

The Folk Biology of the Tobelo People

A Study in Folk Classification

PAUL MICHAEL TAYLOR



SMITHSONIAN CONTRIBUTIONS TO ANTHROPOLOGY • NUMBER 34

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SMITHSONIAN INSTITUTION PRESS

Washington, D.C.

1990

ABSTRACT

Taylor, Paul Michael The Folk Biology of the Tobelo People: A Study in Folk Classification. *Smithsonian Contributions to Anthropology*, number 34, 187 pages, 11 figures, 1 map, 1990.—This ethnographic study of folk biology among the Tobelo (a West Papuan-speaking ethnic group of Halmahera Island, Maluku, Indonesia) outlines local cultural presumptions about classifying flora and fauna, describes the system of folk biological nomenclature in terms consistent with the morphology and syntax of the Tobelo language, and analyzes the local system of folk 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 Tobelo consider their own 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 the Tobelo 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.

Unlabeled classes within this semantic domain (including the highest-level class BIOTIC FORM) are posited, and new methods are presented for determining and evaluating such “covert categories.” 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 Tobelo lexemes it is possible to avoid these difficulties.

The analysis of Tobelo folk biological classification (the system of semantic relations among usually lexically labeled 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 nonsymmetric and disjunctive contrast, “residue” of higher-level classes, 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. The Tobelo are able to use these methods of classifying local fauna and flora to justify the observed differences among themselves (or among Tobelo dialects) in how they classify the same plants and animals. They even sometimes use this classificatory system to productively predict the existence of plants and animals that have not yet been observed, much as our chemists once used the Periodic Table of the Elements to predict the existence of elements that had not been observed.

Detailed folk classificatory, nomenclatural, and systematic botanical and zoological information for all recorded BIOTIC FORMS is given in the appendixes, which are based upon extensive collections of Halmaheran terrestrial and marine animals and plants, along with their associated ethnographic information.

OFFICIAL PUBLICATION DATE is handstamped in a limited number of initial copies and is recorded in the Institution's annual report, *Smithsonian Year*. COVER DESIGN: Two Tobelo decorative winnowing baskets, made at Kampung Pasir Putih in 1981. Plaited *o todoku* bamboo strips (*Bambusa atra* Lindl.), with frames of *o iwi* (*Calamus* sp.) wrapped in strips of *o buho* (*Pandanus* sp.). Left, human figure (seen from convex side, as basket would be displayed if hung in a house). Right, quadripartite geometric pattern (seen from concave side, as would be seen if winnowing rice).

Library of Congress Cataloging-in-Publication Data

Taylor, Paul Michael

The folk biology of the Tobelo people: a study in folk classification / Paul Michael Taylor.

p. cm. - (Smithsonian contributions to anthropology ; no. 34)

Includes bibliographical references.

Supt. of Docs. no.: SI 1.33:34

1. Tobelo (Indonesian people)—Folklore. 2. Folklore—Indonesia—Maluku—Classification. 3. Human ecology—Indonesia—Maluku. 4. Tobelo language—Classification. I. Title. II. Series.

GN1.S54 no. 34

[GR 324.5.T62]

301 s—dc20

[306.4'5]

89-600388
CIP

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Preface

Acknowledgments

I can only begin to list the many individuals who lent their time and expertise to this multidisciplinary study, and the institutions that have helped me carry it through. Preliminary library and archival research in the Netherlands was supported by a Sigma Xi Grant-in-aid of Research (1976) and a Yale University Council on Southeast Asian Studies research grant (1976). The first of three seasons of field research among the Tobelo was funded by a Social Science Research Council Fellowship for Doctoral Dissertation Research in Southeast Asia (October 1977–July 1979), supplemented by later grants from the Yale Concilium on International and Area Studies and from the Yale Council on Southeast Asian Studies. Joint institutional sponsorship for that trip was arranged by Keith Thomson (Yale University Peabody Museum of Natural History) and Aprilani Soegiarto (Lembaga Oseanologi Nasional, Jakarta). A second field season (December 1980–November 1981) was supported by grants from the National Geographic Society, and carried out under the local sponsorship of Universitas Khairun (Ternate). My third field season (October 1984–March 1985), part of which was spent among the Tobelo, was supported by grants from the Wenner Gren Foundation for Anthropological Research and from the Scholarly Studies Program of the Smithsonian Institution, and locally sponsored by Universitas Pattimura (Ambon).

Although the Indonesian Institute of Economic and Social Sciences (LEKNAS) was never officially my local sponsor, that Institute's Halmahera Research Project (later named Maluku and Irian Jaya Research Project), under the dynamic leadership of E.K.M. Masinambow, has coordinated and assisted research by a dedicated group of foreign (mostly Dutch) scholars and their Indonesian counterparts, which in the past ten years has vastly increased our knowledge about the peoples of that region.

Far too many individuals have generously given of their time and expertise for me to list all of them by name. I will always be grateful to the many Tobelo and other Halmaherans who so graciously accepted me as a student of their languages and their ways, and who so patiently and hospitably shared with me their unique vision of the world around them. I extend my heartfelt thanks especially to my hosts, my "brother" Demianus Nalande and his wife at Loleba, and the families of Yunus Candua and Wuhi Biang at Loleba, as well as the village chiefs (*kepala kampung*) of both towns (Karunia Nalande and Welem Taya). Virtually the entire population of Kampung Pasir Putih, and most Tobelo people at Kampung Loleba, Kampung Wasile, and elsewhere, must be thanked for providing me with information about their culture, often including secret medical or magical knowledge.

Several research assistants in charge of collecting and preserving animal and plant specimens and recording other types of information also deserve special mention (at Loleba: Habel Singou, Sem and Joni Tumbia, Enos Lopa, Yohanis Loliaro, Nataniel Kato, Silas Burdam; at Pasir Putih: Elkana Maratana, Leonar Boletimi, Nikanor Dodowor, Ruben Tatu, Yohanis Momou, Esau Tjandua, Yordan Gogus, Uria Ngangangor, Melkianus Tjandua, and Siber Sasamulare). I especially thank Siber Sasamulare of Pasir Putih for braving the trip with me from his Halmaheran village to New Haven, Connecticut, and Los Angeles, California, where he helped me continue studying the Tobelo language, and helped prepare and distribute the animal and plant specimens. I appreciate the hospitality he and his wife have given me on my subsequent trips to their village, and his determination to find and send me information I needed, even after I returned from the field.

Many local residents of Ternate (including the family of Lukas Yauwhannes of Ternate and Surabaya, and the family of Tang Kong-Hwa of Ternate and Wasile) were generous with their hospitality; and others greatly assisted with the logistics of obtaining and processing field data, especially A.R. Bhigali and Saleh Sahib of Ternate's General Hospital, A. Radjiloen of the Cultural Section of Ternate's Office of the Ministry of Education and Culture, J. Keith Jiesral, Zainal Abidin Thuguis, Mayor Laut Firman Dakpahan, and the Navy of the Republic of Indonesia, and the staffs of Ternate's offices of the Forestry Department, Ministry of Education and Culture, Police Office, Office of Statistics, Department of Religion, Fisheries Service, and especially of the offices of Halmahera's local governments: Bupati Kepala Daerah Tingkat II Maluku Utara (Ternate), and Bupati Kepala Wilayah Halmahera Tengah (Tidore). The Pasar Minggu Agricultural Research Station (Jakarta), the Agricultural Advisor of the U.S. Embassy (Jakarta), and Franklin Martin (Department of Agriculture, Federal Experiment Station, Mayaguez, Puerto Rico) aided in the shipment of living and preserved plant materials for scientific study. The missionaries Mr. and Mrs. J. Douglas Copp, who with their family were the only other Americans in the northern Moluccas when I began my fieldwork, provided invaluable help and encouragement in Ternate.

The staffs of the Herbarium Bogoriense (Bogor, West Java), the Rijksherbarium (Leiden, Netherlands), and the United States National Herbarium, Department of Botany, National Museum of Natural History, Smithsonian Institution (Washington, D.C.) expertly provided plant determinations from my first field trip. Of the many who helped with the study of those plants, Mien Rifai of the Herbarium Bogoriense deserves credit for most of the determinations used here. Peter Stevens of the Harvard University Herbaria kindly coordinated the distribution and study of plant specimens from later trips, and personally did most of those plant determinations himself. In total, over forty herbaria have received plant vouchers I collected on Halmahera, and too many specialists have generously worked on them for me to thank all by name.

For zoological assistance, my first debt is to Leslie Knapp of the Smithsonian Oceanographic Sorting Center (Smithsonian Institution, Washington, D.C.): without his unfailing help in all details of biological collecting, and of the transportation and distribution of specimens, my initial investigation of ethnobiology would have been impossible. My friend Adam C. Messer, then a just-graduated Yale University biologist, deserves gratitude and praise for bearing with me during nine months of biological collecting on Halmahera and neighboring islands (December 1980–August 1981). Only his skills and dedication, along with those of our Tobelo friends, who always helped us, made it possible to gather the vast collections of fauna and flora which that trip produced. J. Phillip Angle of the Smithsonian's Department of Vertebrate Zoology coordinated distribution of mammals, birds, and herptiles; Gary Hevel and William Rowe distributed those terrestrial invertebrates that have been distributed; Gordon Hendler distributed internationally the marine invertebrates and meticulously followed up correspondence with all the specialists who have provided identifications. Smithsonian scientists David Challinor, W. Ronald Heyer, Storrs Olson, S. Dillon Ripley, and Paul Spangler all provided encouragement as well as Smithsonian funds for special collections of Halmaheran fauna. Special thanks are also due to Christopher Davidson, James Dean, Linda Gordon, Robert Gustaffsen, Gordon Hendler, Fran McCullough, Charles Meister, Harald Rehder, Charles Remington, James Rodman, George Russel, David C. Schmidt, Dale Schweitzer, Thomas Soderstrom, Dieter Wasshausen, George Watson, Addison Wynn, George Zug, and also to many others who helped with particular specimens.

Halmahera's diverse and culturally important fish fauna were distributed to specialists internationally by the Smithsonian's Oceanographic Research Center. While most fish collected, unfortunately, have still not been identified even to genus, many individuals did yeoman's duty identifying species in the areas of their specialization, including Kunio Amaoka, Kurt A. Bruwelheide, Kent E. Carpenter, Bruce B. Collette, C.E. Dawon, Janet C. Gomon, Victor Haley, Dannie A. Hensley, Walter Ivantsoff, Leslie W. Knapp, J.M.

Leis, John D. McEachran, Rowley J. McKay, Frank McKinney, Edward Murdy, Gareth J. Nelson, Theodore W. Pietsch, John E. Randall, Barry C. Russell, Joseph Russo, William F. Smith-Vaniz, Victor J. Springer, Wayne C. Starnes, James C. Tyler, Richard P. Vari, and Peter J. Whitehead.

Other important assistance was provided at various times by Donna Culpepper, Akmal Klana, J. Riley Sever, and other staff members of the Educational and Cultural Exchange Office of the United States Information Service (U.S. Embassy, Jakarta), and by S.C. Chin, J. Collins, J.M. Conklin, C. Darsono, B. Hess, D. Kiphuth, M.J. Paolisso, H.A. Peters, and S. Yoshida. I thank Smithsonian Press editor Donald C. Fisher for carefully editing the manuscript and for typesetting/designing this book.

Within the Smithsonian's Department of Anthropology, Michael C. Lambert, Annamarie L. Rice, and James D. Rubinstein ably served as research assistants through various phases of writing up results of the Halmaheran studies. Museum volunteers Georgia Reilly, Robert and Dimphena Alford, and Melville Gilliam also helped in many ways, as indeed did Belle E. McQuail, a university student intern who, years later, became Belle E. Taylor (after our marriage).

I also sincerely thank Harold C. Conklin, Rufus Hendon, and Leopold Pospisil of Yale University, who were readers of a much earlier version of this book, presented as my doctoral dissertation (Taylor, 1980b). R.H. Ives Goddard III and Robert Laughlin of the Smithsonian, Brent Berlin of the University of California, Berkeley, and Janet Keller of the University of Illinois at Urbana-Champaign also deserve thanks for comments on later drafts and for advice on the analysis and presentation of results. The work of Harold Conklin has been especially inspirational, as readers of this book who are familiar with his work will quickly see.

Note on Pronunciation

Tobelo 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 Tobelo dialect, but may roughly be pronounced as in Spanish or Italian.

The symbols used in Huetting's (1908c) nonphonemic transcription of Tobelo District dialect pronunciation are herein replaced by letters reflecting Boeng dialect pronunciation (i.e., his γ (uvular fricative) is lost or becomes *g*; and his λ (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 penultimate (e.g., *peke* (*péke*)).

The Folk Biology of the Tobelo People

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1. Introduction

1.1 The Description of Tobelo Folk Classification

This description of Tobelo folk biological classification presents data gathered during approximately thirty-seven months of ethnographic field research in Tobelo-speaking, largely Christian, coastal villages of Halmahera Island (Moluccas, Indonesia). The scope of this study resulted in a highly comprehensive survey of the folk biological knowledge of one human culture—probably the most comprehensive such study ever undertaken by a single individual. Yet any study of such a topic is inherently collaborative, because an intelligible description of folk biology must relate folk classification to our scientists' Linnaean taxonomy. To document the conclusions presented here, the author assembled the world's largest collections of Halmahera's fauna and flora, and distributed them to specialists at many institutions. For a fauna and flora as rich and as little-known as Halmahera's, this requires an international effort on the part of hundreds of specialists.

Despite the yeoman efforts of many biologist colleagues, that effort is still far from complete, as is indicated by this book's Appendixes' many annotations like "sp. or spp. undet." (one or more undetermined species), followed only by the name of the biological family to which specimens can be assigned. Many specimens that were distributed to specialists more than nine years ago remain unidentified. Some groups (such as birds) were quickly identified, the taxonomy regularly updated, and the collections widely used for ongoing research on Wallacean avifauna. For other groups (mollusks, arthropods, some fish), identifications below family level have been much more difficult to obtain. Yet I believe that enough time has already elapsed, and enough identifications already obtained, to

justify the publication of this overview of Tobelo folk classificatory knowledge. As later identifications become available, they can be incorporated into more specific studies of folk classification and uses of particular groups, which can in turn refer back to the generalizations presented here about the patterns of Tobelo nomenclature, and about the structure of Tobelo folk biological classification.

This study begins by considering, in this chapter, 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 Tobelo consider their language inappropriate). In Chapter 2, Tobelo cultural presumptions about the origin and the nature of folk biological classification are reviewed. Then (Chapter 3) an investigation of folk nomenclature details methods for the identification of lexemes, proposes a new typology of lexemic types that differs from typologies used by other authors, and discusses the advantages of this new typology. Data from folk nomenclature are among those considered in positing culturally relevant unlabeled ("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).

"Folk biology" (or "ethnobiology") 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 Tobelo"). The semantic and classificatory emphasis of this analysis is justified primarily because Tobelo decisions about dietary, technological, medical, and other uses of plants and animals (see 2.2 below) are presumably based on criteria that 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, 1980:7-13) here

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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, 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, 1974:9)) of ethnobiological inquiry 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 Tobelo cultural uses of plants and animals, rather than on Tobelo conceptualizations and classification of them, I can only respond that no study's author can satisfy all those who will later wish he had taken up the study of something else.

This apparently cavalier attitude toward all folk biology that is seemingly not folk classification may worry those (e.g., Martin, 1975) who correctly criticize ethnobiological studies that have become divorced from the ethnographic context in which folk classification occurs. Yet hopefully it will be clear from the text below that the attempt has been made, in the holistic tradition of ethnography, to bring together evidence from many various areas of Tobelo culture wherever they are relevant to the topic at hand. It will be reassuring to note that, though this study stands alone as an analysis of data on an isolable topic, it is presented as part of a continuing program of field research on related topics in the region. Finally, as stated above, this overview of the classification of all Tobelo "Biotic Forms" is a necessary prodromus for more specialized studies of classification and uses of particular groups of animals and plants, or of animals and plants used in particular contexts (medicine, material culture, etc.).

The study of ethnobiology in this particular geographic area presents some special problems. Not least is the great species diversity of Wallacea's fauna and flora that is familiar to the Tobelo 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. Thus at several points in this investigation, and systematically in the Appendixes, Tobelo terms are translated using some biological species names, the product of an identification (by myself or by a specialist in a subfield of biology) of a particular specimen or (most often) a group of specimens collected by me and named by Tobelo using the term in question. But as Bulmer (1970:1075) 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.

Thus not only does Halmahera's species diversity present a complex problem for folk classifiers, but the relative lack of biological investigation into this region's many species makes the task of "translating" folk terms especially difficult.

Identifications of biological species or other taxa offered throughout the text and in the Appendixes below will indicate only the gloss that appears most accurate given current information about the organisms to which particular Tobelo terms may be applied, and given the still incomplete identification of specimens collected.

Besides facing the complexity of local fauna and flora, a study of this kind must face the complexities of Tobelo culture. The Tobelo, who number approximately 25,000, originated somewhere in the Galela or the Tobelo district of Halmahera, but they now inhabit extensive areas of that and other islands (each area of settlement having its own fauna and flora), speaking at least 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 Tobelo dialects, in names for plants and animals, and also in the distribution of fauna and flora throughout the range of Tobelo-speaking areas, we may still posit here a "Tobelo" classification system because: (1) all Tobelo-speakers share the same 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. (If some Tobelo-speaking populations are discovered using a substantially different system of classification, as may be the case among Tobelo-speaking "Tugutil" hunter-gatherers of upriver Dodaga River in Wasile District (cf. 5.2.3.2), it seems best simply not to consider that communalect or dialect one of those presently being described. Eventually, more adequate data will show either that the system of folk classification used by the Tugutil is best described separately, or that particular generalizations require modifications in order to include that dialect in the present description.)

Within particular subdomains the "defining features" of classes may differ among dialects. A class's "defining features" (collectively constituting that class's "significatum") are "the necessary and sufficient conditions for membership in a class" (Scheffler and Lounsbury, 1971:4). This may cause, as one of its effects, particular biological species to be classed under a term in one dialect with species different 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 (see, e.g., in Appendix 1.1, *o bobaharama*). A great number of such small differences exist within the general scheme of "the" Tobelo classification system.

Even if we were to limit our description to a single Tobelo dialect, we would not solve the problem of variation among speakers, because variation among individuals also occurs. Neither a complete description of "the" Tobelo language nor a complete description of "the" domain of BIOTIC FORMS among the Tobelo would describe any particular individual's knowledge or competence. Not only are many plants and animals unidentifiable by, and their names unfamiliar to, most Tobelo, 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 Tobelo cultural presumption (see 2.3) 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 informants who proffer names without conviction but with misleading certainty. Social conventions also play a role, such as those that dictate that younger Tobelo should concede to their elders' opinions in public, just as hosts should defer to guests; or that most medicinal uses of plants (including those that 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. Corrections by the more expert are accepted by others (even in private) as "learning something new."

The disagreement that remains is "interesting," and may lead to discoveries of synonymy, of dialectal differences, of marked and unmarked senses of terms, or of polysemous terms that 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 (1976:489) 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, 1969:333), 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 has instead (1976, 1979) commendably attempted to document the degree of intra-cultural variation in plant classification among a sample of Ndumba informants. Aside from some methodological problems (particularly that study's 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 at least one point about documenting such variation remains to be considered: either all informants do 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 described (or more ideally, "predicted"). If "composite model" is meant to imply a model that 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 Tobelo would undoubtedly produce interesting results; however, to leave the description there seems to deny many facts of language in general and of Tobelo 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), Tobelo 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 2.3).

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 (see 5.2.2.4 below). Revisions that are "esoteric" or "idiosyncratic" (see 2.3 and 5.2.2.4) 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



FIGURE 1.—Yohanis Loliaro and Joni Tumbia preparing pressed plant vouchers on the banks of the Loleba (or “Tulawi”) River. Kampung Loleba, Wasile District.

not all informant variability is due to this cause). This fact can also best be expressed by noting these kinds of variation within a larger model of “the” Tobelo classification of BIOTIC FORMS.

Thus my goal has not been to travel throughout the range of Tobelo 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 (Pasir Putih in Jailolo District (Dodinga dialect) and Loleba in Wasile District (Boeng dialect)). I was much more interested in accounting for the variation and describing the principles of folk classification within these regions of intensive field research, where fauna and flora were relatively well known to informants whose reliability I could gauge from long personal acquaintance, rather than in immediately expanding the study area. Insofar as the methods presented here are successful in describing Tobelo ethnobiology, the description presumably could be expanded to include still other Tobelo dialects and regions using the same

nomenclatural and classificatory principles, though after traveling 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 Tobelo 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 Tobelo culture, as well as the study of that language and of the local dialect of Malay/Indonesian, which I have elsewhere (Taylor, 1983) dubbed “North Moluccan Malay.” I arrived in Halmahera speaking some standard Indonesian; but as I went alone on my first trip, conversing almost entirely with local villagers for twenty-two months, I became proficient in both North Moluccan Malay and Tobelo, and I have continued using both languages during later fieldwork. Tobelo, in fact, remained a daily language of conversation when I returned to the United States with a Tobelo (Dodinga dialect) research assistant, who helped me for over a



FIGURE 2.—Fish samples, obtained by spreading rotenone in a coral area, being sorted for identification and preservation. Kampung Pasir Putih, Dodinga District.

year in the task of distributing the biological specimens collected. Only the first seventeen months of fieldwork were carried out primarily in Boeng-dialect-speaking villages; after that, my primary fieldsite was a Dodinga-dialect village (Pasir Putih). My exposure to Dodinga dialect has not only lasted longer, but also has occurred during the most productive phases of fieldwork, after I had learned the language, had gained the trust of Tobelo friends, and had focused on particular research problems. Thus the Dodinga dialect terminology and classificatory structure is the “standard” to which other dialects are compared, and the data summarized in the Appendix is at least valid for Dodinga dialect unless noted otherwise.

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 rare animals or 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 2000 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 Tobelo 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 research, greatly increasing my familiarity with

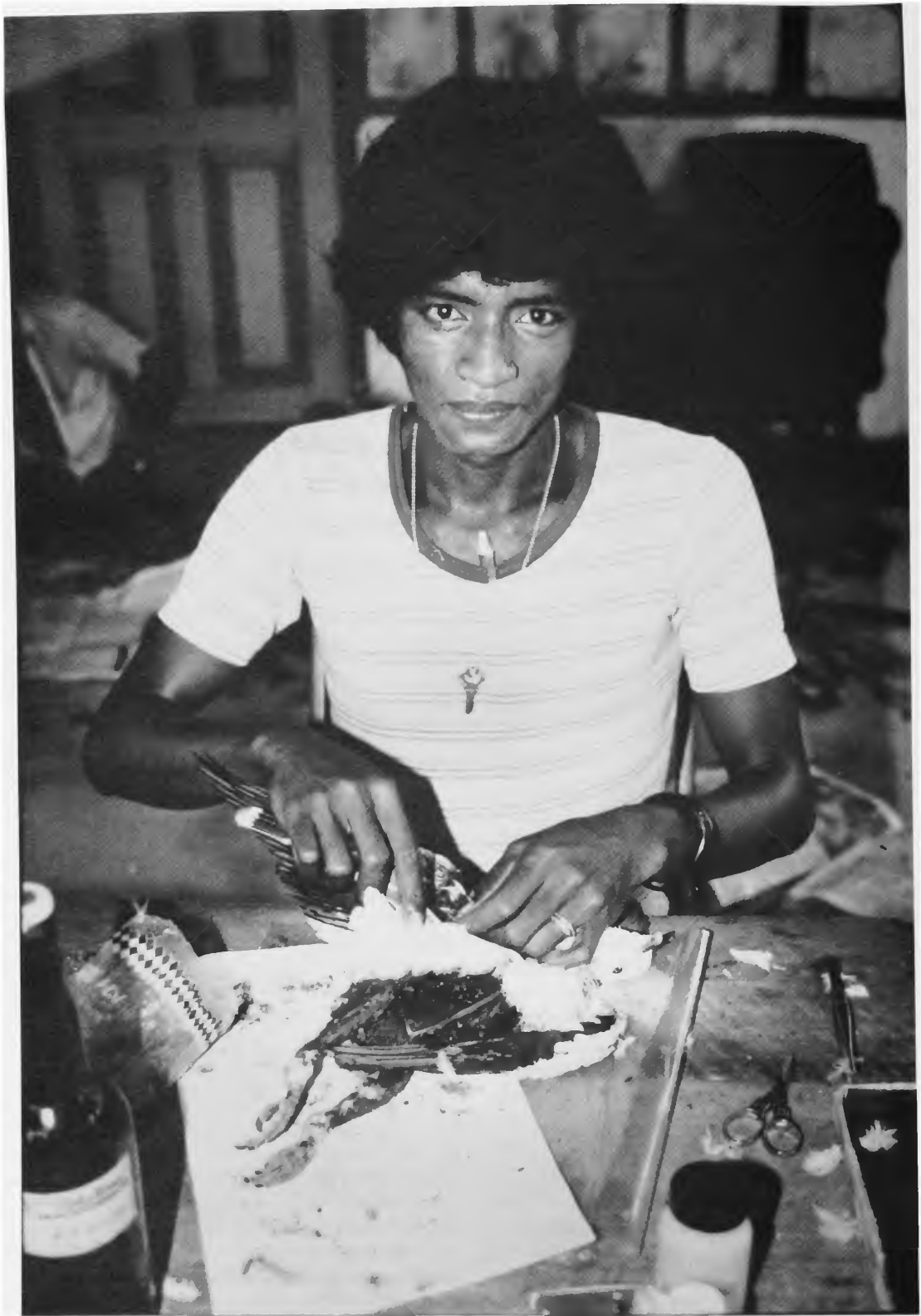


FIGURE 3.—Ruben ("Benny") Tatu preparing a skeletal specimen of *o ngoku* (*Ducula bicolor*). Kampung Pasir Putih, Dodinga District.



FIGURE 4.—Bird specimens, brought from mist nets in plastic bags, being searched for ectoparasites, then cataloged and prepared as skins or skeletons. Kampung Pasir Putih, Dodinga District.



FIGURE 5.—Bird skins being wrapped for shipment. Kampung Pasir Putih, Dodinga District.

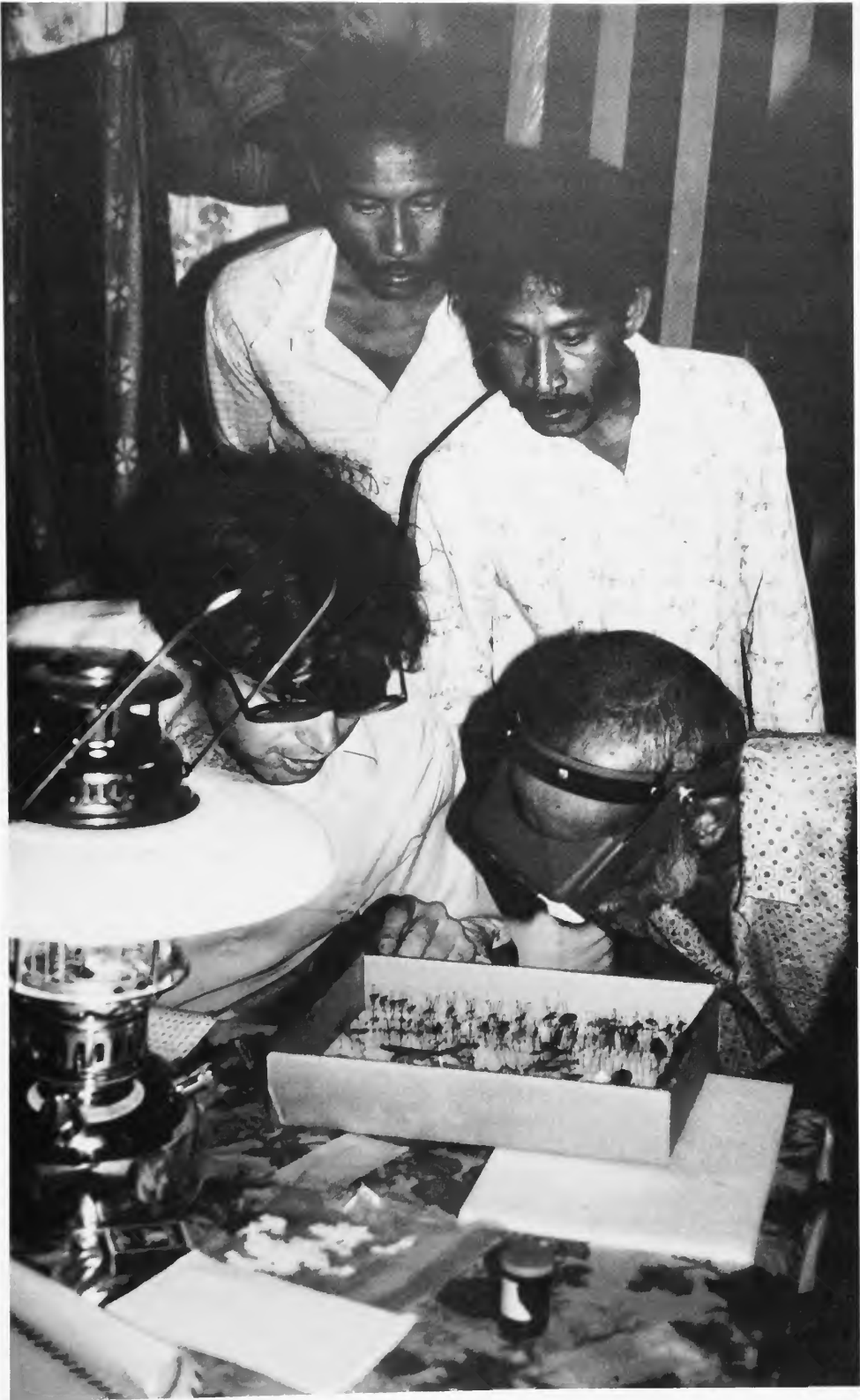


FIGURE 6.—Isak Rajangolo trying to be more helpful about local classification of insects by getting a better look. Kampung Pasir Putih, Dodinga District.

