL FORMS. In the sense of 'progenitrix' any animal or human being can and indeed must have had a 'mother' (ayo). Thus in D-dialect a deer fawn is o mainjánga ma ngofaka 'baby [child] deer'; its true mother is ma ayo ('its mother') or o mainjánga ma ayo ('mother deer'). If more than one have the same mother the set of siblings (like human siblings) can be referred to as o ayo moi (literally: 'one mother').[10] Nevertheless, the D-dialect word for 'mother' in the 'mother'-'child' classification of animals is the non-cognate yeha; thus the rhinoceros beetle is considered the habeta ma yeha 'mother of habeta [its larvae]'. To use ayo in the latter sense, or yeha in the sense of 'progenitrix', would be recognizable as either in-law name avoidance or as the usage of another dialect (though of course "acceptable" since all Tobelorese dialects are "acceptable" to each other).

Even in the B (and perhaps also H) dialects where both senses are labelled by the same form,[11] there are still clearly two different lexemes involved, and no cultural presumption that the 'mother' in the special classificatory sense of 'mother' vs. 'child' animals is actually the progenitrix.

'Child' (ma ngohaka, ma ngofaka) may also denote the young of any animals, as locally interpreted (e.g., small

adults of millipede species which in fact will never get any larger are locally erroneously thought to be ngohaka 'young, juveniles' of the local giant juloid millipedes). This sense of ma ngohaka, however, contrasts with ma baluhu 'adult'; the 'mother' term has no sense of age or growth class for the animal. Thus a fully grown bird may be referred to as ma baluhu 'adult'; but it can be referred to as ma ayo 'mother' only in that word's sense of 'progenitrix'.

Though its dialectal forms may vary (henceforth the citation forms are the B: ma ayo 'mother' and ma ngohaka 'child'), the classificatory relation between 'mother' and 'child' FAUNAL FORM taxa seems everywhere related to the sense of 'mother' as progenitrix: just as a true mother (progenitrix) produces children "in her own image", and yet also derives from the child she once was, so the 'mother'-'child' opposition relates one class of FAUNAL FORM ('child') to the FAUNAL FORM class ('mother') presumed to derive from it by some transformation (other than reproduction) or in turn to produce the 'child' by some process like reproduction, the 'child' furthermore is smaller in size though closely associated by a similarity of morphology and/or habitat.

When the producer is a FLORAL FORM, and a FAUNAL FORM class is considered derived from it by transformation (as in the case of the 'walking stick' insects [Phasmida] locally thought to derive from twigs of trees; or the Rhizophora sp. [o babanga] mangrove whose long fruits,

falling into shallow tidal mangrove zones, are though to sometimes give rise to certain garfish [Tylosurus sp.; Tbl: o hilowana], that plant class is never considered the 'mother' form.

If this 'mother' and 'child' relation seems to cross-cut the wider, more general taxonomic structure, the reader may wonder why it is not treated as a special case of cross-cutting subclasses of a basic term (5.2.2.1). In fact, this 'mother'-'child' opposition must be defined by the type of relationship culturally presumed to occur between the two classes (e.g., transformation of the 'child' into the 'mother', or particular association of the two), and not by the structural relationship of the classes in the classificatory system. Those structural relationships may be of many types; of the eight paired examples discussed below, the first three involve examples in which both the 'child' and the 'mother' contrast as basic (B^0) terms; the fourth example below involves a B^0 class of 'fish' whose 'mother' form is a B^{-1} class of 'crab'; the fifth through eighth examples below involve cases in which the basic class has the same linguistic form as its unmarked ('child') B^{-1} subclass, which contrasts with its other (marked) B^{-1} 'mother' subclass.

Perhaps the local concept of the mother-child relation can best be illustrated by some examples. Examples discussed below are all widely-known; yet, while folk biological classification in general is thought to have

been laid down by "The Elders" (2.2.2), this particular area of mother-child relations seems to be more directly tied to observation; Tobelorese can say "why" (in each particular case) one form is called the 'mother' (e.g., by noting some association of the two; not, of course, by defining the conditions of the relation in general), and back up that statement with personal experience. I even observed one Tobelorese say in conversation that he thought the edible Holothurian called o taripanga ('sea cucumber'; cf. Ind: tripang) "must be" (!) the 'mother' of the o ugaka ma hoka 'hairtail fish' (Trichiurus spp.), because when split open long, tiny slivers of material come out of the sea cucumber into the water which (though too small to examine) appeared to him to be like the tiny hairtail fish into which (he thought) they would develop.

It will be interesting to observe whether, now that Japanese investors have very recently begun trading in Halmahera's rare butterflies and encouraging locals to raise them from caterpillars, this presently unrecognized association between 'caterpillar' and 'butterfly' will come to be termed and thought of by Tobelorese as a 'child'-'mother' relation. In fact, I could scarcely believe -- but confirmed beyond doubt -- that at Loleba village (as probably also throughout Tobelorese regions of Halmahera) the 'caterpillar' (o pipiti, a term I never heard applied to anything other than

Lepidopteran larvae) is not thought to become transformed into the 'butterfly' (o lulule); the pupa is called o lulule ma gohi 'butterfly egg'. I once kept a Graphium euphrates caterpillar in a jar through its golden pupal to the spectacular adult butterfly stage at Loleba, in full daily view of several local people. They seemed interested, and when presented with my result certainly wondered how it came about, but (in a reaction reminiscent of occurrences in Western science) they seemed generally reluctant to abandon centures of wisdom and observation on the basis of evidence from an isolated occurrence under admittedly unnatural conditions.

In all cases of this opposition in the FAUNAL FORM domain, the 'child' form is unmarked and here designated only by the class's unmarked term (without the emphatic ma ngohaka 'child').

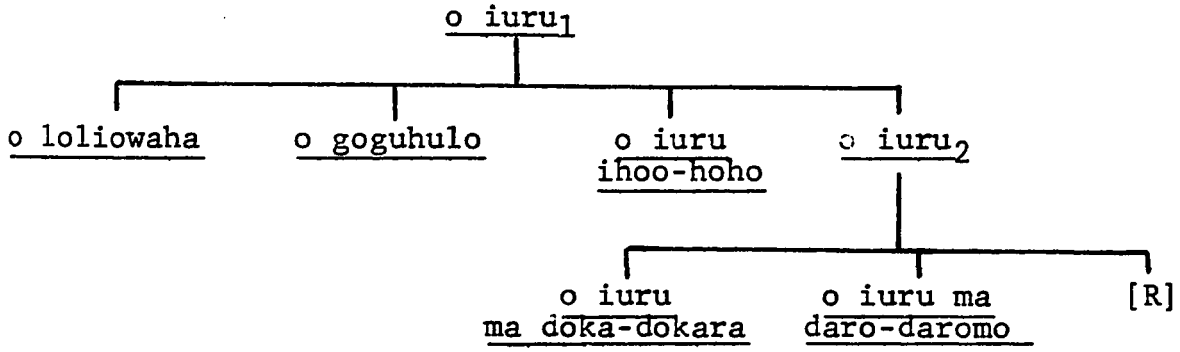
1) o iuru 'ant' [Formicidae, except 'weaver ants' see (2) below]

o iuru ma ayo 'winged ant' [Formicidae, except 'weaver ants'; winged forms]

The gloss 'winged ant' or potential gloss o iuru '(wingless) ant' is perhaps misleading because there is one subclass of o iuru 'ant' which has wings; it is called o iuru ihoo-hóho 'flying ant' (B-dialect; other dialects have cognate forms), and denotes those winged ants (possibly Monomorium spp; specimens not yet identified)

which swarm in droves to kerosene lamps during Halmahera's rainy nights (and which after making research impossible elsewhere even land upon and squeeze through anthropologists' mosquito nets to swarm over any books or papers there, so that all intellectual activity requiring lamp-light becomes impossible). This pest is quite widely known but only in this specific context (thus in NMM the widespread creature is called bifi hujan or bifi ujang 'rain ant'), and no wingless forms are associated with it.

The subclasses of this basic term include one residual class (o iuru$_2$ 'tiny ant') recognizable as a class because it in turn has lexemically labelled subclasses, in addition to the "residue" (labelled below by "R") of that B^{-1} o iuru$_2$ residual class (cf. 5.2.1.2) (scientific identifications for specimens taken are not yet available).



Except for the 'flying ant' (o iuru ihoo-hóho), for which only that single form is known, all of these subclasses of 'ant' (o $iuru_1$) have 'mother' (winged) forms (o loliowaha ma ayo, o goguhulo ma ayo, o iuru ma ayo), though until identifications of specimens are available it will be difficult to know whether Tobelorese have observed or guessed "correctly" about the relationships of these winged and unwinged forms. The 'mother' of any subclass can be termed the 'mother' of o $iuru_1$ 'ant', thus o loliowaha ma ayo 'mother of loliowaha' is also o iuru ma ayo 'mother of ant', because o loliowaha is a subclass of o $iuru_1$. But it is sometimes difficult to know whether o iuru ma ayo involves $iuru_1$ 'ant' or $iuru_2$ (those 'ants' which are not in other named B^{-1} classes); in fact, I have found no proof that the expression ever refers to the residual class o $iuru_2$; but if one accepts evidence (5.2.1.2 above) that o $iuru_2$ is a residual class rather than just "residue" it follows that its members' 'mother' forms could be 'mothers' of the lower-level residual (o $iuru_2$) class.

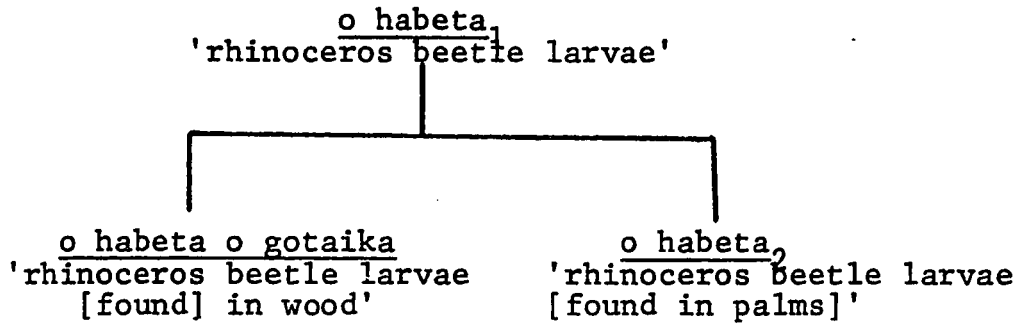
In all these cases, there is no local presumption that the winged forms procreate the wingless forms, but rather there is a presumption that, though not all wingless forms become winged, winged forms necessarily somehow come from wingless ones, and preserve their basic morphological form despite the larger size and their new wings. Unlike 'weaver ants' mothers' (below), the 'mother' form can generally be observed along with the 'child'.

(2) o kane-kane 'weaver ant' [Oecophylla smaragdina Fabr.]
o kane-kane ma ayo 'weaver ant's mother [winged form]'

These culturally useless winged ('mother') forms are found independentaly of the weaver ants' nests (which anyone would be foolish to search through braving these creatures' stinging bites), and recognized by the generally similar morphology despite the larger size and wings of the 'mother'. (No biological confirmation that collected specimens of the 'mother' form are in fact the same species has yet been obtained.)

(3) o habeta 'rhinoceros beetle larvae' [Coleoptera, Cetoniinae]
o habeta ma ayo '(adult) rhinoceros beetle' [Coleoptera, Cetoniinae]

The edible rhinoceros bettle larvae (o habeta) are found in the pith of various fallen palm trees (sometimes fallen palm trunks are sectioned into roughly one-meter sections to encourage a rapid, thorough infestation by these edible larvae). Tobelorese are fully aware that after entering a pupal stage these larvae become the adult forms (they were not sure whether the adults in turn produced the larvae). Several Cetoniinae larvae are not considered edible, however; as a rule of thumb Tobelorese often say that habeta found in o gota ('wood', 'tree') are not edible, while larvae found in the various palms may be eaten (a few villagers, however, claimed that some larvae found in wood might be edible). This local presumption or rule of thumb is consistent with the subclassification of the B^0 o $habeta_1$:



Unlike those of 'ants', Tobelorese do not distinguish the 'mother' forms of the subclasses, however; all are simply o habeta ma ayo 'habeta's mother'.

(4) o nikere (a tiny goby fish [Gobiidae]; specimens not yet identified)

o nikere ma ayo (small megolops stage of a crab; specimens not yet identified)

The B^0 term o nikere designates a subclass of 'fish' (o nawoko); but its 'mother' form, alternatively designated o kapunane, is a subclass of 'crab' (o koru). Since evidence has been presented (5.1.1) that 'crab' is a basic term, it follows that this o kapunane or o nikere ma ayo subclass must be a B^{-1} term.

These two classes may be related as 'mother' and 'child'

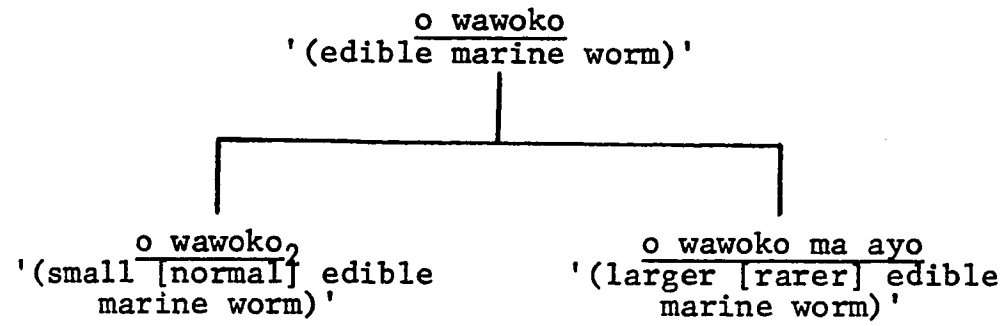
because the fish shoals upriver into freshwater streams from its marine environment predictably within one week of the time that the megalops stage of the crab "sets" or comes upriver in huge schools in the same freshwater streams; both species soon retreat again out into the ocean, where the tiny creatures are rarely found by Tobelorese.

(5) o wawoko (a small worm-like marine creature which predictably comes to shore in large numbers once or twice a year; never observed or collected)

o wawoko$_2$ ma ayo (a much larger worm-like marine creature always observed with the seasonal arrival of o wawoko; not observed or collected).

My information is scarce on these widely-known edible creatures, whose annual arrival in huge schools is said to be predictable to within one day (e.g., Bobale Island [Kao District], Kampung Lolobata [Wasile District]), though I never observed them. Local people (at least those interviewed at villages where the organisms do not occur) do not speculate on reproduction of the 'child' from the 'mother', but again assume the 'mother' must have derived in some way from the much smaller 'child' with which it is clearly associated. Here (and in the next three examples) 'mother'

and 'child' are subclasses of the B^0 class having the same form as the unmarked ('child') subclass (glosses are in parentheses for lack of data on the organisms involved):

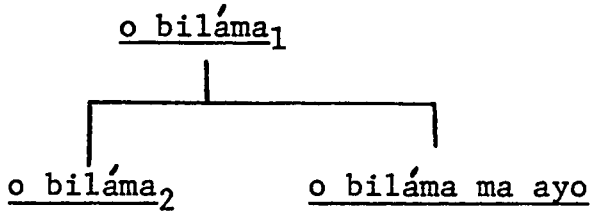


(6) o biláma (small bioluminescent centipede)

o biláma ma ayo (large bioluminescent centipede)

Unfortunately I have never observed or obtained a specimen definitely of the 'mother' form, but presume from descriptions that it is also a centipede. The non-bioluminescent common 'centipedes' (o aili) contrast with o biláma 'bioluminescent centipede' as B^0 subclasses of o aewani$_2$ 'insignificant animal'; length relative to diameter of the body appears to be a further feature distinguishing these two myriopod types. Also, note that common 'centipedes' (o aili) are also locally represented by some extremely large species (e.g., the pesty tropicopolitan genus Scolopendra) and a wide variety of rather small species, yet the 'mother'-'child' distinction does not apply even though the class

seems "naturally" divisible into the "rather small" versus "very large" genera. For some reason, the Tobelorese speak of the common 'centipedes' (o aili) as just "growing" from child to adult (i.e., as a normal growth of the organism, undivided into named growth stages [5.2.2.3]) while the 'bioluminescent centipede' (o biláma) is apparently thought to undergo some other kind of transformation such that some but not all 'child' forms (o biláma$_2$) become the rarer large 'mother' variety. Both 'child' and 'mother' forms are B^{-1} terms labelling the only subdivisions of the B^0 class o bilama$_1$:



(7) o dangánga$_2$ 'thin-bodied rice bug' (several species of thin-bodied Hempitera often found on rice plants)

o dangánga$_2$ ma ayo 'thick-bodied rice bug' (several species of thick-bodied Hemiptera often found on rice plants)

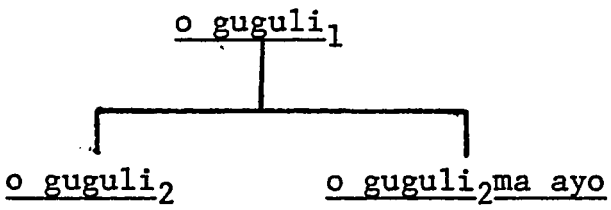
Glossing these terms 'rice bug' may be misleading because, though the greatest cultural significance of both

'child' and 'mother' forms is the role of some species as seasonal pests of rice, other morphologically similar species found in rain forest and other habitats are placed in this class though clearly they are not rice pests. Like the worm-like marine creature (o wawoko), both 'child' and 'mother' forms are usually found in association; this association of large-bodied and small-bodied forms of the same sort of 'mere animal' in the same habitat with the same cultural importance clearly influences the positing of 'mother'-'child' relations. In this case, however, I found no evidence of any belief that the dangánga$_2$ "became" or "transformed into" its 'mother' form; but only that the two morphologically similar types of organism were always associated in their seasonal appearance at rice fields. Both forms are subclasses of the B^0 dangánga$_1$ class of 'insignificant animal' (o aewani$_2$).

(8) o guguli$_2$ '[small] turreted gastropod'
o guguli$_2$ ma ayo 'very large turreted gastropod (e.g., Triton spp.) used to make shell trumpets to call the wind'

The Triton-shell or other sea-shell "trumpet" used here as throughout the Moluccas to "call the wind" for better sailing during doldrums is called o guguli 'shell trumpet' (cf. specimen of Tobelorese shell trumpet, Yale Peabody Museum [Anthropology] No. 248807; made from

Chicoreus ramosus). As a class of BIOTIC FORM (rather than a technological item), however, o guguli has two subclasses: the large gastropods of several taxa which are turreted (the "trumpet" hole is drilled into one whorl of the turret) are called the 'mother' form; and the smaller gastropods (including juveniles of the same species used to make trumpets) are the unmarked 'child':



Though the 'mother' forms are recognized as necessarily derived from the smaller guguli$_2$, Tobelorese realize that not all small turreted gastropods which survive will become 'mother' forms; in fact, there is a common belief that spines and projections on some gastropods (such as Murex) develop as the mollusc grows, so that even very small gastropods are considered 'adult' (but of course not 'mother') if they are quite covered with projections or spines (thus such spiny-shelled organisms are 'adults' in the 'child'-'adult' opposition but 'children' in the 'child'-'mother' opposition). In most places guguli$_1$ adequate to make into a good wind-calling trumpet are rare, and valuable if

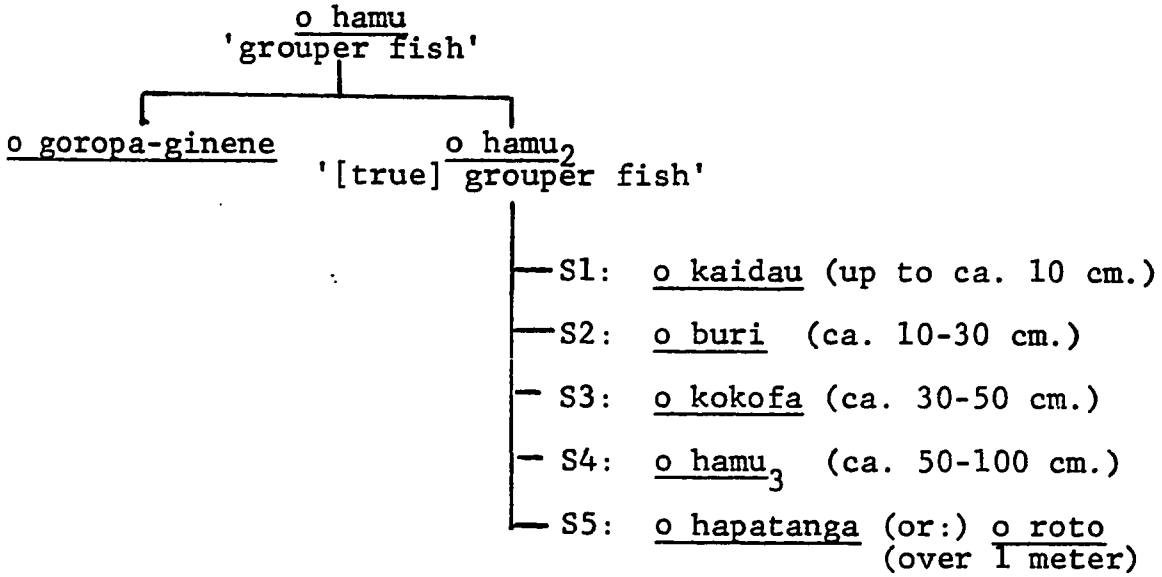
found. This fact, and the fact that so many guguli$_2$ become adults without becoming the 'mother' form, may give credence to the notion of a special kind of transformation into the 'mother' form which seems implied by this classificatory distinction.

In conclusion, all these examples indicate that the 'mother' may be related to her unmarked 'child' in many ways; while all members of one 'child' class (o habeta 'rhinoceros beetle larva') are assumed to become 'mothers' if they survive, other examples seem to show only a relation of association between small- and large-bodied insects (o dangánga 'rice bug') or earlier- and later-arriving small stream animals (o nikere), without any presumption of the reproduction of one from the other, or the transformation of one into the other.

In general, then, this opposition seems to relate two folk taxa which are closely associated by either morphology or habitat, in which one taxon ('child') is smaller in size and/or substantially distinct in morphology from the other ('mother'); and often the unmarked ('child') form is presumed to be sometimes transformed into the 'mother' form.

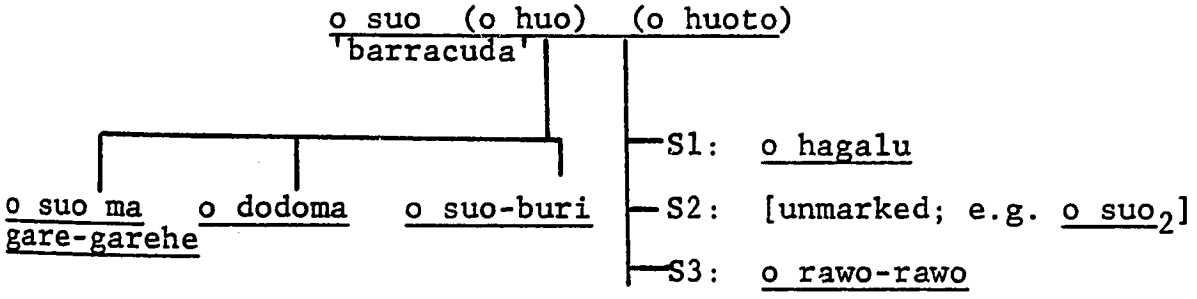
5.2.2.3 Growth Stages and Size Classes

Here we may briefly consider another type of contrast-set, which in every case subdivides a single subclass of the BIOTIC FORM domain (usually a basic class): the named growth stage or size class. "Size class" seems a more appropriate characterization of some of these named stages, such as for example the size classes of o hamu$_2$ '[true] grouper fish' (Serranidae). (The notations S1, S2, S3, etc. in the diagram below denotes the smallest to largest size class; approximate total lengths are shown; no scientific names of hamu specimens taken are presently available):



Tobelorese realize that some types of '[true] grouper fish' will never grow to be the largest forms, because they often come across easily-recognized strikingly-colored smaller species of Serranidae which of course are never seen to be of large size, though other species grow to giant potential man-eaters. Thus Tobelorese realize that not all members of the smaller size class, even if they survive, will ever become the largest size class (for this reason the term "size class" seems more appropriate than "growth stage"). If we consider this area of folk classification in terms of the biological species involved, this of course means that the adults of the largest grouper species are in a class which contrasts with a class containing the juveniles of those same large species as well as the adults of various smaller species .