Halmahera's fauna and flora as well as with Tobelo conceptualizations of it.

Even after I left the field, Tobelo preparators whom I had trained organized an expedition to Obi Island, with the help of the local branch of the Indonesian Nature Conservancy, to sample that island's avifauna and record information about it. On my return to Pasir Putih at the start of each new field season, I found more rare and unique animals properly cataloged and preserved for me in formaldehyde. Even though I will undoubtedly never obtain specimens of all Tobelo folk classes of animal and plant, many Tobelo seem anxious to help me do so.

With the help of Adam Messer (during the 1980-1981 field season) and of course local Halmaheran preparators, I weighed the needs of my biologist colleagues alongside those of my own research priorities, often favoring the former. Knowing the difficulties of sampling Halmahera's fauna and flora, and the scarcity of information known about it, I was anxious to prepare faunal and floral samples in the way biologists would find most useful. Thus I insisted on taking ectoparasites from the vertebrates collected, even though all lice and ticks are called *o gani*, and are of little cultural importance. I also prepared multiple specimens of the same species in a variety of ways, thus some males and females of birds were made into study skins, others skeletonized, others kept in formaldehyde, and so on. This emphasis on anatomical specimens was, in part, to correct the past bias among ornithologists toward relying solely on skins. My own emphasis on skeletal collections also reflects a sincere hope that we will eventually be able, with the help of archeology, to study the history of man's interaction with other species on tropical islands of the Southwest Pacific. Such a study would need strong reference collections of the skeletons of local vertebrates. In the case of plants, I did collect many vouchers of sterile material that a botanist would have shunned, because I had to collect samples of plants for which Tobelo could provide cultural information even if those plants

were not in flower.

The study of local material culture also involved collection and annotation of local technology (some 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 Saul Rafane, the former Tobelo 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 Tobelo seemed to enjoy being studied; they waited patiently as lines were typed, and then said the next few lines for typing. Other texts were recorded in their entirety and transcribed later. I once very apologetically asked to record a trial for adultery. Soon other parties wanted their cases recorded as well, 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 for the photo. At Pasir Putih, village assistants were jacks-of-all-trades, helping in any chore that needed done; but most assistants still became chairmen of some department of their labor (there was the Head of Birds, Head of Genealogy Transcription, Head of Sea Life, etc.).

In short, ethnobiological classification is an important and integral part of Tobelo 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.

2. Tobelo Folk Biology in Its Sociolinguistic and Cultural Context

2.1 The Tobelo Language Situation

The Tobelo 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. Van der Veen (1915) had recognized the distinctiveness of the closely related North Halmaheran languages, which he showed to be non-Austronesian. As Wurm (1971:614–615) 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, Ternate 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 Zendingsvereniging, who began mission work on the island in 1866 (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,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,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 above are found with corrections in Literature Cited.

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 Galela, and “K.W.I.C.” (Key Word in Context) indices for Galela, Ternate, Pagu, Loda, and Tabaru (see Wada, 1979).

2.1.1 The Tobelo Dialects

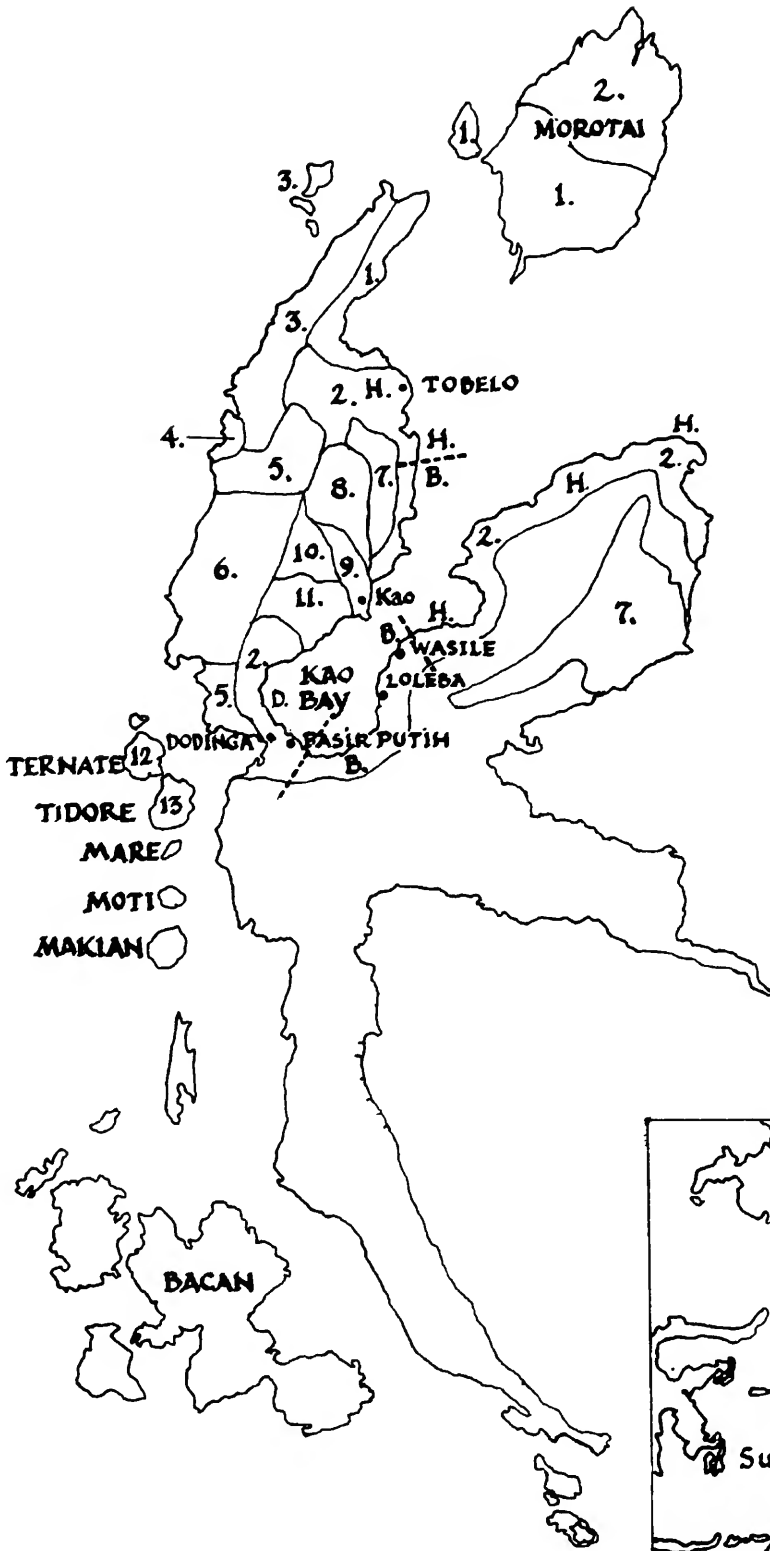
The Tobelo language is divided by Hueting (1908c:3ff.) into the northern dialect (spoken by Tobelo of the Tobelo district),

which he calls “genuine Tobelo,” the Boeng Dialect (B), spoken by Tobelo of the Kao district (elsewhere Hueting (1921) called speakers of this dialect the “Kao Tobelo”), and the “Dodinga dialect” (D). I shall here use the abbreviation “H” (for *heleworúru*, see below) for the “genuine” Tobelo 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) Tobelo—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). As 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” (Hueting, 1908c:4).

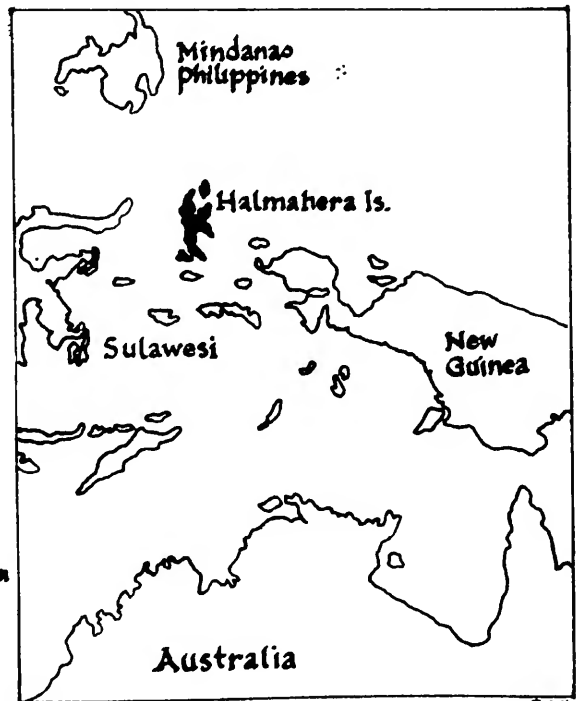
Aside from the “not large” number of words specific to any particular dialect, Hueting (1908c:4) notes only two phonological differences distinguishing dialects: “the use by B and D of *f* for the [H dialect] Tobelo *h*, and sometimes by the D of *s* for the [other ‘dialects’] *h*.” In the absence of any more adequate study of Tobelo dialectology, it may be sufficient to point out that this difference is locally considered striking. The following examples of folk terms for BIOTIC FORMS illustrate the correspondence:

H	B	D
<i>o hahihúku</i>	<i>o fahihúku</i>	<i>o hafisúku</i>
<i>o ngohaka ma</i>	<i>o ngohaka ma</i>	<i>o ngofaka ma iyo-</i>
<i>iyoyoko</i>	<i>iyoyoko</i>	<i>iyoko</i>
<i>o helehekú</i>	<i>o helehekú</i>	<i>o felehekú</i>

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 Ternate-speaking village populated primarily by Islamic speakers of that language until Makianese and Sangir/Talud immigrants forming separate adjacent kampungs changed its ethnic makeup in the late 1970s). According to old informants at Pasir Putih (Jailolo District), the Tobelo (Tbl) 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*), Tétewang (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 Tobelo, and the area occupied by them may be considered the full range of the “Dodinga” dialect (which thus now only has some 900–1400 speakers). At Pasir Putih I was told that in former times, when



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 [Pagul]
12. Ternate
13. Tidore



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 Tobelo 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 what appears to be another form of this name, “Seleruru,” for one of the *hoana* (traditional tribal divisions) of the “Kao” (= Boeng) Tobelo, 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 Tobelo who “inhabit the villages lying on the east side of Kau [= Kao] Bay generally belong to the Kau [B] Tobelo.”

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. I have briefly visited Tugutil from upriver Dodaga (1979) and inland from Dorosago (1981); both groups refer to their language as Tobelo, and indeed we spoke only Tobelo in the time I visited them. There are also Tobelo speakers on Bacan and Obi Islands, and throughout southern Halmahera. As the dialectology of this language becomes better known, we will undoubtedly find that it is more complicated than the tripartite division (accurate, at least, for

the Tobelo “hearthland” around Kao Bay and in Tobelo District) of the H, B, and D dialects, as given here.

For the Tobelo 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.

2.1.2 Multilingualism and the Use of Other Languages in Special Registers

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 Tobelo and other Halmaheran groups to the Sultanates of Ternate and Tidore, as well as the temporary expansion of the “Tobelo” (in fact, Tobelo 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 Indonesian¹, which I have 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.

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 it must also be admitted that borrowing of non-Austronesian terms by all North Halmaheran languages has been strong².

To briefly summarize a conclusion stated more fully, and illustrated by texts, elsewhere (Taylor, 1983), North Moluccan Malay (NMM) is locally considered a substandard 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. One might contend that

MAP 1.—Halmahera Island, showing North Halmaheran languages (after Hueting, 1908a). (Tobelo dialect boundaries proposed: H = *heleworuru*, B = *boeng*, D = *dodinga*.)

it would be difficult to pinpoint any truly "standard" dialect of Indonesian; or that such a standard would in fact contain considerable variation. Yet 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; when they speak their everyday dialect they believe they are speaking something substandard.

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.

Today the Tobelo do not seem to feel their language is inferior to the other local languages around them (Ternatese, Tidorese, Galela, etc.). Yet many Tobelo are eager to learn words or phrases of Ternatese. Some of this may be due to whatever oratorical tradition makes some Tobelo want to incorporate a few basic words of several languages into their conversation. Yet the main reason seems to be 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—most important of which is this language of the Ternatese Sultanate, which once ruled most of Halmahera. Ternatese predominates, specifically, in the language of traditional chants, of magical formulae, and of the give-and-take of marriage consultations between families of the bride and groom.

One proper setting for the traditional 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 new 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 gongs and deer-skin drums.

Although anyone may freely learn to chant—this involves no esoteric information—only elders generally 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 sugar palm chanting, or strike up a chant among friends.

Magical formulae, on the other hand, appear to embody the most esoteric of Tobelo knowledge (Taylor, 1988). A magical

formula in transparent Tobelo, like a chant in transparent Tobelo, would be quite inappropriate. Unlike chants, an effective formula allows no impromptu change to any of its parts. Like the chants, however, the formulae are in a so-called "Ternatese," though bits and pieces of other languages are mixed into them. The net effect of the carefully memorized formulae is often to convey some tantalizing references to the purpose of the formula using familiar Ternatese or other words that are apparent Tobelo cognates, though the juxtaposition of these with apparently meaningless morphs, and the seemingly intended convolutions of syntax, make the formulae quite difficult for the Tobelo to understand. Understanding the formula, however, is irrelevant to its effectiveness, and shamans who taught me some of their well-guarded formulae 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.

Interestingly, some slight variations are considered acceptable, and in one case a person to whom I told a formula 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 formulae that, 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 formulae. 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, Tobelo are by no means ashamed of their language, but they do seem to consider it inappropriate for many speech registers.

Galela, on the other hand, is a language used in a context dominated by Tobelo 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 enjoy remembering 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 sung in the Galela language, even where protagonists of the songs are of another ethnic group. Only rarely are such songs in Tobelo. These songs constitute the only register in which Galela seems preferred. This current popularity of Galela in festival songs of the Tobelo youth is of questionable antiquity, and may merely reflect the common opinion that the Galela do write the most moving love songs set to the slow beat of the *ronggeng* dance.

2.1.3 Ethnicity, Religion, and Language 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 Tobelo, Galela, Buli, Pagu, Sahu, and Loloda people, for instance, are Christian; while effectively all ethnic Ternatense, Tidorese, Makianese, or Maba are Moslem.

2. Although 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, Makassarrese, and Chinese) opportunities 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 Tobelo, 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, sometimes to stay for several months. I have often heard Tobelo 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) wrote:

The Tobelo 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 *adat* [customary] chiefs.

The Islam-Christian division is generally visible in the layout of Halmahera's ethnically and religiously mixed coastal villages' populations, with the Islamic section of the village invariably placed "seaward" of the Tobelo (Christian) section in those areas considered originally populated by Tobelo. In such areas the Tobelo 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, Makassarrese), 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 approximately 400) provides an example of such an ethnically and religiously integrated "Tobelo" community (i.e., a village in an area in which Tobelo are "lords of the land" and in which there is a sizeable Tobelo 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. It was also formerly the site of the district capital, and so 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.

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 (75.6%); speakers bilingual in Tobelo and Indonesian account for 58.5% of the total number of respondents (or 78.3% of all bilingual respondents).



FIGURE 7.—Setting out copra (the meat of ripe coconuts) on a drying platform at Loleba Village. Copra is the mainstay of Halmahera's cash economy.



FIGURE 8.—Village house at Pasir Putih, showing nipa palm roof, “lawn” completely cleared of vegetation, flagpole (required for displaying the flag at certain government holidays), and “fence” of *o balontas* (*Pluchea indica* Less.). Pandanus mats from the rooms inside have been hung out to dry and reduce bedbug infestation.

Reported language use in the home (as opposed to reported language competence) is more complex, though fewer languages are involved. Data on language use at Wasile Village are derived from 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) or parent, one spouse or parent, and both spouses or parents are Tobelo. 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 Tobelo 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 Tobelo, and she spoke to him in Pagu (others verified that this was the case); they both usually speak Tobelo 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, both parents used both languages, except in one case where both parents are Tobelo 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 Tobelo, the parents speak Tobelo among themselves in 19 households (37.2%), but transmit the language to their children by primarily speaking Tobelo in only five households (10.6% of households with children). Of households with more than one child, in only one (2.3%) is Tobelo said to be the language normally used in communication among children. By including households in which both Tobelo and Indonesian or both Tobelo and Pagu are used, the figures even more strongly contrast the older and younger generations: 25 households (51.0% of all Tobelo or partly Tobelo households) use Tobelo among spouses; in 10

TABLE 1.—Language competence among household heads and their wives, Wasile Village Survey, April 1978 (N = number, Ind = Indonesian, Tdr = Tidorese, Tbl = Tobelo, Tte = Ternatense).

Languages spoken	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	
Ind, Sangir	1	
Total bilingual	93	75.6%
Ind, Tbl, Larat	1	
Ind, Tbl, Maba	2	
Ind, Tbl, Sawai	2	
Ind, Tbl, Kao	2	
Ind, Tbl, Pagu	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	16	13.0%
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%

households (21.3%) parents speak Tobelo to children; and still in only one household (2.3%) is Tobelo 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

TABLE 2.—Language use at Wasile Village, Wasile Village Survey, April 1978 (see Table 1 for abbreviations).

1. Language usually spoken among spouses (per pair of spouses)			
Neither spouse Tobelo	Ind: 10 Tte: 1	Ind, Tdr: 1	
One spouse Tobelo	Ind: 16 Tbl: 7	Ind, Tbl: 2 Tbl, Pagu: 1	
Both spouses Tobelo	Ind: 8 Tbl: 12	Ind, Tbl: 3	
2. Language usually used by parents to their children (per nuclear family)			
Neither parent Tobelo	Ind: 11		
One parent Tobelo	Ind: 22	Tbl: 2	
Both parents Tobelo	Ind: 15 Tbl: 3	Ind, Tbl: 5	
3. Language usually used among full siblings (per set of full siblings)			
Neither parent Tobelo	Ind: 8	Ind, Tdr: 1	
One parent Tobelo	Ind: 22	Tbl: 1	
Both parents Tobelo	Ind: 19		

languages are disappearing in this village. Wasile, like Kao, has always been an emporium of ethnic groups, yet a knowledge of Tobelo has been maintained among teenage and older residents. Unfortunately this survey did not ask parents whether they spoke Indonesian or Tobelo in the home when they were children, which might have helped to detect whether, like the Kao language at Kao, Tobelo at Wasile has for some time been relegated to a subordinate but stable position.

It is nevertheless a fact that, even in this very ethnically mixed village, 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 Tobelo. In certain contexts Tobelo seems to be the preferred language. These include conversations accompanying women's cooking and kitchen tasks, by men out fishing or drinking palm-wine beneath the sugar palm (*Arenga pinnata* Merr.) from which it is made, or by all Tobelo during the month-long festivities that take place during the Christmas and New Year season. Important speeches at *adat* (customary) festivals must be given in Tobelo. Marriage arrangements are made in Tobelo (though appropriate proverbs, to which response is made with other proverbs, are in neo-Ternatense). This "subordinate but stable" status of the Tobelo language at Wasile seems also to describe the Kao language at Kao village, directly opposite Wasile across Kao Bay. This recalls Huetting's (1921:223) statement about Kao in the mid-19th century, but still valid today, that "Kao" (Boeng) dialect Tobelo is not spoken at Kao village, where "the inhabitants of that head village of the district are a hodgepodge from everywhere, with very few Tobelo." These facts, then, actually indicate that Halmahera's languages are amazingly stable and resistant to extinction. Fluency in the Kao language is still maintained

(even at Wasile)—even though no “hearth” villages use Kao as a first language, while others relegate it to subordination. (Tobelo, at least, has “hearth” villages all of whose inhabitants speak Tobelo.)

Thus Wasile (and also, perhaps, the small city of Tobelo, itself) may be considered extremes, in which the use of Tobelo is limited to a subordinate role even in the Tobelo communities. At the opposite extreme, upriver Dodaga or other Tuguil hamlets consist only of monolingual Tobelo speakers. 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 (1979) spoke (minimally) both Tobelo and Indonesian. The one person who (in July 1979) neither spoke nor understood Tobelo 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 Tobelo 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 Tobelo though their parents’ speech remains halting. Sangir, Tabaru, and other immigrants have learned to speak Tobelo, and full siblings who have grown up together in this village, though children of Sangir parents (for example), speak Tobelo 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.

A greater variety of individual adjustments to bilingualism 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.

2.1.4 The In-law Name Taboo and Its Practical Effects

Another sociolinguistic phenomenon that may affect folk classification is the Tobelo customary prohibition against saying the names, or words containing the names (or certain parts of the names), of “in-laws” (*moyoka*). Certainly this in-law name taboo affects the ability of individual Tobelo to pronounce the names of local fauna and flora in some contexts. It is also credited by the Tobelo themselves as the cause for some synonymy in their language. This phenomenon is partially related to the historically strong presence of many languages in this area (discussed above), because those other languages provide options to the use of Tobelo words that must be avoided. “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 Tobelo usually shorten personal names to either one or

two syllables, or may shorten or lengthen them to a three syllable (C)V₁(C)V₂CV₂ pattern. For example, *Yohanis* (official name used on documents, formal occasions, etc.) → *Hánihi* or *Anis* or *Anihi*; *Pénina*, given a similar nickname *Ponóso* → *Ponóco* → *Oco*; *Sául* → *Aulu*. All forms of these transformations are prohibited in the speech of Yohanis’s or Penina’s or Saul’s in-laws. Also, unlike the examples given here, many nicknames have no phonological relation to “official” names. They may instead be given to commemorate events surrounding the individual’s birth, or in memory of a relative who died not long before his namesake was born (see 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) while all in-laws are theoretically included, not all their names are prohibited with equal force, and (2) the prohibition is generally less strictly observed when no affected in-laws are present. As later became clear, these early “rules of thumb” about the in-law name taboo inadequately describe the complexity of this phenomenon. When everyday exceptions to such generalizations are pointed out to them, Tobelo themselves readily agree that these “exceptions” (to their own abbreviated generalizations) normally occur. 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 “true” (Tobelo *ma dutu*) parents-in-law, children-in-law, or siblings-in-law may legally fine offenders. (That is, 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.)

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” (*ikuruikáka* ‘already far’) in-laws (including full and especially even more distant siblings-in-law) are more negotiable. The names of such 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. Four main forms of circumlocution 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" (*o ngo Meri ami rokata*), both in direct address (to be more specific than *geri* → *eri* 'brother-in-law') and in reference. Second, spontaneously invented descriptions may make clear the individual or the object that may not be denoted by a term too like an in-law name. Third, 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* (so-called in Tobelo District and in the Tobelo Boeng dialect; *fosono* in the Dodinga dialect) 'substitution words said to avoid saying an in-law name.' These *hohono* (cf. Galela *saali*) are formed in Tobelo in very much the same way as that described by the missionary van Baarda for the neighboring Galela language, in a letter to H. Kern (1893:199–200).

[1] For some words the Galela language possesses synonyms [Dutch: *dubbelgangers*], which make the *saali* [substitution word] 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 Ternatense or from another related dialect.

Yet even for relatively close in-laws, such circumlocutions are not always necessary. In some cases certain "potential" in-laws individually decide (as an agreement between the two of them) to avoid the mutual obligations of brothers-in-law, and not to concern themselves with the in-law name prohibition. Such "potential" in-laws are said to *yo-ma-hi-ko-bohon-ua* 'they do not use avoidance [of saying each other's names].' They may do this 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.

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 his respect for the in-law bond), he may "pay" (literally, Tobelo: *-fangu*) for the right to use that sequence of phonemes in other contexts only. Because of the many factors that make the in-law name-taboo less draconian than it seems, this option is very

rarely used. When it is used, a person only "purchases" the privilege of using his or her in-law's names in non-naming contexts. To address or refer to them (the "naming" contexts), he still will use circumlocution, and he will expect 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.

The Tobelo themselves credit this name-taboo with producing some of their language's high number of synonyms. We can witness this process of synonym-production on a small scale, as at Kampung Pintatu (Wasile District, Halmahera), where the Tobelo word for 'coconut' (*o igono*) has been completely replaced by North Moluccan Malay *kalapa* ('coconut') because, according to residents there, *kalapa* had long been used as a *hohono* ('substitution-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. It is difficult to study now the effects that the name-taboo originally had on the production of synonyms; in any case, it presumably tends to reinforce synonymy 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 dialect spoken in Tobelo District), are now standard (no longer circumlocutory) in the Boeng and Dodinga dialects. An example is *daluku*, defined by Hueting as palm-wine from the sugar palm, but also (he says) used as a *hohono* for the palm itself (*Arenga pinnata*). This second *hohono* meaning in the Tobelo dialect has become a standard meaning of *daluku* in the Boeng and Dodinga dialects; the original word *hepata*—for which *daluku* should merely substitute to avoid naming in-laws—has been lost in the south. Hueting also, on many occasions, suggests the *hohono* in positing etymologies of analyzable words whose meanings seem only distantly related to that of their root, apparently because *hohono* words are likely to have specific relations to the words they replace, such as those identified by van Baarda in his letter to Kern quoted above (e.g., *-hionoko* Hueting, 1908c:158; cf. also Hueting 1910).

2.1.5 Conclusion: The Tobelo Language Situation and Tobelo Folk Classification

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

and about contact between, the languages of the North Moluccas.

1. The Tobelo 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 *heleworuru* (H) dialect of the north and *boeng* (B) dialect of the south. Following Huetting (1908c), we may further distinguish the divergent “Dodonga” (D) dialect, though it is considered “Boeng” by its own speakers. Thus Tobelo 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 percentages of cognation in basic vocabulary), this would not affect the fact that the two are locally considered distinct languages.

2. Consistent with this assumption that Tobelo is a single language, its speakers are anxious to “align” their own folk classification systems with those of other Tobelo (see 5.2.1.3 below). They frequently try to explain dialectal differences when they come across them. 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 Tobelo 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 Tobelo), NMM words were assimilated into a Tobelo phonological pattern; but now that bilingualism is common (“phase two”), NMM terms are pronounced in Tobelo precisely as they are pronounced in NMM.

4. While the strong influence of NMM may be invoked to explain particular details of Tobelo 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 where “proper” or “standard” Indonesian terms are locally rarely known. Halmahera’s many immigrants from other ethnic backgrounds frequently borrow Tobelo terms to classify Halmahera’s unique fauna and flora.

5. The in-law name taboo, which might be considered a sociolinguistic phenomenon of sweeping effect, turns out on examination to have a bark much 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. Minimally, it encourages the use of circumlocutions, and thereby may speed up the creation of new terminology. It also probably encourages the high degree of synonymy in the language, because alternative forms from Tobelo or other languages can substitute for any word which would be disrespectful to pronounce.

Finally, the in-law name taboo has some practical effects on any analyst’s description of Tobelo nomenclature. It requires a

very particular exception to most generalizations made below (3.2) about word boundaries, “acceptable” and “non-acceptable” compounds, etc. For example, one may strictly define, and loosely think of, a “simple” word as one which cannot be subdivided into parts (see 3.2.2.1 for nomenclature definitions). Yet a person who is trying to avoid saying an in-law name may regularly say any simple word leaving out (or just humming) only the syllables he must avoid, even though the latter constitute a submorphemic part of the word. I once heard a 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 Leo’s name for her.

2.2 The Cultural Importance of Local Biota

This study primarily focuses on aspects of folk classification. Nevertheless, this system of folk biological classification cannot be studied (though to some extent it can heuristically be described) in isolation from the many areas of Tobelo cultural life in which their folk biological knowledge plays a major role.

2.2.1 Subsistence and Diet

Subsistence activities are important to folk biological knowledge, partly because so much of a culture’s attention to animals and plants is directed toward important subsistence products. Each activity that exploits those products is a source of cultural information about local biota. Even 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 wild 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 Tobelo, food is often summarily eaten to quickly achieve a feeling of being “satisfied” or “full” (Tbl: *inaapunu-hoka*)) also affect animal and plant exploitation.

2.2.2 Ethnogeography

The intensive local familiarity with the coasts and jungles of this region is enriched by folk tales and myths about the man-named places that make up the jungles’ cultural topography (cf. Huetting, 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.

2.2.3 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, and manufacture of other utensils, houses, 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.

2.2.4 Magic and Medicine

Magic and medicine, undifferentiated in the single Tobelo 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 magical formulae in the heavily mixed neo-Ternatense “hodgepodge” of languages mentioned above (Taylor, 1988). Because folk medicine is esoteric, the names of medicinally useful plants are seldom freely discussed.

This field is especially rich for ethnobiological research, not only because so many illnesses are cured by plants, but because sicknesses themselves are often 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 that 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 *i-naa-ho-hilowana* (the first example above), requires 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 Tobelo specialize in particular fields clearly leads to a differential knowledge of many details of the classification system. But one of the Tobelo cultural presumptions about BIOTIC FORMS, to which we now turn, is that most such differences of detail should be reconcilable.

2.3 Tobelo Cultural Presumptions about Their Folk Biological Classification

Presumptions underlying a system of classification can be inferred from the comments and behavior of the Tobelo, with whom we may talk about these presumptions after we have inferred them. These very basic, shared presumptions that underlie folk biological classification are so fundamental that they are rarely if ever locally stated or discussed in the summary form in which they may be listed here.

1. Plants and animals were named at some time past by “the Elders”—ancestors of the Tobelo 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, Tobelo 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 correct 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. Tobelo 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 that!"

4. Tobelo (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. Tobelo generally are, and feel they should be, willing to learn more about the proper classification of local biota (as well as about uses, habitat or behavior, and other characteristics of biotic forms). 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 Tobelo to revise and correct details of nomenclature and classification, there are also local conventions of etiquette that 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 (by a former "Elder" or by an individual's spirit-helper) 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 anyone is told 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 Tobelo folk botanists. In several cases no other villagers at a particular place knew the name for certain plant-types. In cases of disagreement about a plant's proper identification, 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 Tobelo 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 Tobelo cultural presumptions that seem to underly folk classification, not presumptions about the classes of BIOTIC FORM themselves (cf. 4.4); some consequences of these presumptions will be noted when appropriate throughout the text that follows (see especially 5.2.2.4 and 5.2.3.5 on some effects of esoteric knowledge on classification; and 5.2.1.3 and 5.2.2.4 on local attempts to reconcile the assumption of a "proper" Tobelo classification with observed dialectal differences).

3. Plant and Animal Nomenclature

3.0 Introduction

Our first and most continuous information about “native” ideational forms (among the Tobelo, the Americans, or any other culture) derives from the linguistic expression of those ideas in natural contexts, including conversations overheard (and later joined in) every day. Tobelo frequently discuss their everyday decisions about technological, medicinal, or other uses of plants and animals, lexically expressing the criteria for such decisions in their discussions. In such contexts (including but not limited to the naming of particular items) the many Tobelo 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 specifically to the system of naming these classes (cf. Lawrence, 1951:3–4). 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 (Chapter 4).

In this chapter, I use examples from English and Tobelo to provide a theoretical basis for distinguishing lexemes, and to indicate their importance (3.1 below), in order to outline a typology of lexemes (3.2) that is based on morphosyntactic criteria. I argue that this typology accounts for observed lexemic Tobelo plant and animal names more adequately than do the typologies based on semantic criteria that are generally used today in studies of folk biological classification. Word and phrasal lexemes are distinguished with further subtypes and illustrated with examples.

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 preferred. 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 lexemes¹, which are “roughly” defined by Lyons (1977:23) as “the words and phrases that a dictionary would list under a separate entry.” If a lexeme, then, is a minimum dictionary entry, 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. Certainly any researcher’s attempts to guarantee “objectivity” by confining himself 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 Tobelo 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 Tobelo verbs) are predictable from members of another (Tobelo nouns in the FLORAL FORM domain). Tobelo nouns and verbs can easily be distinguished throughout the language (see 3.2.1 below). Yet Tobelo informants do vary as to whether they consider it acceptable to form verbs from some nouns for FLORAL FORMS. The details of this case illustrate one method of interpreting informant “variability” or apparent “disagreement.” The question in this example is: Can all nouns for (i.e., names of) FLORAL FORMS become verbs having the meaning ‘to throw (that FLORAL FORM, or a part of that FLORAL FORM)’?

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’; *biawa* (noun) ‘*Donax* sp.,’ *-biawa* (verb) ‘to spear (something) with the sharpened stem of a *biawa* 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 transformation 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 (the fruits of those plants).’ For

some Tobelo speakers these may be the only nouns that form verbs in this way. Some Tobelo, though, are simply 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 “(to) can,” “(to) bag” or “(to) bottle.”

The other ways in which noun lexemes in the domain of Tobelo 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) 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 (fortunately!) it is usually 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), in describing Tzeltal folk zoology, 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; 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 Tobelo (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, so different from the mouth or eye of one's face that they should be different lexemes. Fortunately, 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 partonomy 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 4.3 below).

In such cases an important method of examining these different meanings in their contexts involves noting the various contrast-sets that include the same form. Such cases of possible confusion due to polysemy of terms for types of FLORAL FORM proliferate in Tobelo 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 Tobelo 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" (B⁰) terms in these three major (B⁺¹) classes can initially be quite confusing (n. = noun; vb. = verb):

<i>gota</i> ₁	n. 'tree' (including saplings) contrasts with <i>gumini</i> ₁ 'vine' and <i>rurúbu</i> ₁ 'herbaceous weed' (excludes palms, cycads)
<i>gota</i> ₂	n. 'large tree' (excluding undergrowth of saplings) vs. <i>rurúbu</i> ₂ 'weeds, uncultivated undergrowth' and various cultivated plants
<i>gota</i> ₃	n. 'lumber' (wood from a <i>gota</i> ₁ 'tree' used for manufactures) contrasts with other materials of manufacture, e.g., <i>katu</i> 'thatch,' <i>paku</i> 'nails,' etc.
<i>gota</i> ₄	n. 'firewood' vs. <i>rage-rage</i> 'kindling wood'

<i>gota</i> ₅	n. 'woody tissue, wood' vs. <i>kai</i> 'bark,' <i>ngomaha</i> 'throat (i.e., central stem tissue),' etc.
(i)- <i>gota</i>	vb. 'to be woody, to have woody tissue' (from <i>gota</i> ₅)
(ho-maa)- <i>gota-gota</i>	vb. 'to gather firewood' (from <i>gota</i> ₄)
<i>gumini</i> ₁	n. 'vine' vs. <i>gota</i> ₁ 'tree' and <i>rurúbu</i> ₁ 'herbaceous weed'
<i>gumini</i> 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.).

<i>rurúbu</i> ₁	n. 'herbaceous weed' vs. <i>gota</i> ₁ , tree and <i>gumini</i> ₁ 'vine' (cf. H-dialect synonym <i>momo</i> 'herbaceous weed')
<i>rurúbu</i> ₂	n. 'weed, uncultivated undergrowth' (including 'tree' saplings, moss at the bases of small plants, vines growing among undergrowth, etc.) vs. <i>gota</i> ₂ and various cultivated plants.
- <i>rurúbu</i> ₁	vb. 'to be thick, dense (of hair, leaves, trees, undergrowth, houses, etc.)' (The noun <i>rurúbu</i> in senses 1 and 2 above probably derived from the abstract noun <i>rurúbu</i> 'thickness, density' from this verb in the B and D dialects, which do not use <i>momo</i> in the sense of <i>rurúbu</i> ₁)
- <i>rurúbu</i> ₂	vb. 'to be full of undergrowth or weeds' (from <i>rurúbu</i> ₂)

(Each verb above also may form one abstract noun that 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 B¹ 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 rurubu toparihohi, botino daha ma gota totoyanga* 'Now I'll just cut down this undergrowth [*rurubu*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 is the basis for considering these words polysemous rather than homonymous. As Lyons (1977:522) 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 see 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 constitute the verbs in sentences like "She plays chess," "He plays Hamlet," etc.), or by simply considering any such forms that 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 that may vary with the informant), but also on the basis of the fact that the same forms occur in different contrast-sets (cf. 4.4). 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 mainjanga* 'deer,' etc. But in the taxonomy of 'animal' types, *o ngafi* 'anchovy' is a type of *o nawoko* 'fish,' locally contrasting with over 150 other B⁰ classes (see Appendix 2.3). 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 two or more lexemes that 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') (see Appendix 1). There is also *o ginene*₁ (a type of 'owl') (uncollected) and *o ginene*₂ (a ghost that 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 that 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 B⁰ and major plant group B¹ terms (though I have found no such intermediate classes in Tobelo). 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 1). 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' that 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).' The use of that construction, which uses the tree names to name the types of 'dammar (resin),' might mistakenly be considered evidence for including those trees 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. Nevertheless, it is (fortunately) seldom necessary when analyzing a particular domain to distinguish the lexemic status of every possible "meaning" of a form that occurs in that domain, as long as the analyst separates out all those "meanings," which, if conflated, might confound the analysis. 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 That Have the Same Form as Non-lexemic Expressions

Having waded through the problems of distinguishing multiple senses of the homonymous or polysemous lexemes, let us now turn to other difficulties that arise when we try to

identify lexemes, in those cases where 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 a lexeme's 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., even though the stress in the lexemic 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 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, 1960:11-20), 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 (1974:51) 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 considerably less stable."

Among the Tobelo 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).

Non-lexemic phrases may also appear to be "stable" and lexemic when they are commonly used to disambiguate 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 ihohoho* 'the (bird) which flies' vs. *o totaleo hotofo-tofo* 'the (chicken) which one feeds'; or alternatively, *o totaleo o fonganika* 'the jungle (bird)' vs. *o totaleo hopopaliara* 'the (chicken) which we tend,' and others. Suppose we try one common test for lexemic status, that is, changing "the state or

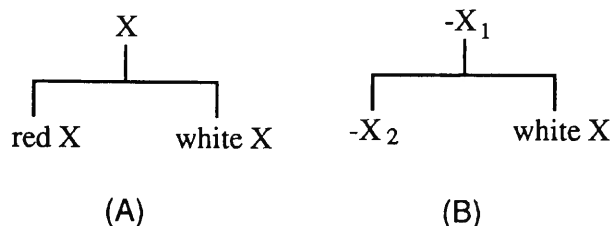
characteristics of the referent to require a change in the attributive" (Berlin et al., 1974:51). In this test, one asks whether "blackbirds" and "white oaks," for example, would still be "blackbirds" and "white oaks" if they were painted red. So, we may conclude that the words or phrases might be lexemic. Tobelo may similarly be asked about descriptive phrases used to disambiguate "totaleo." 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, "Well, it lives untended in the jungle but it's just it, the (chicken/bird), but we don't tend it anymore; we would tend it but it . . ." and so on. They are trying to make the ethnographer understand that they are distinguishing two classes of animal (birds and chickens), which both happen to be labeled by the same form *totaleo* in their language. The phrases are not lexemic, but neither do they just distinguish two logical sets, 'the set of all birds that regularly fly' from 'the set of all birds which we feed.'

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 "X₂" with which it contrasts may reliably be disambiguated from the higher-level "X₁" 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. Yet any analysis that fails to distinguish such "predictable and reliable" expressions from truly lexemic terms implies that some unified definition of those expressions could be found. In fact, the only common defining feature such expressions may have when they are applied to disambiguate so many unmarked classes is that they are not the attributive locally considered that expression's "opposite." Thus informants may say that a plant type "X" 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 in the diagram in the next column.

If diagram (B) illustrates the relationship of these classes, it is very likely that the unmarked X₂ will 'reliably' be disambiguated by the "opposite" of 'white'—which, in Tobelo

plant nomenclature, is 'red.' (Exceptions occur in classes such as those labeled *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 1.1).



A similar pattern occurs in the classification and naming of Tobelo plants as 'male' and 'female.' Either the 'male' or the 'female' class may be unmarked, though in some cases no marked/unmarked distinction occurs. Several plant characteristics that emphasize the "strength" of the plant seem generally to be considered properties of 'male' forms (including thorniness, hirsuteness of the leaves, and usefulness in *houru* 'magic/medicine,' as well as elongation or pointedness of leaves, redness of the medicinally important growth-point, and uprightness of the stem). 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).

In some groups such as grasses and sedges (the smaller 'herbaceous weeds'), the "usual" or unmarked subclass is the female 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 that form the marked subclasses will be considered—by those familiar with such esoteric things—to be male, and presumably of medicinal value.

Some descriptive definition of both the color terms and the term for 'male' and 'female' may 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 they are convenient "opposite" of another term). For this reason, and 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. Hunn's (1977) analysis of Tzeltal folk zoology, by contrast, makes virtually no attempt to distinguish lexemes on a linguistic or even semantic basis, perhaps due to unfamiliarity

with the Tzeltal language. He states, for example (1977:26), that the distribution 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." This assertion is surprising since the test had been applied to wild plants.

Instead, Hunn (1977:26-27) 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.

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 every Californian can state the defining features of a gray squirrel other than grayness).

Hunn's predominant means of testing whether a designated subclass of animals is defined by many features (and is thus a "natural" grouping labeled by a "lexeme") is to determine whether the subclass corresponds to a recognized biological taxon in our Linnaean classificatory system. Hunn's failure to use linguistic or semantic tests to try to distinguish lexemes from non-lexemic "expressions" has the effect of guaranteeing that 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, 1977:24). 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. Exceptions occur (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 labeled by the same form, the problems are often 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 unacceptable 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 (to invent an extreme example) 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. As shown above, this rule of thumb is quite misleading when applied to the non-lexemic expressions that are regularly used to disambiguate polysemous (e.g., unmarked) terms.

3.2 Types of Lexemes

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.

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 Tobelo terms will be reviewed.

3.2.1 Words and Phrasal Lexemes

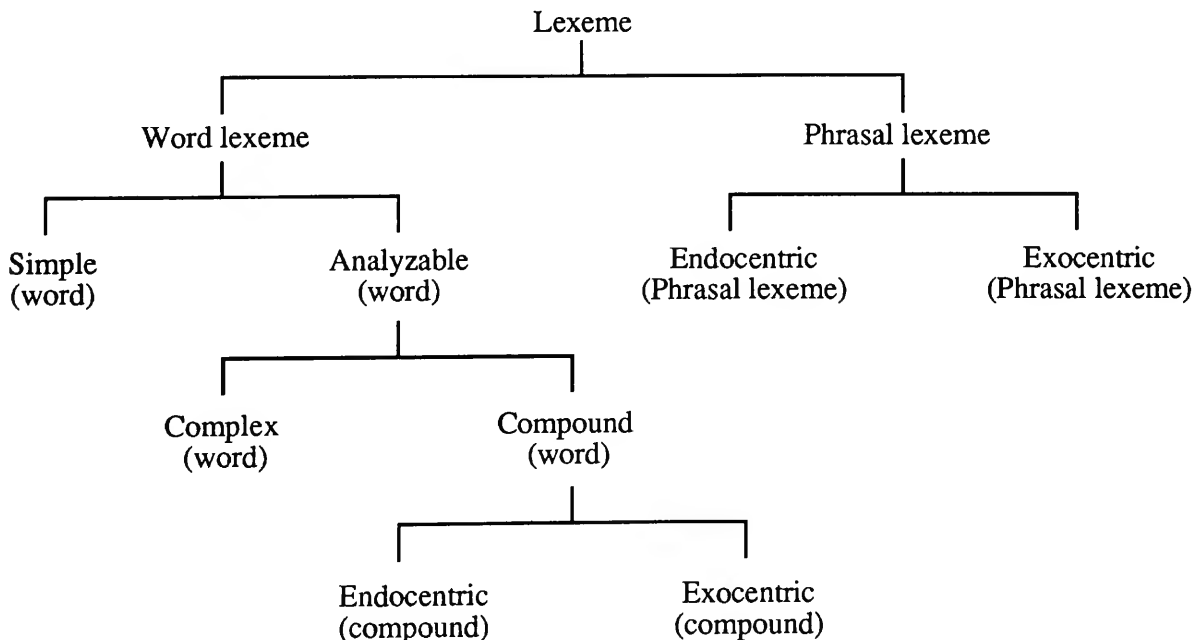
Lexemes may be immediately subdivided into two types: words (word lexemes) and phrases (phrasal lexemes), each subdivided into other types based on morphologically and syntactically acceptable ways to form compound words or phrases (see diagram below). This immediately raises the question of how one recognizes word boundaries in Tobelo. Almost all Tobelo words are either nouns or verbs. The former are recognized by a noun marker (*o* or *ma*); the latter have 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 synthetic language).

When Tobelo who have learned to write Indonesian turn to writing Tobelo, they, themselves, like Dutch translators of Bible stories (Nederlandsch Bijbelgenootschap, 1905; G. 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 (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 (if this transcription is accepted, they would be the only prefixes that did not elide like the others).

In general, we can consider all root words plus verb affixes

to be single words (verbs). We can also consider that all particles that (1) can elide either with the verb or with an affix that elides with the verb, or (2) 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. As described more fully elsewhere (Taylor, 1984a), the locative pronouns such as *-ika* 'in a yonder direction' and *-oko* 'in a seaward direction' are here considered suffixes with respect to the word boundaries of the verb.

In general we may also consider that a noun is the unit that takes a noun marker (*o* or *ma*) or one of the possessive pronouns. 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.' This must be considered a phrase, not a compound word, because there are separate possessives or noun-markers for each noun in the phrase. Here again, the paradigm of locative morphs (*-ika* 'in a yonder direction,' *-oko* 'in a seaward direction,' etc.) may attach to the noun or noun phrase. When they do so, however, the locatives must be considered a separate paradigm of enclitics (not suffixes) attached to the word (*o tau-ika* 'to the house') or phrase (*o tau ma ago-agom-ika* 'to the big house') (see Taylor,



1984a, for further explanation and examples).

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 'BIOTIC 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. This construction is commonly used for place names and names for artifacts, as well as plants and animals.

<i>o ingiri ma gegehe</i>	(X 'tooth' [poss.] 'scrubber') 'tooth-scrubber' <i>Leucosyke capitellata</i> (Poir) Wedd.
<i>o ngo bao ami bahuku ma otini</i>	(X [feminine proper name marker]'Bao [woman's name]' [poss.] 'axe' [poss.] 'handle') 'Bao's axe-handle' <i>Euodia aromatica</i> Bl.
<i>o dodiha ma kobongo</i>	(X 'snake' [poss.] 'bones') 'snake's bones' <i>Ipomoea quamoclit</i> L.

Where they are lexemic, such names will here be considered compound words rather than phrases for the following reasons:

1. Many of the elements making up the compounds with this kind of construction—especially in the area of animal and plant 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.

2. Though no inflectional pattern can mark the word boundary of these nouns, other analogous constructions of the type "possessor + possessive preposition + 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)	<i>o kabingi ma iyoko</i> (X goat [poss.] feces) 'goat droppings'
A ₂ (used as verb root)	<i>ma hohoko i-kabingi-ma-iyok-oka</i> (the fruit X-goat-[poss]-feces-already) 'the fruit (buds) are already the size of goat droppings'
B ₁ (phrase-like construction)	<i>o hiba ma gogo</i> (X '[green parrot] <i>Geoffroyus geoffroyi</i> ' [poss.] 'feathers') 'feathers of the parrot <i>G. geoffroyi</i> '
B ₂ (used as verb root)	<i>ma hohoko i-hiba-ma-gogo-oka</i> (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)'

3. Finally, these may be considered compounds rather than noun phrases because they may not be interpolated, nor may other morphs be inserted into them. For this reason they can be distinguished from noun phrases with similar construction. 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 Tobelo folk biological 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.

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

- (3a) *o hulahi ma doka-dokara* 'red(-flowered) hulahi' *Ocimum sanctum* L.
- (3b) *o hulahi ma gare-garehe* 'white(-flowered) hulahi' *Ocimum 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' *Pseudelephantopus spicatus* (Aubl.) C.F. Baker (Asteraceae)
- (5) *o bangata o dotoika* 'bangata (tree) found at capes' *Plectromia* sp.

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

- (3') *o HULAHU 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, Tobelo word boundaries can consistently be distinguished for verbs and nouns (and—though not shown here—for other words as well). Both word lexemes and phrasal lexemes can further be subdivided into types.

3.2.2 Types of Word and Phrasal Lexemes

We may first distinguish "simple" words (those that 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).

<i>simple</i>	<i>complex</i>	<i>compound</i>
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 recognizable, 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 subclass 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.

3.2.2.1 Simple Words, Including Foreign Compound Borrowings

Since simple words (by definition) are 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 that have been borrowed from other languages and may be treated as simple words in a typology of Tobelo word formation. The degree to which these original compounds are recognized as of compound origin may vary. Examples include

- o ate-jawa* (< 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 fragrans*)' + *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-jawa*, and the foreign component *ate-* has no Tbl cognate. The second example is more problematic, because *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, because the Indonesian head *pala* is now a synonym (*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* '*Avicennia* sp. (a mangrove tree)' 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 such words 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 (at the descriptive level of dictionary-writing, at least) entirely on local recognition to determine types of word formation. Otherwise we would have to consider certain word-lexemes "simple" for some people and "complex" or "compound" for others. Thus the grass called *o aerani* (see Appendix 1.1) was thought to be labeled 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 Words

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 1.1)
- 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 1.1)

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, *o do-dataiti* is a synonym of the simple word *o dataiti* (see Appendix 1.1 for species determinations).

Complex, Type 3. Agentive ("one-syllable") reduplication of verb X forming an agentive noun meaning "the thing used to do X." (See Appendix 1.1 for species determination 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. *-tófo* '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 Tobelo 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. ('ginger')

o riidi (< vb. *-riidi* 'to be silent') 'silence' (see Appendix 1.1)

o aerani (< vb. *-aerani* 'to be wonderful, strange') 'wonder, strangeness' (two forms, see Appendix 1.1)

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

Complex, Type 5. Causative prefix (*-hi*) and verb root X meaning "to cause to do X" (Only two definite examples, both in the FLORAL FORM domain).

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 *o bole* 'banana')

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

o ngoerua (< participial *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 islet at 0°53'N, 127°42'E)), this construction does not occur in any Tbl term for a BIOTIC FORM.

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) that 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) that 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 Tobelo 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 Tobelo 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* (*o 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. Thus 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 com-

pounds can clearly be 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.)

Other compounds are clearly both "semantically" and "morphosyntactically" endocentric, such as the second of each pair in the examples below.

- | | | |
|----------------------------|-----------------|---|
| <i>o ngulu</i> | [simple] | <i>Spondias pinnata</i>
(L.f) Kurz |
| <i>o kaho ma ngulu</i> | 'dog's ngulu' | <i>Spondias</i> cf. <i>dulcis</i>
Saoland ex Park. |
| <i>o bidoho</i> | [simple] | (several <i>Piper</i> spp.)
'sirih' |
| <i>o tokata ma bi-doho</i> | 'ghost's sirih' | <i>Piper caninum</i> 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.)

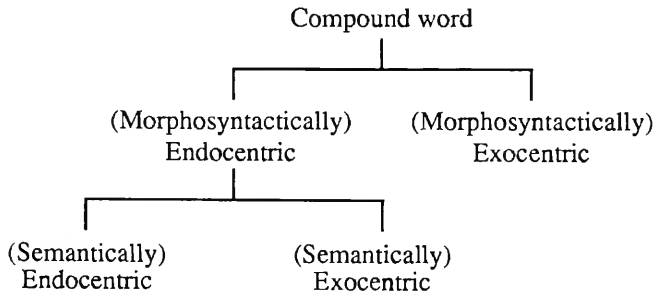
Finally, the following examples will illustrate morphosyntactically and "semantically" exocentric compounds.

- 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 that 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'; 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" Tobelo compound word, despite the fact that the criteria for determin-

ing endocentricity are different. This follows, however, from the definition of a semantically endocentric compound as a compound some part of which designates a super-class 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 thus 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, here 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 Tobelo 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 Ternate), it is rather rare in Tobelo, 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*’ (*Colocasia* 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 quamoclit* 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’ (a reference to the long, pure white “hairs” surrounding the seeds of this ‘vine’) (*Cynanchum* sp. and others, cf. Appendix 1.1)

In some cases, the ‘possessed noun’ designates a superordinate class.

o ode ma biawa (X pig [poss.] ‘*Donax canniformis*’) ‘pig’s *biawa*’ (a type of *biawa*)

o nyawa ma biawa (X human [poss.] *biawa* ‘*Donax canniformis*’) ‘human’s *biawa*’ (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* Soland. 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 attenuate 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 (*Ipomoea quamclit* 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', *Mucuna* 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).

Exocentric Compound, Type 1. Noun + verb root.

This is the only type of exocentric compound in the domain of BIOTIC FORMS. 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 that designates a plant part (or object in association with the plant) and a verb that indicates a state or quality of that part or object.

Examples:

o ngofawoe (*o 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 (*o hoka* 'leaf' + *-regi* 'to be lobed') '(its) leaves are lobed'

o gagilamo (< *gagi* (truncation of *gagini*) 'dew' + *-lamo* (trunc. of *-lamoko*) 'to be much') (having) much dew' (two types, see Appendix 1.1)

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 (according, at least, to the folk etymology of such terms)

o guluihuputu (*o gului* 'buttocks' + *-huputu* 'come undone, come out') 'buttocks come out' (a malady; hemorrhoids?)

o lakodóto (*o 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 cases 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 the "participial" may, after further research in Tobelo verb morphology, be shown to be an abstract noun '(its) being red.' Since this interpretation is problematic, however, the construction may temporarily be 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 Tobelo, clauses are made subordinate by reduplication of part of the verb stem (e.g., *o gota wo-toyanga* 'he chops down the tree' vs. *o gota wo-toya-toyanga* 'the tree which he chops 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 fahihuku ma doka-dokara* 'red *fahihuku* (tree)'

Type 2: *o fahihuku 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'). Of course, extremely long non-lexemic phrases may spontaneously be coined to disambiguate terms on particular occasions ('the X which we find over there 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 that it designates. It consists of the head word plus attributive; the latter consists of a habitat term plus a locative enclitic. Different Tobelo dialects use the same set of six locative enclitics 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,' *hongana* or *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. The marked *fongan-iha* 'jungle-landwards' is less common, and the marked *gahi-oko* 'sea seawards' is very rare, apparently because the sea's direction is least ambiguous.

The above is true for all habitats that humans can reasonably reach (thus excluding only the "deep" sea and the sky). 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-oko* '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-oko*) (marked). Note that in these cases (terrestrial habitats), the directional enclitics used are exactly the opposite of 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 are generally used.)

For non-terrestrial habitats in D dialect, 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 more generally distinguish the two senses of *gahi* '(1) sea; (2) shore' through the locative enclitic. For Dodinga dialect speakers, the 'sea' is a non-terrestrial habitat usually rendered *o gahi-ika* 'sea-that.direction'; the 'shore' 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 Tobelo 'upward' and 'downward' refer to movement southward and northward (respectively) along or parallel to the coast (see Taylor, 1984a).

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 naur-ino* 'male sea-this.direction' (i.e.,

'from the male sea'). When Tobelo 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 once again that a single lexeme can be realized in several predictable forms, both within the same dialect and among dialects. We have already seen that this was true of endocentric phrasal lexemes, which can be realized either as reduplicated participials or as subordinate clauses. These locative or "directional" enclitics, which distinguish subclasses of BIOTIC FORM ('sea X' vs. 'jungle X,' etc.), are part of the lexeme that designates each subclass, although each lexeme may be realized in several forms by the attachment of (predictably) different directional enclitics.

Because *-ika* 'that direction' seems unmarked relative to others, it is generally used as the citation-form (except, e.g., *o aker-ika* '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. *leterocarpa*
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. However, we will here consider these as a separate type, and consider that the phrasal parts meaning 'good,' 'bad,' 'male,' or 'female' are "attributives" rather than the heads of the phrases, while Type 5 phrases are not. This is because (1) abstract nouns (e.g., *ma oa* 'good') seem to be used as attributives; and (2) this difference is underscored by the fact that these phrases are semantically quite different from those of Type 5. 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). Finally, (3) phrases of this type behave differently in the rule for "sequencing" lexemes (5.1.3 below) than do those of Type 5.

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 interpolated, and that other morphs can be inserted in them. The "possessor" here, though, is always a BIOTIC FORM, and only three "possessed (nouns)" occur: (*ma*) *gilaongo* '(its) servant' and (*ma*) *dofa* '(its) counterfeit' in either FLORAL FORM or FAUNAL FORM domain; and (*ma*) *ayo* '(its) mother' in the FAUNAL FORM domain.³

It will be shown below (Chapter 5) that the relations of a class to its 'servant,' 'counterfeit,' and sometimes 'mother' class is not a taxonomic one, and in the case of 'servant' and 'counterfeit' is only a metaphorical relation. These endocentric phrases are the only ones that can function as "basic" (B⁰) terms; and they are the only ones that 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' (*Pseudelephantopus spicatus* (Aubl.) C.F. Baker)

o cengke 'clove' *Syzygium aromaticum* Kuntze

o cengke ma dofa 'clove's counterfeit; false clove' *Syzygium* sp.