Several other 'fishes' have size classes rather like those of the 'grouper fish'; but in some cases a basic class is subdivided into its subclasses, but also subdivided into named size classes, as in the case of the 'barracuda' (alternatively: o suo, or o huo, or o huoto:



Thus any particular member of the three B^{-1} subclasses of o suo 'barracuda' could also be a member of any of the three size classes. The second of those size-classes designates mid-sized, "normal" barracuda; because it is unmarked, either the term o suo_2 could be used to designate any mid-sized barracuda (suo_1), or the term for one of the B^{-1} subclasses could be used. Thus the subclass labelled o dodoma has the following size classes: o hagalu (or: o dodoma o hagalu), o $dodoma_2$ ['mid-sized $dodoma_1$'], and o rawo-rawo (or: o dodoma o rawo-rawo).

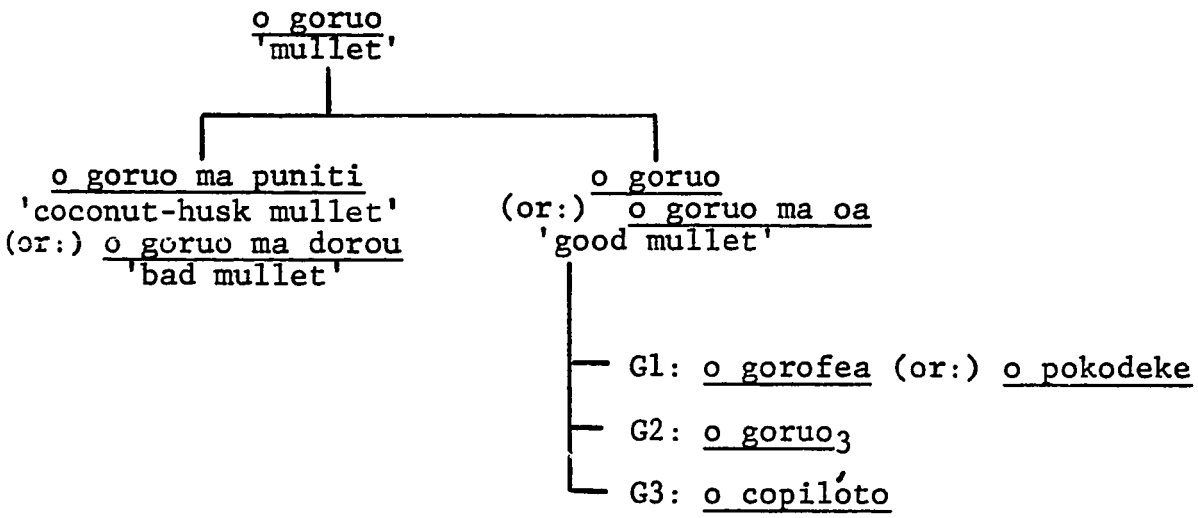
In some cases, such named stages can instead be more appropriately considered "growth stages", because not only are the members of the final growth-stage all expected to have grown through each stage, but also all the members of the first growth-stage are expected (unlike e.g. the 'grouper fish' above) to grow under normal circumstances to the final stage (if they survive). Surprisingly, none of the domesticated animals have such stages, but one of the few animals other than 'fish' subdivided into a named series is a local megapod (o meleu; Megapodius freycineti) often hunted and eaten but rarely also kept in cages until it is killed for its delicious meat. (After returning from the field however, I discovered it is an endangered species, a fact which retroactively ruins the taste.) The stages are: o puka (juvenile) and the unmarked o $meleu_2$ (adult); the former can be more elaborately

referred to as o meleu ma puka 'juvenile megapod'; the latter could be explicitly distinguished by a phrase such as o meleu ma baluhu 'adult megapod' (though the unmarked o $meleu_2$ is normal and less "strained"). In the diagram below, G1 and G2 refer to growth stages :

o meleu
Megapodius freycineti
- G1: o puka 'juvenile megapod'
- G2: o $meleu_2$ '(adult) megapod'

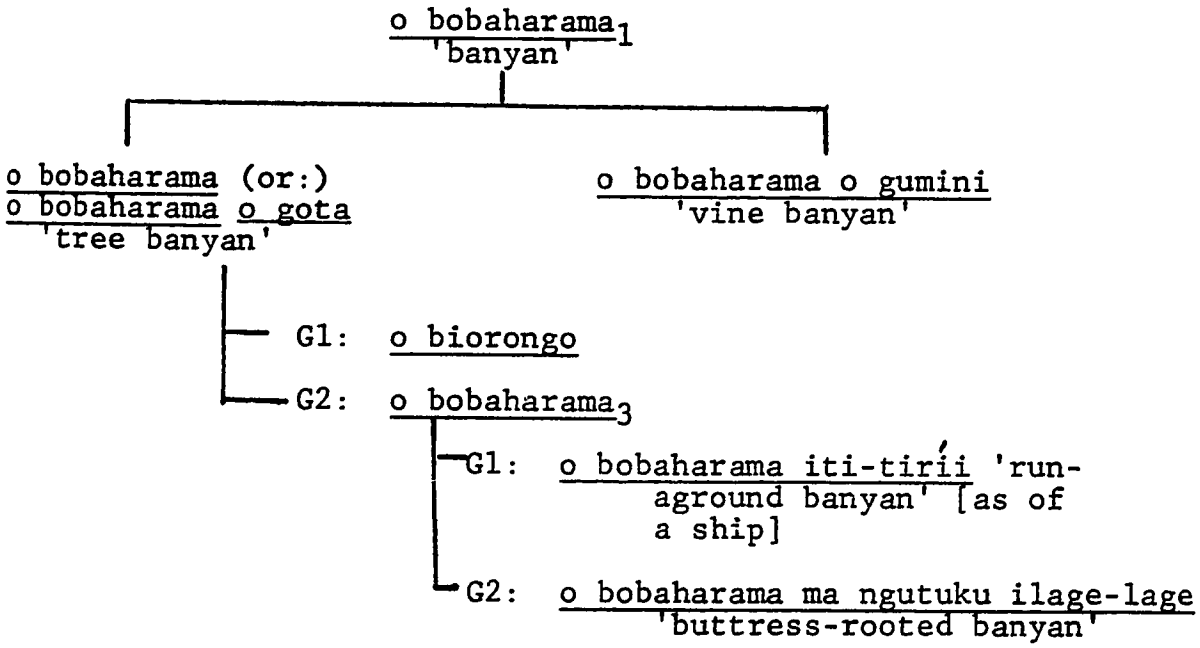
Though it is possible to distinguish growth stages from size classes (and represent that distinction in diagrams as "G1, G2 . . . " vs. "S1, S2 . . ."), that dichotomy is not a hard and fast one. The stages through which an organism is thought to pass can in many cases be considered both, since size is the usual measure of growth. Thus while most growth stages could be interpreted as size classes, such named series of classes are here considered growth stages when there seems to be a cultural presumption of natural growth of smallest to largest (not just a presumption that the largest came from some of the smallest), distinguishing such series from size classes (such as those discusssed for o $hamu_2$ '[true]

grouper fish' above), where no such cultural presumption can be shown. For example, the '(good) mullet' (o goruo$_2$ 'mullet', or o goruo ma oa ' good mullet') is subdivided into an ordered series of named classes which might be considered either size classes or growth stages. Because there is a cultural presumption of growth (which is merely measured by size), they are here considered growth stages (no scientific identifications yet available):



All previous examples of growth stages or size classes have dealt only with FAUNAL FORMS; this reflects the fact that several such series occur in that domain, though there is only one, questionable example in the domain of FLORAL FORMS: the problematic B^0 class o bobaharama ('banyan', several genuses including Ficus spp.).

Specimens of this (especially the large banyans locally believed to be haunted by ghosts) are difficult to obtain in flower and fruit, and adequate investigation of the variety of species in this class is incomplete. Nevertheless, the folk 'banyan' class is subdivided into the cross-cutting subclasses 'vine banyan' (o bobaharama o gumini) and the unmarked 'tree banyan' (o bobaharama [or:] o bobaharama o gota). The 'tree banyan' (or 'banyan tree') is subdivided into two growth stages, of which the second is in turn commonly subdivided into two further stages:



Finally, the differences between such growth stages or size classes and subtaxa of any particular class of BIOTIC FORM should be emphasized: (1) A different kind of cultural presumption is involved about contrast between two growth stages (one of which is expected to become the other) and that between two subtaxa of a higher-level taxon; in the former case one stage is expected to become or to have been regularly derived from the other without major transformation other than simple growth (cf. mother-child relation 5.2.2.2); in the latter case such growth or derivation is not presumed. (2) Subtaxa of any higher-level taxon of BIOTIC FORM, at whatever level, adequately subdivide that higher-level taxon such that (aside from "residue" and some exceptional cases) any member of that higher-level taxon should clearly be a member of only one of its subclasses. Growth stages and size classes are approximately-bounded subdivisions of a continuum e.g. from neonate to old adult, or from small to large. (3) the linguistic treatment of growth stages or size classes of a taxon is usually not the same as for that taxon's subtaxa. In the case of the 'barracuda' (o suo) above, both subtaxa and size classes are treated linguistically in very much the same way; thus in "sequencing" the terms (5.1.3)one may say either o suo o dodoma ('the dodoma [subtaxon of] barracuda') or o suo o rawo-rawo ('the rawo-rawo size class of barracuda'). But in many other

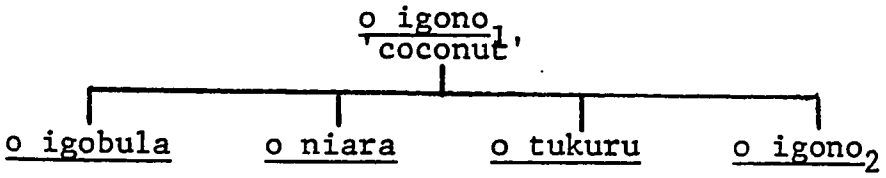
examples, such sequencing is impossible, indicating that the linguistic treatment (and probably cultural perception) of growth or size series is not the same as for subtaxa in the BIOTIC FORM hierarchy. Thus the 'mullet' (o goruo$_2$ example above) has three growth stages, but sequences like *o goruo o gorofea or * o goruo ma gorofea are impossible. In fact, informants say that any gorofea "can never be called a goruo"' and if a fisherman returns from fish-poisoning or catching fish with some other technique likely to produce more than one growth-stage, he will say he caught o gorofea and o goruo (rather than just o goruo) if he caught both. But when asked what a gorofea is they will answer o goruo ma ngohaka 'a child [baby] goruo', or o goruo ma alu-aluhu duru ' a very small goruo'. Because the gorofea is thus realized as a type of goruo, though in this very restricted context, there seems no reason to posit 'mullet' as a truly covert class containing all its named growth-stages. Though restricted in opportunities for its lexical realization, these examples illustrate that goruo$_2$ '[good] mullet' is a labelled (not a covert) class. For each such example in which a class is subdivided into lexically labelled size or growth series I have found some cases in which the class is realized (albeit under restricted conditions as in the case of the goruo$_2$ 'good mullet'); it has therefore never proved necessary to posit covert classes of BIOTIC FORM due to these commonly used growth or size series.

5.2.2.4 Intersecting Subclasses of a Folk Class.

We have seen in the 'barracuda' example above that the series of three growth stages intersected the three subtaxa, allowing nine (3 X 3) possible combinations of subtaxon and growth stage.

It is surprising that with so many possible oppositions used to distinguish subtaxa of plant and animal ('male' vs. 'female', 'good' vs. 'bad', contrasts of color and of habitat, etc.) I have found only one case of a folk class subdivided into intersecting subtaxa (cf. evidence that Tobelorese prefer more "regular" mutually exclusive subtaxa [5.2.1.1.2]).

This exceptional case, however, involves one of the most culturally significant FLORAL FORM classes: o igono 'coconut palm', which has several non-local varieties recently introduced to the North Moluccas but familiar to few Tobelorese, but which in a copra-dependent village like Loleba is known only in a few locally successful (and locally considered indigenous) B^{-1} varieties:



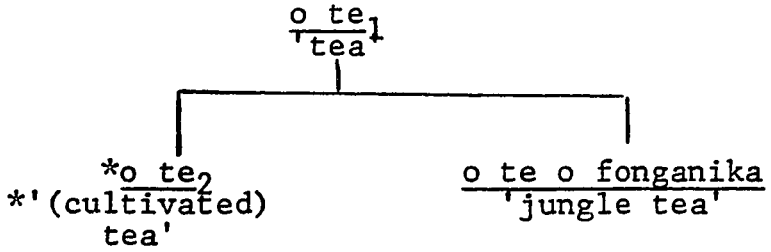
The B^{-1} class o igono$_2$ (the normal coconut palms planted in the region) however, is commonly subdivided into a 'white' and 'red' subclass (o igono ma gare-garehe, o igono ma doka-dokara. Though the vast majority of coconut palms are considered 'female', mutant forms occasionally occur in which the leaves never fully separate and thus appear joined at the edges (just as they are "joined" in the first stages of a frond's unfolding). Such mutants, perhaps because they produce fewer fruits, are locally considered the 'male' (ma nauru) form. Thus despite their seeming penchant for lining up oppositions so that subtaxa do not intersect, Tobelorese apparently cannot help but notice that both the 'red' and the 'white' igono$_2$ 'coconut palms' around them can be either 'male' or 'female'.

5.2.2.5 Folk Classes Posited Without Ever Having Been Observed

No Tobelorese folk biologist (or foreign analyst of Tobelorese folk biology) presumes to completely know or to be able to name all the subclasses of the BIOTIC FORM domain, or even all its members with which he comes into daily contact. This important fact, that despite the extent or complexity of his knowledge of folk classification, there are far more forms of plants and animals in his environment than he is likely to be able to adequately account for (or know the "name" of at even the basic level), provides the context for otherwise scarcely tenable assumptions, such as the notion that FAUNAL and FLORAL

FORMS have 'male' and 'female' forms--though in fact there is little opportunity to confirm this either for the great majority of animals or for most plants. Thus there are at any time many classes which are presumed to exist, but have never been observed. The fact that any individual Tobelorese occasionally becomes aware of another variety of a familiar class which is said to be 'male' (making the familiar one 'female'), or that occasionally an individual Tobelorese discovers an esoteric dual structual position relating one of a pair of familiar classes to the other (5.2.1.5), reinforces the notion that any individual's knowledge of the system of folk classification could presumably be expanded by discovering new types, as he learns more about the various familiar BIOTIC FORMS, their uses, and their "proper" relationships--in short, as a Tobelorese man or woman becomes an elder. Thus many relations among classes, and many classes of plants and animals, are "posited" by individuals in the sense that though they have not been observed, it seems reasonable to suspect their existence based on the clearly imperfect knowledge that any single person has of the set of "names" and uses of organisms which The Elders once laid down. (We may compare this to some entomologists' suspicion that only half the world's living insect species have been described, based on the rate at which new species are encountered in unexplored regions.)

A much rarer but especially interesting kind of posited but never-observed folk class may be said to be "required" by the classificatory system rather than just posited by individuals, meaning that the classificatory structure includes a posited class <u>even</u> <u>though</u> it is common knowledge that (unlike the "undiscovered" plants posited by individuals) no members of the class will be found, either because none are present in the Tobelorese region or because the class is assumed to contain no members. An example of the first case is the B^0 class 'tea' (<u>o te</u>). The drink is widely known, as are tea leaves which are obtained in their dried and shredded packaged form through traders. Yet the class is assumed to be a class of BIOTIC FORM even though only the dried shredded leaves have been observed; it is subdivided into the <u>posited</u> unmarked 'tea' (assumed to be a 'tree') and the marked locally-known 'jungle tea', which is also used to make a potable drink with hot water.



Thus the local plant known as 'jungle tea' is the only observed subclass of the basic 'tea' class.

Though there are a very few problematic examples which may involve posited classes with no members, only one case was carefully investigated in the field at Pasir Putih, and it must suffice (since it is the only clear example) to illustrate the phenomenon. As noted above (3.2.2.2) Tobelorese uses the nomenclatural device of reduplication of the basic term to indicate that the class so designated has some feature similar to the class labelled by the non-reduplicated term. Thus, for example, the 'herbaceous weed' labelled o pine-pine (lit.: 'rice-rice') [Brachiaria paspaloides (Presl.) C. E. Hubb] is rather like the basic class o pine 'rice' in the shape and position of its seeds, though the reduplication implies no classificatory (only a "metaphorical") relationship between them. The term o ugaka 'sugar cane' is also reduplicated to designate a small 'herbaceous weed' (Dendrobium cf. lancifolium A. Rich.). But although the weed is sometimes called simply o uga-ugaka ('sugar.cane-sugar.cane'), the class is more commonly labelled o uga-ugaka ma nauru 'male sugar.cane-sugar.cane'. An elderly woman at Pasir Putih explained that she knew it was that (the male sugar.cane-sugar.cane) because it was her medicine. I asked if the 'female sugar.cane-sugar.cane' was also a

'herbaceous weed'; and she and others said, "There is no female sugar.cane-sugar.cane; there is only sugar-cane [o ugaka]." Still another said, "We do not know of the female sugar.cane-sugar.cane". It seems likely that by both reduplicating the name for sugar cane, and calling the plant 'male' (productive cultivated fruits and edible plants should instead be 'female') Tobelorese have expressed the great difference between this herbaceous weed and real sugar cane. But the fact that it is considered 'male' implies that an opposing 'female' subclass must be posited. For lack of another alternative interpretation it appears now (as it appeared to me at the time) that when the Tobelorese elder insisted "there is no female sugar.cane-sugar.cane", he was not saying there was no female uga-ugaka class (since there must be one to have a male uga-ugaka class), but rather that the class of female uga-ugaka has no known members. In short, the class must be posited apparently because the 'male' qualities of the reduplicated class are so obvious that the only known uga-ugaka must be 'male'; consequently there must be a 'female' counterpart (though admittedly without any members that have ever been observed) in the classificatory structure. Though this case was discovered rather late in my field research period, it would have been worthwhile to reconsider other cases of "missing" subclasses (such as the never located 'female ko-kailupa' [< kailupa 'kapok']) from this perspective.

This single clear example may later prove to be interpretable in some other way, but in the meantime the interpretation offered here seems to be a case in which the Tobelorese habit (frequently observed in this study) of productively using their patrimony of nomenclatural devices and principles of folk classification to posit and name new relationships among plants and animals around them, is extended to their ability to use those same principles of classification for positing as yet unobserved classes of FAUNAL or FLORAL FORM, just as chemists once used principles underlying the Periodic Table of the Elements to posit the existence of elements they had never known.

5.3 Conclusion

The important role of local biota in subsistence, technology, material culture, medicine, and other fields of Tobelorese cultural life relies upon a complex folk classification of plants and animals, whose main features are locally presumed to have been correctly laid down by "ancestors" whose former great knowledge in this and other fields is thought to be progressively diminishing among their less gifted descendents.

That system of folk classification has here been described by positing a culturally relevant covert domain of BIOTIC FORMS and by examining its covert and labelled subclasses within a wide, locally distinct folk taxonomic framework of up to eleven levels (including six levels

above and four below the quite distinctive "basic" level of named folk classes), as well as several non-taxonomic classificatory structures (cross-cutting and intersecting subclasses, growth or size series, the 'mother'-'child' relation) all of which articulate with the larger, greatly modified folk taxonomy.

The Tobelorese thus have an array of potential structural relations among classes, and of linguistic representations ("names") for those classes; as well as many local presumptions about the origins, usage, and transmission of "proper" Tobelorese folk classification; and finally a large local choice of contrasting features on which to subdivide "basic" classes ('male' vs. 'female', 'good' vs. 'bad', color, habitat, etc.). Individual Tobelorese (who recognize the inadequacy of their personal classificatory knowledge and the limits of their own observation, and who generally stand ready to be corrected on most details by the more knowledgeable) can not only study from each other, but can productively use their language's modes of expressing their culturally shared presumptions about classificatory relations to posit "new" relationships (i.e., to propose rediscovery of a logical relationship presumably familiar to ancestors) among the various folk classes of BIOTIC FORMS.

FOOTNOTES

Chapter 5

1. The frequently used terms "generic" (basic or B^0) and "specific" (B^{-1}) are avoided here because (1) this terminology invites confusion with the senses of these terms as used in biology; and (2) the normal everyday English meaning of a "generic" word is simply a higher-level term than other terms in question (e.g., "furniture" is a generic word for tables, chairs, etc.; just as "tree" is a generic word for pine, oak, etc.).

2. In some cases, the restraints considered here, by which certain B^- terms seem bounded to their hierarchically superordinate basic term, may make it difficult to find some simple words labelling classes usually labelled by compounds. For example, the B^{-1} term o bete-balánda (< NMM bete 'Colocasia spp.' + NMM balanda 'Dutch') 'Dutch Colocasia' (Xanthosoma sp.) might be interpreted (on the analogy of e.g. o lulewi o papua, o papua, and o lulewi-papua above) as likely to have an acceptable synonymous but "restrained" form *o balánda, and thus the non-lexemic sequence *o bete o balánda, as well as the normal o bete-balánda. Until the former two forms are actually observed, however, one must consider that only the compound o bete-balánda labels this class. This

example also illustrates the problem of the "degree of foreignness" of foreign borrowings: the NMM word bete 'Colocasia spp.' has been borrowed into Tobelorese (thus o bete) and is synonymous with the (presumably native) o dilago; the phrase o dilago o bete-balánda is sometimes considered acceptable (presumably because it is not "restrained" if its foreign compound is treated as a simple Tbl word), but the unobserved *o bete o bete-balánda is (predictably) unacceptable. But simply because the forms *o balanda or *o bete o balánda (if acceptable at all) would be so restrained, it is difficult to ask informants about these possibilities; and their initial denial of acceptability is no substitute for waiting and listening for those same informants to use these allegedly "unacceptable" (but in fact perhaps only highly "restrained") forms in some natural context of speech.

3. The term o gauku is the D-dialect term for this class ('mushrooms, shelf fungi '); in B-dialect the word is o rai$_1$, which has a lower-level unmarked form o rai$_2$ (an edible mushroom; not collected). The o rai$_2$ and other edible forms are considered 'good rai' (o rai ma oa), while several non-edible or minimally edible bad-tasting types are grouped together as o rai ma dorou 'bad rai'. Since these two subclasses which immediately subdivide o rai$_1$

are endocentric phrases, we must consider the B-dialect term o rai$_1$ a basic term. Though data on the subclasses of o gauku in the Dodinga dialect are insufficient, we may here consider the class basic because (1) there is some chance that it functions like its B-dialect synonym, and (2) on the strength of the argument that, if the D-dialect form is of indeterminate level, it might as well heuristically be placed at the B^0 level alongside other definitely B^0 dialectal variants in any larger description of "Tobelorese language" BIOTIC FORMS.

4. Hunn (1977:42) has tried to refute this with a surprising argument:

> . . . I reject the alternative approach to taxonomic axiomatization that would define taxa as sets of features. Such an approach is not consonant with the postulate that taxa are related to one another by set inclusion . . .
>
> [footnote:] If a taxon (t) is defined [by] . . . features (a,b,c), then a taxon (t-1) which is immediately included in the taxon (t) must be defined as set of features (a,b,c,d). Thus t-1 cannot be a subset of t.

He has obviously confused the distinctive features used to define a class with the members of that class (or the elements of a set). In defining classes of English "kin",

for example, we might define parent with features like (a) Kin, (b) First ascending generation, and (c) Lineal. Father would require a fourth feature, (d) Male. Yet father is clearly a subclass of parent.

Far worse problems are created by Hunn's proffered alternative definition of a taxon as (among other things) "a set of real objects, in the present case, a set of animal organisms . . ." (Hunn 1977:42). The taxon or class, however, is not the same as its members; by Hunn's definition, every time a housefly anywhere dies or is born the taxon (rather than its membership) changes! We do not define the English-language taxon "housefly" by this shifting set of organisms which are the temporary members of the class, but rather by the constant attributes (or "features") of that class itself.

5. It may be because, as the Tobelorese name implies, this spider catches flies (Muscidae); though other spiders also catch them. Paul Weatherly has pointed out that Salticidae are highly "visual" (relying on visual acuity to jump for and capture prey), and often brilliantly colored; they also do not bite. For these reasons children often play with them in other parts of Indonesia, watching the spiders jump from hand to hand--a feat unsafe or difficult to accomplish with other spiders.

6. This discussion has not conclusively shown the level of the anomalous o rurúbu o gahika 'seaweed' class, which has no same-level contrast with any other class. Because evidence has been presented strongly suggesting this class is a recent borrowing from Malay-Indonesian (4.2.3.1), and because it is anomalous in other respects, the indeterminacy of this class's level does not seem to be a serious problem. It might as well (and has here) been placed at B^{+1}, nearest the basic classes it groups together, although, since it does not immediately contrast with any other class (except for the immediate disjunctive contrast with o kalibaharu 'black coral'), it might be raised one or two levels without affecting the analysis. The subclass-superclass relations would stay the same; and again, no claim is here made for the distinctiveness of any level above B^0.

7. The 'tree' in the phrase o maa-maata o gota 'tree maa-maata' is a metaphorical reference to the upright stem habit of this subclass of the cross-cutting subclasses of the B^0 class o maa-maata. The other two forms (both also used for the same medicinal purpose of reducing simple headache [brought on by fever?]) are o maa-maata o gumini 'vine maa-maata' (a type of 'vine'), and o maa-maata o ugaka 'sugar-cane maa-maata' (unaffiliated with any B^{+1} class).

For this use of o gota, compare o kahitela o gota 'tree kahitela' (i.e. maize) and o kahitela-tonaka 'earth (soil) kahitela' (sweet potatoes) (these terms do not label a cross-cutting class).

8. Alternatively, this could certainly be considered a case of two folk classes, both of which happen to have the same definitions and the same denotata, but which have different structural positions and different labels. I have instead here treated this as a single class with multiple structural positions only to convey that, in this and especially other "esoteric" examples (see below), Tobelorese themselves seem to be positing new esoteric structural relationships for familiar classes, rather than positing new classes.

9. This Tugutil notion that a plant could have a 'mother' led me to coin a phrase for several unnamed small leafy 'herbaceous weeds' which may grow out of the moss-like materials which collect at the joints of tree branches or on fallen trees: o lulumiti ma ayo 'mother of lulumiti ['moss, mould, bryozoa, smaller algae']'. The joke should be understood in its local context: (1) the tiny village's lack of more able humorists, and (2) just as the 'mother' of an animal may be (among other possible criteria) the form deriving from the 'child', so the

'mother' plant of these mossy substances sprouted from them. The preposterous phrase "caught on" at Loleba and became a village in-joke. This fact is here recorded lest later researchers find the new term spread throughout the region and present it as evidence that the 'mother'-'child' distinction can apply to plants, without realizing the expression's origin!

10. Note that the o indicates this is an idiom referring to the siblings -- 'a set of offspring from one mother'. If the idiom referred to the mother a possessive such a ma 'its' would be used rather than the noun-marker o. For humans, one may refer to the set of siblings having one mother and one father: ngomi o ayo moi de o ama moi 'we (excl.) [are siblings having] one mother and one father' (in this idiom the terms refer only to full, not classificatory, parents); but in fact the 'father' is rarely if ever mentioned in reference to animal siblings.

11. B-dialect at Loleba commonly used only ma ayo for both senses, though yeha was of course recognized and used occasionally for the 'mother'-'child' classification of animals. Hueting's (1908c) data indicate that ayo is used for 'progenitrix', but are insufficient on λeha or on the other sense of the 'mother' term in the H dialect he spoke and studied.

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Appendix

The Tobelorese Classification of FLORAL FORMS

This appendix records information about the 587 Tobelorese basic classes of FLORAL FORM and their subclasses. In addition to those listed here, several dozen "loose terms" which are recognized as plant names or probably plant names by Tobelorese informants, but whose denotata are unknown to them, have not been included, because it was thought better to include reliable data on a more restricted area of folk classification rather than a greater quantity of unreliable information (such terms may in fact merely be more synonyms for terms presented here). The "intrusive" class of DECORATIVE FLOWERS, also, is here represented by only the seven "basic" types cultivated at Loleba and Pasir Putih, though it might be greatly expanded with other introduced decorative cultigens (cf. 4.2.3.1.).

This appendix thus summarizes data on (1) B^{+1} class membership, (2) B^{0} and B^{-} classes, listed alphabetically by the basic terms which designate them, (3) nomenclatural information about each term, and (4) scientific determinations of species denoted by the folk terms. Finally, (5) in a few cases additional notes or comments (e.g. on dialectal differences in details of the classification) may be noted after those entries to which they apply.

The first four components of each entry may be summarized in order:

(1) B^{+1} Class Membership

The B^{+1} class membership of each basic class is indicated with upper-case letters, and that of B^{-} classes is indicated with lower-case letters, in the far left column of each entry. The abbreviations used are indicated below (at left is the total number of basic classes

in each B^{+1} class):

81	V,v	'vine' (o gumini)
291	T,t	'tree' (o gota)
100	H,h	'herbaceous weed' (o rurúbu)
70	O,o	(Other) (not a subclass of any named B^{+1} class)

The posited covert subclasses of the "Other" or unaffiliated group are shown by the following symbols enclosed in parentheses (where the class is contained in no B^{+1} class a hyphen [-] may optionally be used):

2	O(A)	AROID
10	O(B)	BAMBOO
7	O(F)	DECORATIVE FLOWER
2	O(G)	GRAIN
5	O(P)	PANDAN
44	O(-)	(no posited B^{+1} covert class membership)

Each basic class whose subclasses cross-cut these B^{+1} groups (see 5.2.2.1) is indicated by a lower case "x" between the symbols of the B^{+1} classes cross-cut by that basic class (numbers of such basic classes are again indicated to the left):

20	TxV	'tree' and 'vine'
1	HxV	'herbaceous weed' and 'vine'
5	TxH	'tree' and 'herbaceous weed'
1	VxO(-)	'vine' and "other"
4	HxO(-)	'herbaceous weed' and "other"
1	HxO(G)	'herbaceous weed' and GRAIN
2	VxHxO	'vine' and 'herbaceous weed' and "other"

In cases such as those above, the B^{+1} class membership of one B^{-1} subclass may be indicated e.g. by lower-case"t" ('tree'), that of the other by "v" ('vine').

Ambiguous superclass membership (see 5.2.1.4) is indicated by an equal sign (=) between symbols for the B^{+1} classes (numbers to the left again indicate the number of B^{0} terms having this characteristic):

5	T=H	either 'tree' or 'herbaceous weed'
3	H=0(-)	either 'herbaceous weed' or "other"
1	H=0(F)	either 'herbaceous weed' or DECORATIVE FLOWER
2	T=0	either 'tree' or "other"

Note that all basic (B^{0}) and all B^{-} classes listed here are treated as having only one structural position. Those very few classes which clearly have widely-known dual structural positions as B^{0} classes labelled by one term and B^{-} classes labelled by another (see 5.2.1.5) are here counted and listed only as B^{-} classes, though notation of the B^{0} alternative is made in each case (e.g. o gohora 'nutmeg'). "Esoteric" and idiosyncratic cases of such dual structural positions (5.2.1.5) are not recorded here.

(2) B^{0} and B^{-} Classes and Their Labels

Basic (B^{0}) terms are alphabetically listed as the main entry at the left margin of the text (immediately to the right of B^{+1} class symbols); B^{-1} terms are indented five spaces; B^{-2} are indented five more spaces to the right; B^{-3} terms are again indented; and finally B^{-4} terms are indented five spaces further. One term (either the most common or, where borrowed terms are commonly used as synonyms, that term locally thought to be

"original" Tobelorese) has been chosen for each class, and its synonyms listed after it in the same entry. Thus each entry lists one class, not one term. Locative morphological suffixes are included in the citation forms of the phrases in which they occur, though such suffixes are recognized as non-lexemic (see 3.2.1.2.).

Markedness of subclasses is indicated by the minus (-) sign for the unmarked subclass, the plus (+) sign for the marked subclass. Where no markedness occurs, the tilde (~) precedes each class. Where none of these symbols occurs, data on markedness are incomplete for that contrast-set. Words which may optionally be appended to the unmarked subclass to disambiguate it from the higher-level class are here enclosed in parentheses; thus the first entry o aerani has unmarked and marked subclasses designated with "-" and "+" respectively; the unmarked B^{-1} term o aerani may optionally be disambiguated with the addition of ma beka 'female', here enclosed in parentheses.

(3) Nomenclatural Information

Nomenclatural information [within brackets] includes the following abbreviations for types of lexemes (see 3.2):

SL Simple Word

CX Complex Word

CD Compound Word

- CD-EN Endocentric Compound Word
- CD-EX Exocentric Compound Word

P Phrase

- P-EN Endocentric Phrase
- P-EX Exocentric Phrase

(indet.) (of indeterminate type), e.g.CD-(indet.)
Compound (indeterminate type)

(Where unmarked subclasses have the same form as their superclass, the lexemic type and some other nomenclatural information is not repeated for the lower-level class.)

Wherever possible, detailed etymologies have been given for word lexemes; etymologies are followed by a semicolon (;) then (where possible) by a gloss of the entire term. Endocentric phrasal lexemes, however, have only been glossed (more complete etymologies of the few types of such phrases have been given in 3.2.2.3).

Other abbreviations or symbols used in providing nomenclatural information include:

. (period) used between words in glosses to indicate that more than one English word is used to translate one Tobelorese word or morpheme; e.g. una-ika hoikohi 'him-that.direction we.go.first' 'we will go to him first'.

- (hyphen) used between words in glosses to indicate correspondence of the gloss to separation of Tobelorese morphemes, and in Tbl terms to separate morphemes; thus e.g. mi-oik-oka 'we.(excl.)-go-already' 'we already went'.

X used in glosses as a "place-keeper" to indicate that a morph or word is untranslated, e.g. ho-ma-ohiki 'we.(incl.)-X-bathe' 'we bathe'.

< derived from

* (asterisk) used to indicate that a term or expression is unacceptable or unobserved

n	noun
vb	verb
poss.	possessive pronoun
(redup.)	reduplication (of the noun or verb)
'?'	translation of a word or morpheme is unclear or unknown
(etym. ?)	etymology unclear or unknown
q.v.	(Latin, quod vide) which should be seen (under entry for that term); e.g. babanga (q.v.)"see separate entry under basic term babanga."

Abbreviations for languages and dialects are:

Eng	English
Ind	Indonesian ("standard" Indonesian)
NMM	"North Moluccan Malay" (Melayu pasar of Maluku Utara)
Pagu	Pagu
Tbl	Tobelorese
B (or Tbl-B)	Boeng dialect of Tobelorese
D (or Tbl-D)	Dodinga dialect of Tobelorese
H (or Tbl-H)	Heleworuru dialect of Tobelorese (Hueting's "genuine Tobelorese")
Tbr	Tabaru
Tdr	Tidorese
Tte	Ternatese

(4) Species Determinations

Scientific names for plants denoted by folk terms were preferably obtained from herbarium vouchers (symbolized by "V"), for which the

following herbaria are in each case credited with kindly helping to find determinations:

BO Herbarium Bogoriense (Bogor, West Java)

LD Rijksherbarium (Leiden, Netherlands)

US Herbarium of the United States National Museum of Natural History (Washington, D.C., U.S.A.)

Where no determinations are available, the abbreviation "det. not avail." follows the field number of the herbarium voucher. If the authority for a species designation (as determined by one of the herbaria) is not known, the abbreviation "a.u." (authority unknown) is used in its place. The field numbers are also used where two herbaria have provided contradictory determinations, or where more than one voucher for the same folk class indicates more than one botanical taxon is labelled by that folk class. (It is hoped that my own reference collection of herbarium sheets now temporarily stored at the Los Angeles County Museum of Natural History can someday be accessioned to a permanent collection so that adequate, permanent herbarium voucher numbers can be used throughout a revision of this appendix.) The abbreviation "(uncoll.)" indicates that no voucher was taken.

Less frequently used (and less satisfactory) sources of scientific determinations are abbreviated as follows:

Ph Photographic recognition of the folk class by Tobelorese viewing drawings or photographs in books (e.g. W. Brown [1951], Hargreaves and Hargreaves [1970a, b], and the extensive series of small color pamphlets "Kebesaran di Alam Semesta", edited by M. Maradjo and M. S. Widodo [various authors; published in many editions from 1976 to 1978 by P. T. Karya Nugantara, Jakarta]; Grant [1978] was also used in the field to elicit some local terms for fishes).

PT Recognition of the species by the author.

(Where either of the above sources confirms a botanical determination from a voucher, only the voucher is normally listed as evidence. A few cases in which specimens photographed in the field were later identified by botanists are noted in the text below.

Where a scientific determination and its source are given for a higher-level class but not for its subclasses, then unless a note such as "all subclasses" accompanies it, the voucher or other source was obtained in the field without reference to the subclasses (often before I discovered the latter). Such a determination may be inferred to be correct for at least one of the subclasses involved.

Finally, note that all botanical determinations are here presented like English glosses for Tobelorese words; just as translations are offered with full realization that they inadequately express concepts of one language in terms of another, so botanical taxa are here offered as "translations" of folk taxa, without any presumption that all organisms included in the former are possible denotata of the latter or vice-versa.

H o aerani [CX, abstract n < vb -aerani '(to be) wonderful, strange'; cf. Hueting 1908c:10 (vb unknown to my B and D dialect informants)]

h - o aerani (ma beka) [P-EN] '(female) aerani' V [#2478] [BO] Hemigraphis bicolor (Bl.) Hall. f. [but cf. LD] Strobilanthus sp.

h + o aerani ma nauru [P-EN] 'male aerani' V [BO, LD] Aclepias curassavica L.

T o aili ma ditoko (or) o alu ma ditoko [CD-EN, < aili 'centipede' + poss. + ditoko 'deviated (off the path)'; 'centipede off the path' (alternative alu '?', possibly same meaning)] V [#2328] det. not avail.

V o ai-aili [CX, aili 'centipede' + (redup.); 'rather like a centipede' (a reference to the small opposite leaves of the "centipede-like" climbing vine)] V [BO] Micrechites serphyllifolia (Bl.) Kost.

T o akar-paníki [SL, but < NMM CD, 'bat's-root'] V [BO] Allophylus cabbe (L.) Raensch.

T o amo [SL, cf. Ind & NMM amo] 'breadfruit' Ph: Artocarpus sp. or spp. (both subclasses)

t - o amo '[cultivated] breadfruit' Ph: Artocarpus sp. (uncoll.)

t + o amo o fonganika 'jungle breadfruit' (uncoll.)

T o asang-jáwa (or) o asam-jáwa [SL, but < Ind & NMM CD 'Javanese tamarind'] 'tamarind' Ph: Tamarindus indica L.

T o atebehi [SL, but < Tte CD?, cf. Tte hate 'tree' + besi 'metal, iron'; 'iron tree, iron wood'] or o goge [SL]

t ~ o atebehi ma dubo iare-arehe [P-EN] 'atebehi with white growth-point' V [BO] Homalium foetidum Benth.

t ~ o atebehi ma dubo itoka-tokara [P-EN] 'atebehi with red growth-point' V [BO] Homalium foetidum Benth.

T o ategou [SL, possibly < Tte CD, cf. Tte hate 'tree'] V [BO] Desmodium umbellatum DC.

T o atejáwa [SL, but < Tte CD; hate (Tte) 'tree' + jawa 'Java(nese)'; 'Javanese tree'] (uncoll.)

T o au [SL] (uncoll.)

O(B) o auló́to [SL] V [BO] Gigantochloa atter (Hassk.) Kurz ex Munro. (Note: At Loleba, an occasionally-used synonym for this term is o gaawo; the latter word at Pasir Putih, however, is an occasionally-used synonym for the widely-used term o kakale [q.v.]).

H o aunu ma dodogumu [CD-EN, < 'blood' + poss. + agentive n of vb -togumu 'hold back'; 'that which holds back blood' (name refers to this plant's medicinal use to stop the flow of blood from cuts)] V [BO, LD] Ageratum conyzoides L.

T o aunu ma gilioro [CD-EN, < 'blood' + poss. + abstract n of vb -kilioro 'turn back'; 'the turning back of blood' (name refers to this plant's medicinal use to stop the flow of blood from cuts)] or o kulemana [SL] V [BO] Koordersiodendron pinnatum Merr.

T o baa-babanga [CX, < n babanga (q.v.) 'Rhizophora mangrove tree' + (redup.); 'rather like Rhizophora mangrove' (so called because of a gross similarity of fruit shape)] V [BO, LD] Eugenia sp.

T o baacai [SL, cf. NMM & Ind balacai]

t ~ o baacai ma doka-dokara [P-EN] 'red baacai'

V [BO, LD] Ricinus communis L.

~ o baacai ma gare-garehe [P-EN] 'white baacai'

V [#2211, 2801] det. not avail.

T o babanga [SL] (Note: at Loleba [B] this is subdivided into 'male' and 'female' subclasses [not observed among D speakers])

t - o babanga (ma beka) [P-EN] '(female) babanga'

V [BO] Rhizophora apiculata Bl.

t + o babanga ma nauru [P-EN] 'male babanga' (uncoll.)

O o baburu [SL] V [BO] Arundo donax L.

H o badaewa [SL] V [#2656] det. not avail.

T o badenga [SL] (uncoll.)

H o bae-bae [SL, < CX?]

h - o bae-bae (ma oa) [P-EN] '(good) bae-bae' (uncoll.)

h + o bae-bae ma dorou [P-EN] 'bad bae-bae' V [BO] Lindernia crustacea (L.) F.v.M.

T o bafasa [SL] (or) o bafesa [SL] (or) o gayoko [SL]

t ~ o bafasa ma doka-dokara [P-EN] 'red bafasa' (uncoll.)

t ~ o bafasa ma gare-garehe [P-EN] 'white bafasa'

V [#2679] det. not avail.

H o bahi-bahi (or) o bahi-bahihi [both SL, but < CX?]

V [BO] Dendrophthoe pentandra (L.) Miq.

H o balakama [SL] V [#2397] det. not avail.

H o balakang-babíji [SL, but < NMM CD '(its) back has seeds', a reference to seeds on "backs" (undersides) of leafy branches]

h - o balakang-babíji (ma beka) [P-EN]'(female) balakang-babiji'
V [BO] Phyllanthus urinaria L.

h + o balakang-babíji ma nauru [P-EN] 'male balakang-babiji'
V [#2498] no det. avail.

T o balíbi [SL; cf. NMM balimbing] Ph: (both subclasses)
Averrhoa bilimbi L.

t o balíbi ihuo-huoto [P-EN] 'pointed balibi' (a reference to the elongated fruits of this cultigen)

t o feleheku [D; cf. B: o heleheku] [SL, ? < Dutch fles or flesje 'flask' (a reference to the Dutch gin-bottle shaped fruits)] (uncoll.)

T o balontas [SL] V [LD] Pluchea indica Less.

T o bangata [SL]

t - o bangata (o fonganika) [P-EN] '(jungle) bangata'

t o bangata ma gare-garehe [P-EN] 'white bangata' (or) o bangata ma beka [P-EN] 'female bangata' V [#2336] [BO] Plectromia sp. [but cf. LD] Canthium sp.

t o bangata ma daro-daromo [P-EN] 'black bangata' (or) o bangata ma nauru [P-EN] 'male bangata' (uncoll.)

t + o bangata o gahika [P-EN] 'shore bangata' (or) o bangata o dotoika [P-EN] 'cape bangata'
V [BO] Plectromia sp.

O(-) o bangilée (B; cf. D: o bangilé) [SL, < Ind bangle]
V [#2212, 2873] det. not avail. Ph: Zingiber cassummunar Roxb.

T o baru [SL] (uncoll.) Ph: Hibiscus tiliaceus L.

O o baru [SL] (or) [D only] o pangota (this latter term is considered by D speakers the "original" Tbl term; cf. NMM baru) (uncoll. palm)

T o baru-bongana [SL, but ? < Tabaru CD-EN baru (q.v.) 'Hibiscus tiliaceus L.' + bongana 'jungle'; (Tbr:) 'jungle baru (tree)'] V [LD] Acalypha sp.

O(-) o bawanga [SL,cf Ind bawang] 'onion' (uncoll.)

o(-) o bawanga ma gare-garehe [P-EN] 'white onion' PT: Allium cepa L.

o(-) o bawanga ma doka-dokara [P-EN] 'red onion' PT: Allium ascalonicum L.

H o bawa-bawanga [CX, < bawanga (q.v.) 'onion' + (redup.); 'rather like an onion']

h - o bawa-bawanga (ma beka) [P-EN] '(female) bawa-bawanga' V [#2348, 2775] det. not avail.

h + o bawa-bawanga ma nauru [P-EN] 'male bawa-bawanga' V [BO] Pancratium zeylanicum L.

HxO o baya [SL]

h + o baya ma dorou [P-EN] 'bad baya' V [BO] Celosia argentea L.

o - o baya (ma oa) [P-EN] 'good baya' V [BO] Amaranthus hybridus L.

o + o baya-manádo [CD-EN, baya + manádo 'Menado (city in North Sulawesi)'; 'Menado baya'] (uncoll.)

o - o baya [SL]

o ~o baya ma gare-garehe [P-EN] 'white baya'

o ~o baya ma doka-dokara [P-EN] 'red baya'

V o beka [SL] V [#2458] det. not avail.

T o bee ma giofiki [apparently CD but CD parts unfamiliar] (uncoll.)

T o behelo [SL] (uncoll.)