3.3. Foreign Borrowings in Tobelo Nomenclature

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

1. Several examples above illustrate that it is sometimes difficult to distinguish Tobelo from Ternatense compounds. While this matter cannot yet be fully explored (in the absence of any adequate dictionary of Ternatense), the observation is based on the fact that many Ternatense words are predictably like Tobelo words. A Tobelo word with a final [...V_aCV_a#] (where V_a is the same unstressed vowel), especially, often has a Ternatense cognate without the final syllable.

Tobelo	Ternatense	English
<i>glama</i>	<i>glá</i>	hand, arm
<i>-lámoko</i>	<i>-lámo</i>	big
<i>ngáuku</i>	<i>ngáu</i>	ear
<i>áunu</i>	<i>áu</i>	blood

In Tobelo compounding, this dropping of the final unaccented syllable occurs even for Tobelo 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 Ternatense, even when Ternatense stems are not known. Compounds of this form, then, are examples of what I have called "neo-Ternatense," the widely used "language" also used in magical formulae and ceremonial chants.

2. The languages of Tobelo borrowings vary from one area to another. Heuting's (1908c) dictionary, based on the northern H dialect near Galela, lists many Galela 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).

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

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

Nevertheless, Tobelo emphasize that these are just foreign synonymms for the "true" Tobelo names. Daily use of such synonymms is probably much higher than my data indicate, because Tobelo 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 that took place before and after bilingualism became common.

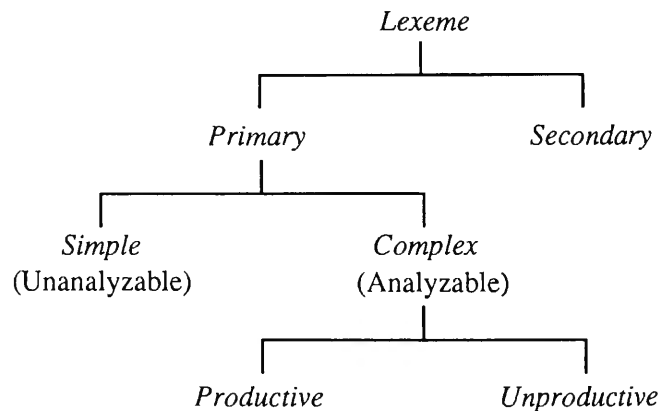
In Phase I (one can hardly resist calling this the "first phase"—though the relation of these modes of borrowing to historical time has not been proven), Malay-Indonesian words are assimilated to Tobelo phonology: /s/ becomes /h/, CC is fit into the CVCV pattern of Tbl, and so on. Today, however, (Phase 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 metathesized 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 **o bogor*, or **o bogoro*, would have been closer).

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

Berlin, Breedlove, and Raven's (1974; cf. Hays, 1983) typology of lexemic types is widely used by 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 labeled.

The typology 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 (1976:397), "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.

"Primary lexemes" are all the other lexemes. They may be "simple" (term used as in this chapter), or "complex" (Berlin, 1976:397):

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 contrasts

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).

The major problems with this set of definitions are as follows: (1) These definitions are introduced only for “ethnobiological lexicons,” a limitation that seems to unnecessarily isolate one domain, as if it necessarily functioned unlike other domains of language. (2) The definitions rely on taxonomies, and may therefore be misleading when applied to the many non-taxonomic areas of folk biological classification, including cross-cutting classes, paradigms, and others (see Chapter 5). (This defect may have adversely affected Berlin, Breedlove, and Raven’s discussion of one non-taxonomic area of Tzeltal folk biological classification, the developmental stages of plants (1974:64–68); it seems that their data may 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, and so on) (Berlin, Breedlove, and Raven, 1974:31–32), this may simply be because “primary” lexemes are more likely to be words rather than phrases.

Finally, (4) it is unfortunate that, as this typology has become more widespread, the terms “primary,” “secondary,” “productive,” and “unproductive,” which already have precise meanings, come to have confusingly different meanings when applied to types of lexemes within “ethnobiological lexicons.” This is not a criticism of the lexemic typology, but rather of the terms used for types of lexeme. The problem is heightened by use of the same term in different senses in Berlin, Breedlove, and Raven’s (1974) book; thus “productive” and “non-productive” are also used, apparently in another non-standard sense, to mean ‘applicable to many referents’ vs. ‘applicable to one or few referents’ (Berlin, Breedlove, and Raven, 1974:69):

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.

In view of problems with this classification of lexemes, and further problems in applying this classification to data in the field (see especially Hays, 1983, and 5.1.1 below), it may be simpler to use another classification than to change the terms for this one. We may especially hope that other systems proposed for classifying lexemes on semantic grounds will avoid over-reliance on taxonomic relations, which are difficult to use in the many languages like Tobelo 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 (cf. Ellen, 1979).

4. The Domain of the BIOTIC FORM, and Other Posited Unlabeled Classes¹

It is possible to present a description of a folk taxonomic system that includes only lexemically labeled classes. It is even possible to define either “semantic classes” or systems of “classification” such that each class must be designated by a single lexeme (e.g., Conklin, 1962:128). Yet students of folk classification have long recognized several cogent reasons for considering “covert” or unlabeled “categories” or classes within descriptions of folk taxonomies.

In a paper that inaugurated the study of “covert categories” in folk taxonomies, Berlin, Breedlove, and Raven (1968) emphasized that their attempts to identify “covert categories” of Tzeltal plants consisted of formal methods for uncovering categories that, though unlabeled, were recognized and used by natives. The inclusion of covert classes in a description of folk classification thus had the primary advantage of representing more precisely the shared set of structured relations among classes. Two further advantages of formally identifying covert classes were that (1) where the highest-level taxon or “unique beginner” is unlabeled, a covert taxon can establish the domain of classificatory structures; and (2) recognition of covert groupings of labeled classes could structure relations among the very wide contrast sets of basic (“generic”) classes. Covert categories continue to be posited primarily in folk biological taxonomies, although the methods for positing them and the ontological or “psychological” status of the posited categories have been a subject of debate (Brown, 1974, and reply by Berlin, 1974; Hays, 1976; Hunn, 1976, 1977; Atran, 1983, 1985).

In my own investigations of folk biological classification among the Tobelo, I have also attempted to identify covert classes and have posited them using methods described below. I have not, however, based my analysis on methods used by other authors (Berlin, Breedlove, and Raven, 1968; Hays, 1976; Hunn, 1977). Though their methods differ, these all share the goal of identifying covert classes based on tests for perceived similarity among plant and animal classes. I have argued elsewhere (Taylor, 1984b) that (1) sometimes the only local “cultural significance” of “covert categories” produced by such tests may be their sudden appearance precisely as a result of the tests designed to find them; (2) similarities observed may not be those used in hierarchically relating folk taxa, and (3) such classes do not in any case belong in a linguistic description. It is not my purpose to argue that categories posited on the basis of such tests are necessarily worthless, only that their status as culturally recognized groupings of plant or animal classes is questionable, and that in any case they do not belong in a linguistic description of a semantic domain. Of course, much other interesting folk biological information (e.g.,

“symbolic” associations, medicinal and technological uses of folk taxa, techniques of cultivation, etc.) also does not belong in descriptions of semantic domains.

By contrast, the two main techniques I have used in this study are derived from the two major areas of structural semantic investigation (Ikegami, 1967:49, 60): (1) the description of the relations among lexemes in terms of their meanings, which leads to the method I call co-hyponymy, and (2) the description of the meaning of a single lexeme, which leads to the method I call definitional implication. The classes posited as a result of applying these methods to the Tobelo case are, at the very least, useful heuristic devices that point up relations among labeled classes in ways that the Tobelo themselves might recognize. At most, they represent covert classes used by the Tobelo themselves, comparable perhaps to similar classes used by other ethnic groups.

4.1 Why Posit Unlabeled (“Covert”) Classes?

Undoubtedly one of the most vexing problems for an ethnographer attempting to study folk classification of fauna and flora occurs when it is discovered that, for speakers of many languages, no “unique beginner” or highest-level term exists (such as ‘animal,’ ‘plant,’ or ‘living thing’) that can define the domain of his investigation (Levi-Strauss, 1966:1–2). Of course, it is possible to study plant and animal nomenclature by identifying the types of lexemes used to designate classes of all organisms that biologists consider “plants” or “animals.” It is also possible to study man-plant or man-animal interactions without concerning oneself with the establishment of domains like “animal” or “plant” that have any relevance for the native speaker. But one cannot discuss “folk” classification—that is, the shared, structured set of relationships that members of a culture posit among those classes—without considering whether this assortment of terms for “plants and animals” names classes of objects grouped together or even considered similar by native speakers themselves.

The highest-level Tobelo terms designating classes of what we consider animals and plants (‘animal,’ ‘tree,’ ‘herbaceous weed,’ etc.) have multiple senses, and there is no named higher-level “plant” class or named class of “living things.” I have also been unable to find any distinctive grammatical treatments of plants or animals, although these can be found in some other languages. If we only consider lexically labeled classes in our study of Tobelo folk classification, we must content ourselves with one of two alternatives: (1) studying the relationship among those Tobelo classes that happen to contain

objects biologists consider “biological”—and calling this the study of “Tobelo” ethnobiological classification, or (2) considering each highest-level term in the language—including ‘tree,’ ‘vine,’ ‘rice,’ and many “basic” classes—a separate “unique beginner” establishing a separate domain. The serious problems with either alternative leave us no recourse except to posit 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 that 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). Any analysis, however, 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 risk analyzing relationships among “native” ideational forms collected together in a way that is foreign to Tobelo language and culture.

Hunn (1977:44), 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 concepts of plants or animals. We can, of course, investigate classification of objects grouped together on any analyst’s criterion, whether we take as our domain the set of all “animals and plants” or the set of all “objects smaller than a breadbox,” if we consider such study useful. But we would have to leave aside any claim that such a grouping forms a culturally significant unit or domain to the “natives” whose classification system is under study. And the terms within such a domain can hardly be said to “contrast,” because most definitions of semantic contrast (e.g. Conklin, 1962, cf. Kay, 1971) refer to contrast among subclasses of a semantic (not an “arbitrary” or contrived) class.

2. The second alternative—considering each highest-level term in the language a separate domain of investigation—is not acceptable in the Tobelo case for four reasons, which may be listed in order.

(1) The Tobelo themselves, as has been reported for many other cultures, seem to refer to groupings at levels higher than those labeled in the folk taxonomy. 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 more than 80 “basic” classes (having over 200 “terminal” or lowest-level subclasses) that are unaffiliated with these major plant groups. Yet Tobelo refer to groupings of such plants in everyday discourse. Thus an unfamiliar or distant bamboo can be denoted a *hoka o tiba-oli* ‘(an object) rather like a *tiba* (*Schizostachyum* sp.; a bamboo).’ This whole phrase is sometimes substituted in sentences for the name of some particular bamboo species, or even used to refer to more than one species. Such regular non-lexemic phrases might be considered evidence for the existence of a covert class; that is, the phrase in this example may be a non-lexemic realization of the covert BAMBOO class.² While this is an important

argument for the existence of covert classes, it is not reliable—in the Tobelo case—as a method of finding or positing them, because similar phrases (‘rather like an X’) are frequently made up for special purposes and without reference to generally used covert classes.

(2) A second frequently cited argument for positing covert classes has produced methods that will be criticized below; this is the argument of perceived similarity among classes, and it may briefly be paraphrased here. There are, after all, so many similarities among classes not grouped together under any higher-level term that we would expect those similarities to be conceptually recognized in any system of classification. Continuing the above example, the various labeled species of what we call “bamboo” are more like each other than like ‘rice,’ ‘sugar palm,’ ‘cycad,’ and the other basic plant classes with which they seem to contrast. This similarity is recognized in biology and seems so obvious that it must be clear to folk classifiers, and could underlie local references to higher-level groupings noted above. It has been argued, therefore, that our analysis should posit covert classes like BAMBOO based on tests for this perceived similarity.

Though they suggest that positing covert classes could be worthwhile, both these arguments are hardly sufficient reason in themselves to posit such classes. Nor do they provide techniques for reliably delimiting the boundaries of those classes, as the critique below will argue. There are, however, two other reasons for considering that covert classes can be posited for Tobelo BIOTIC FORMS—and that they are required by the data:

(3) Polysemous terms which form a contrast set in one of their senses are “co-hyponyms” (Lyons, 1977:291) and must be considered contrasting subclasses of a higher-level class. As summarized more fully below, this requires analysis of the lexemic status of polysemous terms, similar to that undertaken above (3.1.2) for the Tobelo terms for ‘tree,’ ‘vine,’ and ‘herbaceous weed.’ Thus, in that example, those polysemous terms form a co-hyponymous contrast set in one of their senses (the senses that contrast with each other, labeled *o gota*₁ ‘tree,’ *o rurubu*₁ ‘herbaceous weed,’ and *o gumini*₁ ‘vine’). This implies that they are immediate subclasses of an unlabeled higher-level domain, which we can call the PLANT or FLORAL FORM domain. 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.

(4) Finally, the method of “definitional implication” that I outline in detail below can be justified by recognizing that an adequate description of Tobelo animal or plant classification is only part of the larger task of describing the entire Tobelo lexicon. Many Tobelo words that are not names for animals or plants nevertheless have classes of biotic forms implied in the definitions of those words. We can use these related words to posit the covert classes implied in those definitions. 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 to which each of those "related" terms may apply. Thus we may 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 lexical structure within the language.

4.2 The Quest for "Perceived Similarity" Is Not a Quest for Unlabeled Classes

In their seminal article mentioned above, Berlin, Breedlove, and Raven (1968) suggested techniques for discovering "many meaningful and culturally revealing categories related by inclusion that are not conventionally, monolexemically labeled" (1968:209). With the exception of evidence for the "unique beginner" PLANT class drawn from a distinctive Tzeltal numeral classifier used only for members of this domain, all the techniques proposed were based on tests for perceived similarities among organisms.

Yet upon examining the classes produced by these tests, we quickly discover their important differences from anything we would otherwise consider a class within the same semantic domain. We should consider the position of the "covert" class within a description of language in the light of the normal relation between a linguistic sign and the objects that it denotes. This is often expressed as a triadic relation or "triangle of signification" (Lyons, 1977:96-99; cf. Ogden and Richards, 1923:11), in which the three angles A, B, and C of a triangle represent (A) the linguistic "sign," e.g., a lexeme, and (C) the object denoted by that sign, which are mediated in some sense by (B) some concept of the "class" of objects that may properly be denoted by the sign. "The members of any naturally conceived class of things, arrived at pragmatically by stimulus generalization, have some distinctive quality or combination of qualities in common, that furnishes the basis for their common designation" (Scheffler and Lounsbury, 1971:4). Those distinctive qualities of a natural class are "the significant features of the objects and the defining features of the class" (Scheffler and Lounsbury, 1971:4). Following Scheffler and Lounsbury's (1971:3-6) terminology, we may say that the sign denotes the object or objects, and at the same time designates the class of such objects, and signifies the defining features of the class.

From this perspective we can see that, in order to integrate covert classes into the classification systems we describe, and to treat them alongside labeled classes (i.e., taxa) in a hierarchically arranged classification scheme, we must have all the elements of the "triangle of signification" except the linguistic sign. Alternatively we may insist on finding some non-lexemic phrase or expression used to refer to the covert class, and consider that to be the sign, functioning like a lexeme to denote members of the class and to designate the class. In either case, we should recognize the need for distinctive features if we wish to integrate such a class into the same

taxonomic model used for labeled taxa.

One alternative to this view is presented by Hunn, who prefers to consider the folk taxon "a set of real objects, in the present case, a set of animal organisms" (Hunn, 1977:42), rather than the class of those objects. 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.³

Berlin, Breedlove, and Raven (1968), however, recognize the importance of discovering distinctive features in positing covert categories. They commendably combine tests of perceived similarity among organisms with tests to determine whether distinctive features can be found to define the classes posited. The two major techniques used to determine candidates for covert categories are (1) card sorting, and (2) tests of triads, both of which test the informant's perceived similarity among organisms. In the card sorting technique, names of labeled plant classes are written on separate pieces of paper and informants are instructed to group them together. As Atran (1983:58) has pointed out, this method of elicitation seems designed to find only taxonomic relations, because only names of plant classes within the higher-level ("life form") classes are presented to the informant. "Thus, the method of elicitation may have unduly restricted recognition of complexes only to those that happened to fall entirely within the range of a given life-form" (Atran, 1983:58).

Furthermore, as Brown (1974:327) notes of both sorting tests and triads tests: "Such tests often present informants with culturally irrelevant options coercing them to sort items together which they rarely, if ever, group together on an ordinary *day to day* basis. Such groupings can hardly be considered culturally relevant." Brown also argues that many of the unlabeled groupings of plants and animals which can result from such tests are not covert classes at all, but labeled, culturally recognized categories which cross-cut the folk biological taxonomy. Atran (1983:55-56) cites examples from the Bunaq of Timor (Friedberg, 1970; see also Friedberg, 1979) and the Brou of Cambodia (Matras and Martin, 1972) to illustrate that cross-cutting classifications relating to cosmology, cultural usefulness, or ecological affinities between plants may intersect the proper folk taxonomy under study.

In short, the major problem with using sorting tests to determine folk taxa is that one can never be sure that the principles on which the sorting task is carried out correspond to culturally relevant principles used in hierarchically relating semantic classes. In using a card-sorting technique to investigate Navaho principles of classification, for example, Perchonok and Werner (1969) discovered that "people evidently felt no compulsion to use the same principle of classification consistently throughout the [taxonomic] tree," and that indi-

viduals not only differ in the classifications produced by this method, but also that they without exception “agree to the rightness of another person’s classification, even though it differs considerably from their own” (1969:234), indicating that categories formed on the basis of such tests are not stable.

Hunn (1977:55) has correctly recognized that 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”). Instead, he 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.” Such “chains” of organisms, in which “a” is linked to “b” and “b” is linked to “c” but “a” and “c” are not linked, are very difficult to reconcile with the notions of semantic class (or “concept”) underlying the “triangle of signification” model of the relationship between a sign and its denotata, and thus must function very differently from the taxa discovered in the lexically labeled portion of the folk taxonomy, and should not be integrated with those taxa in the same model. Hunn gives the example (1977:55) 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 the clear-cut taxonomic class-inclusion relationships that it and the other “chains” have infiltrated. If investigation of such “chains” may 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.; however, 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.⁴

We may also consider the use of “folk keys” constructed by informants as a technique to determine the distinctive features of categories posited on the basis of perceived similarity (see, e.g., Berlin et al., 1968:293). It is important to note 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 that 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 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 (nor, probably, would folk classifiers).

Among the Tobelo—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 features of that class, but rather “rules of thumb” (Goodenough, 1951) that will be found not to hold true in all circumstances; just as an American asked to list the defining features of a “door” might give answers without taking “sliding doors” into account.

In natural conversations, Tobelo regularly wanted to figure out what kind of unfamiliar animal or plant was sighted by someone who did not recognize it. Where no hint was available except that it was a ‘bird,’ for example, questions might involve the animal’s behavior, time of day sighted, how it moved, and similar queries, which clearly could not all be references to the distinctive features of the class, because, for example, a night bird (such as an owl) is still an owl at noon. If such queries 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 specimens in more than one way with each of several types of key (see, e.g., Fitter, 1953:178–179). If such non-binary, multiple-approach keys represent one way Tobelo 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 or near-terminal classes in their taxonomy. An adequate folk key could yield interesting results for the study of folk identifications, but those results would still not constitute a classificatory structure such as a folk taxonomy.

Many of the same criticisms can be made for the “method of paired comparisons” used to identify covert classes, in which informants are requested “to compare all logical pairs of any set in terms of all the similarities and differences that he felt were relevant for any pair” (Berlin et al., 1968:293). As in the card-sorting techniques, the apparent lack of overlap cross-cutting higher taxonomic levels is possibly a result of the fact that paired comparisons are generally tested only within (not across) labeled taxa. In any case, we may suspect that, as with features found through construction of folk keys, features found by this means are quite different from the distinctive features used in componential definitions of labeled classes, because (1) 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 by the informant" for defining classes. In order to relate frequency of occurrence with importance for componential definitions, the technique requires that all the attributes distinguishing one class from another be equally "weighted" or distinctive (as well as equally likely to be verbalized), and thus that they can be compared by simply counting the number of times they are invoked in judging the dissimilarity of classes (cf. also Berlin et al., 1974:61).

The 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, also underlies the method Hays (1976:503) has introduced to identify covert classes in folk taxonomies.

Assuming that my informants perceive their world and conceptualize it according to similar, though not identical, information-processing rules . . . , 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 similarity among the categories designated by the names such that their tokens were readily "confused" with each other The categories designated by these co-occurring names, then, may be considered conceptually grouped, whether the grouping itself is habitually named or not; when it is not, it may be referred to as a covert category or complex.

Yet there is no evidence that information processing rules function like natural keys; if they function like non-natural keys the "co-occurrences" will not represent hierarchically related groupings. In any case, understanding such information processing rules would not help us describe language as a system (Saussure's *langue*) rather than as behavior (*parole*).

A final argument for the existence of covert "mid-level" categories within folk taxonomies derives from the notion that men cannot store and process enough information at the same time to simultaneously consider contrast sets of large numbers of taxa such as those found in folk taxonomies. This argument for the existence of "covert categories" is quite distinct from the tests of perceived similarity that were used to posit them, and is not invoked by some writers who use those tests. Yet it illustrates the extent to which such tests rely on the implicit assumption that folk classification must work like folk identification, and on the analogy between folk identification and the decision-trees of cybernetics. The argument follows Wallace's (1961) hypothesis that sets a limit of 64 items within a contrast set (Berlin et al., 1968:297). Without positing "covert categories" within folk taxonomies, that limit would clearly be exceeded.

However, Wallace's (1961; 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 Tobelo, for example, might "store and process" information about over three hundred basic classes that subdivide the Tobelo 'tree' class without stuffing them all into

their short-term memories at the same time. (Note, for example, D'Andrade's (1962) notion of "cross-indexing" or the multiple-approach keys described above, which are used in field guides.) Nor do informants need to consider at once the entire definition of any particular class. Not all the features used in defining a class need to be used to identify any particular member of the class. A type of 'tree' may be defined by characteristics of the bark, flower, leaves, etc.—but in fact the Tobelo and others can, for many kinds of 'tree,' identify its leaves or its bark or its wood, without reference to the whole tree. Of course, as less information is available, misidentification becomes more likely.

In any case, a description of a particular semantic domain is part of the total description of a language, and language should be described in terms acceptable to some metatheory of linguistics or semantics. 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 relationships to other types of interpretation, rather than risk jumbling them together from the start.

Considering all the problems with the attempts to posit covert classes by testing for perceived similarities among classes, one might wish to simply ignore any unlabeled classes in the description of an ethnobiological domain. But for reasons stated in the preceding section we must still try to posit them, though with techniques other than those reviewed here. Any class so posited must have at least one distinctive feature that makes it acceptable as a semantic class, and which is shared by its subclasses.

4.3 The Method of Co-hyponomy

It was noted above that many of the highest-level terms in Tobelo folk biological classification have multiple senses. It is one of the tasks of anyone describing the Tobelo language to distinguish those senses of polysemous terms. If, however, we were to study only Tobelo "plant" classification separately from the larger task of describing the Tobelo language, we might ignore most other senses of terms like 'tree,' 'vine,' or 'herbaceous weed,' and include in our analysis only those senses that occur in the domain of investigation. In 3.1.2, for example, several senses of each of the three highest-level Tobelo terms for "plant" were listed. Considering only their uses as nouns, there were five senses of *gota*: *gota*₁ 'tree,' *gota*₂ 'large tree,' *gota*₃ 'lumber,' *gota*₄ 'firewood,' and *gota*₅ 'woody tissue.' Similarly, two senses of *gumini* (*gumini*₁ 'vine' and *gumini*₂ 'rope'), and two of *rurúbu* (*rurúbu*₁ 'herbaceous weed' and *rurúbu*₂ 'weed, uncultivated undergrowth') were detailed.

Examples were given of cases in natural Tobelo conversation where the same object may be denoted by two or more of these

terms. Without considering the polysemy of these terms and without recognizing that separate contrast-sets are being utilized, one might be puzzled by these superficially contradictory applications of terms. Such examples of polysemous terms can be sorted out only by isolating the senses of those terms and noting the contrast-sets in which they occur. Where this can be done, as in this example of the contrast between *gota*₁ 'tree,' *gumini*₁ 'vine,' and *rurúbu*₁ 'herbaceous weed,' it is possible to argue that, in these senses, the three terms are co-hyponyms; that is, that they are terms labeling contrasting subordinate classes that are included in some superordinate class. Lyons (1977:298) has noted that "lexical gaps" in English frequently occur in which terms seem to contrast but have no superordinate term in a taxonomy.

In cases such as that of 'tree,' 'vine,' and 'herbaceous weed' in the Tobelo language, we must posit a higher-level class, which we may call PLANT or FLORAL FORM, which has these senses of each of the Tobelo terms listed above as its subclasses. The method of co-hyponymy consists essentially of identifying a set of terms that can be shown to directly contrast in at least one of their senses, but which have no superordinate term to label the entire set. Having posited a FLORAL FORM domain by this method, we still have not resolved the problem of the boundaries of the domain, although it must minimally include the full range of the three subordinate terms on whose basis the FLORAL FORM class was posited. To more directly establish the boundary of the FLORAL FORM domain, we may turn to the method of "definitional implication."

4.4 The Method of Definitional Implication

The method of "definitional implication," which is introduced here as a method for the determination of certain kinds of lexical domains, is based upon the assumption that the description of any set of lexemes in a language is only a part of the larger task of describing the entire lexicon of that language. In some cases, the description of certain lexemes requires positing covert classes of objects to which those lexemes are presumed to apply. Some of the Tobelo terms discussed below (such as 'male,' 'female,' or 'fat') seem to be partly defined by the classes of objects to which they are presumed to apply, and cannot be identified by any characteristics of objects properly labeled by the terms themselves.

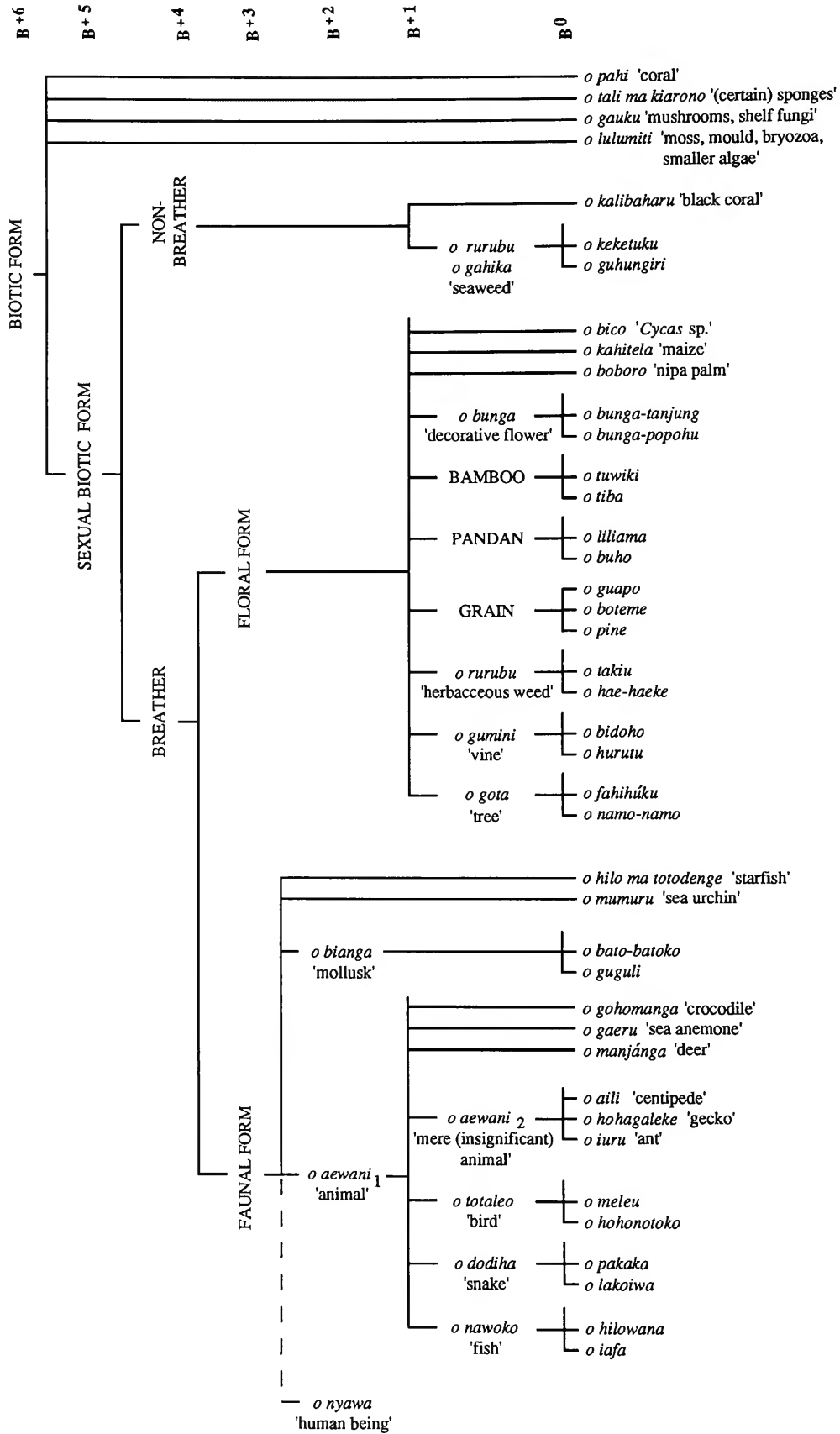
The results of making these assumptions about positing unlabeled classes may be seen in the next diagram, which represents all the basic or "generic" terms within the posited BIOTIC FORM domain as if they were on the same "basic" (or B⁰) level. This is consistent with the fact that the distinctiveness of these terms has long been recognized in folk biological nomenclature, and, as will be detailed below (see 5.1 below), it is possible to distinguish, on nomenclatural grounds, Tobelo terms below the basic level (i.e., B⁻ terms) from terms at basic and higher levels (B⁰ or B⁺ terms). Levels below B⁰ are not represented in the diagram. The highest lexically labeled

classes in the FLORAL FORM (or "PLANT") domain are only at the B⁺¹ level, while some FAUNAL FORMS are labeled two levels above the basic terms. The large numbers of named basic classes cannot be included on this diagram; the line extending to the right of most contrast sets of basic terms, and the dots following the examples listed, will substitute for the other basic terms not listed (there are, for example, approximately 146 basic classes of 'fish,' though only two are listed). The significance of the broken line connecting the 'human being' (*o nyawa*) class to FAUNAL FORM will be discussed below.