VxT o bere-berete [SL, but ? < CX]

v + o bere-berete o gumini [P] 'vine bere-berete'

t - o bere-berete (o gota) [P] '(tree) bere-berete'

O(-) o biawa [SL] V [BO, LD] (probably o nyawa ma biawa subclass?): Donax cannaeformis (B. Forst.) K. Schum.

o + o manjanga ma biawa [CD-EN, deer + poss. + biawa (q.v.); 'deer's biawa']

o + o ode ma biawa [CD-EN, pig + poss. + biawa (q.v.); 'pig's biawa']

o - o nyawa ma biawa [CD-EN, human + poss. + biawa (q.v.); 'human's biawa'] (or) o biawa [SL]

H=O o bibiti [SL] (uncoll.)

h=o o bibiti ma doka-dokara [P-EN] 'red bibiti'

h=o o bibiti ma gare-garehe [P-EN] 'white bibiti'

O o bico [SL] V [BO] Cycas cf. rumphii

T o bido-bidoho [CX, < n bidoho (q.v.) 'sirih-pepper' + (redup.); 'rather like sirih-pepper' (so called because of a gross

resemblance of this mangrove's fruits to sirih-pepper fruits)] (uncoll. mangrove tree)

V o bidoho [SL] 'sirih-pepper' V [below] Piper spp. (some)

v + o bidoho ma dorou 'bad sirih-pepper'

v ~ o fongoro [SL] V [BO] [#2318] Piper insignilimbun [a.n.] [but cf. #2784] Piper fragile Benth.

v ~ o tokata ma bidoho [CD-EN, ghost + poss. + sirih-pepper; 'ghost's sirih-pepper'] V [BO] Piper caninum Bl.

v - o bidoho (ma oa) '(good) sirih-pepper' V [#2114; subclass ?] det. not avail.

~ o fofúru [CX, < vb -furu '(to be) wild, savage' + (redup.); 'wild, savage'] (or) o karianga ma akiri [CD-EN, karianga 'Varanus indicus (a large lizard)' + poss. + 'tongue'; 'tongue of Varanus indicus (lizard)'] V [#2264] det. not avail.

~ o kuláwa [SL] V [#2343] det. not avail.

~ o wera [SL] (uncoll.)

H o bidolika [SL] V [BO] Piper tomentosum [a.u.]

V o bihi [CX, < vb -bihi '(to be) black'; 'blackness'] (uncoll.)

T o bihibóo [SL] (uncoll.)

T o biniari [?CD-EX, < NMM bini 'wife' + Tbl -ari 'cry'; 'wife cries' (etym ?)] V [#2621] [BO] Timonius rufescens Boerl. [but cf. LD] Timonius timon [a.u.]

V o biraro [SL] (uncoll.) Ph: Psophocarpus tetragonolobus (L.) DC.

T=H o biru [CX, < vb -biru '(to be) green (or) blue']
V [BO] Indigofera tinctoria L.

H o bitumu [SL] V [BO] Tectaria crenata Cav.

O o biworo [SL] V [BO] Alpinia nutans [a.u.]

VxT o bobaharama [SL]

v + o bobaharama o gumini [P] 'vine bobaharama' (Note: D speakers at Pasir Putih label this class o gumiraga [CD-EX, gumi 'vine' + '?'], and consider it a basic class contrasting with o bobaharama [i.e. o bobaharama o gota]). V [#2128] det. not avail.; V [#2611] [BO] Prainea papuana Becc. [but cf. LD] Ficus sp.

t - o bobaharama (o gota) [P] '(tree) bobaharama' (Four vouchers [#2131, 2235, 2245, 2892]; V [LD] [#2245] Ficus sp.; others: det. not avail.; each voucher of a different species)

T o bobahiha [SL, ?<CX] V [BO] Securinega flexuosa M.A.

H o bobarai [SL, ?<CX] V [BO] Cassia tora L.

VxT o bobihingo [SL, ? < CX]

v + o bobihingo ma dorou [P-EN] 'bad bobihingo' (or) o bobihingo o gumini [P] 'vine bobihingo' V [#2477] lost

t - o bobihingo (ma oa) [P-EN] '(good) bobihingo' (or) o bobihingo (o gota) '(tree) bobihingo' V [#2321] [BO] Aphania senegalensis Radlk. [but cf. #2666] [BO] Ormosia calavensis Asaolo ex Blanco

T o bobobira [CX, < vb -bobira 'to have pimples' + (redup.); 'having pimples'] V [#2562] [BO] Jussiaea suffruticosa L. [but cf. LD] Ludwigia octovulvis (Jacq.) Raven

0 o boboro [SL] V [BO] Nipa fruticans Wurmb.

T o bobungekomo [SL, ?< CX] (uncoll.)

0 o boci [SL] V [BO] Arachis hypogaea L.

H=0 o boki ma bikini [CD-EN, 'cat' + poss. + 'tail'; 'cat's tail'] V [#2297] lost

H o boki ma gumi [CD-EN, 'cat' + poss. + 'whiskers'; 'cat's whiskers'] V [BO, LD] Orthosiphon aristatus (Bl.)

0 o bokumu [SL] V [#2864] det. not avail.

0 o bole [SL] 'banana' (uncoll.) PT: Musa spp. (all subclasses)

o + o bole ma dorou [P-EN] 'bad banana' (or) o bole o fonganika [P-EN] 'jungle banana'

o ~o kokawahi [SL]

o ~o pópaya [SL]

o - o bole (ma oa) [P-EN] '(good) banana'

o ~o amarei (B; cf. D: o kilotini) [both SL]

o ~o bacan [SL] (or) o mas-bacan [SL, but MM mas (cf. Ind emas) 'gold' + bacan 'Bacan (Island)'; MM 'Bacan gold']

o ~ o bahuku ma otini [CD-EN, axe + poss. + shaft; 'axe shaft']

o ~o bitoanga [SL]

o ~o bole-akere [CD-EX, bole (q.v.) 'banana' + -akere '(to be) watery'; 'watery banana']

o ~ o capato [SL, < NMM capato 'shoe'] (B; cf. D: o banda [SL])

o ~ o dukono [SL]

o ~ o guguli [SL, 'sea-shell trumpet']

o ~ o gugúnu [SL] (sometimes designated by the NMM pisang tambaga)

o ~ o gumáa [SL, 'fish hook']

o ~ o halenawo [SL]

o ~ o hanape [SL]

o ~ o harangoto [SL]

o ~ o hawoá [SL]

o ~ o hitadi [CX, < -hi (causative) + -tadi 'slam down'; 'slam down' (so called because the fronds of this variety break off the fruit stalk when it is hit on the ground a few times)]

o ~ o jouronga [SL]

o ~ o kohutáa [SL]

o + o kohutaa-galela [CD-EN] 'Galela(rese) kohutáa'

o - o kohutáa [SL]

o o kohutáa ma gare-garehe [P-EN] 'white kohutáa'

o o kohutáa ma doka-dokara [P-EN] 'red kohutáa'

o ~ o kokihua [CX, < vb -kokihi 'to have an inflorescence (said of banana plants)' + -ua 'not'; 'not having an inflorescense'] 'horn plantain'

o ~o kuho ma haeke [CD-EN, < 'kus-kus' + poss. + 'head'; 'kus-kus's head']

o ~o leleko [SL]

o ~o memekana [SL, ? < CX, '(bamboo) fishing-pole' (so called because this banana variety's fruits curve like a bamboo fishing-pole does)

o ~o móraka [SL]

o ~o ngoheka ma oa [CD-EN, 'woman' + X + 'good'; 'good woman' (etym. ?)]

o ~o ngowaro ma jibúru [CD-EN, '?' + poss. + '(bamboo) shoot']

o ~o ngura [SL]

o ~o pihanga [SL, cf. Ind & NMM pisang 'banana']

o ~o puungu [SL]

o ~ o raja [SL, < Ind & NMM 'king']

o - o raja [SL]

o + o raja na gare-garehe [P-EN] 'white raja' (B; cf. D: o raja ma kafo-kafo [P-EN] 'gray raja')

o ~o susu [SL, 'milk']

o ~o takoapi [SL, but NMM CD-EX tako 'afraid of' + api 'fire'; NMM 'afraid of fire' (so called because this variety's fruits cook very quickly)]

o ~o taratíbi [SL]

o ~o totaleo ma uru [CD-EN, 'chicken' + poss. + 'mouth, beak'; 'chicken's beak' (so called because of the small fruits of this variety)]

O o bokumu [SL] V [#2864] det. not avail.

T o bole ma gomu-gomuku [CD-EN < banana X which.is.ripe; 'ripe banana (fruit)'] V [BO] Sterculia rubiginosa Vent. v. rubiginosa

V o bonata ma unafa [CD-EN, < 'Tilapia fish' + poss. + 'scales'; 'Tilapia fish scales' (so called because of this vine's leaves' similarity in shape to Tilapia fish scales)] V [#2277] det. not avail.

T o bonata ma unafa [CD-EN, < 'Tilapia fish' + poss. + 'scales'; 'Tilapia fish scales' (so called because of this tree's leaves' similarity in shape to Tilapia fish scales)] V [BO] Phyllanthus sp.

H o bongo-bongo [SL, ?< CX] (uncoll.)

T o bongono [SL, 'club for beating bark cloth'] (uncoll.)

V o bori [SL] V [#2261] det. not avail.

O o botara [SL] (or) o gedi [SL, cf. NMM gedi]

o ~ o botara ma gare-garehe [P-EN] 'white botara' 'okra' V [BO] Abelmoschus esculentus Vahl.

o ~ o botara ma doka-dokara [P-EN] 'red botara' V [BO] Hibiscus sabdariffa L.

O(G) o boteme [SL] (uncoll.) [Ph of living specimen det. by H. Conklin:] 'Italian millet' Setaria italica Beauv.

T o boulamo [CD-EX, bou (cf bounu 'smell') + -lamo (cf. -lamoko) 'big, strong'; Tte? 'strong smell'] (or) o bohe [SL, cf. NMM bohe] V [BO] Anisoptera thurifera (Blanco) Bl.

t ~ o boulamo ma gare-garehe [P-EN] 'white boulamo'

t ~o boulamo ma gogurati [P-EN] 'yellow boulamo'

T o bua-jarak [SL, but < Ind CD bua(h) 'fruit' + '?']
'castor oil plant' PT: Ricinus communis L. [cf. V below]

t ~o bua-jarak ma doka-dokara [P-EN] 'red bua-jarak'
V [BO] Ricinus communis L.

t ~o bua-jarak ma gare-garehe [P-EN] 'white bua-jarak'

T o bua-nona [SL, but Ind CD bua(h) 'fruit' + '?']
V [BO] Anona squamosa L.

V o bua-putri [SL, but < Ind CD bua(h) 'fruit' + puteri
'princess'; 'princess's fruit'] V [LD] Passiflora
foetida L.

T o bua-yakis [SL, but < Ind CD bua(h) 'fruit' + yakis
'monkey'; Ind 'monkey fruit'] V [BO] Anacardium
occidentale L.

O(P) o buho [SL] V [LD] Pandanus sp.

V o buhuru ma dadamunu [CD-EN, 'abscess' + poss. + 'cover'
(agentive n < vb -tamunu 'cover'); 'abscess cover
(i.e. poultice)'] (uncoll.)

O o buko-buko [SL, ?< CX] (uncoll. epiphytic plant on mangrove
trees; lower stem greatly swollen and having cavities
inhabited by ants) Ph: Hydnophytum sp.

V o bukuru [SL] V [#2295] [BO] Dioscorea bulbifera L.
[but cf. #2358] det. not avail. (different species)

T o bukuwini [SL] V [#2881] det. not avail.

O(B) o bulu-balánda [SL, but < NMM CD-EN, NMM bulu 'bamboo' + NMM &
Ind balanda 'Dutch'; 'Dutch bamboo'] V [BO] Arundo donax L.

V o bunga-biru [SL, but < Ind CD 'blue flower'] 'butterfly bean' V [BO] Clitoria ternatea L.

T o bunga-biru [SL, but < Ind CD 'blue flower'] V [BO] Melastoma affine D. Don.

T o bunga-haji [SL, but < Ind CD 'flower' + haji '(person who has made the pilgrimage to Mecca)';'haji's flower'] V [BO] Caesalpinia pulcherima (L.) Swartz

O(F) o bunga jam duabělás [SL, but < Ind CD 'twelve o'clock flower'] V [#2349] det. not avail.

O(F) o bunga jam sembilan [SL, but < Ind CD 'nine o'clock flower'] V [#2826] det. not avail.

V o bunga-kartas [SL, but < NMM CD 'paper flower'] PT: Bougainvillea sp.

V o bunga-konóp [SL, < NMM 'button flower'] V [#2797] det. not avail.

T o bunga-mantega [SL, but < NMM 'butter flower'] V [BO] Allamanda cathartica L.

O(F) o bunga-penisilín [SL, but < Ind CD 'penicillin flower' (so called because of medicinal use of the sap for healing wounds) V [#2778] det. not avail.

O(F) o bunga-popohu [SL, ? < NMM CD, 'flower' + '?'] V [BO] Ipomoea fistulosa Mart. ex Choisy

O(F) o bunga-pót [SL, but < NMM or Ind CD 'pot(ted) flower' V [BO] Gomphrena globosa L.

o(f) ~ o bunga-pót ma doka-dokara [P-EN] 'red bunga-pot'

o(f) ~ o bunga-pót ma gare-garehe [P-EN] 'white bunga-pot'

T o bunga-rampa [SL, but ?< NMM CD 'spice flower'] (or)
o bunga-rampé [SL, < 'flower' + '?'] V [BO]
Acacia farnesiana (L.) Willd.

O(F) o bunga-tanjung [SL, but < NMM CD 'cape flower'] V [BO or LD]
(both subclasses, see below) Catharanthus roseus (L.)
G. Don.

o(f) o bunga-tanjung ma doka-dokara [P-EN] 'red bunga-tanjung'
V [BO, LD] Catharanthus roseus (L.) G. Don.

o(f) o bunga-tanjung ma gare-garehe [P-EN] 'white bunga-tanjung'
V [LD] Catharanthus roseus (L.) G. Don.

T o bunga-té [SL, but < NMM or Ind CD 'flower' + 'tea'; 'tea
flower'] V [BO] Carmona retusa (Vahl) Masamune

H o bunga-té [SL, but < NMM or Ind CD 'flower' + 'tea'; 'tea
flower'] V [#2499] [BO] Alternanthera ficoidea (L.)
R. Br. ex Grissb. [but cf. LD] Alternanthera
bettzickiana (Reg.) Nichols

O(F) o bunga-ular [SL, but < NMM or Ind CD 'flower' + 'snake';
'snake flower'] (uncoll.)

V o busu ma dalu-daluku [CD-EN, busu 'Lorius g. garrulus
(a parrot)' + poss. + 'palm-wine',(redup.); 'Lorius g.
garrulus's palm-wine'] (or) o busu ma daluku [CD-EN,
(same as above but daluku 'palm-wine' not reduplicated)
(so called because of this parrot's habit of congregating
where this vine's flowers are in bloom)]

V o cade-cade [CX, < vb -cade 'to show off, call attention (to oneself)' + (redup.); 'show off'] V [BO] Acacia pluricapitata Stend.

T o capáka [SL, cf. NMM & Ind cempaka]

t - o capáka [SL] (uncoll.) Ph: Michelia sp.

t + o capáka o fonganika [P-EN] 'jungle capaka' V [BO] [#2457] Cerbera floribunda K. Schum. [but cf. #2850] Kopsia arborea Bl.

T o cengke [SL, cf. Ind & NMM cengke(h)] Ph, PT: Eugenia aromatica Kuntze

H o ciciru [CX, agentive n < vb -ciru 'scrape'; 'scraper, gouger'; so called because of the single leaf's resemblance to a coconut-gouging tool of the same name] V [BO] [#2379] Caesalpinia globulorum Backh. f. & van Royen [but cf. #2786] Centella asiatica (L.) Urb.

H o cinga-cinga [SL, ? < CX] V [US] Wollastonia biflora DC.

T=H o dadatara [SL, ? < CX] V [BO] Cassia occidentalis L.

T o dadayongo [SL, ? < CX] (uncoll.)

T o dao [SL] (uncoll.) [Note: at Loleba this is said to be a class of mangrove tree different from male and female babanga (q.v.), but at Pasir Putih the class is unknown; this term is there used only for the fruit of the babanga (q.v.)]

VxT o dia-dia [SL, ? < CX]

v + o dia-dia o gumini [P] 'vine dia-dia' V [BO] Monerthrocarpus securiformis Merr.

t - o dia-dia (o gota) [P] '(tree) dia-dia' V [BO]
Pongamia pinnata (L.) Pierre

T=H o digo [SL]

t=h ~o digo ma beka [P-EN] 'female digo' V [BO, LD]
Sida acuta Burm. f.

t=h ~o digo ma nauru [P-EN] 'male digo' V [BO] Sida rhombifolia L. ssp. rhombifolia

H o digo ma gilaongo [P-EN, digo (q.v.) 'Sida spp.' + poss. + 'servant'; 'digo's servant'] V [BO]
Pseudelepanthopus spicatus (B. Juss. ex Aubl.) C.F. Baker

O(A) o dilago [SL] (or) o bete [SL, cf. NMM bete]

o(a) + o bete-balanda [SL, < NMM CD bete (q.v.) 'Colocasia sp.' + 'Dutch'; 'Dutch Colocasia'] Ph, PT:
Xanthosoma sp.

o(a) - o dilago [SL] (or) o bete [SL] Ph, PT: Colocasia sp. or spp.

o(a) o beloho [SL, 'stake'] (or) o bete-beloho [CD-EN, 'Colocasia' + 'stake'; 'stake-Colocasia']

o(a) o cere [SL, < NMM 'pitcher'] (or) o bete-cere [CD-EN] 'Colocasia'+ 'pitcher'; 'pitcher-Colocasia']

o(a) o irian [SL, < Ind 'Irian (West New Guinea)'] (or) o bete-irian [CD-EN, 'Colocasia' + 'Irian'; 'Irian Colocasia']

(Note: though o dilago and o bete are considered synonymous in B dialect, they perhaps label distinct B^0 classes in D; classification shown here is for B dialect.)

H o dilago-bunga [CD, indet. 'Colocasia' + 'flower'; '?']
V [#2657] det. not avail.

V o diti-diti [SL, ? < CX] V [BO] Marsdenia tenacissima W. et A.

V o dobe-dobele [CX, < n dobele '(a Dutch coin)' + (redup.); 'rather like a dobele (coin)' (so called because of leaves' resemblance to small coins)] V [#2834] det. not avail.

T o dodataiti [CX, < -taiti 'be fast, in a hurry' (etym. ?)] (or) o dataiti [CX, < -taiti (as above)]

t o dodataiti ma beka [P-EN] 'female dodataiti' V [#2793] [BO] Premna obtusa [a.u.] [but cf. LD] Clerodendron sp.

t o dodataiti ma nauru [P-EN] 'male dodataiti' V [#2836] det. not avail.

T o dode ma lako [CD-EN, 'shrimp' + poss. + 'eye(s)'; 'shrimp's eyes'] (uncoll.)

T o dode ma panga [CD-EN, 'shrimp' + poss. + 'pincer appendage'; 'shrimp's pincer'] V [BO] Ophiorrhiza cf. neglecta Bl.

T o dodiha ma kobongo [CD-EN, 'snake(s)' + poss. + 'bone(s)'; 'snake's bones'] (or) o dodiha ma kobo-kobongo [CD-EN, 'snake(s)' + poss. + 'bone(s)-(redup.)'; 'like (or) rather like a snake's bones'] V [BO] Ipomoea quamoclit L.

VxT o dodófo [CX, agentive n < vb -tofo 'feed'; 'thing used to feed' (i.e., to feed a fire to drive out ghosts, so called because of the use of both classes for this purpose)]

v o dodófo o gumini [P] 'vine dodófo' [alternative B^0 term in B dialect:] o juróto [SL] (Note: D dialect considers this only a B^0 class labelled by the B^0 alternative o juróto, thus not a subclass of o dodófo) (uncoll.)

t o dodófo o gota [P] 'tree dodófo' [alternative B^0 term in B dialect:] o paiyongifi [SL] (Note: D dialect considers this only a B^0 class labelled either by o dodófo or by its synonym o paiyongifi)
V [#2022] [BO] Aglaia elaeagnoidea Bth. [but cf. #2201] [LD] Dysoxylum sp. (seedling)

V o dodopongono [CX, n < vb -topongono 'hard of hearing'; 'deafener?'] V [LD] ?Melotria sp. [Cucurbitaceae]

O o dokoto [SL] V [#2027] [BO] Daemonorops or Calamus

T o doo-dooyo [probably CX, < dooyo '(a large crab)' + (redup.)] V [#2035] [BO] Cynometra ramiflora L. [but cf. V #2269 (det. not avail.), possibly different species]

T o dowora [SL]

t - o dowora [SL] (or) o heleheků [SL, '(Dutch) gin bottle'] (uncoll.)

t + o komene [SL, a 'tree' type (q.v.)] V [#2152] det. not avail.

t + o papua [SL] (uncoll.)

T o dudéke ma gohi [CD-EN, 'puffer fish' + poss. + egg(s); 'puffer fish eggs'] V [BO] Sophora tomentosa L.

H o duga [SL] (uncoll.)

h o duga ma doka-dokara [P-EN] 'red duga'

h o duga ma gare-garehe [P-EN] 'white duga'

h o duga ma gogurati [P-EN] 'yellow duga'

H o dugáya ma iyoko [CD-EN, < dugaya 'skin infection caused by Tinea imbricata' + poss. + 'feces (also, waste product, including skin shed after infection by Tinea imbricata)'; 'skin shed after infection by Tinea imbricata' (apparently so called because of the pale, whitish color of this plant)] V [#2561] det. not avail.

T o duo-duono [SL, but ? < CX]

t o duo-duono ma beka [P-EN] 'female duo-duono' V [#2839] det. not avail.

t o duo-duono ma nauru [P-EN] 'male duo-duono' V [LD] Dysoxylum sp.

T o duriana [SL, cf. Ind durian] (uncoll.) Ph, PT: Durio zibethinus Murr.

T o efi-efi [SL, cf. Malay api-api] Ph: Avicennia sp. or spp.

T o eláka [SL] V [BO, LD] Lawsonia inermis L.

T o fahihúku [SL] (B; cf. D: o fafisúku [SL]; cf. also H: o hahihúku [SL]) V [#2020] [BO] Elattostachys zippeliana Radlk. [but cf. V #2293 (BO) Euphorianthis obtusa Radlk. (LD) Lepisanthes tetraphylla [a.u.]

t o fahihúku ma doka-dokara [P-EN] 'red fahihuku'

t o fahihúku ma gare-garehe [P-EN] 'white fahihuku'

V [BO] Elatostachys zippeliana Ridlk.

T o fenga [SL; cf. fenga 'carrying-basket strap'] (or) o giba ma kolano [SL, but Tte CD-EX 'carry the sultan' (so named because strips of this tree's inner bark were used for carrying the sultan's bier)] V [#2440] [BO] Alangium griffithii (Clarke) Harms [but cf. V # 2132 (det. not avail.), different species]

O o forofiaha [SL] V [BO] Riedelia sp.

H o gaaluri [SL] V [BO] Croton glandulosus L. var. hirtus M.A.

T o gacuaka ma inomo [CD-EN, gacuaka '(type of bird)' + poss. + 'food'] V [#2584] det. not avail.

VxT o gagilamo [CD-EX, gagiai 'dew' + -lamoko 'much, great'; 'much dew' (said to be so called because the leaves of both subclasses collect much dew)]

v + o gagilamo o gumini [P] 'vine gagilamo'

V [#2476] det. not avail.

t - o gagilamo (o gota) [P] '(tree) gagilamo'

V [BO] Breynia cernua (Poir.) M.A.

H o gaguru [SL]

h + o manjanga ma gaguru [CD-EN] 'deer's gaguru'

V [#2034] [BO] Spenomeris retusa (Cav.) Maxon [but cf. V #2203] [LD] Thelypteris sp.

h - o gaguru [SL]

h + o gaguru ma nauru [P-EN] 'male gaguru' (or)
o gaguru ma dorou [P-EN] 'bad gaguru'
V [#2006] [BO] Cyclosorus sp. [but cf.
V #2250] [LD] Davallia sp.

h - o gaguru (ma beka) [P-EN] '(female) gaguru'
(or) o gaguru (ma oa) [P-EN] '(good) gaguru'
V [BO] Diplazium esculentum

T o gahi-gahi [CX, < vb -gahi 'to be salty' + (redup.); 'salty']
V [#2126, #2599] det. not avail.

T o galála [SL] (or) o ngoóa [SL?] V [LD] Erythrina sp.

H o gambináha [SL, but < Tte CD, cf. Tte gam 'town, village'
+ Tbl -bináha 'destry' (cf. Tte, NMM binasa); 'destroys
town' (folk etymology alludes to a presumed war
medicine made using this plant)] V [#2610] [BO]
Pogonatherum paniceum (Lamk.) Hack. [but cf. LD]
Pogonatherum crinitium (Thunb.) Kunth.

T o gamuráma [SL] V [#2320] det. not avail.

H o gandaruha [SL] V [#2528] det. not avail.

H o ganyimo ma rurubu [CD-EN, '?' + poss. + rurubu 'herbaceous
weed' V [#2581] (lost)

H o gare-garehe [CX, participle from vb -arehe 'white';
'white'] V [BO] Peperomia pellucida (L.) H.B.K.

V o gari-gari [CX, < vb -ari 'cry, crying'] V [BO]
Dioscorea trifolia a.u.

T o gemihi [SL]

t + o gemihi ma beka [P-EN] 'female gemihi' V [BO]
Glochidion philippicum (Cav.) C.B. Rob.

t - o gemihi ma nauru [P-EN] 'male gemihi' (uncoll.)

H o gie-giete [CX, < vb -iete 'laugh'; 'laughing (at)' (etym.?)]

h o gie-giete ma amo-amoko [P-EN] 'big gie-giete'
(or) o gie-giete ma nauru [P-EN] 'male gie-giete'
V [BO, LD] Begonia sp.

h o gie-giete ma alu-aluhu [P-EN] 'small gie-giete'
(or) o gie-giete ma beka [P-EN] 'female gie-giete' V [BO] Ophiorriza canescens Bl.

T o gihaoro [SL] V [BO] Commersonia bartramia (L.) Merr.

O o gihóro [SL] 'ginger' V [#2889] det. not avail.
Ph: Zingiber officinale Rosc. (both subclasses)

o o gihóro ma doka-dokara [P-EN] 'red gihóro'
V [US] Zingiber sp.

o o gihóro ma gare-garehe [P-EN] 'white gihóro'

T o gilitopa [SL] (or) o papaceda [SL] V [US] Scaevola taccada (Gaertn.) Roxb.

T o giwa-giwanga [CX, vb -giwanga 'to move about (in place)'; 'moving about (in place)'] V [#23-6] det. not avail.

T o gobiti [SL] V [BO] Baccaurea racemosa (Reinw. ex Bl.) M.A.

T o gobu-gobu [SL, but ? < CX] V [#2096] det. not avail.

T o gobu-gobu ma gohi [CD-EN, gobu-gobu '?' (perhaps an unrecorded animal name; cf. 'tree' gobu-gobu q.v.) + poss. + 'egg(s)'] V [#2720 det. not avail.

T o gofásа [SL, cf. NMM gofásа] (Note: the B dialect subclass o kufu-kúfu below is considered a B^0 class in D and B, and in the latter dialect is not referred to as o gofásа ma dorou. Other superordinate and subordinate class relations remain the same in both dialects)

t + o gofásа ma dorou [P-EN, 'bad gofásа'] (B; cf. B and D:)

o kufu-kúfu [SL, but ? < CX] (B^0 term) (see note above regarding D dialect)

t + o kufu-kúfu ma hoka ialu-aluhu [P-EN] 'small-leaved kufu-kúfu' V [BO] Lagerstroemia ovalifolia T. & B.

t - o kufu-kúfu [SL, but ? < CX]

t + o kufu-kúfu ma beka V [#2568] det. not avail.

t - o kufu-kúfu ma nauru V [BO] Alangium villosum (Bl.) Wang

t - o gofásа (ma oa) [P-EN] '(good) gofásа'

t o hakaru [SL, 'stone'] (or) o gofásа ma daro-daromo [P-EN] 'black gofasa' (uncoll.)

t o utongo [SL, 'sago leaf-stalk'] (or) o gofásа ma gare-garehe [P-EN] 'white gofásа' V [BO] Vitex cafasus Reins. ex Bl.

H o gofosonyinga [SL] V [#2774] [BO] Boerhavia mutabilis R. Br. [but cf. LD] Boerhavia diffusa L.

H o gogerehi [CX, < vb -gerehi '(a disease)' (etym.?)] V [BO] Alternanthera sessilis (L.) DC.

H o gogiooko [CX, < vb -kiooko 'to be drowsy'; 'drowsiness (or sleep) inducer' (so called because of this plant's medicinal use to keep babies asleep soundly)] V [#2776] [BO] Biophytum reinwardtii (Zucc.) Klotzsch var. [but cf. LD] Biophytum sensitivum (L.) DC. [cf. also V #2415, apparently same species as #2776]

T o gogoa [CX, ?< n goa 'tuber' + (redup.); 'like a tuber' (folk etymology: so called because of fruit shape, i.e. 'rather tuber-like' fruit of this cultivated fruit tree)

t - o gogoa (ma oa) [P-EN] '(good) gogoa' V [#2216] det. not avail.; Ph: Eugenia malaccensis L.

t - o gogoa ma doka-dokara [P-EN] 'red gogoa'

t + o gogoa ma gare-garehe [P-EN] 'white gogoa' (Note: in D dialect this subclass is sometimes referred to by the NMM gora, thus o gora)

t + o gogoa ma dorou [P-EN] 'bad gogoa' V[LD] Barringtonia sp.

T o gogowáya [CX < gowáya (q.v.) 'Psidium guajava' + (redup.); 'rather like a gowáya'] V [#2539] [BO] Garoinia sp. [but cf. LD] Eugenia sp.

VxT o gogurati [CX, < vb -kurati 'yellow'; 'yellow']

v o gogurati o gumini [P] 'vine gogurati' (uncoll.)

t o gogurati o gota [P] 'tree gogurati' (uncoll.)

O(B) o gohoboro [SL] V [#2854] det. not avail.

H o gohomanga ma aehe [CD-EN, 'crocodile' + poss. + 'nest'; 'crocodile's nest'] V [#2315] det. not avail.

T o gohora [SL] 'nutmeg'

t + o gohora o fonganika [P-EN] 'jungle nutmeg' (or B^0 alternative) o dikahuka [SL]

t - o dikahuka (ma beka) [P-EN] '(female) dikahuka' V [#2274] det. not avail.

t + o dikahuka ma nauru [P-EN] 'male dikahuka' V [#2627] det. not avail.

t - o gohora [SL] V, Ph, PT: Myristica fragrans L. (all subclasses)

t + o gohora ma nauru [P-EN] 'male gohora' V [BO] Myristica fragrans L. (male individuals of this dioecious species)

t - o gohora (ma beka) [P-EN] '(female) gohora' (female of this dioecious species; note only the 'female' or fruit-bearing 'nutmegs' are subdivided into lower-level classes)

t ~o pala-bánda [SL, but < Ind or NMM CD; Ind pala 'nutmeg' + banda (place name); 'Banda nutmeg']

t ~o pala-bótol [SL, but < Ind or NMM CD; Ind pala 'nutmeg' + botol 'bottle'; 'bottle nutmeg']

t ~o pala-patani [SL, but < Ind or NMM CD; Ind pala 'nutmeg' + patani (place name); 'Patani nutmeg']

t ~o pala-jáwa [SL, but < Ind or NMM CD; Ind pala 'nutmeg' + jawa 'Java(nese)'; 'Javanese nutmeg']

T=0 o gohubáa [SL] V [BO] Cassia alata L.

t=o o gohubáa ma doka-dokara [P-EN] 'red gohubaa'

t=o o gohubáa ma gare-garehe [P-EN] 'white gohubaa'

T o goini [SL] V [BO] Achrosia glomerata F.W.M.

H o golioa [SL] (uncoll.)

T o gomono [SL] V [BO] Artocarpus altilis (Park.) Fosberg

t - o gomono [SL]

t + o gomono o fonganika [P-EN] 'jungle gomono'

0 o goóbe [SL] (uncoll.)

o o giranga [SL] (or) o goobe-giranga [CD-EN]

o o goto [SL] (or) o goobe-goto [CD-EN]

o o huuhu [SL] (B; cf. D dialect:) o fuusu [SL]

o o gogitihiri [SL, '(finger- or toe-) nail, claw'] [CX, < vb -gitihiri 'to have nails, claws'; 'clawed'] (uncoll.) (Note: at Pasir Putih [D dialect], o gogitifiri is a B^0 term contrasting with o goóbe; the latter is subdivided as above into the o giranga, o goto, and o fuusu subclasses; at Loleba [B dialect], however, the cognate o gogitihiri is also a B^{-1} term and a subclass of o goóbe.)

T o gorofútu ma houru [CD-EN, 'eyebrow' + poss. + 'medicine'; 'eyebrow medicine'] V [#2519] [LD] Ribara sp. [but cf. BO] Mathaea sp.

O(P) o goroko ma ngauku [CD-EN, '(type of bird)' + poss. + 'ear'] (uncoll.)

T o goruo ma mirimi [CD-EN, 'mullet (fish)' + poss. + 'bile'; 'mullet's bile' (folk etymology: so called because the bark of this tree tastes bitter like a mullet's bile)] V [#2676] det. not avail.

Note: B and D dialect subclasses considered separately:

(1) B dialect subclasses:

t o goruo ma mirimi ma beka [P-EN] 'female goruo ma mirimi' V [#2174] det. not avail.

t o goruo ma mirimi ma nauru [P-EN] 'male goruo ma mirimi' V [#2112] det. not avail.

(2) D dialect subclasses:

t ~ o goruo ma mirimi ma doka-dokara [P-EN] 'red goruo ma mirimi' V [#2620] det. not avail.

t ~ o goruo ma mirimi ma gare-garehe [P-EN] 'white goruo ma mirimi' (uncoll.)

T o gota ma amoko [CD-EN, 'tree' + poss. + 'largeness'; 'large (big) tree' V [LD] Gardenia cf. pterocalyx Val.

V o gotimono [SL] V [#2461] det. not avail.

v o manjanga ma gotimono [CD-EN, 'deer' + poss. + gotimono (q.v.); 'deer's gotimono'] V [#2170] det. not avail.

v o ode ma gotimono [CD-EN, 'pig' + poss. + gotimono (q.v.); 'pig's gotimono'] (uncoll.)

V o gotoaka ma paka [CD-EN, gotoaka 'white cockatoo (Cacatua alba)' + poss. + paka 'stick to, attach to'; (etym. ?)

(folk etymology: ma paka 'attached closely' refers to this vine's habit of attaching to tree trunks as it climbs)] V [BO] Raphidophora pinnata (L.F.) Schott (specimen from Pasir Putih).

(Note: the term o gotoaka ma paka is considered by some at Loleba to be synonymous with o migi ma nauru 'male migi' [q.v.], though at Pasir Putih and by some at Loleba those two terms are considered to label distinct B^0 classes.)

T o gowáya [SL] V [BO] Psidium guajava L.

H o guabébe [SL] V [US] Impatiens sp.

O(G) o guapo [SL] (uncoll.) (B dialect) Note: this B term labels a fine grain, no longer cultivated (but possibly same as D o buapo; at Pasir Putih, however, o buapo was apparently considered a subclass of o boteme [q.v.] 'Italian millet' [Setaria italica L.]).

T o guawe [SL] 'mango' V [BO] Mangifera indica L.(all subclasses)

t o banga [SL]

t o dodo [SL]

t o gole [SL]

t o hilo [SL, 'lamp', 'dammar']

t o hitangki [SL]

t o ido [SL]

t o maláka [SL, cf. Ind Malaka 'Malacca']

t o puniti [SL, 'coconut husk, so called because of fibrous meat of this mango's fruits']

t o salo [SL]

T o guihi [CX, < vb -uihi 'flook'; 'flood'] V [BO] Ficus adenosperma Miq. var. adenosperma f. angustifolia

TxH o guleulá [SL]

t + o guleulá o gota [P] 'tree guleula' V [BO] Drypetes cf. mucronata Pax. & H.

t - o guleulá (o rurúbu) [P] '(herbaceous weed) guleula' V [BO] Lepidagathis robinsonii Merr.

O o guluaha [SL] V [BO] Languas galanga (L.) Stuntz.

O o gulubenge [SL] V [#2010] det. not avail. [Arecaceae]

T o guluihuputu [CD-EX, gului 'buttocks' + -huputu 'come apart, come out'; '(a disease, hemorrhoids?)' (presumably so called because this plant is medication for this disease)] V [LD] Cerbera sp.

T o guluitokara [CD-EX, gului 'buttocks' + -tokara 'red'; 'red buttocks' (etym.?)] V [#2608] det. not avail.

T o gulumahi [SL] (uncoll.)

T o gumiguraci [CD, indet. < gumi 'vine' or 'stem (of vine)' guraci 'gold' ; 'gold(en) vine?' (etym.?)] (uncoll.)

VxT o gumoanga [SL]

v - o gumoanga (o gumini) [P] '(vine) gumoanga' V [#2194] det. not avail.

t + o gumoanga o gota [P] '(tree) gumoanga'

t - o gumoanga [SL] V [LD] Timonius sp.

t + o gumoanga hadato-datomo 'cultivated gumoanga' (occasionally cultivated as decorative plant) V [BO] Bauchinia cf. acuminata L.

T o gumúru ma gohi [CD-EN, '(type of bird)' + poss. + 'egg(s)'] V [#2662] [BO] Matthaea sp. [LD] Kibara sp.

T o gurabati [SL]

t o gurabati ma biru-biru [P-EN] 'blue gurabati' (or)
o gurabati ma hoka ibiru-biru [P-EN] 'blue-leafed gurabati' V [#2818] det. not avail.

t o gurabati ma gare-garehe [P-EN] 'white gurabati' (or)
o gurabati ma hoka iare-arehe [P-EN] 'white-leafed gurabati' V [BO] Polycias fructicosa (L.) Harms.

t o gurabati ma gogurati [P-EN] 'yellow gurabati' (or)
o gurabati ma hoka ikokurati [P-EN] 'yellow-leafed gurabati' V [BO] Polycias fructicosa (L.) Harms.

T o guráma [SL] V [BO] Inocarpus fagiferus (Parkinson) Fosb.

O o gurati [CX, < -kurati 'yellow, orange'; 'yellow, orange']
'turmeric' Ph: Curcuma longa L. (both subclasses)

o - o gurati (ma dutu) [P-EN] '(genuine) gurati' V [#2437] det. not avail.

o + o gurati ma dorou [P-EN] 'bad gurati' (Note also B dialect synonym o puaha [SL], and D dialect synonym o lipaha [SL] -- both these synonyms are also B^{-1} terms.) V [#2259] det. not avail.

T o gutuhuru [SL] V [LD] Debregeasia sp.

T o haawaku [SL, '(long, thin) shield' (etym. ?)]

t o haawaku ma beka [P-EN] 'female haawaku' (uncoll.)

t o haawaku ma nauru [P-EN] 'male haawaku' V [BO] Duobanga moluccana Bl.

T o habana [SL] V [#2536] [BO] Parinari sp. [but cf. LD] Alphitonia sp.

H o hae-haeke [CX, < n haeke 'head', or perhaps vb -haeke 'to have a head'; thus 'many-headed'?] V [BO] [#2042] Hyptis rhomboidea Mart. & Gal. [but cf. #2719, 2821] Hyptis capitata Jack.

T o hahahini [CX, < vb -hahini 'to be hungry'; (etym. ?)] V [BO] Pleomele angustifolia [a.u.]

T o hai-haiti [CX, < n haiti (q.v.) + (redup.); 'rather like a haiti (tree)'] V [BO] Desmodium heterocarpon (L.) D.C.

VxT o haiti [SL]

v o haiti o gumini [P] 'vine haiti' V [BO] Iodes philippinensis Merr.

t o haiti o gota [P] 'tree haiti' V [BO] Desmodium gangeticum (L.) DC.

O(P) o hakaru ma booteke [CD-EN, 'stone' + poss. + '?'] (uncoll.)

T o haketa [SL] V [BO] Wrightia calycinia DC.

T o haláka [SL, 'silver'] V [#2725] det. not avail.

T o halale ma ngutuku [CD-EN, 'bad luck caused by wrongdoing' + poss. + 'root' (name alludes to the medicinal use of this tree's root to ward off the bad luck brought on oneself by some wrong action)] V [BO] Oxymitra sp.

T o hale [SL] (or) o mantoongo [SL] V [BO] Eugenia sp.

V o halegumini [CD-EN, hale (q.v.) + 'vine'; 'vine hale'] V [BO] Derris trifoliata Lour.

V o hamáka [SL, cf. NMM samangka 'melon'] 'melon'

v - o hamáka [SL] V [BO] Citrulus lanatus (Thumb.) Mansf.

v + o iafa [SL, 'dolphin' (so called because of large size of fruits on these melons)] (uncoll.)

T o hamangau [SL] V [BO] Randia oppositifolia K. & S.

T o hamehe [SL] V [#2535] det. not avail.

VxT o hamete [SL]

v + o hamete o gumini [P] 'vine hamete' V [BO] Dalbergia parviflora Roxb.

t - o hamete (o gota) [P] '(tree) hamete' (uncoll.)

VxT o hararoko [SL]

v + o hararoko o gumini [P] 'vine hararoko' V [BO] Oxymitra cuneiformis Zoll.

t - o hararoko (o gota) [P] 'tree hararoko'

t + o hararoko o fonganika [P-EN] 'jungle hararoko' (or) o hararoko ma hoka ialu-aluhu [P-EN] 'small-leafed hararoko' V [BO] Insia byuga (Colebr.) D.K.

v - o hararoko [SL] (or) o hararoko o gahika [P-EN] 'shore hararoko' (or) o hararoko ma hoka ma ngoa-ngoata [P-EN] 'broad-leafed hararoko' V [LD] Polyalthia sp.

T o hatobu [SL] V [BO] [#2665] Canarium hirsutum Willd. var. hirsutum f. scabrum Bl. [but cf. #2011] Pometia tomentosa (Bl.) T. et B.

VxT o hauyo [SL]

v + o hauyo o gumini [P] 'vine hauyo' V [BO] Marsdenia tenacissima W. et A.

t - o hauyo (o gota) [P] '(tree) hauyo' V [BO] Dysoxylum sp.

T o hawo-hawoko [CX, < n hawoko 'cup' + (redup.); 'rather like a cup'] (or) o deri-derihi [CX, n derihi (H dialect; cf. B and D bayae) 'cup or bowl made of fan-palm leaf' + (redup.); 'rather like a fan-palm leaf bowl or cup'] (uncoll.)

T o haya [SL] V [BO] Diospyros pilosanthera Bl.

T o hayamami [SL]

t o hayamami ma doka-dokara [P-EN] 'red hayamami' (uncoll.)

t o hayamami ma gare-garehe [P-EN] 'white hayamami' V [BO] Torenna fragrans (Bl.) K. & V.

T o hehene [SL] V [LD] Semecarpus sp.

HxO o hehewehe [SL]

h + o hehewehe ma nauru [P-EN] 'male hehewehe' V [#2504] det. not avail.

o - o hehewehe (ma beka) [P-EN] '(female) hehewehe' V [#2419] det. not avail.

T o hekiri [SL] V [#2545] [BO] Anthocephalus sp. [but cf. LD] Nauclea orientalis L.

O o hekiri [SL] (uncoll.)

O o hemu [SL] (or) o femu [SL] V [#2446] [BO] Hydriastele rostata [a.u.] [but cf. V #2857] [BO] Pinanga sp.

V o hero ma rako [CD-EN, < hero 'guiding-barrier fish trap' + poss. + rako 'weave'; '(vine used to make the) weave of a guiding-barrier fish trap']

v + o hero ma rako o gahika [P-EN] 'shore hero ma rako' V [BO] Tristellateia australasiae A. Rich.

v - o hero ma rako [CD-EN]

v o hero ma rako ma beka [P-EN] 'female hero ma rako' V [#2715] det. not avail.

v o hero ma rako ma nauru [P-EN] 'male hero ma rako' V [#2078] det. not avail.

H o hibu-hibulu ma iyoko [CD-EN, 'morning wind from the land' + poss. + 'excrement, waste product'; 'the waste left by the morning land-wind'] V (lost)

V o hide-hidete [CX, < vb -hidete 'to sail' or perhaps n hidete 'sail'] V [#2258] det. not avail.

T o hilíi [SL] (or) o ngofawoe [probably CD-EX, ngofa 'children, suckers, shoots (from base of a plant)' + -woe 'many'; 'many shoots'] V [BO] Lithocarpus sp.

T o hilo [SL] 'dammar'

t + o iru [SL] V [#2254] det. not avail.

t - o hilo (ma dutu) [P-EN] '(genuine) hilo' (or) o molefaono [SL] (uncoll.) (According to local Forestry officers: Agathis sp. or spp.)

T o hinangiri [SL] V [BO] Villenbainea rubescens (Bl.) Bl.

T o hinianga [SL] V [BO] Caesalpinia sappan L.

T o hitakono [SL]

t + o hitakono o gahika [P-EN] 'shore hitakono' (or alternative B^0 term:) o kapuraca (uncoll.)

t + o hitakono o fonganika [P-EN] 'jungle hitakono' (uncoll.)

t - o hitakono [SL] V [BO] Callophylum soulatri Burm. f.

t o hitakono ma hoka ialu-aluhu [P-EN] 'small-leafed hitakono' (uncoll.)

t o hitakono ma hoka ipako-pako [P-EN] 'large-leafed hitakono' V [#2436] det. not avail.

T o hoboobo [SL] V [BO] Acalypha cf. amentacea Roxb.

T o hogili [SL] (uncoll.)

T o hoharána [SL, but ? < CX] V [BO] Callicarpa bicolor A. L. Juss.

T o hohiaboro [SL, but ? < CX] V [#2572] [BO] Alangium hirsutum Bloemb. [but cf. LD] Ficus sp.

H o hohodoa [SL, but ? < CX] V [#2652] det. not avail.

H o hohokiki [CX, < n hokiki 'unpronged spear (or its tip)' + (redup.); 'rather like a hokiki spear tip' (so called because this plant's leaf shape recalls the spear tips' shape)] V [LD] Emilia sp.

V o hohononga [CX, < hononga 'side' (so called because this vine creeps along a tree or ground surface with the undersides of all leaves flat against the surface, thus only one "side" is visible; cf. o hohononga 'flounder [fish]' [also one-"sided"]).

v + o hohononga o tonakika [P-EN] 'ground-(dwelling) hohononga' V [BO] Ficus punctata Thunb.

v - o hohononga [CX] V [#2052] det. not avail.

T o hokaregi [CD-EX, hoka 'leaf' + -regi 'to be lobed'; 'leaves (are) lobed'] V [#2272] det. not avail.

T o homomara [SL] V [BO] Ficus ampelas Burm. f.