Alinei (1974; cf. Taylor, 1977), whose theory of lexical structure has suggested this view of a lexical domain (Alinei, 1974:69-151), offers a systematic attempt to identify the underlying structure of lexemes in one domain in terms of sense-components drawn from the entire Italian lexicon. Unlike Alinei, however, I have here restricted the analysis of a particular domain to an example (BIOTIC FORM) established by a sense-component that is not itself realized by any lexeme in the language, although it is required in the definition of other lexemes. I have further restricted the analysis to outlining the hyponymic relations of this posited BIOTIC FORM domain to other labeled and unlabeled classes within the domain.

It is clear from definitions of lexemes within folk taxonomies that a superordinate class may appear in the definition of subordinately related classes. Thus, for example, "bird" will probably have "animal" as a feature in its definition, just as "owl" and "robin" will probably have the notion of "bird" in their definitions. 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 (compare 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 the occurrence of a sense-component BIRD in the definition of so many lexemes in English would allow us to posit a covert BIRD class implied in the definitions of those terms. 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 more detailed statement of the class of objects (i.e., birds) to which each of those terms can apply.

Similarly, I have posited biotic classes apparently implied in the definitions of the rich Tobelo lexicon dealing with animal and plant forms. Ethnobiologists have often noted the wealth of terms applying to animals or plants, but have seldom used these to derive covert classes. In the case of Tobelo terms, I systematically reviewed all entries in Huetting's (1908c) Tobelo-Dutch dictionary as well as my own data on terms relating to plants and animals, first with a key informant familiar with my semantic analyses, and later with other Tobelo at Kampung Pasir Putih (Jailolo District, Halmahera). We selected as potentially productive 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 for characteristics of, plants or animals—in short, any terms that seemed related to living things and which might possibly contain some subclass of living things as part of their definition. These were quickly narrowed down to a small fraction of the number originally investigated, because rough attempts to develop componential definitions of such terms quickly indicated that it was not necessary to posit any covert classes in order to define most of the terms.

Ideally, sense-components within definitions in the Tobelo lexicon would be given using Tobelo lexemes for sense-components that are realized in the Tobelo language. Any metalanguage (including potentially one derived from Tobelo) could be used for those sense-components not directly realized in Tobelo. This goal of developing a fully “emic dictionary” remains extremely difficult for many practical reasons (Pawley, 1970), although we can still analyze individual domains or portions of domains using assumptions that would make up such a dictionary.

Upon examination, the great majority of terms relating to plants and animals do not, when adequately defined, turn out to contain any classes of BIOTIC FORM in their definitions. It is important to emphasize that we should posit covert classes of objects in the definitions of terms only if alternative definitions cannot suffice to define the term in question. It is insufficient to argue that, because terms like ‘leaf’ or ‘wing’ apply only to plants or animals, they presume the existence of a PLANT or ANIMAL class. If those structures can be defined by reference to shape or function they do not require notions of PLANT or ANIMAL in their definitions.

We may consider in order the four features or sense-components (living vs. non-living, sexual vs. non-sexual, breathing vs. non-breathing, and fatty vs. non-fatty) that allow us to posit covert classes above the B⁺² level, then we will consider the covert B⁺¹ classes of FLORAL FORM implied in the definitions of other terms. No evidence has been found for positing covert subclasses of FAUNAL FORM.

1. Living vs. Non-living (+L vs. -L)

Organisms that may be said to ‘live’ (-wango₁) or ‘die’ (-honenge₁) constitute the class of BIOTIC FORMS, the class of all organisms that are the implied subjects of ‘live’ and ‘die,’ a class implied in the definition of these lexemes. Only this primary sense of the verbs ‘live’ and ‘die’ can be used in the participial form *ma ngangō* ‘living’ or *ma honenge* ‘dead.’ However, several other senses of these terms must be distinguished. Thus a motor or a fire may be said to -wango₂ ‘live’ (‘to run,’ ‘to burn’) or ‘die’ (‘stop running,’ ‘stop burning’), but the participial forms *ma ngangō* ‘living’ and *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 -wango₃ ‘act up, flare up’ (i.e., be temporarily active), though the form -honenge ‘die’ is not applied to the apparent disappearance of these entities and they may never be considered *ma ngangō* ‘living.’ There is in addition another sense, -wango₄ ‘to grow (of its own accord without being planted),’ contrasting with -datomo ‘be planted, cultivated.’ This is a special sense that again does not form the participial, and cultivated plants can of course be said to -wango₁ ‘live.’ The class of BIOTIC FORMS may be posited as the highest-level covert class establishing the domain of investigation.

2. Sexual vs. Non-sexual (+S vs. -S)

A class of SEXUAL BIOTIC FORMS may be posited on the basis of the lexemes (*ma*) *nauru* ‘male’ and (*ma*) *beka* ‘female’; that is, the class of SEXUAL BIOTIC FORMS contains all those BIOTIC FORMS expected to have ‘male’ and ‘female’ subclasses. It includes both FAUNAL and FLORAL forms as well as ‘seaweeds’ and ‘black coral.’ Only *o pahi* ‘coral,’ *o gaku* ‘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. The local definitions of ‘male’ and ‘female’ do not coincide with a biologist’s notion of sexual difference in animal and plant species; very often plants considered ‘male’ and ‘female’ forms of the same basic (B⁰) folk class are from different botanical families (Taylor, 1980a:224–225). Tobelo informants from several villages have volunteered the information that “all” ‘trees’ ‘vines,’ and ‘herbaceous weeds’ have both ‘male’ and ‘female’ forms of each basic class though they were not familiar with all the male and female plant forms. In fact, however, basic plant classes whose ‘male’ and ‘female’ subclasses are known are far from the majority; informants also differ in their familiarity with the often esoteric knowledge of ‘male’ and ‘female’ forms. Among ‘animals’ (*aewani*₁), Tobelo 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). For most insects, worms, fish, and other animals, however, they are quite at a loss to recognize whether any particular organism is in fact ‘male’ or ‘female,’ though the presumption again is that there must be ‘male’ and ‘female’ forms.

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*). Apparently 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.

I have tentatively noted in the preceding diagram the posited existence of a class of organisms, the NON-BREATHERS, which may contrast with BREATHERS as the subclass of all SEXUAL BIOTIC FORMS that cannot 'breathe' and have no 'throat.' This class, the most tentative of all those posited here, is not required by or implied in the definition of any lexeme. It unites seaweeds, sea grasses, and 'black coral.' All members of this class are plant-like organisms living attached in similar ways to the sea floor or to objects on the sea floor, and are considered to have 'male' and 'female' forms but to lack 'throats.' The Tobelo B⁺¹ term *o rurubu o gahika* 'seaweed' is anomalous in that it does not contrast with any other B⁺¹ term; it is also nomenclaturally anomalous and can be shown to be a recent introduction translating the North Moluccan Malay term *rumpul laut* 'sea weed.'

4. Fatty vs. Non-fatty (+F vs. -F)

The Tobelo noun *haki* 'fat,' and verb *-haki* 'to have fat' are other lexemes that seem to be defined partly by the class of objects presumed to possess them, and we may call that class FAUNAL FORMS. All *aewani* 'animals' and *bianga* 'molluscs' are presumed to have *haki* 'the layer of substance occurring between the outer skin and the flesh of FAUNAL FORMS'—even those FAUNAL FORMS (such as tiny insects) that are too small for Tobelo to physically determine whether such a layer is present.

The BREATHERS that are not FAUNAL FORMS may be called the class of FLORAL FORMS (or PLANTS). We have seen that such a class must be posited because of the co-hyponymy of the contrast set 'tree'-'vine'-'herbaceous weed.' Several lexemes appear to be candidates for having the FLORAL FORM class in their definition, but perhaps the strongest would be the word *utu*, which may be glossed 'the body or entirety of a PLANT 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). No "part" of any loose branch, bamboo, or wooden vessel, or of any non-FLORAL FORM such as mushroom or seaweed, or other object may be said to be *ma utu-oka*, except parts of FLORAL FORMS. In this sense the term does not label a taxon or function like the noun *aewani* 'animal,' but it is often correctly translated 'plant' in English. Thus to distinguish the 'tobacco plant' (*o tabako*) from the 'cigarette' (also *o tabako*) Tobelorese may add *ma utu* 'its entirety of plant,' i.e., "the plant."

To summarize the discussion of classes tentatively posited at the B⁺³ level and above, we may offer componential definitions of the covert classes posited (Table 3). The fact that such definitions can be arrived at indicates that these are classes that could be used by the Tobelo themselves. All of these classes except the NON-BREATHER class were found necessary to posit in order to define lexemes in the Tobelo language. The NON-BREATHER class has so many distinctive features, and the separation of its 'seaweed' from its 'black coral' subclasses seems so atypical and probably intrusive, that the class has been posited here for those reasons. Because no such argument could be sustained for grouping together 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 this summary.

In addition to these classes at level B⁺³ or higher, there is evidence for three covert classes of FLORAL FORM: BAMBOO, GRAIN, and PANDAN. Each of these covert classes has been observed lexicalized in some phrase of the form 'rather like an X,' where 'X' is some particularly focal member of the covert class.

It should be noted that the form *o bunga* 'decorative flower,' seen at the B⁺¹ level in the diagram on page 48, seems to be a recent intrusive term from Indonesian, just as the concept of planting and cultivating flowers around the home for purely decorative purposes is apparently a recent phenomenon. Although this term *bunga* is polysemous in Tobelo, it is apparently used to designate this subclass of FLORAL FORMS; thus it is not necessary to posit a covert DECORATIVE FLOWER class in this case.

The covert B⁺¹ classes of FLORAL FORM, along with the evidence for positing them, may now be considered.

1. BAMBOO

The posited BAMBOO class is lexically realized by the form *hoka o tiba-oli* 'rather like a *tiba* (*Schizostachyum* sp.) bamboo,' and includes ten basic (B⁰) classes. Like the non-lexemic phrases that realize the other covert classes of FLORAL FORM, the phrase means "rather like" the most culturally important basic class of plants within the covert class.

The class must be posited because only the young shoots of members of this BAMBOO class may be termed *o diburu*

TABLE 3.—Unlabeled classes of Tobelo BIOTIC FORM above B⁺² level.

Level	Unlabeled 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

(Dodinga dialect, cf. *o jibúru* in Boeng dialect of Tobelo). Thus this lexeme must be defined as 'young shoot of BAMBOO,' and the covert class is implied in the definition of the lexeme. Hueting's (1908c:22 and 325) Tobelo-Dutch dictionary 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. These words were unfamiliar to my Boeng and Dodinga dialect informants, however.

2. GRAIN

The "basic" class *o pine* 'rice' is subdivided into fifteen B-2 subclasses. Though undoubtedly others could be found if all villages were investigated specifically for 'rice' varieties, these represent all varieties known at my two field site villages (where rice is not a major staple). The only other known subclasses of GRAIN are *o boteme* 'Italian millet' (*Setaria italica* (L.) Beauv.) and *o guapo* '(probably) sorghum' (*Sorghum bicolor* Moench). The GRAIN class may be realized by the phrase *hoka o pine-oli* 'rather like rice.' It appears to be necessary to posit this class in order to define the term (*ma*) *afa* 'chaff of GRAIN.' Despite the large vocabulary associated with rice and millet cultivation, I found no other term requiring GRAIN in its definition.

3. PANDAN

PANDAN is here posited as a covert class, containing five basic classes of pandanaceous plants, because it is required in the definition of at least one of the terms used to describe the handling of pandanaceous leaves: *-hakoto* 'to gather PANDAN leaves.' The apparent lexical realization of this class is quite commonly used, i.e., 'rather like a *buho* (*Pandanus* sp.)' (*buho* is the most culturally important form of pandanaceous plant). The verb *-hakoto* cannot even be used for the superficially similar action of gathering *boboro* (*Nipa* palm) leaves. As with the lexical realizations of other covert classes posited here, the phrase 'rather like an X' could hardly be considered sufficient evidence for the class if it were only used to describe other plants; instead, it is used as a noun to designate the whole class.

Before concluding, it is necessary to comment on the placement of the *o nyawa* 'human being' class within this scheme of Tobelo BIOTIC FORMS. Only this class stands out as having no basic ("generic") terms. If one considers (as I do not) that the purpose of positing higher-level covert classes is only to show the classificatory associations of all the basic terms in the domain, then we need not concern ourselves with the position of this class, as it is not labeled by a basic term. Because it seems in some contexts to contrast with *aewani*, 'animal,' we may tentatively place it at level B⁺² in the diagram on page 48. In any case, these levels are only important insofar as they indicate relations of class inclusion among subclasses of

BIOTIC FORM; no claim is made for particular characteristics of terms or classes at any level except the basic one, and presumably those who do make such claims for characteristics of particular levels (e.g., Berlin et al., 1974; Brown, 1977, 1979, 1984) will have means of recognizing the levels to which their generalizations apply.

Nevertheless, the 'human being' class does meet the defining features of the FAUNAL FORM class, and thus of all the superordinate classes, and must be included in this diagram and in our analysis for that reason. The broken line is used to indicate that, while included for those reasons, this 'human being' class is sufficiently different from other BIOTIC FORMS to be distinguished in that fashion on the diagram. With that addition, we may say that the diagram summarizes the posited relations among labeled and unlabeled classes that form the Tobelo system of classification of all BIOTIC FORMS above the "basic" (or "generic") level.

4.5 Conclusion and Summary

This chapter has criticized some methods for positing unlabeled classes ("covert categories") in folk classification, and introduced some others. In particular, the disadvantages of positing covert categories on the basis of tests for perceived similarity among organisms has been emphasized. Categories derived from such tests may prove useful in describing local perceptions about animals and plants but cannot produce classes of the sort that belong in a linguistic description of a semantic domain.

By instead focusing on co-hyponymous contrast sets within folk taxonomies, and by examining a wide range of vocabulary items for classes implied in their definitions, it may be possible to avoid some of these difficulties. The methods of co-hyponymy and of definitional implication used here do produce classes that seem to have some "psychological reality" because they can be shown to underly lexemes used in the language under study. Nevertheless, it is also possible to consider them purely heuristic devices that may be used to describe locally perceived similarities among named animal and plant forms.

I prefer to consider the methods of co-hyponymy and definitional implication techniques for establishing a lexical field (cf. Lehrer, 1974:15-45)—in the example considered here, the field of the BIOTIC FORM in Tobelo. The usefulness of the covert classes so posited depends primarily on their ability to assist in adequately describing the classificatory relationships among all the labeled classes that divide up that field. This is the task to which we now turn in the next and final chapter.

5. The Tobelo Folk Classification of BIOTIC FORMS

5.0 Introduction

This final chapter at last takes up matters of everyday Tobelo conversational interest, and present conclusions which (if they could adequately be translated) Tobelo 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 unlabeled classes do not easily become topics of conversation, the “proper” names for and boundaries of folk segregates (cf. 2.3) and the classificatory relationships among classes of plants and animals—especially those at or closest to the “basic” (B^0) level—are matters of intense 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 (5.2) presents an overview of the Tobelo “classificatory framework,” or the framework of structural relations among Tobelo folk classes. That framework consists of a wide, shallow set of taxonomic relations. Those taxonomic relations vary considerably, though, from “model” taxonomies (5.2.1.1) because of the “residue” of higher-level terms (5.2.2.1), non-symmetric contrast (5.2.2.2), ambiguous class membership (5.2.2.3), and the occasional dual position held by a single class in the same classificatory structure (5.2.2.4). Within that framework, other non-taxonomic relations among classes occur, such as cross-cutting subclasses of the B^0 term (5.2.3.1), ‘mother’-‘child’ relations (5.2.3.2), growth stages (5.2.3.3), intersecting subclasses of a folk class (5.2.3.4), and some classes that seem only to be “posited” by the Tobelo—i.e., predicted by their own complex system of folk biological classification but never yet observed (5.2.3.5). 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 apparently universal 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; Berlin, 1976:385–386).¹ There is ample evidence that the Tobelo also recognize this level as distinct. However, attempts to define the “basic” level by nomenclatural properties of the basic term are of limited applicability in the Tobelo 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), and especially by the distinctive treatment of the basic term in Tobelo noun

“sequencing,” or noun post position modification by other nouns (5.1.3).

5.1.1 The Limited Applicability of Nomenclatural Criteria for Distinguishing “Basic” Tobelo Terms

Berlin, Breedlove, and Raven (1974:29) 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*.

Though I have expressed some 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 Tobelo ‘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 in cases where, for example, a single culturally important class of plants may have many “species” (B^{-1} classes) labeled 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 (1976:391–393) “type specifics”)):

Type specific monomials, however, do not exhaust the inventory of monomial specific names in Aguaruna. In several important cultivated plants, specific taxa labeled 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. [Emphasis 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 158 other terms as immediate subclasses of *o nawoko* ‘fish’) is immediately subdivided, in B dialect, into 13 B^{-1} terms, all

labeled 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 labeled by primary terms; see Appendix 2.3.) Based on this criterion, the 'crab' and 'shrimp' classes (whose B⁻¹ terms are also labeled 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*)? It is immediately subdivided (in B dialect) into seven subclasses labeled by primary terms (one unmarked subclass, two subclasses labeled by terms that have the 'bat' term as head of the compound or phrase, and four sub-classes 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 labeled 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 labeled 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'), militate against such an interpretation.

A similar argument could be made in the FLORAL FORM domain for considering Tobelo 'banana' (*o bole*) a B⁺¹ (Berlin's "life form") rather than a B⁰ (basic) term. Yoshida (1980) has argued precisely this point for the banana class (also Galela *o bole*) in the very closely-related Galela language. While that might be true of Galela, it is as tempting for me to read Tobelo information into his largely cognate Galela data, as it undoubtedly would be for any student of that language to find Galela echoes in Tobelo data presented here. Based on such a reading, I can only suggest that if the same evidence presented there for Galela were similarly presented for the Tobelo 'banana' class, it would remain unconvincing. Aside from other evidence from the Tobelo "sequencing" of nouns (which may not apply to Galela), Yoshida's data indicate that Galela 'banana' (*o bole*) is immediately subdivided into 'cultivated' and 'wild' bananas (as are Tobelo forms). Unlike this class in Tobelo, however, 'cultivated banana' is immediately subdivided into 'male' and 'female' varieties (respectively, Gal: *o bole ma nau* and *o bole ma bedeka*). Ignoring another level of covert categories that Yoshida inserts into the taxonomy, it should be clear that, unless other B⁺¹ classes in Galela (such as 'tree') can be subdivided into the cultivated/wild and the male/female dichotomies, which they apparently cannot (and certainly cannot in Tobelo), then positing 'banana' as a B⁺¹ class would mean that this is the only B⁺¹ class for which such dichotomies, normally used only to subdivide the "basic" terms, may apply to a higher-level plant group! Comparing Galela with Berlin, Breedlove, and Raven's (1974:415, 432-8) Tzeltal data, Yoshida (1980:130) notes:

The differences between the Galela and the Tzeltal cases appear 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.

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 Galela (or Tobelo) *o bole* 'banana' at either the B⁰ 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 Tobelo 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 that appears valid for Tobelo, 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. Even 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 Tobelo BIOTIC FORM domain in which basic (B⁰) 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 labeled B⁺¹ classes of FAUNAL and FLORAL form ('fish,' 'bird,' 'tree,' 'vine,' etc.).

THE TOBELO NOMENCLATURE RULE.—As a generalization that holds for all cases in which the level of Tobelo terms is known, and as a hypothesis extended to handle those terms whose level would otherwise be indeterminate, we may state that, among Tobelo terms labeling subclasses of BIOTIC FORM, lexemic phrases that are morphosyntactically endocentric, and in which the head consists of a term for a class superordinate to the class labeled by that endocentric phrase, can only be used to label B⁻ classes (i.e., subclasses of "basic" (B⁰) 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 labeling a class superordinate to that labeled 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 B⁰ 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), just as 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 B⁰ 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 labeled by an endocentric phrase that 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 the terms of such a contrast set be considered "primary lexemes" and of indeterminate level. The rule proposed here indicates that endocentric phrases having higher-level terms as heads in Tobelo are found only at levels below B⁰, indicating that such a contrast-set must consist of B⁻ terms.

As presented here, this generalization also clarifies how the "cross-cutting" classes (5.2.3.1) (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 divided 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 labeling 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 when non-taxonomic "cross-cutting" (5.2.3.1) principles intersect with a taxonomy.

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 labeled 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 Tobelo basic (B⁰) terms recalls that which

Berlin, Breedlove, and Raven (1974:31–32) 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.

In natural conversation and other contexts, the basic term is the one most commonly used by Tobelo 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. Yet they can and do willingly argue about the "name" (i.e., the basic term) that properly denotes any particular organism. 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 often just to fend for themselves at the higher and lower levels.

The basic level is also distinctive because it contains contrast sets with far more classes than any other level of the BIOTIC FORM domain. While some of the contrast sets below the basic level may contain over a dozen classes, their size is paltry compared to the basic level contrast-sets in such domains as 'fish' (159 basic classes), 'bird' (86), 'mollusk' (73), 'tree' (315), 'vine' (88) or 'herbaceous weed' (115) classes. This characteristically wide, shallow, "basic" level is common (probably universal) in ethnobiological classification, and this fact clearly emphasizes that level's distinctiveness. Yet 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 Tobelo, 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 location names, the county level may optionally be "skipped," while the state level may not.

Of course, comparison with location terms in English is only meant as an illustration, and the expected order of Tobelo

hierarchically related terms is a phenomenon of the Tobelo language, regardless of the validity of any English examples. In fact, Tobelo 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 Tobelo basic term may be preceded by any of its B⁺ class labels. Thus the dove called *o ngoku* (*Ducula bicolor*), the hawk called *o kawih*i (*Accipiter* spp. and others, see Appendix 2.1), or the rail called *o hetaka* (two kinds, see Appendix 2.1) may also be referred to with *o totaleo* ‘bird’ preceding their basic label (e.g., *o totaleo o ngoku*, *o totaleo o kawih*i, *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⁺ term “W,” the B⁰ 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 labeled, hierarchically related terms other than phrases or compounds that 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 Tobelo 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⁺ terms within it, one should expect to find such chains of terms there. Though data are insufficient for the *o bianga* ‘mollusk’ class, only a few

types of *o nawoko* ‘fish’ in the *o aewani*₁ ‘animal’ class have B⁻² terms that are not phrases or compounds having higher-level terms as heads. Of these, all but one involve growth stages (size classes) of fish (5.2.3.3); 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 is not a “normal” subtaxon). This leaves the one questionable exception: the record is held (in B dialect only, not D dialect—see Appendix 2.3 under *o noara* ‘ray’) by the B⁻² term *o gorohutu* ‘blue-spotted fantail ray (*Taeniura lymma*),’ which is considered in B dialect a type of *o gugudai* (B⁻¹), which in turn is a type of ‘ray’ (*o noara*) (B⁰), which is a type of ‘fish’ (*o nawoko*) (B⁺), which is a type of ‘animal’ (*o aewani*₁) (B⁺). Thus none of five hierarchically related terms contains a higher-level term as compound or phrasal-part within it.

Some but not all informants at Loleba and Pasir Putih do not accept *o gorohutu* as a type of *o gugudai*, instead apparently considering it a separate B⁻¹ term. The alternatives can be diagrammed (see diagram, p. 56; 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).

Informants who do consider *o gorohutu* to be a type of *o gugudai*₁ (as in A in the following diagram) say they will accept the four-term expression *o nawoko o noara o gugudai o gorohutu*; but others insist that (as in B in the diagram) *o gugudai* and *o gorohutu* contrast as types of ‘ray.’ The latter opinion (B) is normally expressed by a sentence such as *idadiua hato o noara o gugudai o gorohutu* ‘one cannot say *o noara o gugudai o gorohutu*.’ Note that any other way of expressing the same point (e.g., *o gorohutu o gugudai-ua* ‘*a gorohutu* 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 in the diagram), 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 that can occur, it appears that though the B⁰ 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

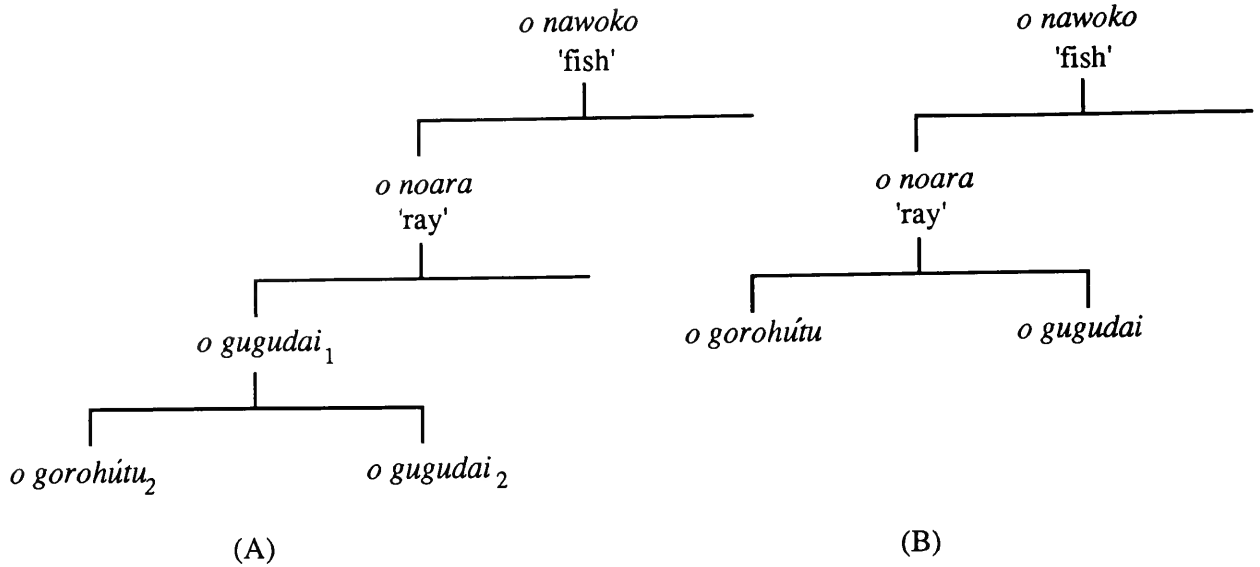


FIGURE 9.—These two species of fish have two alternative ways of being placed in the classification of *o noara* 'rays.' The ray at left (*Dasyatis kuhlii*) is everywhere called by the B⁻¹ term *o gorohútu* (= *gorofútu*) in Tobelo; that at right (*Taeniura lymna*) is everywhere called *o gugudai*. Some Tobelo feel that *o gugudai* and *o gorofutu* are contrasting B⁻¹ terms; others that *o gorofutu* is a B⁻² subclass of the B⁻¹ term *o gugudai*₁, whose unmarked B⁻² subclass would then be *o gugudai*₂, illustrated at right. See discussion (5.1.3.1) and summary under the B⁰ term *o noara* 'ray' in Appendix 2.3.