TxV o homooko [SL]

v + o homooko o gumini [P] 'vine homooko' V [#2675] det. not avail.

t - o homooko (o gota) [P] '(tree) homooko' V [BO] Premna foetida Reinw.

t + o homooko o gahika [P-EN] 'shore homooko' (uncoll.)

t - o homooko (o fonganika) [P-EN] 'jungle homooko'

t + o homooko o ngairiha [P-EN] 'riparian homooko' V [BO] Premna odorata Blanco

t - o homooko o fonganika [P-EN] 'jungle homooko' (uncoll.)

Note: please see 5.2.1.1.2. above on the origin of this B^{-2} distinction of subclasses of o homooko.

VxT o hooro [SL]

v + o hooro o gumini [P-EN] 'vine hooro' V [BO] [#2031] Strychnos colubrina L. [but cf. #2799] Strychnos axillaris Colebr.

t - o hooro (o gota) [P-EN] '(tree) hooro' V [#2091, 2727, 2865] [BO] Celtis wightii Planch. [but cf. #2441] [LD] Celtis latifolia [a.u.]

T o horobiingi [SL] V [BO] Euodia rosea Perr.

H o horowai [SL] V [BO] Trachyspermum roxburghianum (DC) Craib.

H o hoye [SL] (or) o lou-lou [SL, but ? < CX] V [BO] Paspalum commersonii Lamk.

T o huaono ma guguriti [CD-EN, '(type of fish)' + poss. 'stringer (used to string fish together for transporting them)'; 'huaono fish stringer'] V [#2189] det. not avail.

VxT o hugerongo [SL]

v o hugerongo o gumini [P] 'vine hugerongo' V [US] ?Grewia sp. [Tiliaceae]

t o hugerongo o gota [P] 'tree hugerongo' V [BO] Luvunga sarmentosa (Bl.) Kurz

H o huhu ma dara [CD?, '?'] V [BO] Euphorbia squalida Lindl.

H o huhu ma liliara [CD (indet.), '?' + poss. + 'tie'] V [#1071] (lost)

T o hukupote [SL] V [BO] Semecarpus cf. longifolia

T o hulahi [SL] (probably same as o sulasi [q.v.])

t o hulahi ma doka-dokara [P-EN] 'red hulahi' V [BO] Occimum sanctum L.

t o hulahi ma gare-garehe [P-EN] 'white hulahi' V [BO] Occimum sanctum L.

H o hulahi ma dofu [CD (indet.)] V [BO] Ruellia sp.

H o hulahi ma dowa [CD (indet.)] V [#2092] det. not avail.

T o huleele [SL] V [BO] Solanum torvum Swartz.

t o huleele ma beka [P-EN] 'female huleele' V [BO] Solanum sp.

t o huleele ma nauru [P-EN] 'male huleele' V [BO] Solanum sp.

T o hulumutu [SL] V [#2559] det. not avail.

T o humu ma boboha [CD-EN, humu '(water) well' + poss. + 'hitter'; 'well-hitter' (etym. ?)] V [BO] Jagera sp.

T o humuliti [SL] (uncoll.)

T o hurudai [SL] V [#2176] det. not avail.

V o huru-hurutu [CX, hurutu (q.v.) + (redup.); 'rather like hurutu vine'] (uncoll.)

V o hurutu [SL]

v - o hurutu (ma oa) [P-EN] '(good) hurutu' V [#2125] det. not avail.

v + o hurutu ma dorou [P-EN] 'bad hurutu' V [#2625] [BO] Milletia sp. [but cf. LD] Derris sp.

H o igo-igono [CX, < n igono 'coconut'; 'rather like a coconut' (a reference to the shape of this plant's small fruit?)] V [#2569] (lost) Ph: Physalis sp.

O o igono [SL] 'coconut' Ph, PT: Cocos nucifera L. (all subclasses)

o + o igo-bula [SL, but ? Tte CD, cf. Tte igo 'coconut']

o + o niara [SL] (or) o pinaau [SL]

o + o tukuru [SL]

o - o igono [SL]

Note: Intersecting subclassification (see 5.2.2.4 above)

(1) 'male'-'female'

o + o igono ma nauru [P-EN] 'male coconut palm'

o - o igono (ma beka) [P-EN] 'female coconut palm'

(2) 'red'-'white'

o o igono ma doka-dokara [P-EN] 'red coconut palm'

o o igono ma gare-garehe [P-EN] 'white coconut palm'

T o iko [SL] V [BO] Cryptocarya sp.

V o imara [SL] (or) o guhuongo [SL] V [#2357] det. not avail.

T o ingiri ma gegehe [CD-EN, 'tooth' + poss. + 'polisher'; 'tooth polisher' (a reference to the use of leaves of this tree to rub or polish tops of the teeth after tooth filing)] (or) o ingiri ma yeyehaka [CD-EN, same meaning] V [BO] [#2713] Leucosyke capitellata (Poir.) Wedd. [but cf. #2319] [LD] ?Pueraria sp. [but cf. also #2179 (det. not avail.) different species]

V o iwi [SL] V [BO] Calamus sp.

T o jabaóto [SL] V [BO] Abroma mollis DC.

T o jajame [CX, < vb -jame 'pleasantly scented'] V [#2138] det. not avail. Ph: Klausena sp.

H o jalu-jalu [SL, but ? < CX] V [BO] Sesuvium portulacastrum (L.) L.

T o jambula [SL] V [BO] Eugenia cumini (L.) Sheels

HxO o jara-jara [SL, but ? < CX]

h + o jara-jara ma nauru [P-EN] 'male jara-jara' [P-EN] Rhyncospora rubra (Lour.) Makono

o - o jara-jara (ma beka) [P-EN] 'female jara-jara' V [BO] Spinifex littoreus (Burm. f.) Merr.

H o jara ma rurubu [CD-EN, 'horse' + poss. + 'herbaceous weed'; 'horse's weed'] V [BO, LD] Zoysia matrella (L.) Merr. var. pacifica Goudswaard

H o jela-jela [SL, but ? < CX] V [BO] Paspalum conjugatum Berg.

H o jere ma bunga [CD-EN, 'grave' + poss. + 'flower'; 'grave's flower'] V [BO] Sambucus canadensis L.

T o jobirono [SL]

t - o jobirono (ma beka) [P-EN] '(female) jobirono' V [BO] Zanthoxylum avicennia (Lamk.) DC.

t + o jobirono ma nauru [P-EN] 'male jobirono' V [LD] Securinega sp.

T o kaba-kaba [SL, but ? < CX] V [#2325] det. not avail.

T o kabi-kabingi [CX, < n kabingi 'goat' + (redup.); (etym. ?)] (uncoll.)

H o kabingi ma gouru [CD-EN, 'goat' + poss. + 'testicles'; 'goat's testicles' (a reference to shape of the rhizome)] (or) o kabingi ma diliki [CD-EN, 'goat' + poss. + 'penis'; 'goat's penis' (same reference)] V [BO] Homalomena cordata Schott

V o kaca-kacanga [CX, < n kacanga (= o boci q.v.) 'peanut' + (redup.); 'rather like a peanut (plant)']

v o kaca-kacanga ma beka [P-EN] 'female kaca-kacanga' V [#2239] det. not avail.

v o kaca-kacanga ma nauru [P-EN] 'male kaca-kacanga' V [#2279] det. not avail.

T o kadateke [SL] V [BO] Antidesma celebicum Miq.

T o kafo [CX, abstract n < vb -kafo 'to be gray'; 'grayness'] V [BO] Rhus taitensis Guillem.

O o kahitela-gota [CD-EN, 'tree kahitela' (cf. o kahitela-tonaka q.v. 'ground [i.e. vine] kahitela' 'sweet potato')] Ph, PT Zea mays L. 'maize' (both subclasses)

o + o todore [SL, 'Tidore (Island)'] 'Tidore maize'

o - o kahitela-gota [CD-EN] 'maize'

o o kahitela-gota ma doka-dokara [P-EN] 'red maize'

o o kahitela-gota ma gare-garehe [P-EN] 'white maize'

0 o kahitela-tonaka [CD-EN, 'ground (-dwelling) kahitela'; cf. o kahitela-gota (q.v.)] Ph, PT: Ipomoea batatas L. 'sweet potatoes' (all subclasses)

o ~o abongo [SL, 'Ambon']

o ~o gorikino [SL?]

o ~o hagalati [SL]

o ~o hijai-jai [CX, < -hi- (causative) + vb -jai 'fast, hasty' + (redup.); 'speed up' (refers to this variety's fast growth and maturity)]

o ~o hurubaya [SL, 'Surabaya (city)']

o ~o jobúbu [SL]

o ~o komene [SL, cf. o komene (q.v.) (a 'tree' type)]

o ~o nasi [SL, ? < Ind nasi 'cooked rice']

o ~o talaud [SL, 'Talaud (Islands)']

o ~o tedenge [SL]

o ~o tupu-tupu [SL, but ? < CX; '(a type of fish)']

o ~o ula-ula ma gohi [CD-EN, < n ula-ula '(type of tern)' + poss. + 'egg(s)'; '(type of) tern's eggs']

T o kahobikini [CD-EN, 'dog' + 'tail'; 'dog's tail'] V [#2134] det. not avail.

H o kaho ma lego-legoro [CD (indet.) 'dog' + '?' + '?'] (or) o kaho ma go-gamaoro [CD (indet.) 'dog' + '?' + '?'] V [BO] Leptaspis urseolata (Roxb.) R. Br.

H o kaho ma rio [CD-EN, 'dog' + poss. + 'track'; 'dog's tracks' (refers to leaf shape)] V [BO] Pseudarthria viscida (L.) W. & A.

T o kailáka [SL] V [BO] Premna sp.

T o kailupa [SL] 'kapok'

t + o kailupa o fonganika [P-EN] 'jungle kapok' (or) o kakawehe [SL] V [#2726] det. not avail.

t - o kailupa (ma dutu) [P-EN] '(genuine) kapok' (uncoll.) PT: Ceiba pentandra Gaertn.

H o kakakara [SL, but ? < CX] V [#2153] det. not avail.

O(B) o kakale [SL]

o(b) - o kakale [SL] V [BO] Schizostachyum sp.

o(b) + o kakale iho-hurewene [P-EN] 'striped kakale' V [BO] Schizostachyum sp.

H o kakanoko [SL, but ? CX] V [#2105, 2492] det. not avail.

V o kalapa-honenge [Ind and Tbl compound-parts, CD-EX?, kalapa (Ind & NMM) 'coconut palm' + -honenge (Tbl) 'die, kill' ; '?' (etym. ?) (folk etymology: so called probably because this vine is planted to kill Imperata sp. and other weeds in coconut fields)] V [BO] Centrosoma pubescens Bth.

V o kamalenga [SL] (uncoll.)

T o kamayua [SL] (or) o jama [SL, this latter term is locally thought to be the original Tbl word, now largely replaced by the NMM borrowing kamayua]

t + o tataleka [SL] (uncoll.)

t - o kamayua (or) o joronga [SL] V [BO] Aglaia sp.

H o kamo-kamoro [SL, perhaps < CX but *-kamoro apparently unacceptable; 'distant low-lying cloud' (reference to "misty" effect of the many hairlike panicles projecting from the unmarked 'female' plant]

h - o kamo-kamoro (ma beka) [P-EN] '(female) kamo-kamoro' V [BO] Eragrostis tenella (L.) Beauv. ex R. & S.

h + o kamo-kamoro ma nauru [P-EN] 'male kamo-kamoro' V [BO] Cyrtococcum accrescens Stapf.

T o kanánga [SL] V [BO] Cananga odorata (Lmk.) Hook. f. & Thoms.

T o kapasa [SL, cf. Ind kapas] 'cotton' V [BO] Cossypium acuminatum Roxb.

H o karafe-gumi [CD-EN, n karafe 'mouse, rat' + gumi 'whisker(s)'; 'rat's whiskers']

h + o karafe-gumi o fonganika [P-EN] 'jungle karafe-gumi' V [#2249] det. not avail.

h - o karafe-gumi [CD-EN]

h + o karafe-gumi ma nauru [P-EN] 'male karafe-gumi' V [BO] Asplenium excisum Presl.

h - o karafe-gumi (ma beka) [P-EN] '(female) karafe-gumi' V [#2106] det. not avail.

H o karafe ma gumi [CD-EN, 'mouse, rat' + poss. + 'whisker(s)'; 'rat's whiskers'] V [BO] Fimbristylis ovata (Burm. f.) Kern

T o karianga ma akiri [CD-EN, 'Varanus indicus (large lizard)' + poss. + 'tongue'; 'tongue of the large lizard V. indicus' (so called because the large lizard's forked tongue is like the cleft leaves of this tree)] V [BO] Celtis wightii Planch

V o karianga ma hoata [CD-EN, 'Varanus indicus (large lizard)' + poss. + 'palm (of hand), flat (of foot)'; 'the flat of the V. indicus lizard's paw'] V [#2127] det. not avail.

H o karo ma bunga [CD-EN, 'coral' + poss. + 'flower'; 'coral flower'] V [BO] Lycopodium corinatum Debv.

H o kastroli [SL, cf. NMM kastroli] V [#2465] det. not avail.

V o kate-kate [SL, but ? < CX]

v + o kate-kate ma beka [P-EN] 'female kate-kate' V [BO] Taxotropis ilicifolia Vid.

v - o kate-kate (ma nauru) [P-EN] '(male) kate-kate' V [#2048] [BO] Caesalpinia crista L. [but cf. #2098] [LD] Zantoxylum sp.

H o katuri ma boboko [CD-EN. 'palm-civet (Paradoxorus hermaphroditus)' + poss. + '?'] V [BO] Adenostemma lavenica (L.) O.K.

T o kayu-puti [SL, but < Ind CD; Ind 'wood' + 'white'; 'white wood'] (or sometimes) o minya-kayu-puti [SL, but < Ind 'oil' + 'wood' + 'white'; 'white wood oil' (i.e., the commercially sold scented oil made from this tree)] V [BO] Melaleuca leucadendra (L.) L.

T o kayu-manis [SL, but < Ind CD; Ind kayu 'wood' + Ind manis 'sweet'; 'sweet wood'] 'cinnamon' Ph: Cinnamomum sp.

H o keketuku [SL, but ? < CX]

h + o keketuku o dalukika [P-EN] 'sugar-palm (-dwelling) keketuku' V [BO] Asplenium adiantoides [a.u.]

h + o keketuku o fonganika [P-EN] 'jungle keketuku'

V [US] Davallia trichomanoides Bl.

h - o keketuku [SL]

h + o keketuku ma nauru [P-EN] 'male keketuku'

V [#2422] det. not avail.

h - o keketuku (ma beka) [P-EN] '(female) keketuku'

V [BO] Selaginella wildenowii [a.u.]

T o keledongo [SL]

t + o keledongo ma nauru [P-EN] 'male keledongo' (uncoll.)

t - o keledongo (ma beka) [P-EN] 'female keledongo'

V [BO] Timonius rufescens Boerl.

T o kelo [SL]

t + o kelo o fonganika [P-EN] 'jungle kelo' (uncoll.)

t - o kelo [SL] (uncoll.)

T o kiahu [SL] V [#2588] det. not avail.

T o kikihi [SL] (uncoll.) (not same as o kikiri)

T o kikiri [SL] V [BO] Leucocyke capitellata (Poir.) Wedd.

T o kitoere [SL] (uncoll.)

T o kóaha [SL] (uncoll.)

T o kobo-kobongo [CX, < vb -kobongo 'to have (marked) leaf axes' (< n kobongo 'bone, leaf axis')] (uncoll.)

H o kocubo [SL] Ph: Datura sp.

T o kofi [SL] 'coffee' V [BO] Coffea arabica L. var.

T o kofi-kofi [CX, < n kofi 'coffee' + (redup.); 'rather like a coffee (plant)'] V [BO] Pavetta cf. sylvatica Bl.

H o koha-koha [SL, but ? < CX] V [#2906] det. not avail.

H o kohe-kohe [SL, but ? < CX; cf. kohe 'hornbill (bird)'] (uncoll.)

H o kohe ma kakoto [CD-EN, 'hornbill' + poss. + 'eyelash(es)'; 'hornbill's eyelashes'] V [BO, LD] Bidens pilosa L.

TxH o kokabela [SL]

t + o kokabela o gota [P] 'tree kokabela' V [LD] Timonius sp.

h - o kokabela (o rurubu) [P] '(herbaceous weed) kokabela'

h + o kokabela o dalukika [P-EN] 'areca-palm (-dwelling) kokabela' (so called because it grows on the "trunk" of o daluku [q.v.]) V [BO] Nephrolepis falcata [a.u.]

h - o kokabela [SL] V [BO] [#2083] Nephrolepis hirsutula [but cf. #2762] Nephrolepis falcata [a.u.]

H o kokailupa [CX, < n kailupa (q.v.) 'kapok' + (redup.); 'rather like kapok']

h + o kokailupa ma nauru [P-EN] 'male kokailupa' V [#2542] [BO] Eclipta alba (L.) Hassk. [but cf. LD] Eclipta prostrata (L.) L.

h - o kokailupa (ma beka) [P-EN] '(female) kokailupa' (uncoll.)

H o kokayiyu [SL] V [BO] Mapania cuspidata (Miq.) Uitt. var. petiolata (Clarke) Uitt.

T=H o kokereehe [SL, but ? < CX] V [BO] Crotalaria retusa L.

V o kokobúbu [SL] V [BO] Psychotria sarmentosa Bl.

T o kokocubo [CX, < n kocubo (q.v.) 'Datura sp.' + (redup.); 'rather like a kocubo (plant)'] V [#2733] det. not avail.

H o kokomomoko [SL]

Note: in addition to the 'male' and 'female' subclasses below, V [#2350] [BO] Triumfetta rhomboidea Jack. [but cf. LD] Triumfetta pilosa [a.u.] was identified by informants as "a kind of kokomomoko" (o kokomomoko o hara moi-oli), thus in the B^0 class, but not in either 'male' or 'female' subclass.

h + o kokomomoko ma nauru [P-EN] 'male kokomomoko'
V [BO] Urena lobata ssp. vinimea (Cav.) Bross. f. tomentosa (Bl.) Bross.

h - o kokomomoko (ma beka) [P-EN] '(female) kokomomoko'
V [BO] Urena lobata L. ssp. lobata f. lobata

H o kokuanyi [SL] V [BO] Eleuthanthera ruderalis (Sw.) Sch. Bip.

T o kokulúbu [SL]

t ~ o kokulúbu ma beka [P-EN] 'female kokulubu' V [BO] Clausena charmandiana (Pierre) Gouill

t ~ o kokulúbu ma nauru [P-EN] 'male kokulubu' (uncoll.)

H o kokunyinga [SL] V [BO] Ageratum conyzoides L.

T o koledukuru [SL] V [BO] Lepidopetalum perrottetia Bl.

T o komene [SL]

t o komene ma beka [P-EN] 'female komene' V [#2156] det. not avail.

t o komene ma nauru [P-EN] 'male komene' V [BO] Morinda bracteata Roxb.

V o korehára ma gumini [CD-EN, 'north wind' + poss. + 'vine'; 'vine of the north wind'] V [#2129, 2207, 2594] det. not avail.

T o kori [SL] (uncoll.)

V o kowa [SL] V (lost)

T o kowehe [SL]

t + o todore [SL, 'Tidore'] V [BO] Harpulia arborea (Blco.) Merr.

t - o kowehe [SL] V [BO] Cyrtococcum patens (L.) A. Camus

H o koyoba ma toimi [CD-EN, 'eagle (Aquila gurneyi)' + poss. + 'arrow, bow and arrow'; 'eagle's (bow and) arrow'] (or) o koyoba ma toi-toimi [CD-EN, (as above, but toimi reduplicated, thus 'rather like an eagle's bow and arrow')] V [BO] Dendrobium cf. lancifolium A. Rich.

O o kucai [SL] (or) o ganda [SL; perhaps because this plant is kucai in NMM, the variant o ganda was locally suggested as "original" Tbl -- but cf. W. Brown 1951 (3):373, both terms widely used in the Philippines for Allium tuberosum Roxb.] V [BO] Allium retrofractum [a.u.]

V o kugete [SL] V [#2377] det. not avail.

v ~o kugete ma doka-dokara [P-EN] 'red kugete'

v ~o kugete ma gare-garehe [P-EN] 'white kugete'

H o kuho ma gouru [CD-EN, 'kus-kus' + poss. + 'testicles'; 'kus-kus's testicles'] V [BO] Nervilia aragoana Gaud.

V o kuho ma hoata [CD-EN, 'kus-kus' + poss. + 'flat (of foot, paw)'; 'flat of the kus-kus's paw'] (uncoll.)

T o kuho ma huhuhumu [CD-EN, 'kus-kus + poss. + '?'] (uncoll.)

T o kuho ma rio [CD-EN, 'kus-kus' + poss. + 'track(s)'; 'kus-kus's tracks'] V [BO] Kleinchovia hospita L.

T o kuhu-kuhu [SL, but ? < CX] V [BO] Schefflera sp.

T o kuruhu [SL] V [BO] Koordersiodendron pinnatum Merr.

T o kuto [SL]

t ~o kuto ma hoka ialu-aluhu [P-EN] 'small-leafed kuto' V [#2150] det. not avail.

t ~o kuto ma hoka iregi-regi [P-EN] 'lobed-leafed kuto' V [#2360] det. not avail.

T o kuuhu ma didu [CD-EN, kuuhu (bird?) + poss. + 'perch, perching place'; 'kuuhu's perching (resting) place'] (or) o kuhu ma didu [CD-EN, same etymology] V [BO] Octomeles sumatrana Miq.

H o lage-lage [CX, < vb -lage 'lift' (etym. ?)] V [BO] Pronephrium sp.

VxT o laimusa [SL] (B; cf. D:) o maimusa

t + o laimusa o gota [P] 'tree laimusa' V [BO] Lantana sp.

v - o laimusa o gumini [P] 'vine laimusa'

v + o laimusa ma beka [P-EN] 'female laimusa' V [BO] Mimosa invisa Mart. ex Colla

v - o laimusa (ma nauru) [P-EN] '(male) laimusa' V [BO] Lantana camara L.

H o lakodóto [CD-EX, 'eye' + 'to be sharp'; 'sharp eyes' (apparently a reference to a medicinal use of the plant)]

h o lakodóto ma doka-dokara [P-EN] 'red lakodóto' V [BO] Hemigraphis cf. ceramensis Brem.

h o lakodóto ma gare-garehe [P-EN] 'white lakodóto'
V [BO] Orthosiphon aristatus (Bl.) Miq.

T o lalade [SL, but ? < CX] (uncoll.)

T o lame [SL] V [BO] Neolitsea cassiaefolia (Bl.) Merr.

V o lantoro [SL, < Ind?] V [#2101, 2168] det. not avail.

T o lantoro [SL, < Ind] V [#2886] det. not avail.

T o laránga [SL] (uncoll.)

V o leeléle [CX, n. lele (q.v.) + (redup.); 'rather like lele'] V [#2412] det. not avail.

V o lele [SL] V [#2913] det. not avail.

T o leleko [SL, but ? < CX]

t + o leleko o fonganika [P-EN] 'jungle leleko' V [LD] Aceratium sp.

t - o leleko [SL]

t ~o leleko ma doka-dokara [P-EN] 'red leleko'
V [LD] Pisonia sp.

t ~o leleko ma gare-garehe [P-EN] 'white leleko'
V [#2143] det. not avail.

T o libirini [SL] V [BO] Pipturus argenteus (Forst.) Wild.