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 five such labeled 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 Tobelo 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 Tobelo 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 that uses a higher-level term as the head of the phrase or compound. Thus, for example, the basic ‘tree’ class *o hulahi* (*Ocimum 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 B⁰ 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 o 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 B⁰) do not seem syntactically different from *o rukiti o gota* ‘the tree *rukiti*’ (B⁰ 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 B⁰ followed by B⁻¹ term may be made into a Type 1 endocentric compound (see 3.2.2.3 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 Tobelo words, rather than compounds, in a description of Tobelo; 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 Tobelo compounds and endocentric phrases that 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 Tobelo) words.

Thus, for example, the originally Ternatense compound *o ate-jawa* (< Tte *hate* ‘tree’ + *jawa* ‘Java, Javanese’; ‘Javanese tree’) may be considered a simple Tobelo word, both on nomenclatural grounds (cf. 3.2.2.1) and because it is possible to say *o gota o ate-jawa* ‘*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 Ternatense compound-part *gorango-* of *gorango-huhu* (literally, ‘milk shark’) is easily recognizable as the Ternatense word for the cognate Tobelo *garangoto* (or dialectally *gorangoto*) ‘shark.’ Thus one is unlikely to hear the phrase **o garangoto o gorango-huhu*, although some informants say that this phrase is possible.

Similarly, several recently introduced subclasses of the cash crop *o gohora* ‘nutmeg’ (*Myristica fragrans*) (sometimes referred to by its Indonesian synonym *pala*) include the

Indonesian word *pala* 'nutmeg.' Yet because *pala* is sometimes used as a Tobelo 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?)). The phrase could well be translated '*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 Tobelo terms (and thus not affected by the "sequencing" rule above) rather than foreign forms.

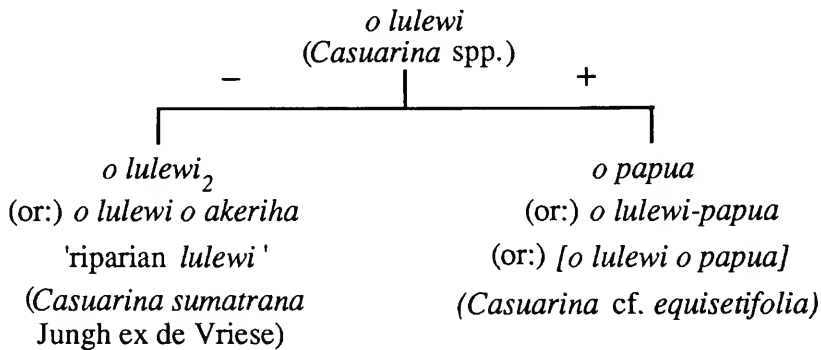
5.1.3.3 Restraints on the Freedom of Occurrence (Non-boundness) of Single Lexemes

The preceding discussion has been concerned with outlining a rule by which terms for hierarchically related classes may be "juxtaposed" or "sequenced" in Tobelo. 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 of certain lexemes in isolation 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 B⁰ 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*) 'the *papua* [subclass of] *lulewi*' (*Casuarina* cf. *equisetifolia*) that 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 labeled *o lulewi*₁ (*Casuarina* spp.). In this case, the B⁻¹ term *o papua* is so closely tied to the B⁰ 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 the B⁻¹ simple word *o papua*, as a label for the class. This subclassification of *o lulewi*₁ (*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 labeling 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 Tobelo, and (2) that each lexeme has its own noun-marker (*o*) indicate that *o lulewi o papua* is a sequence of the B⁰ 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 that denotes a relatively more familiar organism is less bound to its superordinate B⁰ term than one that 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 that are less bound to the higher-level term than terms for the wild plants, such as (*o lulewi*) *o papua* (*Casuarina sumatrana* Jungh ex de Vriese), 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; see Anonymous, 1883). 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.

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 1.1 for species determinations).

- | | |
|-------------------------------|--|
| 1. <i>o dowora o papua</i> | 'Papuan (?) <i>dowora</i> ' |
| 2a. <i>o gofasa o hakaru</i> | 'stone <i>gofasa</i> ' |
| 2b. <i>o gofasa o utongo</i> | 'sago.leaf-stalk.petiole <i>gofasa</i> ' |
| 3. <i>o oenge o kofere</i> | (unanalyzable simple words) |
| 4a. <i>o bidoho o wera</i> | (unanalyzable simple words) |
| 4b. <i>o bidoho o fongoro</i> | (unanalyzable simple words) |

Examples 1 and 2 (a,b) consist of contrast-sets of types of the basic 'tree' class *o dowora* and *o gofasa* (see Appendix 1.1) 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 that 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 easily be isolated from the basic term, and often do occur in conversation without being preceded by the basic term. Though there are few such cases to consider, the restraints involved here apparently apply to basic (B^0) terms as well as the B^{-} terms we have been considering. Even basic terms that have other common meanings are likely to appear more bound to the B^{+1} term. For example, the 'tree' called *o kafo* (*Rhus taitensis* Guillemain), 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.'

5.1.4 Conclusion: Distinguishing the Basic Terms

This section has reviewed several justifications for treating the "basic" (B^0) level as distinctive within the Tobelo classification of BIOTIC FORMS. It has also introduced some methods for determining whether particular terms or expres-

sions are "basic" or non-"basic," including the nomenclatural criterion that endocentric phrases having terms for superclasses as heads only occur in the levels below that of the basic term. It has also discussed some characteristic uses of the basic terms in natural contexts, particularly the "sequencing" of terms for BIOTIC FORM, where the B^0 term serves a distinctive function. Finally, the discussion of restraints on the free occurrence of certain lexemes, though it may have seemed like a detour from this section's 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'), 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 definitely be considered "basic" or non-"basic" terms by any of the means discussed above. 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 anyone 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, it can be done 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 that 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 that classes of BIOTIC FORM may have with each other, is outlined. Of these, the taxonomic relations (5.2.1) stand out as those that constitute 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 relations 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 Tobelo apparently were never properly informed of how such model taxonomic structures should work. Among their system's non-"model" elements we find "residue" as well as "residual classes" (5.2.2.1), non-symmetric and disjunctive contrast (5.2.2.2), ambiguous superclass-subclass relations (5.2.2.3), and dual structural positions of a single class in the taxonomic structure (5.2.2.4). In addition to such modified taxonomic relations, Tobelo also use several non-taxonomic relations to structure relationships of folk classes to each other, including cross-cutting subclasses of the B^0 term (5.2.3.1), the 'mother'-child' relation (5.2.3.2), growth stages (or size classes) (5.2.3.3), and intersecting subclasses of a basic class (5.2.3.4). Finally, in a few cases, all these taken together may lead them to posit classes of BIOTIC FORM that they have never actually observed (5.2.3.5).

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 Tobelo BIOTIC FORMS posited here could not be considered part of the folk taxonomy. Others (Keesing, 1966; Berlin, Breedlove, and Raven, 1968) have questioned that restriction. As the discussion above (Chapter 4) noted, unlabeled classes are here considered necessary in the description of the BIOTIC FORM domain and of the Tobelo 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 (as we have here) in an adequate description of Tobelo 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 that may distinguish them from folk taxonomies, include (Conklin, 1962:128)

... (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 through-out 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.

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 Tobelo. But among lexemically labeled taxa, Tobelo do not bother to conform consistently to the other three

requirements of such "model" taxonomic systems.

Nevertheless, the Tobelo 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 (4.4) 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.

5.2.1.2 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 (e.g., 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 all the other basic terms that immediately subdivide the 'fish' class will contain 'fish' in their definitions.

One could argue that the B^0 classes having ambiguous superclass membership (5.2.2.3) (e.g., a basic plant type that can be considered either a 'tree' or a 'herbaceous weed'), even though such classes are relatively rare, nevertheless prove that at least those few B^0 classes could not be defined using the features of one immediately superordinate class as distinctive features. (Thus neither 'tree' nor 'herbaceous weed' can be a distinctive feature of a class that "cross-cuts" both those higher-level classes.) 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) B^{+1} classes (rather than those of just one B^{+1} class) are likely also to be distinctive features of the B^0 class; thus members of the latter may be members of more than one B^{+1} class. This explanation (offered in 5.2.2.4 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 5.2.2.4).

5.2.1.3 Some Signs of Tobelo Preference for “Ideal” Features of Taxonomies

Two types of evidence may be adduced indicating that, though the Tobelo do use non-taxonomic features in their folk classification, they still seem to overwhelmingly prefer a taxonomic structure. At levels below the basic term, in fact, we shall see that they try hard to “straighten out” several non-ideal features of their folk taxonomic system. The two types of evidence are (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; and (2) when, as often happens, Tobelo individuals are faced with more than one way of subdividing a basic class, they consciously try (and discuss their attempts among themselves) to arrange the variants in taxonomic fashion. They may do this, for example, by considering some terms synonyms, or by positing that one of the variant contrast-sets must subdivide another.

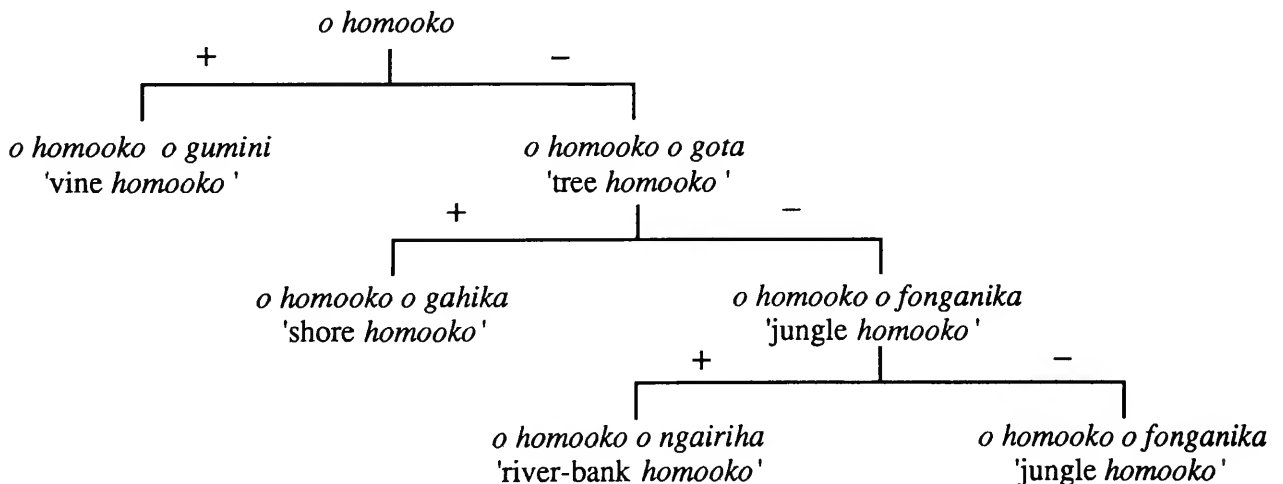
1. A comparison of basic FLORAL FORM classes by B⁺¹ superclass will illustrate the relative un-commonness of non-taxonomic features. Of 689 basic classes of FLORAL FORM, 605 (or 87.8%) are either unaffiliated with any named B⁺¹ class, or are subclasses of one of the named B⁺¹ classes ('tree,' 'vine,' or 'herbaceous weed'). Only 36 of the basic classes (5.2%) have subclasses that cross-cut the B⁺¹ classes (a non-taxonomic feature). And only 9 of the basic classes (1.3%) can ambiguously be considered to be included in more than one B⁺¹ superclass. Other non-taxonomic or non-ideally taxonomic features of the Tobelo folk classification are also relatively quite uncommon (though often culturally important), such as the dual structural positions of a single class (5.2.2.4). Intersecting subclasses of the basic class (5.2.3.4) have only been observed in one case. Thus, though Tobelo 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 Tobelo 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 (5.2.3.1)), 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 1.1)).

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 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.

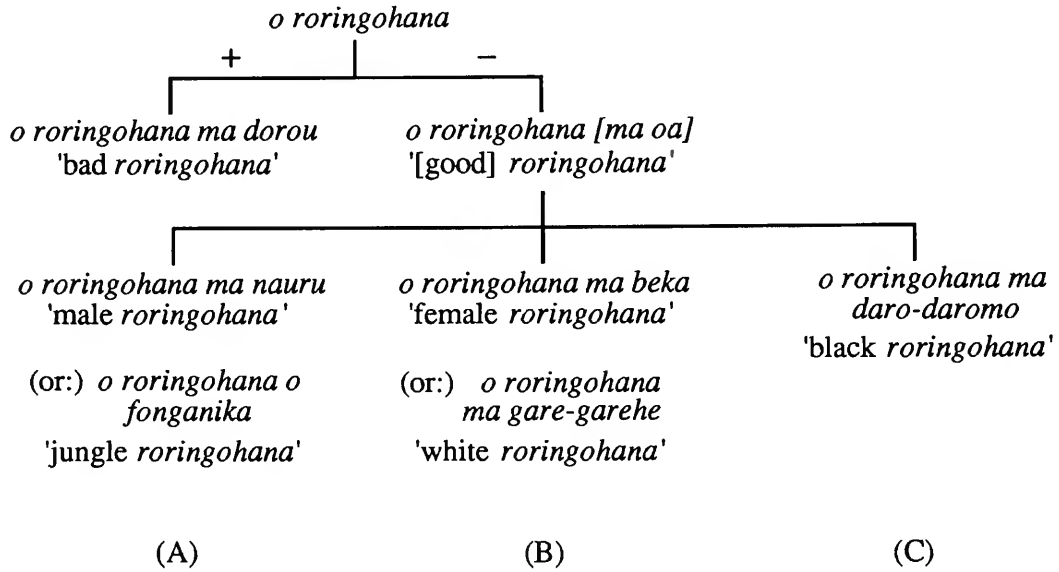
In short, all had agreed that the Fayaul specimen must be another kind of 'jungle *homooko*,' thus introducing a new B⁻² level into the classification of this basic plant class, in which the 'true jungle *homooko*' (the unmarked form at Fayaul, or the 'jungle *homooko*' of Pasir Putih) contrasted with 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 in the diagram below 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 1.1) 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 Tobelo who decided upon it; and the example illustrates how they generally try to assimilate new data into a taxonomic structure.

Another example involves the Tobelo 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 *ororingohana* 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 sub-classes of the '(good) *roringohana*')

Like *o homooko*, this term *o roringohana* is a basic term having subclasses that 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 labeled 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]')

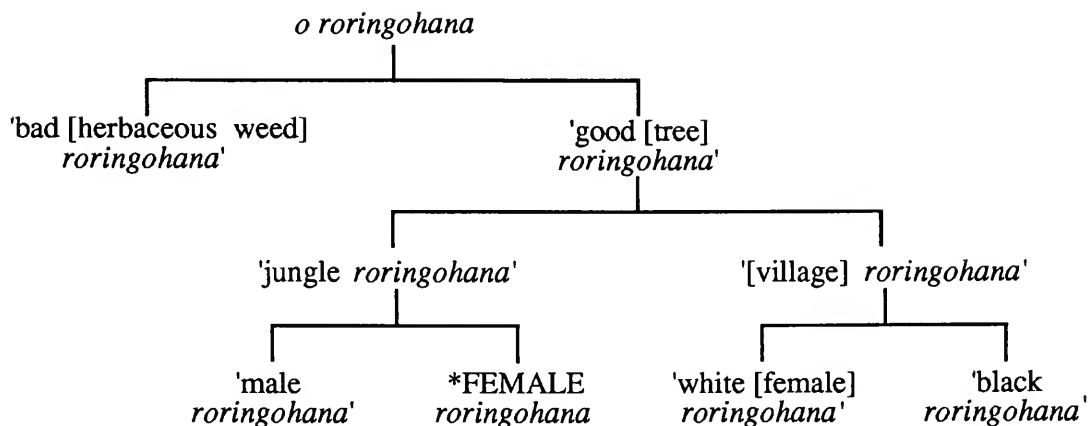
The first opposition would lead us to suspect A and B are subclasses of a superclass contrasting with C; the second would instead lead us to suspect that B and C are subclasses of a superclass contrasting with A.

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 that 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 on page 63.

(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.')

There are many other local indications of a preference for formally "neat" taxonomies, which can supplement these field observations of Tobelo 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). Thus in an experiment recounted below



(5.2.2.4), 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' vs. 'white,' or 'good' vs. 'bad') by trying to equate them with Loleba's alleged distinctions of 'male' and 'female.'

This discussion clearly has implications for the study of Tobelo antinomy. We find that, as in the case of Walbiri antinomy, represented in a specialized Walbiri speech form called *tjiliwiri* or "upside-down" Walbiri (Hale, 1971), Tobelo "opposites" seem generally to be based on a principle of polarity of a general sort that can be related to universal semantic notions (e.g., 'male'-'female,' 'land'-'sea'). Yet, again as in Walbiri, it seems that some antinomies "can be fully understood only in reference to other aspects of Walbiri [Tobelo] culture" (Hale, 1971:481). Thus the most usual "color" opposition is 'white' vs. 'red'; indeed, though 'white' vs. 'black' may seem to be more natural to us, the *o roringohana* above is one of only two occurrences in Tobelo folk biological classification (the other is the 'tree' *o bangata*). In both cases the classes so subdivided can be labeled with other antinomies as well. I cannot explain these exceptions, except to say that an overwhelming surface 'color' difference, or difference in hue (of bark?) might be at work in these 'white'-'black' exceptions. The more usual antinomy is of 'red' (*ma doka-dokara*), which includes the area of the color solid we would call 'brown,' vs. 'white' (*ma gare-garehe*), which includes all colors that are of very light, pale hue. Such an antinomy seems related to the medicinal uses of plants, which frequently specify whether to look for a 'white' growth-point of a plant (indicating paleness, freshness, and life-giving and thus curative potential), or the 'red' growth-point of a plant (indicating strength, power, and dominance, e.g., for war-magic).

This discussion also has implications for the interpretation of the many "loose terms," that is, terms which are recognized as plant or animal names (or probable names) by Tobelo

informants, but whose denotata are unknown to everyone I asked about them. ("Loose terms" are not included in the Appendixes.) One must carefully resist the tendency of Tobelo informants to try to make such loose terms fit the folk taxa with which they are familiar; in this area too Tobelo are likely to suggest that an unknown subclass of a basic term is "probably" the same as a known subclass.

5.2.2. The Integration of Non-"ideal" Features into the Taxonomic Framework

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." Nor do I consider them signs of widespread clear thinking despite occasional native lapses into non-ideal "aberrations" like ambiguous class membership or cross-cutting subclasses of basic terms.

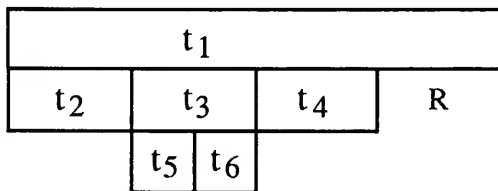
The folk taxonomy is instead here treated as the general framework for Tobelo ethnobiological classification for these reasons: (1) From a heuristic point of view, the complex Tobelo classificatory structure can more easily be described by first calling up a model taxonomic structure and then substantially 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 sub-classes of the B^0 terms (5.2.3.1), 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 5.2.3.1). 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) that cross-cut named taxa (see 4.2.3 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 Tobelo 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.

5.2.2.1 “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):



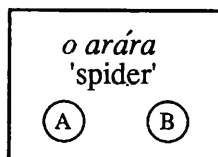
The diagram illustrates a frequent non-“ideal” occurrence in folk taxonomies: the contrast-set t_2 - t_3 - t_4 does not adequately subdivide the t_1 domain; the “residual” area representing those objects that are members of a set designated by t_1 , but not of any of its subsets, is marked “R.” When we consider the size and variation within certain groups (such as the Insects) it appears likely that any folk taxonomy contains contrast-sets that 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 Tobelo are familiar with marine and terrestrial fauna and flora of the large area of great biological species diversity that they inhabit. New organisms recognizable

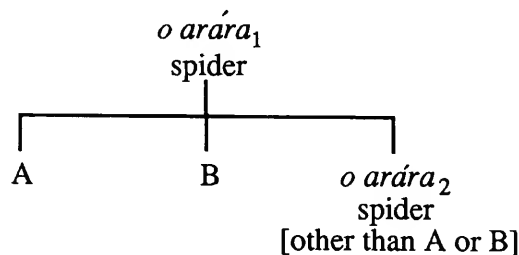
as members of the ‘fish’ or ‘mollusk’ or ‘mere animal’ class, but for which no local names are known, are constantly observed and (for lack of a more specific term) simply referred to as ‘fish,’ ‘mollusk,’ or ‘(mere) animal.’ In other cases, particular subclasses are “singled out” within a larger basic 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) that 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* ‘mere 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.²

The Venn diagram (below, left) 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 that inadequately subdivide it; remaining ‘spiders’ are simply called by the higher-level term. The alternative taxonomic tree diagram at right posits that the spiders that 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



(A)



(B)

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 Tobelo. Since the Tobelo themselves seem less concerned about the idealness of their folk taxonomy it seems best not to posit such a class for reasons external to Tobelo semantics (like filling out a taxonomic diagram on paper), unless some more appropriate unifying features of any **arára₂* class can be found.

Such features need not be consciously realized by Tobelo, 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 arara₂* 'web-spinning spider'. If it could be shown that Tobelo 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 Tobelo whom I asked did not point out any such difference), then we would have a good argument for considering that **o arára₂* 'web-spinning spider' contrasts with *o guhuru ma dadagoko* and *o oanga* as types of *o arara₁* 'spider.' This example illustrates kinds of evidence to consider when looking for distinctive features of folk classes; if some unifying features of an **arára₂* "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. (D dialect informants, also, do not consider *o oanga* a subclass of *o arara₁*; this will not affect the argument here because the other subclass (*o guhuru ma dadagoko*) is still "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] taxa . . ." Berlin (1976:391) also considers that such residue 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 Tobelo), 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.

It is ironic, then, 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 Tobelo 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 classifier could scarcely remember how to recognize a basic (B⁰) residual 'tree'₂ taxon (in English: (1) 'tree'₁; (2) not oak; (3) not pine; etc., 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 that is not just a simple statement of the features of the higher-level class, plus a statement of the latter's subclasses that have been removed from it to leave only "residue."

An example of such a residual class is found in the Tobelo *o iuru* 'ant' basic class (illustrated here for B dialect, cf. D dialect, see Appendix 2.5). This term denotes wingless forms of all ants except 'weaver ants,' which are in the contrasting basic class *o kane-kane* 'weaver ant' (*Oecophylla smaragdina*), as well as winged forms of certain species (possibly *Monomorium* spp.?, see below). The *o iuru₁* basic class is subdivided into at least four B⁻¹ subclasses: two labeled by simple words, one by an endocentric phrase, and finally one residual class *o iuru₂*. (See 5.2.3.2 below for further discussion of the *o iuru₁* '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 iuru₂* 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.'

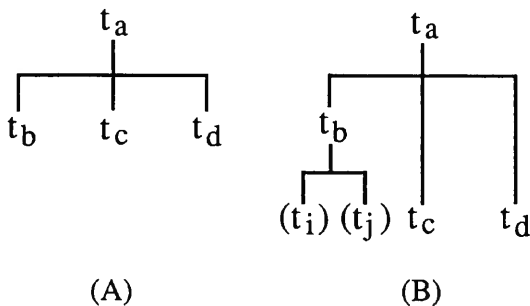
5.2.2.2 Non-symmetry and Immediate Disjunctive Contrast

Contrary to any "model" taxonomy of the sort used by biologists, the number of levels in the Tobelo 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 (see e.g., in Appendix 1: *o bole* 'banana,' *o pine* 'rice,' *o tahubl* '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 the diagram on page 48, 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 (B⁰) 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 Tobelo BIOTIC FORM. We may call such contrasts both disjunctive and immediate.

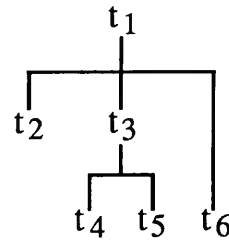
Immediate Contrast: If T is a set of two or more taxa, { $t_1, t_2, t_3, \dots, t_n$ }, all of which are subclasses of a higher-level taxon t_a ; and if no other taxon t_x can be found that is both a subclass of t_a and a superclass of any of the taxa in set T, then that set T of taxa is in immediate 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 immediately contrast.



Disjunctive Contrast: A set of two or more taxa { $t_1, t_2, t_3, \dots, t_n$ } are in disjunctive contrast 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), and all taxa in

the set are subclasses of some other taxon t_x , and some pair of taxa t_i and t_j can be found such that t_i is at a different 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 }; { t_2, t_4, t_5, t_6 }:



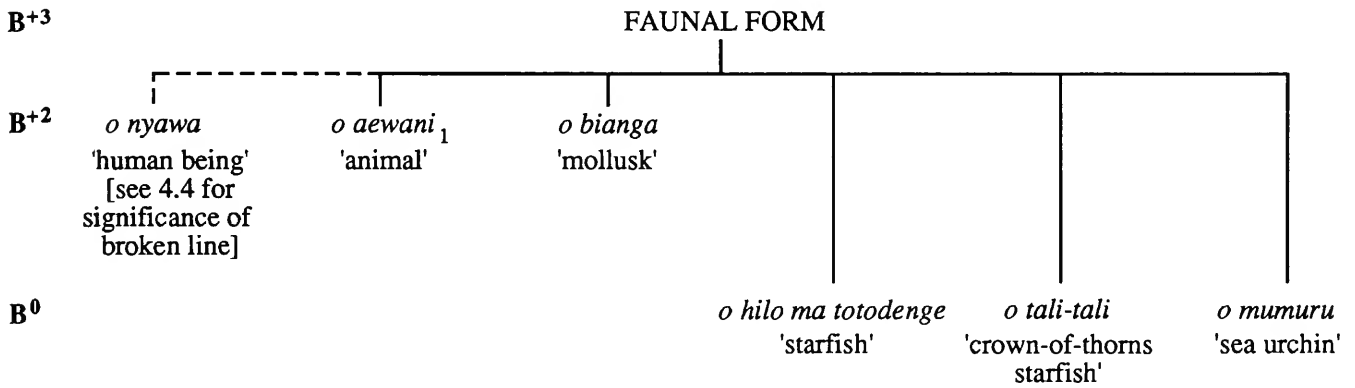
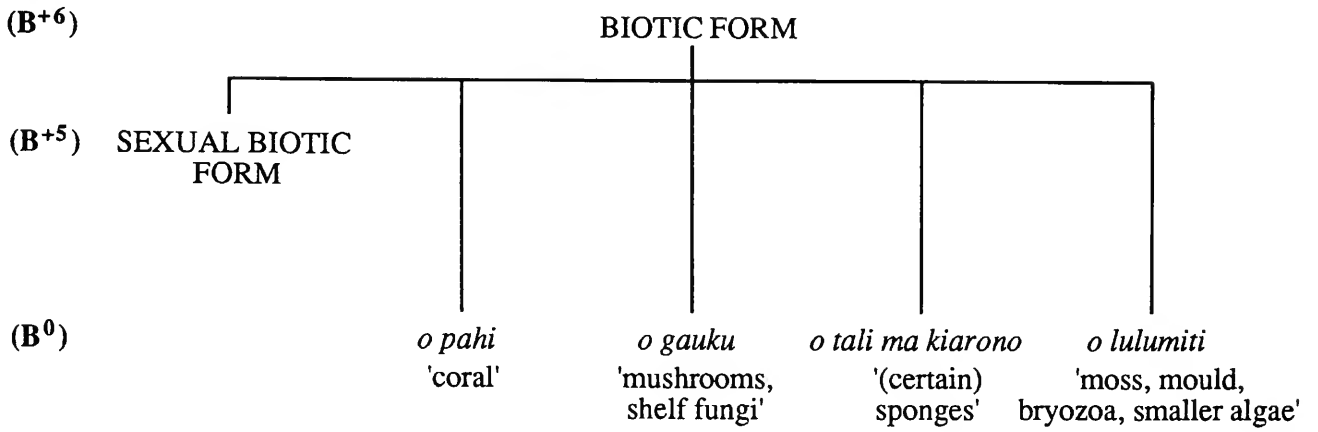
By combining these definitions we may arrive at the definition of a type of contrast that often occurs in the Tobelo BIOTIC FORM domain, and which is applicable to non-symmetric taxonomies. We shall say that taxa are in immediate disjunctive contrast if they are in immediate contrast and in disjunctive 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 B⁰; see diagram on facing page, top).

There is also one case of two-level immediate disjunctive contrast (see diagram on facing page, middle).