H o lifi-lifiti [CX, vb -lifiti 'sprain' + (redup.); 'sprained']
V [BO] [#2057] Centotheca lappacea (L.)Desv. [but cf. #1232] Commelina sp.

H o lifi-lifiti ma dofa [P-EN] 'counterfeit (of) lifi-lifiti [q.v.]'
V [#2107] det. not avail.

T o lifofoko [SL] V [#2604] det. not avail.

T o ligoere [SL] (uncoll.)

T o ligua [SL, < NMM linggua]

t ~ o ligua ma doka-dokara [P-EN] 'red ligua' (uncoll.)

t ~ o ligua ma gare-garehe [P-EN] 'white ligua'

V [BO] Pterocarpus indicus Willd.

O(P) o liliama [SL, but ? < CX] V [#1247] (lost)

H o limaduku [SL]

h - o limaduku (ma beka) [P-EN] '(female) limaduku'

V [BO, LD] Cyperus iria L.

h + o limaduku ma nauru [P-EN] 'male limaduku' V [BO]

Scleria scrobiculata Nees & Mey. ex Nees

O o liri [SL]

o - o liri [SL] (or) o nyawa ma liri [CD-EN, 'human' + poss. + liri; 'human's liri'] (uncoll.)

o + o kaho ma liri [CD-EN, 'dog' + poss. + liri; 'dog's liri] (uncoll.)

H o liri-liri [CX, n liri (q.v.) + (redup.); 'rather like liri'] V [BO] [#2646] Themeda gigantea (Cav.) Hassk. [but cf. #2040] Cyperus javanicus Houtt.

V o lobo-loboro [CX, n loboro 'one-tenth guilder (Dutch) coin' + (redup.); 'rather like a one-tenth guilder coin' (refers to small size and "circular" coin-like shape of leaves)] V [#2507] det. not avail.

V o lolapáka [SL]

v + o lolapáka ma beka [P-EN] 'female lolapáka' V [#2653] det. not avail.

v - o lolapáka (ma nauru) [P-EN] '(male) lolapaka'
V [BO] Dischidia imbricata (Bl.) Steud.

V o lolaránga [SL, but ? < CX] V [BO] Cynanchum ovalifolium Wight

V o lolóro [SL]

v + o lolóro ma nauru [P-EN] 'male lolóro' V [BO]
Vigna marina (Burm. f.) Merr.

v - o lolóro (ma beka) [P-EN] '(female) lolóro'
(uncoll.)

H o luja [SL]

h + o luja ma dorou [P-EN] 'bad luja' V [BO] Asystasia
nemorum Nees

h - o luja (ma oa) [P-EN] '(good) luja' (uncoll.)

T o luka-lukama [CX, < n lukama (q.v.) 'lansat fruit (tree)' +
(redup.); 'rather like a lansat tree']
V [#2720, 2735, 2802] det. not avail.

T o lukama [SL] (uncoll.) PT: Lansium domesticum Jack
'lansat'

T o lulewi [SL]

t + o papua [SL] (or) o lulewi-papua [CD-EN, 'papua (variety
of) lulewi'] V [LD] Casuarina cf. equisetifolia

t - o lulewi [SL] (or) o lulewi o akeriha [P-EN] 'riparian
lulewi' V [BO] Casuarina sumatrana Jungh ex de Vriese

VxHxO o maa-maata [CX, < vb -maata 'cold' + (redup.); 'cold' (refers
to this plant's medicinal use in reducing fevers)]

v o maa-maata o gumini [P] 'vine maa-maata' V [#2575]
det. not avail.

o o maa-maata o ugaka [P] 'sugar cane maa-maata' (so called because of its long, upright though slightly spiralled stem) V [LD] Costus sp.

h=o o maa-maata o gota [P] 'tree maa-maata' (so called because, though small, it has a straight, upright stem) V [BO, US] Kalanchoe pinnata (Lamm.) Pers.

T o mabanoka manga hikata [CD-EN, 'Maba (ethnic group of Halmahera)' + poss. + 'pin (for boat planks)'; 'Maba boat pin'] (uncoll.)

H o mai-maihi [SL, but ?< CX; cf. -maihi 'to devine']

h - o mai-maihi (ma beka) [P-EN] '(female) mai-maihi' V [#2482] [BO] Sporobolus diander (Rels.) Beauv. [but cf. LD] Sporobolus indicus (L.) R. Br.

h + o mai-maihi ma nauru [P-EN] 'male mai-maihi' (uncoll.)

T o make [SL] (or) o make-make [possibly CX make (q.v.)?]

t + o make ma dorou [P-EN] 'bad make' (uncoll.)

t - o make (ma oa) [P-EN] '(good) make' V [#2275] det. not avail.

T o mako-makoro [CX, < -makoro 'large male wild hog'] (or) o cengke ma dofa [P-EN] 'counterfeit of (the) clove (tree)' V [BO] Syzygium aromaticum (L.) Merr. & Perry.

T o malepuutu [SL] V [BO] Salix tetrasperma Roxb.

T o mali-mali [CX, vb -mali 'bitter' + (redup.); 'which is bitter'] V [BO, LD] Gomphrena globosa L.

T o mamu [SL] (uncoll.)

0 o manahi [SL] Ph: Ananas comosus (L.) Merr. 'pineapple'

Note: Subclassification at Loleba (Boeng dialect) and Pasir Putih (Dodinga dialect) are considered separately.

Subclassification at Pasir Putih (Dodinga dialect):

o - o manahi [SL]

o o manahi ma doka-dokara [P-EN] 'red manahi'

o o manahi ma gare-garehe [P-EN] 'white manahi'

o + o boboha [CX, agentive n < vb -poha 'hit'; 'club, bat (for hitting)']

o + o bogor [SL, 'Bogor (West Java)']

o + o gurade [SL]

o + o kuluri [SL]

Subclassification at Loleba (Boeng dialect):

o - o manahi [SL]

o o manahi ma doka-dokara [P-EN] 'red manahi'

o o manahi ma gare-garehe [P-EN] 'white manahi'

o + o borgo [SL, probably < bogor 'Bogor (West Java)']

o + o luri [SL]

o + o tamo-tamo [SL, but ? < CX; 'earthenware cooking vessel']

O(P) o manarama [SL] (uncoll.)

T o manoko ma babahana [CD-EN, 'bat' + poss. + '?']

V [BO] Decaspermum sp.

T o manoko ma boboha [CD-EN, 'bat' + poss. + 'club, bat (for hitting)'; 'club for hitting bats'] V [BO, LD]

Decaspermum bracteatum (Roxb.) Schott.

H o manuru [SL] V [BO] Jasminum sambac (L.) W. Ait.

T o mayoro [SL]

t + o mayoro ma roehe itoka-tokara [P-EN] 'red-trunked mayoro' V [BO] Eugenia racemosum (Bl.)

t - o mayoro (ma roehe iare-arehe) [P-EN] '(white-trunked) mayoro' (uncoll.)

T o meata [SL] V [#2301] [BO] Micromelum diversifolium Miq. [but cf. #2432] [BO] Garcinia celebica L.

T o meha-mehanga [CX, < vb -mehanga 'to be hirsute'; 'hirsute' (so called because of hirsute leaves)] V [BO] Antiaris toxicaria (Pers.) Lesch.

T o melumu ma gule [CD-EN, 'melumu (fish)' + poss. + 'necklace'; 'melumu fish's necklace'] V [BO] Euonymus javanicus Bl.

V o migi [SL]

v + o migi o tonakika [P-EN] 'ground(-dwelling) migi' V [#2228, 2251] det. not avail.

v - o migi [SL]

v + o migi ma nauru [P-EN] 'male migi' (or) o migi ma dorou [P-EN] 'bad migi' (so called because this vine cannot be used for tying) V [BO] Rhaphidophora sp.

v - o migi (ma beka) [P-EN] '(female) migi' (or) o migi (ma oa) [P-EN] '(good) migi' (so called because this vine can be used for tying) V [BO] Rhaphidophora pinnata (L. f.) Schott.

T o moa-moana [CX, < vb -moana 'to split open (of fruit)'] V [#2177] det. not avail.

T o mohara [SL] V [BO] Drypetes globosa P. et H.

O o mokuru [SL] (uncoll.) Ph, PT: Areca sp. or spp.
'areca palm'

o + o dipongo [SL]

o - o mokuru [SL]

T o moliorata [SL] V [BO] Chilocarpus sp.

T o mologotu [SL] (uncoll.)

O o momongere [SL, but ? < CX] V [#2907] det. not avail.
Ph: Kaempferia sp.

VxT o moowoete [SL]

v ~o moowoete o gumini [P] 'vine moowoete' (uncoll.)

t ~o moowoete o gota [P] 'tree moowoete' V [LD]
Mussaenda sp.

VxT o morihuhuku [SL]

v + o morihuhuku o gumini [P] 'vine morihuhuku' V [#1158]
(lost)

t - o morihuhuku (o gota) [P] '(tree) morihuhuku' V [BO]
Pycnarrhena manillensis Vidal

V o muroraha [SL] V [LD] Clematis sp.

T o mututu [SL] V [BO] Melochia umbellata O. Stapf.

T o namo-namo [SL, but ? < CX] (uncoll.)

T o namo-namo ma dofa [P-EN] 'counterfeit namo-namo'
V [BO] Insis byuga (Colebr.) D.K.

T o nanalingi [SL]

t o nanalingi ma beka [P-EN] 'female nanalingi' (uncoll.)

t o nanalingi ma nauru [P-EN] 'male nanalingi' (uncoll.)

T o nangka-balánda [SL, but < Ind CD 'jackfruit' + 'Dutch'; 'Dutch jackfruit'] V [BO] Anona muricata L.

T o nawoko ma lako [CD-EN, 'fish' + poss. + 'eye(s)'; 'fish eye']

t o nawoko ma lako o fonganika [P-EN] 'jungle nawoko ma lako' V [BO] Thespesia populuca (L.) Soland.

t o nawoko ma lako o gahika [P-EN] 'shore nawoko ma lako' V [LD] Hernandia nymphaeifolia [a.u.]

V o ngabao [SL]

v o ngabao ma beka [P-EN] 'female ngabao' V [BO] Stemona curtisii [a.u.]

v o ngabao ma nauru [P-EN] 'male ngabao' V [BO] Dioscorea bulbifera L.

T o ngaeke [SL] (uncoll.)

T o ngahiri [CX, ? < vb 'swallow'; 'swallow'] V [#2361] det. not avail.

T o ngalumu [SL] (uncoll.)

T o ngamene [SL] (uncoll.)

T o ngami-ngamiri [CX, < vb -amiri 'to be rotten (of fish, prepared foods)']

t o ngami-ngamiri ma beka [P-EN] 'female ngami-ngamiri' (uncoll.)

t o ngami-ngamiri ma nauru [P-EN] 'male ngami-ngamiri' V [BO] Garcinia parvifolia (Miq.) Miq.

H o ngangangoro [CX, < vb -wangoro 'sparkle'; 'sparkling']

h + o ngangangoro ma nauru [P-EN] 'male ngangangoro' V [LD] Centotheca latifolia [a.u.]

h - o ngangangoro (ma beka) [P-EN] '(female) ngangangoro'
V [LD] Alpinia sp.

T o ngapo [SL] V [BO] Diospyros maritima Bl.

T o ngasáfa [SL]

t o ngasáfa ma doka-dokara [P-EN] 'red ngasáfa' (uncoll.)

t o ngasáfa ma gare-garehe [P-EN] 'white ngasáfa'
V [#2236] det. not avail.

O o ngauku ma hahakara [CD-EN, 'ear' + poss. + 'picking tool, pick'; 'ear-pick'] V [BO] Opliminus compositus (L.) Beauv.

V o ngau-ngauku [CX, < n ngauku 'ear(s)'; 'rather like ears'] V [BO] Rhaphidophora sp.

T o ngeceda [SL] [B dialect; cf. D:] o ngeteda [SL]

t o ngeceda ma dubo ma doka-dokara [P-EN] 'ngeceda with red growth tip' (uncoll.)

t o ngeceda ma dubo ma gare-garehe [P-EN] 'ngeceda with white growth tip' (uncoll.)

T o ngeyehaka [SL, but ? < CX] V [BO] Canarium sp.

H o ngiuru [SL]

h - o ngiuru (ma beka) [P-EN] '(female) ngiuru'
V [#2630] det. not avail.

h + o ngiuru ma nauru [P-EN] 'male ngiuru' V [BO] Gleichenia linearis (Burm.) Clarke

T o ngo bao ami bahuku ma otini [CD-EN, (feminine name marker) + 'Bao (personal name)' + poss. + 'axe' + poss. + 'shaft'; 'Bao's axe-handle'] V [BO] Euodia aromatica [a.u.]

V o ngo beye ami hogo (H, B; cf. D cognate:) o ngo beye ami sogo [CD-EN, (feminine name marker) + 'grandmother' + poss. + 'pubic hair'; 'Grandmother's pubic hair' (refers to long white "hairs" on the seeds of this vine)] V [#2351] [BO] Cynanchum ovalifolium Weight [but cf. #2352] Parsonsia cumingiana D.C.

H o ngo boki ami pine [CD-EN, (feminine name marker) + 'Boki (name, meaning 'cat')' + poss. + 'rice'; 'cat's rice'] V [LD] Themeda sp.

T o ngodóro [SL] V [BO] Microcos ceramensis Burr.

T o ngohaka ma iyo-iyoko (B, H; cf. D cognate:) o ngofaka ma iyo-iyoko [CD-EN, 'child, baby' + poss. + 'excrement' + (redup.); 'rather like a baby's excrement' (a reference to the "yellow" color and the consistency of the sap)] V [#2810] [BO] Garcinia dulcis (Roxb.) Kurz [but cf. LD] Callophyllum sp.

H o ngohaka manga buku ma didino [CD-EN, 'child, baby' + poss. + 'knee' + poss. + 'massage oil'; 'massage oil for babies' knees' V [#2566] det. not avail.

T o ngotiri ma emanga [CD-EN, 'boat' + poss. + '?'] V [BO] Terminalia sp.

H o nguhumu [SL] V [#2113] det. not avail. Ph: Imperata sp.

T o ngulu [SL]

t + o kaho ma ngulu [CD-EN, 'dog' + poss. + ngulu; 'dog's ngulu'] (or) o ngulu ma dorou [P-EN] 'bad ngulu' V [BO] Spondias cf. dulcis Saoland ex Park.

t - o nyawa ma ngulu [CD-EN, 'human being' + poss. + ngulu; 'human's ngulu' (or) o ngulu (ma oa) [P-EN] '(good) ngulu' V [BO] Spondias pinnata (L. f.) Kurz

T o nguna-ngunanga [CX, < vb -wunanga; (etym. ?)] V [BO, LD] Bidens pilosa L.

T o ngunguningi [CX, < vb -wuningi 'to watch, look at' (etym. ?)] V [BO] Grewia laevigata (L.) Moench.

V o nguroto ma doa [CD-EN, 'tendon' + poss. + '?'] V [#2205] det. not avail.

T=H o ngutuku ma gogurati [CD-EN, 'root' + X + 'yellow'; 'yellow root'] V [BO] Fatoua pilosa Gaud.

T o niara [SL]

t + o nia-mára [SL?]

- o niara o fonganika [P-EN] 'jungle niara' V [#2151] det. not avail.

t + o hibúru [SL] (or) o hubúru [SL]

t - o niara [SL]

T o nongu [SL] (uncoll.)

T o nouku [SL] V [BO] Ficus melinocarpa [a.u.]

T o nututu [SL] V [BO] Melochia umbellata O. Stapf.

T o oaha [SL]

t o oaha o fonganika [P-EN] 'jungle oaha' V [BO] Diospyros cf. heterocarpa

t o oaha o dotoika [P-EN] 'cape oaha' V [#2230, #2233] det. not avail.

t o oaha o gahika [P-EN] 'shore oaha' V [#2218, #2267] det. not avail.

T o ode ma futu [CD-EN, 'pig' + poss. + 'night?'] V [BO] Diospyros cauliflora Bl.

T o ode ma gitihiri [CD-EN, 'pig' + poss. + 'claw(s)'; 'pig's claws' (a reference to the turned-down "claw-like" growth tips of branchlets)] V [BO] Maniltoa sp.

T o ode ma iyoko [CD-EN, 'pig' + poss. + 'feces'; 'pig's feces'] (uncoll.)

T o oenge [SL]

t + o kofere [SL] (or:) o oenge ma nauru [P-EN] 'male oenge' V [#2241] det. not avail.

t - o oenge (ma beka) [P-EN] '(female) oenge' V [#2202] det. not avail.

O o okiri [SL] V [#2874] det. not avail.

T o paate [SL] V [#2184] det. not avail.

T o pacikára [SL]

t o pacikára o gahika [P-EN] 'shore pacikara' V [BO, LD] Pittosporum moluccanum Miq.

t o pacikára ihohihika [P-EN] 'thorny pacikara' V [BO, LD] Pittosporum ferrugineum W. Ait.

V o papaita [SL, but cf. folk etymology: so called because of bitter taste of this vine; Ind: pahit or NMM pait 'bitter'] V [BO] Tinospora crispa (L.) Miers ex Hook. f. & Thoms.

T o papaooto [SL, but ? < CX] V [BO] Erythrina orientalis (L.) Murr.

T=O o papudóo [SL]

t + o papudóo o fonganika [P-EN] 'jungle papudóo'

t=o - o papudóo [SL] V [BO] Acanthus ebracteatus Vahl.

T o pea-pea [SL, but ? < CX] V [BO, LD] Endospermum moluccanum Becc.

O o peda [SL] (uncoll.) Ph, PT: Metroxylon sp. or spp. 'sago palm'

o + o peda ihohihika [P-EN] 'sago palm having thorns'

o - o peda [SL]

o ~ o bawehe [SL]

o ~ o beka [SL]

o ~ o bibini [SL]

o ~ o bobarai [SL] [q.v.]

o ~ o botara [SL] [q.v.]

o ~ o gotoaka ma paka [CD-EN; a 'vine', q.v.]

o ~ o hepata [SL, '(synonym of o daluku q.v.)']

o ~ o hoama [SL]

o ~ o loliaro [SL, but ? < CX]

o ~ o lungunu ma tau [CD-EN, 'grave' + poss. + 'house'; 'grave house (i.e. small structure built over a grave)']

o ~ o mamou [SL]

o ~ o papitúu [SL]

O o pehana [SL] (uncoll.)

O o pepetingi [SL, but ? < CX] V [BO] Arenga obtusifolia [a.u.]

O o petele [SL] V [#2210] det. not avail.

T o pilawana [SL] V [BO] Vitex trifolia L.

HxO(G) o pine [SL] V [BO] 'rice'

Note: some B speakers consider the cross-cutting subclass o pine o fonganika 'jungle rice' a type of o pine 'rice'; other B and D speakers are not familiar with the former, or do not consider it a type of 'rice'.

h + o pine o fonganika [P-EN] 'jungle rice' V [#2624]
det. not avail.

o(g) - o pine [SL] V [BO] Oryza sativa L. (all subclasses) 'rice'

o(g) ~ o air-máta [SL, but Ind CD (literally) 'eye water' i.e. 'tear (drop)']

o(g) ~ o bugihi [SL, 'Bugis (ethnic group from southern Sulawesi)']

o(g) ~ o bunga-nasi [SL, but < Ind CD (literally) 'cooked.rice flower']

o(g) ~ o deba [SL]

o(g) ~ o gaili [SL, 'maggot'] (B; cf. D:) o gaili ma doka-dokara [CD-EN, 'maggot' + X + 'red'; 'red maggot'] (both names refer to small size of rice grains of this variety)

o(g) ~ o goobe [SL, q.v.]

o(g) ~ o gugunu [SL]

o(g) ~ o kolano [SL, 'Sultan']

o(g) ~ o mamuya [SL]

o(g) ~ o manyanyi [SL, 'incense']

o(g) ~ o melóso [SL]

o(g) ~ o nawoko ma gohi [CD-EN, 'fish' + poss. + 'egg(s)'; 'fish eggs']

o(g) ~ o ngoerua [CX, < ngoere 'dried out' (< -woere 'to dry out') + -ua 'not'; 'not dried out' (so called because this variety of rice can be stored after harvest with little sun drying)]

o(g) ~ o pudaka [SL, q.v.]

o(g) ~ o pulo [SL]

o(g) ~ o sianga (B; cf. D:) o siam [SL, 'Siam (Thailand)?']

o(g) ~ o tau-taulu [CX, vb -taulu 'stick' + (redup.); 'stick, attach']

H o pine-pine [CX, n pine (q.v.) 'rice' + (redup.); 'rather like rice'] V [BO, LD] Brachiaria paspaloides (Presl.) C.E. Hubb.

T o pipidóro [SL] V [BO] Codiaeum variegatum (L.) Bl.

T o pogihoro [SL] V [BO] Maesa tetrandra (Roxb.) D.C.

T o pohi-pohi [SL, but ? < CX] (uncoll.)

T o poko-pokoro [CX, n pokoro 'stomach' + redup.; '?'] V [#2080] det. not avail.

V o pooho [SL] (uncoll.)

T o poo-pooto [CX, vb -pooto 'throw, throw away'; 'that which is thrown away (?)'] (or) o boboluturu [SL, but ? CX]

t o poo-pooto ma dubo ma doka-dokara [P-EN] 'poo-pooto with red growth point' (uncoll.)

t o poo-pooto ma dubo ma gare-garehe [P-EN] 'poo-pooto with white growth point' V [LD] Ficus sp.

V o poparaaka [SL, but ? < CX] (uncoll.)

T o popewi [SL] (or) o pupewi [SL] V [BO] Albizia saponaria Bl.

T o popopara [SL, but ? < CX] V [BO] Diospyros nigra Perrott.

T o poro-poroho [probably CX] V [BO] Adenanthera pavonis L.

O o pudaka [SL] V [BO] Pandanus amaryllifolius Roxb.

T o pugu-pugutu [probably CX]

t o pugu-pugutu ma beka [P-EN] 'female pugu-pugutu' V [BO] Claoxylon longifolium (Bl.) Endl.

t o pugu-pugutu ma nauru [P-EN] 'male pugu-pugutu' (uncoll.)

O o puhelingi [SL] V [#2472] det. not avail.

V o puku [SL] V [BO, LD] Cissampelos pareira L.

T o putiana ma gitifiri [CD-EN, 'ghost (of a woman who died in childbirth; cf. Malay pontianak)' + poss. + 'claws, (finger- or toe-)nails'; 'putiana (ghost)'s claws] V [#2855] det. not avail.

O o puungu [SL] (uncoll.)

H o puusu ma gumi [CD-EN, 'cat' + poss. + 'whisker(s)'; 'cat's whiskers'] V [BO] Vernonia cinerea (L.) Lesa.

O(B) o rabánga [SL] V [#2848] det. not avail.

T o rabatingo [SL] (B; cf. D dialect:) o rabatigo (uncoll.)

T o rai [SL] (uncoll.)

H o rai-rai [SL, but ? < CX] V [BO] Cenchrus brownii Ret. S.

T o rambutan [SL, Ind rambutan]

t + o ace [SL] (or) o rambutan-ace [SL, but Ind or NMM rambutan aceh 'Aceh (North Sumatra) rambutan']

t - o rambutan (uncoll.)

T o ranga [SL] (uncoll.)

H o rautengo [SL, but Tte CD?; Tte rau 'leaf', tengo 'single'; 'single leaf' (?)] V [BO] Nervelia aragoana Gaudich.