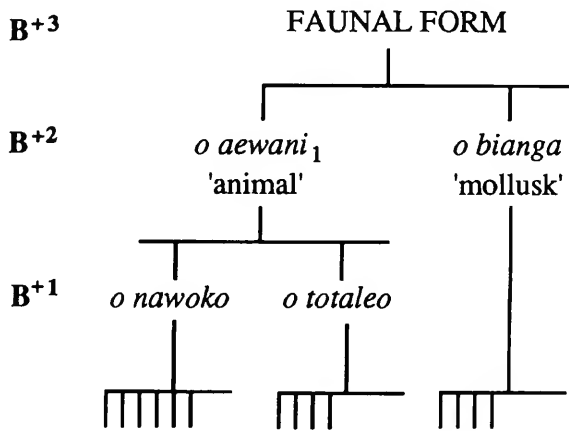
Finally there are two cases of one-level immediate disjunctive contrast: one within the FLORAL FORM class (where B⁺¹ classes like 'tree' and 'vine' are in disjunctive contrast with B⁰ classes like *o boboro* 'nipa palm,' which are unaffiliated with any B⁺¹ class), and the other is in the *aewani*₁ 'animal' class (where B⁺¹ classes like 'fish' and 'bird' are in disjunctive contrast with B⁰ classes like 'crocodile' or 'crab'). Both these cases involve lexemically labeled classes (and, in the case of the *aewani*₁ 'animal' subclasses, even the superclass is labeled). For those who commendably consider any argument that draws heavily on covert classes suspect, these lexemically labeled subdomains (e.g., *o aewani*, 'animal') should reassuringly confirm that immediate disjunctive contrasts are at least possible in the Tobelo BIOTIC FORM domain.

In the above cases of 5-level and 2-level immediate disjunctive contrast, at least one of the higher-level subclasses (SEXUAL BIOTIC FORM in the first example, or *aewani*₁ 'animal' in the second) is further subdivided at each level down to the basic (B⁰) one. This raises a question that 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

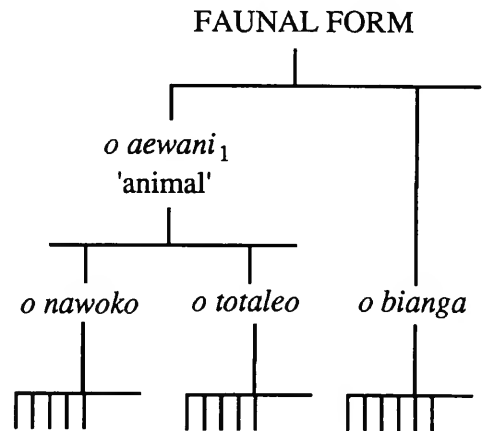


classes to be disjunctive, then at what level do we place classes that are immediately subdivided at the second descending level? The 'mollusk' (*o bianga*) class, for example, has been placed at the B⁺² level, but it is immediately subdivided at the second descending level, having "skipped" one level (B⁺¹)

entirely (diagram below left). Though 'mollusk' seems to contrast with 'animal,' a non-symmetric taxonomy could allow the 'animal'-'mollusk' contrast to be disjunctive (diagram below right).



(A)



(B)

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 on page 48, in which it shares level B⁺³ with FAUNAL FORM).

In fact, however, that alternative is not adopted here for the *o bianga* 'mollusk,' the FLORAL FORM, or the NON-BREATHHER 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* 'mollusk,' 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-BREATHHER and FLORAL FORM classes were posited on the basis of distinctive features that distinguished each of these from the other class it contrasts with; since those features distinguish these other classes at levels B⁺⁴ (BREATHHER) 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" (B⁰) level of labeled 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.

Thus, for example, if only the 'mollusk' subdomain were being described, we would not need to point out that in a complete analysis of the BIOTIC FORM domain, 'mollusk' must be two levels (rather than one) above the basic terms. On the other hand, if the Tobelo 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, 1984) 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.³

5.2.2.3 Ambiguous B⁺¹ Class Membership

One of the exceptional characteristics of the "basic" level noted above (5.1.2) is that Tobelo 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 rurubu*) 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 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 kokereehé* (*Crotalaria retusa* L.), *o ngutuku ikukurati* (*Fatoua pilosa* Gaud.), and other such slightly woody small suffrutescent plants that 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 labeled *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 rurubu* '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*'⁴ (medicinal), or the edible *o bibiti* (see Appendix 1.1 for determinations), both of which morphologically appear to be *rurubu* 'herbaceous weeds,' are often locally placed in that class. Nevertheless, 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: "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, note that any ambiguity of membership in the *aewani*₂ 'insignificant animal' class is more difficult to inquire about than is its FLORAL FORM counterpart, because any animals that are ambiguously "significant" or "insignificant" will still be in the *o aewani*₁ 'animal' or higher-level class labeled 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').

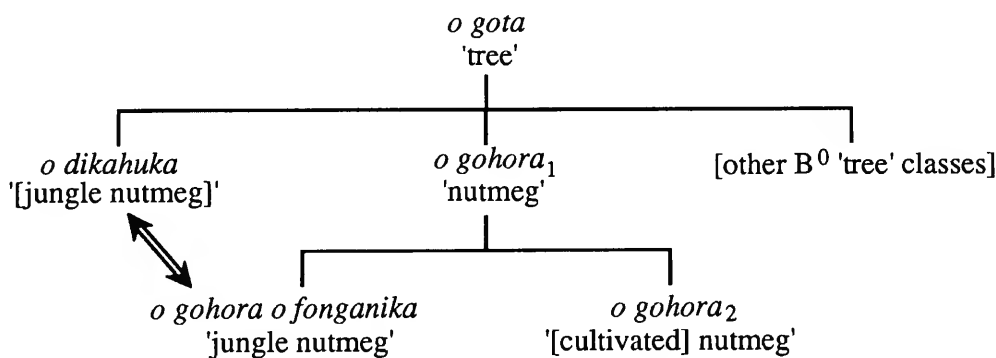
Finally, it should be noted that ambiguity caused by the polysemy of the B⁺¹ terms themselves must be distinguished from ambiguous class membership. This problem frequently arises when unaffiliated plant types (those said not to belong to any named B⁺¹ class) are referred to in natural conversations as *rurubu*—not in that word's sense of 'herbaceous weed,' but rather 'undergrowth.' Tobelo 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 B⁰ class *o jara-jara* (*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 *rurubu* 'undergrowth,' though not, e.g., **o rurubu o jara-jara* '*jara-jara herbaceous weed,' certainly not *o jara-jara o rurubu* 'the herbaceous weed *jara-jara*' (the latter term instead denotes its 'herbaceous weed' male or unmarked counterpart (*Rhynchospora rubra* (Lour.) Makino), also called *o jara-jara ma nauru* 'male *jara-jara*').

5.2.2.4 Dual Structural Positions for the Same Class

There are few definite cases of dual structural position for a single Tobelo folk class in which the subclassification of that class is widely known or agreed-upon by Tobelo. But even if we include some additional "esoteric" or "idiosyncratic" examples of this phenomenon (i.e., those that are not widely known or agreed upon), the small number of cases that occur belies the great importance of the structural principle involved.

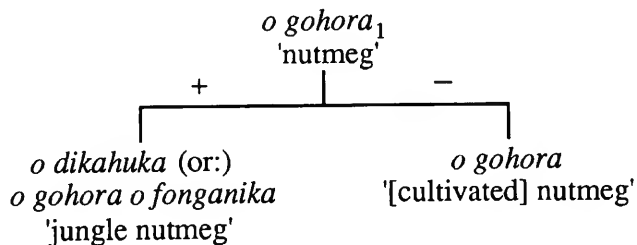
The 'tree' class labeled *o dikahuka* (see Appendix 1.1 for determinations) exemplifies this dual structural positioning, for it appears to have two structural positions consistent with the two widely known terms labeling the same class: the basic (B⁰) class labeled by the basic term *o dikahuka*, and the B⁻¹ class labeled *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 <=> connects the two structural positions of the same folk segregate.⁵



Before considering the characteristics of this anomolous 'jungle nutmeg' class, we should first dismiss two incorrect interpretations that, 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 this 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 B⁰, an alternative which is diagrammed below:



This interpretation is unacceptable, as proven by the fact that it is impossible to form the phrase **o gohora o dikahuka* ‘**dikahuka* nutmeg.’ That phrase would be possible if the interpretation diagrammed here were correct, 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 could not 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 utang* (literally: ‘jungle nutmeg’). Historically it may be that some formerly distinct B⁰ class labeled *o dikahuka* is now becoming a B⁻¹ subclass of the *gohora* ‘nutmeg’ class due to NMM influence. Whether or not this was the case in the past, a synchronic description must now note that it seems to retain its B⁰ status as well. Other widely-known examples of dual structural position are similar to the ‘nutmeg’ example above: a basic (B⁰) class subdivided into marked and unmarked B⁻¹ classes, of which the marked B⁻¹ class is alternatively referred to by a basic (B⁰) 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 B⁰ class labeled by the term *o kapuraca* (see Appendix 1.1).

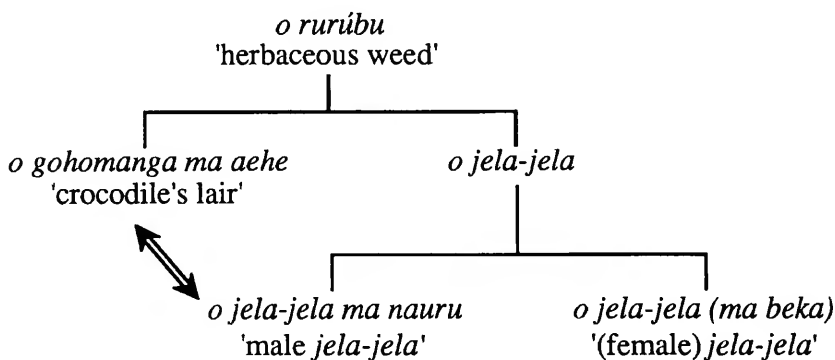
Note, however, that “dual structural position” of any class should refer to structural positions (like those in the examples above) of a class recognized in a single dialect. There are several cases listed in Appendix 1.1 in which, for example, folk classes of FLORAL or FAUNAL FORM are treated as basic terms in B dialect but as B⁻¹ terms in D dialect (see e.g., Appendix 1.1, FLORAL FORMS *o dodofo*, *o bobaharama*); 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 have come into use.

By “esoteric” examples I am referring to examples of those structural relations among classes, or of those classes themselves (and the terms that label them), that 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 Tobelo 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. 4.4), and since medicine is an esoteric matter (cf. 2.3), the male and female members of a basic class may be esoteric information.

Thus, for example, the grass called *o gohomanga ma aehe* ‘crocodile’s lair’ (*Oplismenus* sp.) is commonly known, but a distinction between its ‘male’ and ‘female’ forms is not. At Pasir Putih, only a minority of people recognized ‘male’ and ‘female’ forms 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*. She was in effect expressing her particular “esoteric” or idiosyncratic solution to the problem of the ‘male’ and ‘female’ forms of these basic classes. Yet she still considered both of these basic classes, as 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 labeled *o gohomanga ma aehe* by all the Tobelo 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 Appendix 1.1, which lists more widely held opinions about the subclasses of *o jela-jela*.) Because she was especially well known for her curing skills, others thought 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, Tobelo 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 Tobelo 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, see 2.3 above.)

For some 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. For others, they claimed the plant simply must not grow in the Pasir Putih region because they were not familiar with it. For many of the classes I named, they merely admitted that the plant was not normally subdivided into 'male' and 'female' forms.

Most interestingly, though, they tried to resolve some of the disparity between their classification and the one I was experimentally offering them by suggesting basic (B^0) classes as the possible 'male' and 'female' forms of other basic classes! As they made such suggestions, villagers made it clear they were trying to imagine what Lolebans must mean by the elaborate 'male' and 'female' subdivisions of the basic classes I was presenting. But note that they were inventing or imagining 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 Tobelo may already know two basic 'tree' classes, for example, without realizing one is "male" or "female" of the other. Perhaps their awareness that such esoteric dual structural positions can always occur may help to encourage the common Tobelo 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 1.1, also for problematic species determinations).

In conclusion, as a source for 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 Tobelo 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.

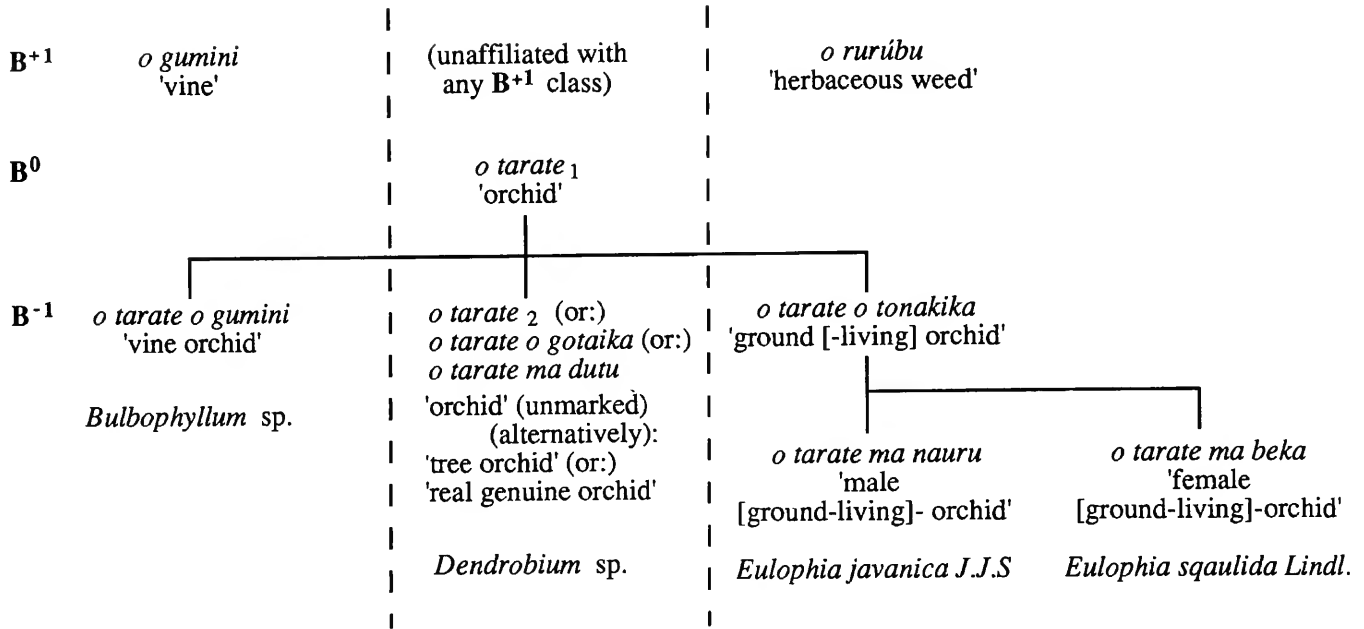
5.2.3 Non-taxonomic Structural Relations

This section briefly reviews several types of non-taxonomic structural relations: the cross-cutting subclasses of the B^0 class (5.2.3.1); the 'mother'-'child' relation (5.2.3.2); growth stages (5.2.3.3); and a case of intersecting subclasses of a basic class (5.2.3.4). 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.

5.2.3.1 Cross-cutting Subclasses of the Basic Class

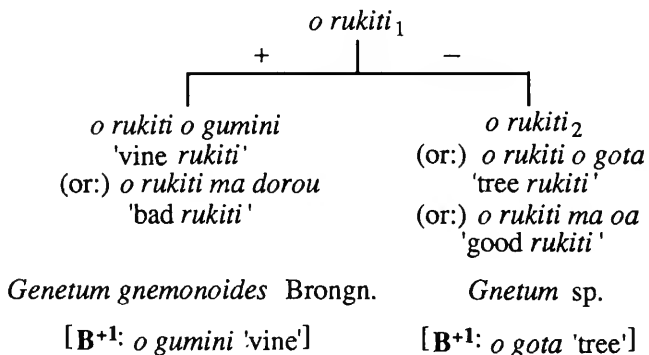
We have already seen that Tobelo use several pairs of opposites, such as 'male'-'female,' which neatly subdivide the basic class into two subclasses. Nevertheless, these certainly cannot always fit into a broadly based taxonomic structure, because in several cases, although both subclasses are clearly members of the same superclass labeled by the "basic" term, each subclass will belong to a different major B^{+1} 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. In the cases under consideration here, simple homonymy must be ruled out, because (1) the 'male'-'female' and color distinctions used lexically always have classificatory significance; (2) Tobelo themselves can distinguish such homonymy from cross-cutting classes; and (3) the (admittedly non-taxonomic) logic of such arrangements can be seen by examining unifying distinctive features of the class, regardless of the features of the major plant group classes.

Thus although many basic classes of FLORAL FORM in Tobelo 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 *o tarate*₁ may be said to "cross-cut" the larger folk taxonomy:



Though the *o tarate₁* 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 to only one of its three B⁻¹ subclasses: *o tarate o tonak-ika* [< 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 Tobelo folk classification allows the system to reunite two biologically closely related species, one of which happens to be a 'vine' and one a 'tree':

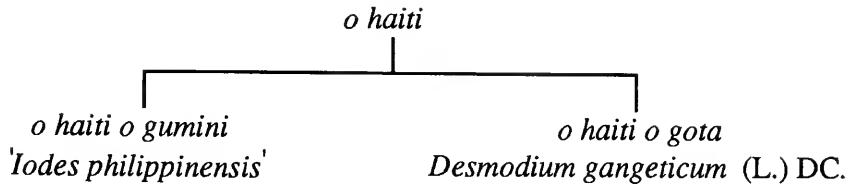


Note that in this case the endocentric phrases meaning 'good *rukiti*' and 'bad *rukiti*' are synonymous with the phrases 'vine *rukiti*' and 'tree *rukiti*.' This is further confirmation that *o rukiti₁*, the superclass containing both 'vine' and 'tree' forms, is the basic term, because the endocentric 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 a common 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 former is of the family Flagellariaceae, the latter of the Orchidaceae (cf. also Appendix 1.1, e.g., *o tutulaka* (Orchidaceae, ?Euphorbiaceae), *o guleulá* (Acanthaceae, Euphorbiaceae), *o haiti* (Leguminosae, 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 labeled *o haiti* (see diagram, facing page).

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*’) and the *o dodófo o gota* (‘tree *dodófo*’ (see Appendix 1.1)) 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; but when morphological similarity is clear and no evidence for such a cultural use is found, we do not need to invoke similarities of esoteric usage. Sometimes, also, the morphological similarity of the cross-cutting subclasses is implied in the basic term itself (e.g., *o tutulaka* in Appendix 1.1).

5.2.3.2 The ‘Mother’-‘Child’ Relation

Almost all Tobelo use the distinction between ‘mother’ (dialectally H: *ma leha*; B, D: *ma yeha*; or B: *ma ayo*) and ‘child’ (unmarked; or dialectally B, H: *ma ngohaka*, D: *ma ngofaka*) classes 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 Tobelo, even those at Dodaga village, were uniformly amazed that any plant could have a ‘mother’ form among the Tugutil, so it seems clear that for coastal Tobelo 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 to mean ‘mother’ and ‘child’ in the more normal sense of the progenitrix and her offspring. These two senses of the term ‘mother,’ however, do appear to be quite different lexemes labeled by the same forms. One of the three Tobelo 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 mainjanga ma ngofaka* ‘baby [child] deer’; its true mother is *ma ayo* (‘its mother’) or *o mainjanga 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’). 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. (Of course such usage would be “acceptable,” since all Tobelo dialects are “acceptable” to each other).

Even in the B (and perhaps also H) dialects, where both senses are labeled by the same form⁶, 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 animal, ‘as locally interpreted’ (for example, small adults of millipede species that 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. Thus a true mother (progenitrix) produces children “in her own image,” and yet also derives from the child she once was. Similarly, the ‘child’ class of FAUNAL FORM is presumed to derive from the (‘mother’) class of FAUNAL FORM by some transformation (other than reproduction); in turn, the ‘mother’ FAUNAL FORM produces the ‘child’ by some process like reproduction. The ‘child’ furthermore is smaller in size, though closely associated by some 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,’ ‘walking leaf,’ and ‘praying mantis’ insects (Phasmatidae and Mantidae; Tbl: *o peo-peoto*)



FIGURE 10 (above and right).—"Strangling figs" (*Ficus* spp.), an interesting case of a basic class cross-cutting B⁺¹ classes, and of dialectal differences in classification. The large *Ficus* trees such as those at right grow from vines that have strangled the trees they grew up encircling (see *Ficus* vine above). In B-dialect both forms are designated by the B⁰ term *o bobaharama*. The term *o bobaharama o gumini* 'vine *bobaharama*' labels the subclass above; *o bobaharama o gota* 'tree *bobaharama*' labels the subclass exemplified in the photo at right. Thus the B⁰ class *o bobaharama* cross-cuts the B⁺¹ classes *o gota* 'tree' and *o gumini* 'vine.' In D-dialect, by contrast, the 'vine' forms such as those above are known by a distinct basic term, *o gumiraga*; only the 'tree' forms are properly called *o bobaharama*. Both dialects further subdivide the 'tree' forms into growth stages (see Appendix 1.1). Tobelo generally do not consider the 'tree' forms to have developed out of the 'vine' forms.



locally thought to derive from twigs of trees; or the *o babanga* (*Rhizophora* sp.) mangrove whose long fruits, falling into shallow tidal mangrove zones, are thought 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 (5.2.3.1). 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



FIGURE 11.—In some cases the distinction between 'mother' and 'child' FAUNAL FORMS is associated with the idea that 'mother' produces 'child,' or that some individuals of the 'child' class become 'mother.' In cases such as that of the "walking leaf insect" (Phasmatidae) illustrated here, however, part of a FLORAL FORM (leaves of trees) is presumed to have produced the FAUNAL FORM (a 'walking leaf insect,' Tbl: *o peo-peoto*). The transformation is recognized, yet no classificatory relationship is posited or lexicalized, and no plant class is considered the 'mother' form. See discussion (5.2.3.2); the range of the B⁰ term *o peo-peoto* is given in Appendix 2.5.

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 (B⁰) terms; the fourth example below involves a B⁰ 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. It is interesting that, even though folk biological classification in general is thought to have been laid down by "The Elders" (2.3), this particular area of mother-child relations seems to be more directly tied to

observation. Tobelo 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 'mother'-'child' relation in the abstract), and back up that statement with personal experience. I even observed one Tobelo 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 that Holothurian is split open, long, tiny slivers of material come out of the sea cucumber into the water that (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 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 Tobelo as a 'child'-'mother' relation. In fact, I could scarcely believe—but confirmed beyond doubt—that in 1978 at Loleba village (as probably also throughout Tobelo regions of Halmahera), the 'caterpillar' (*o pipiti*, a term apparently used there only for Lepidopteran larvae) was 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. And yet, in a reaction reminiscent of occurrences in Western science, they seemed generally reluctant to abandon centuries of wisdom and observation on the basis of evidence from an isolated occurrence under admittedly unnatural conditions.

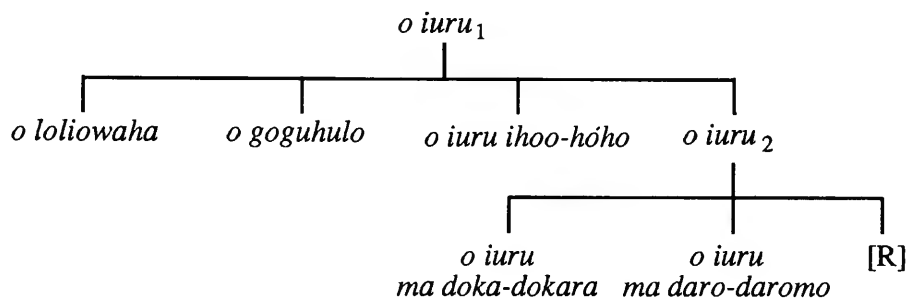
In all cases of this opposition in the FAUNAL FORM domain, the 'child' form is unmarked, and here designated only by the class's unmarked term (without the emphatic *ma ngohaka* 'child,' which may optionally be used to disambiguate

this unmarked class).

- (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-hoho* 'flying ant' (B-dialect; other dialects have cognate forms), and denotes those winged ants (possibly *Monomorium* spp.; specimens not yet identified) that swarm in droves to kerosene lamps during Halmahera's rainy nights. 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 iuru₂* 'tiny ant') recognizable as a class because it in turn has two lexemically labeled subclasses, in addition to the "residue" (labeled below by "R") of the class (biological identifications for specimens taken are not yet available).



Except for the 'flying ant' (*o iuru ihoo-hoho*), for which only that single form is known, all of these sub-classes of 'ant' (*o iuru₁*) 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 Tobelo 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 iuru₁* '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 iuru₁*. But it is sometimes difficult to know whether *o iuru ma ayo* involves *iuru₁* 'ant' or *iuru₂* (those 'ants' that are not in other named B⁻¹ classes).

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.'

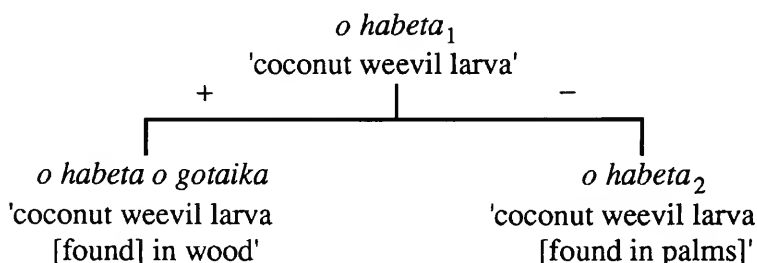
- (2) *o kane-kane* 'weaver ant' (unwinged forms of *Oecophylla smaragdina* Fabr.)
- o kane-kane ma ayo* 'weaver ant's mother (winged form)' (winged forms of *Oecophylla smaragdina* Fabr.)

These culturally useless winged ('mother') forms can sometimes be found independently of the weaver ants' nests (which anyone would be foolish to search through braving these creatures' stinging bites), and are recognized by their generally similar morphology despite the larger size and wings of the 'mother.'

- (3) *o habeta* '(larvae of) large weevil, esp. coconut weevil'
- o habeta ma ayo* '(adult) large weevil, esp. coconut weevil'

The edible coconut weevil 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). Tobelo 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). Some weevil larvae are not considered

edible, however. As a rule of thumb Tobelo 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 B⁰ *o habeta*₁:



Unlike those of 'ants,' Tobelo 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 megalops stage of a crab; specimens not yet identified)

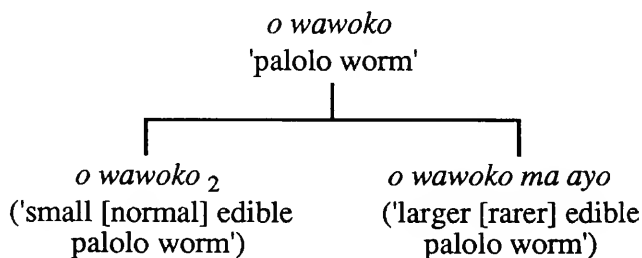
The B⁰ term *o nikere* designates a subclass of 'fish' (*o nawoko*); but its 'mother' form, alternatively designated *o kapunane*, is a subclass of 'crab' (*o koru*). Since evidence has been presented (5.1.1) that 'crab' is a basic term, it follows that this *o kapunane* or *o nikere ma ayo* subclass must be a B⁻¹ term.

These two classes may be considered '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 Tobelo.

- (5) *o wawoko*₂ '(smaller) palolo worm' (a small marine polychaete worm that predictably comes to shore in large numbers once or twice a year)
*o wawoko*₂ *ma ayo* '(larger) palolo worm' (a much larger marine polychaete worm always observed with the seasonal arrival of *o wawoko*).

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., at Bobale Island (Kao District), and 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

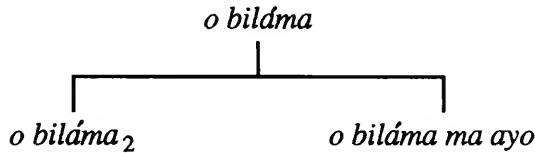
on reproduction of the 'child' from the 'mother,' but again assume the 'mother' must have derived in some way from the much smaller 'child' with which it is clearly associated. Here (and in the next three examples) 'mother' and 'child' are subclasses of the B⁰ class having the same form as the unmarked ('child') subclass (glosses are in parentheses for lack of data on the organisms involved):



- (6) *o bilama*₂ '(small) elongated bioluminescent centipede'
*o bilama*₂ *ma ayo* '(large) elongated bioluminescent centipede'

Both the 'child' and 'mother' forms are highly elongated, bioluminescent centipedes. The minimally- or non-bioluminescent common 'centipedes' (*o aili*) contrast with *o bilama*₁ 'bioluminescent centipede' as B⁰ subclasses of *o aewani*₂ 'mere animal.' Length relative to diameter of the body appears to be a further feature distinguishing these two myriapod types. Also, note that common 'centipedes' (*o aili*) are 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 Tobelo 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), while the ‘bioluminescent centipede’ (*o bilama*) is apparently thought to undergo some other kind of transformation such that some but not all ‘child’ forms (*o bilama₂*) become the rarer large ‘mother’ variety. Both ‘child’ and ‘mother’ forms are B⁻¹ terms labeling the only subdivisions of the B⁰ class *o bilama₁*:

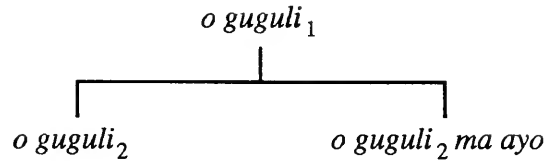


- (7) *o danganga₂* ‘thin-bodied rice bug’ (several species of thin-bodied Hemiptera often found on rice plants)
- o danganga₂ ma ayo* ‘thick-bodied rice bug’ (several species of thick-bodied Hemiptera often found on rice plants)

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, even though they clearly are not rice pests. In this case I found no evidence of any belief that the *danganga₂* “became” or “transformed into” its ‘mother’ form, although the two morphologically similar types of organism were always associated in their seasonal appearance at rice fields. Both forms are subclasses of the B⁰ *danganga₁* class of ‘mere animal’ (*o aewani₂*).