O o rica [SL, cf. NMM rica] V (for subclasses o manado, o helehekú, o gopu; all these and others apparently same species) [BO] Capsicum frutescens L.

o - o rica [SL]

o + o gopu [SL] (or) o gofu [SL]

o + o helehekú [SL, 'case bottle']

o + o manado [SL, 'Menado (City)']

o + o matága [SL]

T o riidi [CX, n < vb -riidi ' to silent'; 'silence'] V [#2809] [BO] Agrostistachys cf. gaudichandii [but cf. LD] Gardenia cf. pterocalyx Val.

V o riwoto [SL]

v + o dongara [SL] (or) o riwoto ma dorou [P-EN] 'bad riwoto' (uncoll.)

v - o riwoto [SL] (or) o riwoto (ma oa) [P-EN] '(good) riwoto' (or) o riwoto (ma dutu) [P-EN] '(genuine) riwoto' V [#2424] det. not avail.

T o rofisi [SL, cf. vb from this noun, -rofisi 'to gnarl'] V [LD] Eugenia sp.

VxH o roma [SL]

v - o roma (ma beka) [P-EN] '(female) roma' V [US] Flagellaria indica L.

h + o roma ma nauru [P-EN] 'male roma' V [BO] Spathoglottis plicata Bl.

TxH o roringohana [SL, but ? < CX]

h + o roringohana ma dorou [P-EN] 'bad roringohana'

V [US] Justicia sp.

t - o roringohana

(Note: for discussion of the classification shown here, see 5.2.1.1.2.)

t . o roringohana ma nauru [P-EN] 'male roringohana'

(or) o roringohana o fonganika [P-EN] 'jungle roringohana'

t o roringohana ma beka [P-EN] 'female roringohana'

(or) o roringohana ma gare-garehe [P-EN] 'white roringohana' (uncoll.)

t o roringohana ma daro-daromo [P-EN] 'black roringohana' (uncoll.)

T o rorúmu [SL] (or) o rurúmu [SL] V [BO] Heritiera littoralis Dryand W. Ait.

V o rotu-rotu [CX, < vb -rotu 'crackle'; 'crackle' (so called because this vine makes a sharp crackling sound if twisted)] V [BO, LD] Cissus nodosa Bl.

T o rubu [SL] V [LD] ?Walsura sp.

H o ruju-ruju [CX, cf. vb. -ruju 'rub'] (uncoll.)

T o ruhu [SL] V [#2354] [BO] Trema orientalis (L.) Bl.

[but cf. LD] Trema tomentosa (Roxb.) Mara

VxT o rukiti [SL]

v + o rukiti ma dorou [P-EN] 'bad rukiti' V [BO]
Gnetum gnemonoides Brongn.

t - o rukiti (ma oa) [P-EN] '(good) rukiti' V [LD]
Gnetum sp.

V o siafu [SL] (uncoll.)

H o sike-sike [SL, but ? < CX] V [#2462] det. not avail.

T o sosólo [SL] V [BO] Acalypha helvingii Warb.

VxT o sosonyinga [SL, but ? < CX]

v + o sosonyinga o gumini [P] 'vine sosonyinga' (uncoll.)

t - o sosonyinga (o gota) [P] 'tree sosonyinga' V [BO]
Trema cannabina Lour.

H o sulasi [SL] (Note: probably same as o hulahi [q.v.])
V [BO] Ocimum basilicum L.

O o tabako [SL] PH, PT: Nicotiana tabacum L. 'tobacco' (all subclasses)

o + o cinga-cinga [SL, but ? < CX] (so called because this tobacco variety's leaves bear a similarity to the cinga-cinga [q.v.] 'herbaceous weed')

o + o hekiri [SL, cf. 'tree' called o hekiri q.v.]

o - o tabako [SL]

T o tabidonga [SL] V [#2221, 2270] det. not avail.

HxO o tabihahu [SL]

h + o tabihahu ma dorou [P-EN] 'bad tabihahu' V [BO]
Pomatocalpa spicatus Brida

o - o tabihahu (ma oa) [P-EN] '(good) tabihahu' V [#2613]
[BO] Acriopsis javanica Reinw. [but cf. #2598] [BO]
Dentrobium calceolum Roxb.

H o tadauru ma houru [CD-EN, 'hair' + poss. + 'medicine, cosmetic preparation'; 'cosmetic preparation for the hair' (so called because the leaves are used as shampoo)] V [#2517] det. not avail.

T o taehe ma futu [CD-EN, 'piglet' + poss. + 'night (?)'] V [#2546] det. not avail.

T o taehe ma gitifiri [CD-EN, 'piglet' + poss. + 'claw(s)'; 'piglet's claws'] V [BO] Maniltoa sp.

T o taehe ma huhuhumu [CD-EN, 'piglet' + poss. + '?'] V [LD] Drypetes sp.

H=0(F) o tahubé [SL] V [#2849] [BO] Canna coccinea Mill. [but cf. V #2408] [BO] Canna coccinea Mill. [cf. LD] Canna indica L.

0 o tahubí [SL] (or) o kaboja [SL] Ph, PT Manihot esculenta Crantz.

o + o inggerehe [SL, 'English']

o - o tahubi

o + o karet [SL, 'rubber']

o - o tahubí

o ~o botara [SL, q.v.]

o ~o digol [SL] (or) o jawa [SL, 'Java(nese)']

o ~o foli [SL, 'Foli (Village, Wasile District)'] (or) o gorua [SL, 'Gorua (Village, Wasile District)']

o ~o gamulaha [SL, but < Tte CD?]

o ~o gedi [SL, cf. gedi (synonym of o botara q.v.)]

o ~o gogaapoko [SL?]

o ~o irian [SL, 'Irian']

o ~o kanari-gula [SL, but Ind CD ?]

o ~o kayoa [SL, 'Kayoa (Island, North Moluccas)']

o ~o leleko [SL, q.v.]

o ~o lolobata [SL, 'Lolobata (Village, Wasile District)]

o ~o majioli [SL]

o ~o nilong [SL, 'nylon']

o ~o takoapi [SL, but from NMM CD-EX, NMM tako 'fear' + api 'fire'; 'is afraid of fire' (so called because this variety cooks quickly)]

T o tajóngo [SL] (uncoll.)

V o take [SL] (uncoll.)

H o takiu [SL].

h + o takiu ma nauru [P-EN] 'male takiu' V [#2481] [LD] Cyperus brevifolius (Rottb.) Hassk. [but cf. BO]: Cyperus kyllingia Endl.

h - o takiu (ma beka) [P-EN] '(female) takiu' V [#2792] [LD] Cyperus rotundus L. [but cf. BO] Cyperus kyllingia Endl.

T o takupoa [SL?]

t + o takupoa o dotoika [P-EN] 'cape takupoa' V [BO] Rapanea cf. rawakensis (D.C.) Mez.

t - o takupoa V [BO] Psychotria leptothyrsa Miq.

V o tali [SL] V [BO] Piper insignilimbun D.C.

O o tamate [SL] Ph, PT: Lycopersicum esculentum Miller 'tomato' (all subclasses)

o + o balibi [SL, q.v.]

o - o tamate [SL]

O o tamelo [SL] Ph: Phaseolus vulgaris L.

O o tanuma [SL] Ph: Phaseolus radiatus [a.u.]

VxHxO o tarate [SL] 'orchid'

v + o tarate o gumini [P] 'vine tarate' V [BO, US] Bulbophyllum sp.

h + o tarate o tonakika [P-EN] 'ground(-living) tarate'

h o tarate ma beka [P-EN] 'female tarate' V [BO] Eulophia squalida Lindl.

h o tarate ma nauru [P-EN] 'male tarate' V [BO] Eulophia javanica J.J.S.

o - o tarate (ma dutu) [P-EN] '(genuine) tarate' V [#2637] det. not avail.

T o tatama [SL] V [#2421] det. not avail.

T o tataulu [CX, < vb -taulu 'stick (to), attach (to)' (cf. also n o tataulu 'jellyfish'; possibly given same name because both cause itchy swellings when they come in contact with the skin.]

t + o hinangiri [SL] V [#2771] det. not avail.

t - o tataulu [CX] V [BO] Ficus adenosperma [a.u.]

T o tataulu ma amoko [CD-EN, tataulu (the 'tree'? q.v.) + poss. + 'size, bigness'; 'the big tataulu (tree) (?)' V [#1190] (lost)

T o tato ma gohi [CD-EN, 'trigger fish' + poss. + 'egg(s)'; 'trigger fish eggs'] V [BO, LD] Colubrina asiatica (L.) Brongn.

T o taulate [SL] V [BO] Canarium hirsutum Willd. var. hirsutum f. scabrum (Bl.) Laenh.

T o tawa [SL] V [#1106] (lost)

T *o te [SL] 'tea' (See 5.2.2.5. for discussion of this "posited" basic class)

t o te o fonganika [P-EN] 'jungle tea' V [BO] Carmona retusa (Vahl) Masamune

t *o te [SL] 'tea'

T o tela-tela [SL, but ? CX] (uncoll.)

V o teleliko [SL] (or) o totofora [SL, but ? CX] V [#2313] [BO] Secamone villosa Bl. [LD] Sarcolobus sp.

T o teleme ma ngongopuru [CD-EN, 'vagina' + poss. + 'medicine delivered by spitting'; 'vaginal medicine delivered by spitting' (informants were unaware of any such medicinal use of this plant)] V [#2590] det. not avail.

O(B) o tetewanga [SL] V [BO] Schizostachyum sp.

O(B) o tiba [SL] V [BO, US] Schizostachyum lima (Blanco) Merr.

T o tiba ma mehanga [CD-EN, 'tiba bamboo (q.v.)' + poss. + 'small spicules'; 'bamboo's spicules'] V [#2157] det. not avail.

T o tifiriki [SL]

t + o tifiriki ma gare-garehe [P-EN] 'white tifiriki' V [#2161] det. not avail.

t - o tifiriki (ma doka-dokara) [P-EN] '(red) tifiriki' V [BO] Palaquium lobbianum Brk.

T o tigo-tigono [CX, < vb -tigono 'to flow (of plant sap)'; 'flowing sap'] V [BO] Pimeleodendron amboinicum Hassk.

T o tiingi [SL] (uncoll. mangrove tree)

T o tiliho [SL]

t + o tiliho-huhuku [CD; -huhuku '?'] (B; cf. D dialect:) o tiliho-fusuku (same as above) V [#2130, #2242] det. not avail.

t - o tiliho [SL] V [#2219] det. not avail.

V o tiliho-gumini [CD-EN, 'tiliho (q.v.)' + 'vine'; 'vine tiliho'] V [BO] Angiostachys maesoana Vids.

T o timilongo [SL] V [#2256, 2530] det. not avail.

T o tioua [SL] V [#2182] det. not avail.

H=O o titíbi [SL] V [US] Zingiber sp.

O(B) o todoku [SL]

o(b) + o todoku ma dorou [P-EN] 'bad todoku' V [US] Bambusa atra Lindley

o(b) - o todoku (ma oa) [P-EN] '(good) todoku' V [US] Bambusa atra Lindley

H o tokata ma gole-gole [CD-EN, 'ghost' + poss. + '?'] (uncoll.)

O(B) o tonga-jawa [SL, but Ind CD?] V [BO] Schizostachyum brachycladum (Kurz) Kurz

O o topáya [SL] (uncoll.) Ph, PT: Carica papaya L. (all subclasses)

o + o topáya ma nauru [P-EN] 'male papaya' (Note: this includes the male individuals of all varieties of Carica papaya L. listed below)

o o topáya (ma beka) [P-EN] '(female) papaya' (Note: this includes the female individuals of all varieties of the usually dioecious Carica papaya L.; only females are subclassified as below)

o o angguru [SL, < Ind & NMM anggur 'wine']
(or) o topaya-anggur [CD-EN, 'anggur papaya']

o o topáya ma gare-garehe [P-EN] 'white papaya'

o o topáya ma popolúlu [P-EN] 'round (spherical) papaya'

T o torobúku [SL]

t + o torokowehe [SL] V [#2238] det. not avail.

t - o torobúku (ma dutu) [P-EN] '(genuine) torobúku'
V [LD] Guettarda speciosa L.

T o torófuku [SL] (or) o to-torofuku [CX, < n torófuku (q.v.) + (redup.)] V [BO] Momordica cochinchinensis

T o totabako [CX, < n tabako 'tobacco'; 'rather like a tobacco (plant)']

t + o totabako ma nauru [P-EN] 'male totabako' V [#2497] det. not avail.

t - o totabako (ma beka) [P-EN] '(female) totabako'
V [#2308] det. not avail.

H o totaleo ma hohorene [CD-EN, 'chicken' + poss. + 'comb or wattle (of chickens)'; 'chicken's comb']

h + o totaleo ma hohorene ma nauru [P-EN] 'male totaleo ma hohorene' V [BO] Acalypha wilkesiana M.A.

h - o totaleo ma hohorene (ma beka) [P-EN] '(female) totaleo ma hohorene' V [#2117] det. not avail.

T o totaleo ma ruoho [CD-EN, 'chicken' + poss. + '?']

t + o totaleo ma ruoho o fonganika [P-EN] 'jungle totaleo ma ruoho' V [#2171] det. not avail.

t - o totaleo ma ruoho (hadato-datomo) [P-EN] '(cultivated) totaleo ma ruoho'

t o totaleo ma ruoho ma beka [P-EN] 'female totaleo ma ruoho' V [BO, LD] Codiceum variegatum (L.) Bl.

t o totaleo ma ruoho ma nauru [P-EN] 'male totaleo ma ruoho' V [#2695] det. not avail.

T o totopáya [CX, < n topáya (q.v.) 'papaya'; 'rather like a papaya'] V [BO] Euodia latifolia DC.

VxO o totufufungu [SL, but ? < CX]

v + o totufufungu o gumini [P] 'vine totufufungu' V [#2480] det. not avail.

o - o totufufungu [SL, but ? < CX] (or) o totufufungu (ma dutu) [P-EN] '(genuine) totufufungu' V [#2785] [BO] Microsorium punctatum Bedd. [but cf. #2388 (det. not avail.) possibly different species]

H o totufufungu ma dofa [P-EN] 'counterfeit totufufungu'

h o totufufungu ma dofa ma beka [P-EN] 'female totufufungu ma dofa' V [#2548] det. not avail.

h o totufufungu ma dofa ma nauru [P-EN] 'male totufufungu ma dofa' V [#2547] det. not avail.

V o totufufungu ma ngutuku [CD-EN, totufufungu (q.v.) + poss. + 'root'; 'totufufungu's root'] V [LD] Pyrrosia sp.

V o toyogata [SL] V [BO] Dioscorea alata L.

Note: Tugutil (upriver Dodaga) consider this a subclass of o ubi (q.v.) (thus o ubi o toyogata, though that phrase is unacceptable to B and D speakers); o toyogata is considered a basic term by B and D speakers.

T o toyomo [CX, n < vb -toyomo 'sharp'; 'sharpness, pointedness']

t o toyomo ma beka [P-EN] 'female toyomo' V [BO] Trevesia sundaica Miq.

t o toyomo ma nauru [P-EN] 'male toyomo' V [#2438] det. not avail.

T o tuáda [SL] V,PT: Artocarpus heterophyllus Lmk. (all subclasses)

t o cuaraka [SL]

t o balula [SL] (or) o tuáda ikokarau [P-EN] 'tough jackfruit'

t o tuáda iwede-wedere [P-EN] 'rotting jackfruit' (so called because of the very soft pith of the fruit)

T o tui [SL] V [BO] Embelia sp.

T o turi [SL] V [BO] Serbania javanica Miq.

V o turi-turi [CX, turi (q.v.) + (redup.); 'rather like a turi (q.v.) tree' V [BO, LD] Abrus precatorius L.

TxH o tutulaka [CX,< vb -tulaka 'sexually aroused' + (redup.); 'which is sexually aroused' (so called because the succulent leaf in both subclasses is thought to resemble an erect penis)]

t - o tutulaka (o gota) [P] '(tree) tutulaka' V [#2904] (damaged) det. not avail. (?Euphorbiaceae)

h + o tutulaka o rurubu [P-EN] 'weed tutulaka' (uncoll.)
(Photographs of specimen [PMT 79-3-1-#32-33]
det. by US:) Luisia sp. (Orchidaceae)

T o tuuru [SL] (uncoll.)

T o tuuru ma diaoto [CD-EN, tuuru (q.v.) + poss. + '?']
V [#2273] det. not avail.

O(B) o tuwiki [SL]

o(b) - o tuwiki [SL] V [BO, US] Schizostachyum lima (Blanco)
Merr.

o(b) + o tui-bisa [SL, but < NMM CD-EX, NMM tui = Tbl tuwiki (q.v.),
NMM bisa 'to be poisonous, venomous'; 'venomous
tuwiki' (so called because this bamboo can be
made venomous to anyone whom it pierces using a
war-magic incantation)]
V [BO] Schizostachyum brachycladum (Kurz) Kurz

V o ubi [SL]

v + o ubi ma dorou [P-EN] 'bad ubi' V [BO] Dioscorea
esculenta (Lour.) Burk.

v - o ubi (ma oa) [P-EN] '(good) ubi' (uncoll.)
Ph: Dioscorea hispida Dennst.

Note: see note under o toyogata (q.v.) regarding variant subclassification of o ubi among Tugutil (upriver Dodaga).

T o ubo-ubo [SL, but ?< CX] V [#2124, #2169] det. not avail.
Ph, PT: Hibiscus sp.

0 o ugaka [SL] (uncoll.) PT: Saccharum officinarum L.
(all subclasses)
Note: Subclassification shown is that of Loleba Village (unchecked elsewhere)

o o boki ma diliki [CD-EN, 'cat' + poss. + 'penis'; 'cat's penis']

o o dode ma gulumu ['shrimp' + poss. + 'pincer(s)'; 'shrimp's pincers']

o o gaáwo ma puku [CD-EN, gaáwo (= o auloto q.v.) + poss. + 'septum (of bamboo)'; 'septum of gaáwo (bamboo)']

o o moholehe ma yaho [CD-EN, 'maiden' + poss. + 'calf (of leg)'; 'maiden's calf (of leg)' (cf. B^{-2} subclass of o bole 'banana' also having this name)]

o o ternate ma ugaka [CD-EN, 'Ternate (Island)' + poss. + 'sugar cane'; 'Ternatese sugar cane']

H *o uga-ugaka [CX, < n ugaka 'sugar cane' (q.v.) + (redup.); 'rather like a sugar cane'] (For discussion of this posited class see 5.2.2.5.)

h + o uga-ugaka ma nauru [P-EN] 'male uga-ugaka'
V [BO] Dendrobium cf. lancifolium A. Rich.

h - *o uga-ugaka ma beka [P-EN] 'female uga-ugaka'
(Locally posited class, see 5.2.2.5.)

T o uhele [SL]

t o uhele ma beka [P-EN] (uncoll.)

t o uhele ma nauru [P-EN] 'male uhele' V [BO]
Baccaurea macrophylla M.A.

V o ulo [SL]

v o ulo ma beka [P-EN] 'female ulo' (uncoll.)

v o ulo ma nauru [P-EN] 'male ulo' V [BO] Marremia umbellata (L.) Halliar

T o wada-wáda [SL, but ? < CX] V [BO, LD] Murraya paniculata (L.) Jack.

T o wama [SL] (uncoll.) PT: Citrus spp. 'citrus tree'

t ~o giranga [SL]

t ~o hangkari [SL]

t ~o lemon-cina [SL, but < Ind lemon 'Citrus sp.' + Ind cina 'Chinese'; Ind 'Chinese citrus']

t ~o lemon-cui [SL, but < Ind lemon 'Citrus sp.' + cui '?']

t ~o lemon-manis [SL, but < Ind lemon 'Citrus sp.' + manis 'sweet'; 'sweet citrus']

t ~o lemon-puru [SL, but < Ind lemon 'Citrus sp.' + puru '?']

t ~o nawoko ma wama [CD-EN, 'fish' + poss. + wama; 'fish's citrus']

t ~o nipis [SL]

T o wama-wáma [CX, < n wama (q.v.) + (redup.)] V [BO] Drynaria sparsibora Moore

V o wange ma dingoto [CD-EN, 'sun' + poss. + '(object sent)'; 'object sent by the sun'] V [BO, LD] Freycentia sp.

H o wange ma duga [CD-EN, 'sun' + poss. + 'measure'; 'sun's measure'] (or) o wange ma duduga [CD-EN, 'sun' + poss. + 'measurer'; 'sun's measurer'] V [#2587, #2586] det. not avail.

T o watagooko [SL] V [BO] Claoxylon longifolium (Bl.) Endl. ex Hassk.

V o wato-wato ai koworo [CD-EN, 'Wato-wato (a mythical Tobelorese culture-hero)' + poss. + 'pitcher'; 'Wato-wato's pitcher'] (uncoll.) Ph: Nepenthes sp. 'pitcher plant'

T o wee-wee [SL] V [BO] Macaranga involucrata (Roxb.) Baill.

O o weka [SL]

o + o weka ma nauru [P-EN] 'male weka' V [BO] Licuala sp.

o - o weka (ma beka) [P-EN] '(female) weka' (uncoll.) Ph: Corypha sp. 'emperor palm'

V o weka-weka [CX, n weka (q.v.) + (redup.); 'rather like a weka'] V [#2391] det. not avail.

O(A) o widara [SL] (uncoll.) Ph: Alocasia sp. or spp.

o(a) + o lea [SL] (or) o widara ma dutu [P-EN] 'genuine widara'

o(a) - o widara [SL]

(Note: the phrasal part ma dutu 'genuine' is used for the marked subclass rather than the unmarked one; cf. also similar cases in the o nawoko 'fish' subdomain.)

V o wile-wile [SL, but ? <CX]

v + o wile-wile ma nauru [P-EN] 'male wile-wile' (or) o wile-wile ma dorou [P-EN] 'bad wile-wile' V [BO] Hemigraphis cf. ceramensis Brem.

v - o wile-wile (ma beka) [P-EN] '(female) wile-wile' (or) o wile-wile (ma oa) [P-EN] '(good) wile-wile' V [BO] Hemigraphis bicolor (Bl.) Hall. f.

T o woki-woki [SL] V [BO] Solanum melongena L. 'eggplant'
(all subclasses)

t + o woki-woki ma popolulu [P-EN] 'round (spherical) woki-woki'

t + o hamu ma ohu [CD-EN, 'grouper (fish)' + poss. + '?']

t - o woki-woki [SL]

t o woki-woki ma bihi-bihi [P-EN] 'black woki-woki'

t o woki-woki ma gare-garehe [P-EN] 'white woki-woki'

H o wugu-wúgu [SL, but ? < CX] V [BO, LD] Cyathea sp.

T o wuhi-wuhi [SL, but ? < CX] V [BO] Planchonella oxyedra (Miq.) Dub.

TxH o wuu [SL]

t - o wuu (ma oa) [P-EN] '(good) wuu'

t o wuu ma doka-dokara [P-EN] 'red wuu' V [BO] Cordyline fructicosa (L.) A. Chev.

t o wuu ma gare-garehe [P-EN] 'white wuu' V [BO] Pleomele angustifolia (Roxb.) N.E. Bl.

h + o wuu ma dorou [P-EN] 'bad wuu' V [BO] Pollia sesundiflora (Bl.) Back.

T o yahe [SL]

t + o yahe-bigingo [CD-(indet.), yahe (q.v.) + '?'] V [BO] Peltophorum pterocarpa (DC.) Back.

t - o yahe [SL] V [BO] Albizia falcataria (L.) Fosberg

T o yangere [SL] V [BO] Alstonia scholaris (L.) R. Br.

T o yuyu [SL] V [#2253] det. not avail.