- (8) *o guguli₂* ‘(small) turreted gastropod’
- o guguli₂ 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 Tobelo 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’:



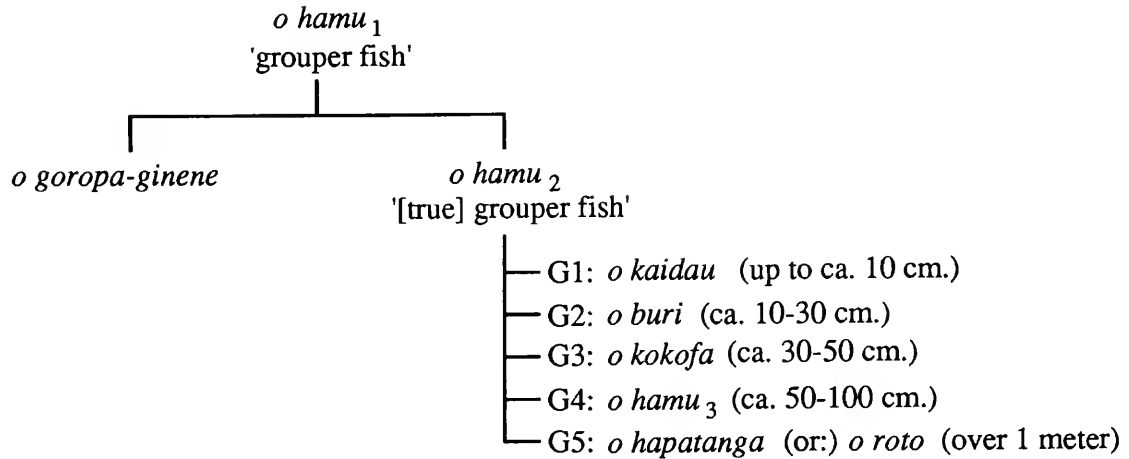
Though the ‘mother’ forms are recognized as necessarily derived from the smaller *guguli₂* Tobelo realize that not all small turreted gastropods that survive will become ‘mother’ forms. In fact, there is a common belief that spines and projections on some gastropods (such as *Murex*) develop as the mollusk grows, so that even very small gastropods are considered ‘adult’ (but of course not ‘mother’) if they are quite covered with projections or spines. Such spiny-shelled organisms are ‘adults’ in the ‘child’-‘adult’ opposition but ‘children’ in the ‘child’-‘mother’ opposition. In most places *guguli₁* adequate to make into a good wind-calling trumpet are rare, and valuable if found. This fact, and the fact that so many *guguli₂* become adults without becoming the ‘mother’ form, may give credence to the notion of a special kind of transformation into the ‘mother’ form that 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* ‘coconut weevil 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 danganga* ‘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 that 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’); often the unmarked (‘child’) form is presumed to sometimes be transformed into the ‘mother’ form.

5.2.3.3 Growth Stages (Size Classes)

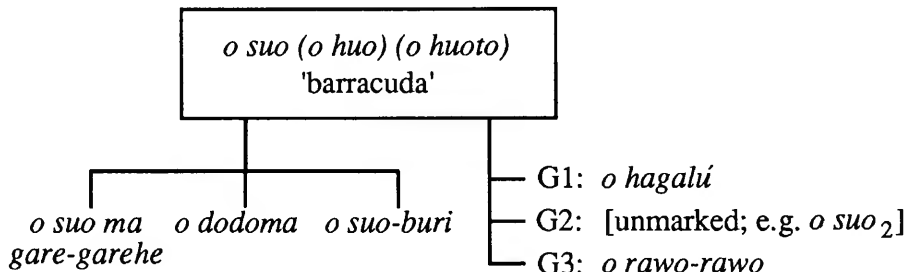
Here we may briefly consider another type of contrast-set, which in every case subdivides a single subclass of the BIOTIC FORM domain (usually a basic class): the named growth stage or size class. Though I will here use “G1, G2, G3, etc.” to number these named Growth stages, “size class” seems a more appropriate term to use for some of them. Consider, for example, the size classes of ‘*o hamu₂* [true] grouper fish’ (Serranidae), diagrammed below. (The notations G1, G2, G3, etc., in the diagram below denote the smallest to largest size class; approximate total lengths are shown. See Appendix 2.3 for some species identifications.)



Tobelo 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, even though other species grow to become giant potential man-eaters. Thus Tobelo 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 that contrasts with a class containing the juveniles of those same large species as well as the adults of various smaller species.

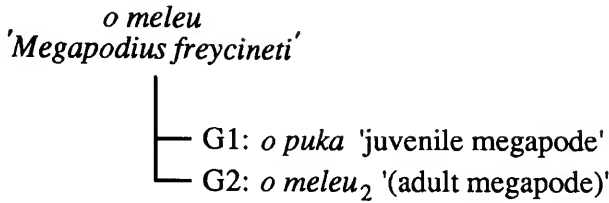
Several other 'fishes' have size classes rather like those of the 'grouper fish.' In some cases a basic class is subdivided into its regular taxonomic subclasses, and also subdivided into named size classes, as in the case of the 'barracuda' (alternatively: *o suo*, or *o huo*, or *o huoto*, see Appendix 2.3):



Thus any particular member of the three B^{-1} sub-classes 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 suo₂* could be used to designate any mid-sized barracuda (*suo₁*), or the term for one of the B^{-1} subclasses could be used. Thus the subclass labeled *o dodoma* has the following size classes: *o hagalu* (or: *o dodoma o hagalu*), *o dodoma₂* ('mid-sized *dodoma₁*'), and *o rawo-rawo* (or: *o dodoma o rawo-rawo*).

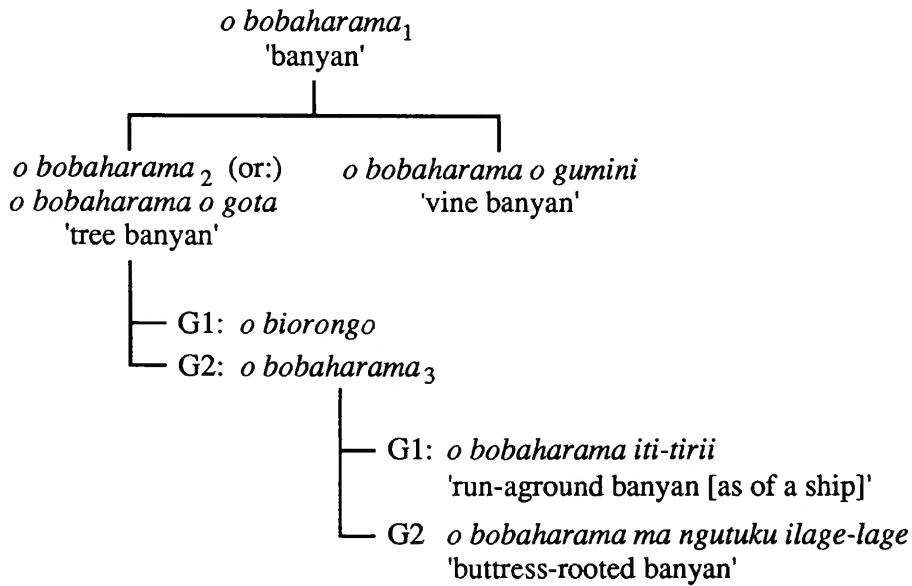
In some cases, such named stages can instead be more appropriately considered "growth stages," because not only are the members of the final growth-stage all expected to have grown through each stage, but also all the members of the first

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. The stages are: *o puka* (juvenile) and the unmarked *o meleu₂* (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 meleu₂* would normally be used). In the next diagram, G1 and G2 refer to growth stages.



All previous examples of growth stages or size classes have dealt only with FAUNAL FORMS. That is because several such series occur in that domain. There is only one, questionable example in the domain of FLORAL FORMS: the

problematic B⁰ class *o bobaharama* ('banyan,' several genera 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 (see diagram below).



Finally, the differences between such growth or size classes and subtaxa of any particular class of BIOTIC FORM should be emphasized:

1. As these examples have shown, the cultural presumptions about how two growth stages contrast are different from those held about the contrast between two subtaxa of a higher-level taxon. In the former case one stage is expected to become (or to have regularly been derived from) the other without major transformation other than simple growth (cf. mother-child relation, 5.2.3.2). 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*." If a fisherman returns after fish-poisoning or 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

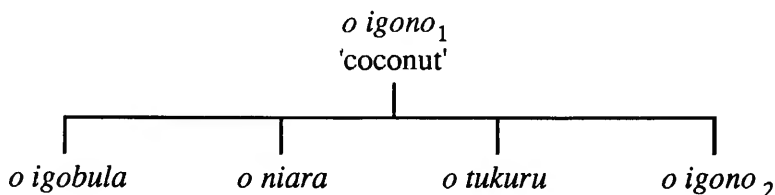
lexical realization, these examples illustrate that *goruo*₂ 'good mullet' is a labeled (not a covert) class. For each such example in which a class is subdivided into lexically labeled size or growth series I have found some cases in which the class is realized (albeit under restricted conditions as in the case of the *goruo*₂ 'good mullet'). For that reason, it has not been necessary to posit covert classes of BIOTIC FORM due to these commonly used growth or size series.

5.2.3.4 Intersecting Subclasses of a Folk Class

We have seen in the 'barracuda' example above that the series of three growth stages intersected the three sub-taxa, allowing nine (3 × 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. This is further evidence that the Tobelo prefer more "regular" mutually exclusive subtaxa (5.2.1.3.2). This exceptional case, however, involves one of the most culturally significant FLORAL FORM classes: *o igono* 'coconut palm.' There are several non-local varieties recently introduced to the North Moluccas, but these remain unknown to most Tobelo. Even in a copra-dependent village like Loleba, only a few locally successful (and locally considered indigenous) B⁻¹ varieties are known:



The B⁻¹ class *o igono*₂ (the coconut palm normally planted in the region) however, is commonly subdivided into a 'white' and 'red' subclasses (*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, Tobelo apparently cannot help but notice that both the 'red' and the 'white' *igono*₂ 'coconut palms' around them can be either 'male' or 'female.'

5.2.3.5 Folk Classes Posited without Ever Having Been Observed

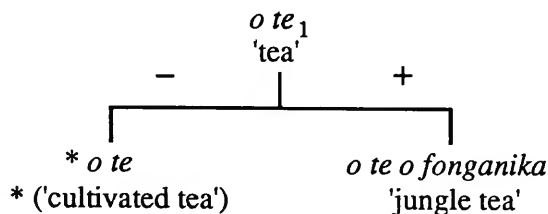
No Tobelo folk biologist presumes to completely know or to be able to name all the subclasses of the BIOTIC FORM domain. Each folk classifier is aware of the important fact that, despite the extent or complexity of his or her knowledge of folk classification, there are far more forms of plants and animals in the classifier's environment than he or she can adequately account for (or know the "name" of even at the basic level). This provides the context for otherwise scarcely tenable assumptions, such as the notion that FAUNAL and FLORAL FORMS "all" 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 that are presumed to exist, but have never been observed. An individual Tobelo may

become aware of a new variety of a familiar class; if that new variety is said to be 'male' he may surmise that the familiar one must be 'female.' Or occasionally he may discover an esoteric dual structural position relating one of a pair of familiar classes to the other (5.2.2.4). Such experiences reinforce the presumption that any individual's knowledge about folk classification could 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 Tobelo 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 laid down by The Elders. (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. In such cases, the classificatory structure includes a posited class even though 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 Tobelo region or because the class is assumed to contain no members. An example of the first case is the B⁰ class 'tea' (*o te*). 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 posited 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 that 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) Tobelo uses the nomenclatural device of reduplication of the basic term to indicate that the class so designated has some feature similar to the class labeled by the non-reduplicated term. Thus, for example, the 'herbaceous weed' labeled *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 labeled *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.' 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'), Tobelo 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 Tobelo elder insisted "there is no female sugar.cane-sugar.cane," she 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 (posited) class of female *uga-ugaka*, about which she and the

others had been talking, has no known members. In short, there must be a 'female' counterpart (though admittedly without any members that have ever been observed) in the classificatory structure.

The interpretation offered here seems to be another case of the Tobelo 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. In this case, they even extend those same principles of classification for positing as-yet-unobserved classes of FAUNAL or FLO-RAL 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 Tobelo 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 descendants.

That system of folk classification has here been described by positing a culturally relevant covert domain of BIOTIC FORMS. That domain's covert and labeled subclasses were examined 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 Tobelo thus have an array of potential structural relations among classes, and of linguistic representations ("names") for those classes. They also have many local presumptions about the origins, usage, and transmission of "proper" Tobelo folk classification; and they have a large local choice of contrasting features on which to sub-divide "basic" classes ('male' vs. 'female,' 'good' vs. 'bad,' color, habitat, etc.). Individual Tobelo (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.

Appendix 1

The Tobelo Classification of FLORAL FORMS

A1.0 Introduction and Explanation of Symbols

This appendix records information about the 689 Tobelo basic classes of FLORAL FORM (labeled by 746 basic terms) and their subclasses totaling 1122 terminal classes (labeled by 1517 total terms). (Of course this tally of terms excludes the 4 terms above the basic level.) In addition to those listed here, several dozen "loose terms" that are recognized as plant names or probably plant names by Tobelo 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 "loose 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 ten "basic" types cultivated at Loleba and Pasir Putih, though it might be greatly expanded with other introduced decorative cultigens from throughout Halmahera.

This appendix thus summarizes data on (1) B⁺¹ class membership, (2) B⁰ and B⁻ classes, listed alphabetically by one of the basic terms (the "citation term") that designates each basic class, (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

Symbol	B ⁺¹ class	B ⁰ classes	B ⁰ terms	Terminal classes	Terms (total)
O(B)	BAMBOO	10	10	13	16
O(F)	DECORATIVE FLOWER	10	11	12	15
O(G)	GRAIN	3	3	3	3
O(P)	PANDAN	5	5	5	5
O(-)	(no posited B ⁺¹ unlabeled class)				

Each basic class whose subclasses cross-cut these B⁺¹ groups (see 5.2.3.1) 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, basic terms, terminal classes,

lower-case letters, in the far left column of each entry. The abbreviations used are indicated below:

H,h	'herbaceous weed' (<i>o rurúbu</i>)
O,o	(Other) (not a subclass of any named B ⁺¹ class)
T,t	'tree' (<i>o gota</i>)
V,v	'vine' (<i>o gumini</i>)

The following tabulations will summarize data on each of these subclasses of FLORAL FORM. Totals shown for each B⁺¹ class include (1) the number of basic (B⁰) classes (thus there are 88 basic classes of 'vine'); (2) the number of basic terms (thus those 88 vine classes are labeled by a total of 96 terms, some of which must be considered synonyms of others); (3) the total number of terminal classes; and (4) the total number of terms (lexemes) that occur within that domain (this figure also counts separately two lexemes having the same form, such as the separate senses of the same term in cases of markedness).

B ⁺¹ class	B ⁰ classes	B ⁰ term	Terminal classes	Terms (total)
T	315	341	435	579
H	115	123	152	199
O	87	97	210	278
V	88	96	118	158

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):

and total terms are again indicated at right). Note that the common and highly subdivided basic class 'rice' (*o pine*) is listed in the next tabulation rather than above under "GRAIN" because it 'cross-cuts' GRAIN and 'herbaceous weed.'

Symbol	B ⁺¹ Class	B ⁰ Classes	B ⁰ Terms	Terminal classes	Terms (total)
HxV	'herbaceous weed' and 'vine'	2	2	4	6
TxH	'tree' and 'herbaceous weed'	5	6	13	23
TxV	'tree' and 'vine'	21	21	47	82
VxO(-)	'vine' and "other"	1	1	2	4
HxO(-)	'herbaceous weed' and "other"	3	4	10	21
HxO(G)	'herbaceous weed' and GRAIN	1	1	18	21
VxHxO	'vine' and 'herbaceous weed' and "other"	2	2	7	10
TxHxV	'tree' and 'herbaceous weed' and 'vine'	1	1	5	7

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 B⁺¹ class membership (see 5.2.2.3) is indicated

by an equal sign (=) between symbols for the B⁺¹ classes (numbers in the "B⁰ column" again indicate the number of B⁰ terms having this characteristic):

Symbol	B ⁺¹ Class	B ⁰ Classes	B ⁰ Terms	Terminal classes	Terms (total)
T=H	either 'tree' or 'herbaceous weed'	4	4	6	8
H=O(-)	either 'herbaceous weed' or "other"	2	2	6	10
H=O(F)	either 'herbaceous weed' or DECORATIVE FLOWER	1	1	1	1
T=O	either 'tree' or "other"	2	2	5	8

Note that all basic (B⁰) and all B⁻ classes listed above are treated as having only one structural position. Those very few classes, which clearly have widely known dual structural positions as B⁰ classes labeled by one term and B⁻ classes labeled by another (see 5.2.2.4), are here counted and listed only as B⁻ classes, though notation of the B⁰ alternative is made in each case (e.g., *o gohora* 'nutmeg'). "Esoteric" and idiosyncratic cases of such dual structural positions (5.2.1.3) are not recorded here.

By this method of counting, as noted at the beginning of this Appendix, the total numbers of classes and terms in the FLORAL FORM domain, at the basic level and below, are

B ⁰ classes	B ⁰ terms	Terminal classes	Terms (total)
689	746	1122	1517

2. B⁰ and B⁻ Classes and Their Labels

Basic (B⁰) terms are alphabetically listed as the main entry immediately to the right of B⁺¹ class symbols, which appear at the left margin; B⁻¹ terms appear at the first indent; B⁻² terms appear at the second indent; B⁻³ terms appear at the third indent; and, finally, B⁻⁴ terms appear at the fourth indent. One

term (either the most common or, where borrowed terms are commonly used as synonyms, that term locally thought to be "original" Tobelo) has been chosen as the citation-form for each class, and its synonyms are 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).

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 that may optionally be appended to the unmarked subclass to disambiguate it from the higher-level class are here enclosed in parentheses; thus the 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)

Eng	English
Ind	Indonesian ("standard" Indonesian)
NMM	"North Moluccan Malay" (<i>Melayu pasar</i> of Maluku Utara)
Pagu	Pagu
Tbl	Tobelo (= "Tobelorese")
B (or Tbl-B)	Boeng dialect of Tobelo
D (or Tbl-D)	Dodinga dialect of Tobelo
H (or Tbl-H)	Heleworuru dialect of Tobelo (Huet- ing's "genuine Tobelo")
Tbr	Tabaru
Tdr	Tidorese
Tte	Ternatense

(Where unmarked subclasses have the same form as their super-class, 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 the following:

.	(period) used between words in glosses to indicate that more than one English word is used to translate one Tobelo word or morpheme; e.g., <i>una-ika hoikohi</i> '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 Tobelo morphemes, and in Tbl terms to separate morphemes; thus, e.g., <i>mi-oik-oka</i> '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., <i>ho-ma-ohiki</i> '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, <i>quod vide</i>) 'which should be seen (under entry for that term)'; e.g., <i>babanga</i> (q.v.) "see separate entry under basic term <i>babanga</i> ."

Abbreviations for languages and dialects are as follows:

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, Smithsonian Institution (Washington, D.C., USA)
HA	The Harvard University Herbaria (Herbarium of the Arnold Arboretum, Farlow Herbarium, Gray Herbarium) (Cambridge, Massachusetts, USA)

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 labeled by that folk class. The prefix of the field number distinguishes vouchers collected on my first (1977-1979) trip to the North Moluccas ("NM1") and my second (1980-1981) trip ("NM2"). (It is hoped that my own reference collection of herbarium sheets now temporarily stored at the Smithsonian Institution 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 Tobelo viewing drawings or photographs in
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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 Nusantara, 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 Tobelo 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.

A1.1 Tobelo FLORAL FORMS

- O *o abete* [SL] V [HA] *Uncaria* sp. (Nauclaceae)
- 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)] V [NM1-2059] [BO] *Borreria laevis* (Lam.) Grisb. (Rubiaceae) (but cf. other V numbers below)
- h - *o aerani (ma beka)* [P-EN] '(female) *aerani*' V [NM1-2478] [BO] *Hemigraphis bicolor* (Bl.) Hall. f. (Acanthaceae) [but cf. LD, same voucher:] *Strobilanthes* sp. (Acanthaceae)
- h + *o aerani ma nauru* [P-EN] 'male *aerani*' V [NM1-2494] [BO, LD] *Asclepias curassavica* L. (Asclepiadaceae)
- 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] *Microchites serpyllifolia* (Bl.) Kosterm. (Apocynaceae)
- 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 [NM1-2328] [US]
- Justicia* sp. (Acanthaceae)
- T *o akar-panki* [SL, but < NMM CD, 'bat's-root'] V [BO] *Allophylus cobbe* Raeusch. (Sapindaceae)
- T *o aluo* [SL] V [HA] *Mallotus* sp. (Euphorbiaceae)
- T *o amo* [SL, cf. Ind & NMM *amo*] 'breadfruit' Ph: *Artocarpus* sp. or spp. (Moraceae) (both subclasses)
- t - *o amo* '(cultivated) breadfruit' Ph: *Artocarpus* sp. (uncoll.) (Moraceae)
- t + *o amo o fonganika* 'jungle breadfruit' (uncoll.)
- T *o asang-jawa* (or) *o asam-jawa* [SL, but < Ind & NMM CD 'Javanese tamarind'] 'tamarind' Ph: *Tamarindus indica* L. (Leguminosae)
- 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. (Flacourtiaceae)
- t ~ *o atebehi ma dubo itoka-tokara* [P-EN] 'atebehi with red growth-point' V [BO] *Homalium foetidum* Benth. (Flacourtiaceae)
- T *o ategou* [SL, possibly < Tte CD, cf. Tte *hate* 'tree'] V [BO] *Desmodium umbellatum* DC. (Leguminosae)
- T *o atejawa* [SL, but < Tte CD; *hate* (Tte) 'tree' + *jawa* 'Java(nese)'; 'Javanese tree'] (uncoll.)
- T *o au* [SL] (uncoll.)
- O(B) *o auloto* [SL] V [BO] *Gigantochloa atter* (Hassk.) Kurz ex Munro. (Gramineae) (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* [(Tbl-B) 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)] [cf. Tbl-D form:] *o awunu ma dodogumu* (same etymology) V [BO, LD] *Ageratum conyzoides* L. (Compositae)
- T *o aunu ma giliro* [(Tbl-B) CD-EN, < 'blood' + poss. + abstract n of vb -*kiliro* '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* [(Tbl-B, Tbl-D) SL] V [BO] *Koordersiodendron pinnatum* (Blanco) Merr. (Anacardiaceae)
- 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] *Syzygium* sp. (Myrtaceae)
- T *o baacai* [SL, cf. NMM & Ind *balacai*]
- t ~ *o baacai ma doka-dokara* [P-EN] 'red *baacai*' V [BO, LD] *Ricinus communis* L. (Euphorbiaceae)

- t ~ *o baacai ma gare-garehe* [P-EN] 'white *baacai*' V [NM1-2211, NM1-2801] det. not avail.
- T *o babanga* [SL]
- t - *o babanga (ma beka)* [P-EN] '(female) *babanga*' V [BO] *Rhizophora apiculata* Bl. (Rhizophoraceae)
- t + *o babanga ma nauru* [P-EN] 'male *babanga*' V [HA] *Bruguiera gymnorrhiza* (L.) Lam. (Rhizophoraceae)
- O(-) *o baburu* [SL] V [BO] *Arundo donax* L. (Gramineae)
- H *o badaewa* [SL] V [NM1-2656] 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*' V [HA] *Boerhavia diffusa* L. (Nyctaginaceae)
- h + *o bae-bae ma dorou* [P-EN] 'bad *bae-bae*' V [BO] *Lindernia crustacea* (L.) F.v.M. (Scrophulariaceae)
- T *o bafása* [SL] (or) *o bafesa* [SL] (or) *o gayoko* [SL]
- t ~ *o bafása ma doka-dokara* [P-EN] 'red *bafása*' (uncoll.)
- t ~ *o bafása ma gare-garehe* [P-EN] 'white *bafása*' V [NM1-2679] det. not avail.
- H *o bahi-bahi* (or) *o bahi-bahihi* [both SL, but < CX?] V [BO] *Dendrophthoe pentandra* (L.) Bl. (Loranthaceae)
- H *o balakama* [SL] V [NM1-2397] det. not avail.
- H *o balákang-babiji* [SL, but < NMM CD '(its) back has seeds,' a reference to seeds on "backs" (undersides) of leafy branches]
- *o balákang-babiji (ma beka)* [P-EN] '(female) *balakang-babiji*' V [BO] *Phyllanthus urinaria* L. (Euphorbiaceae)
- + *o balákang-babiji ma nauru* [P-EN] 'male *balákang-babiji*' V [NM1-2498] no det. avail.
- T *o balíbi* [SL; cf. NMM *balimbing*]
- t *o balíbi ihuo-huoto* [P-EN] 'pointed *balíbi*' (a reference to the elongated fruits of this cultigen) V [BO] *Averrhoa bilimbi* L. (Averrhoaceae)
- t *o felehekú* [D; cf. B: *o helehekú*] [SL, ?< Dutch *fles* or *flesje* 'flask'; 'bottle, esp. old gin-bottle' (a reference to the fact that the fruits are shaped like Dutch gin bottles)] V [HA] *Averrhoa carambola* L. (Averrhoaceae)
- T *o balontas* [SL] V [LD] *Pluchea indica* Less. (Compositae)
- 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 [NM1-2336] [BO] *Plectromia* sp. [but cf. LD] *Canthium* sp. (Rubiaceae)
- 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 [NM1-2500] [BO] *Plectronia* sp. (Rubiaceae) [but cf. NM2-0399] [HA] *Memecylon* sp. (Memecylaceae)
- O(-) *o bangilée* (B; cf. D: *o bangilé*) [SL, < Ind *bangle*] V [NM1-2212, NM1-2873] det. not avail. (Zingiberaceae) Ph: *Zingiber cassumunar* Roxb. (Zingiberaceae)
- T *o baru* [SL] (uncoll.) Ph: *Hibiscus tiliaceus* L. (Malvaceae)
- 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) (Palmae)
- 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. (Euphorbiaceae)
- O(-) *o bawanga* [SL, cf. Ind *bawang*] 'onion' (uncoll.)
- o(-) *o bawanga ma gare-garehe* [P-EN] 'white onion' PT: *Allium cepa* L. (Alliaceae)
- o(-) *o bawanga ma doka-dokara* [P-EN] 'red onion' PT: *Allium ascalonicum* L. (Alliaceae)
- 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 [NM1-2348, NM1-2775] det. not avail.
- h + *o bawa-bawanga ma nauru* [P-EN] male *bawa-bawanga*' V [BO] *Pancreatium zeylanicum* L. (Amaryllidaceae)
- HxO *o baya* [SL] (or, occasionally:) *o bayam* [SL, cf. NMM *bayam* '*Amaranthus* spp.']
- o - *o baya (ma oa)* [P-EN] 'good *baya*'
- o + *o baya-manado* [CD-EN, *baya* + *manado* 'Manado (city in North Sulawesi)'; 'Manado *baya*'] (uncoll.)
- o - *o baya* [SL]
- o ~ *o baya ma gare-garehe* [P-EN] 'white *baya*' V [BO] *Amaranthus hybridus* L. (Amaranthaceae)
- o ~ *o baya ma doka-dokara* [P-EN] 'red *baya*' V [HA] *Amaranthus tricolor* L. (Amaranthaceae)
- h + *o baya ma dorou* [P-EN] 'bad *baya*' V [BO] *Celosia argentea* L. (Amaranthaceae)
- h + *o mainjanga ma bayam* [CD-EN, 'deer' + poss. + *baya* (or) *baya* (q.v.); 'deer's *baya*'] Note: this term and those of its subclasses obtained only at Kampung Wari, Tobelo District (Tbl-H dialect).
- *o mainjanga ma bayam (ma oa)* [P-EN] '(good) *mainjanga ma bayam*' (or) *o mainjanga ma bayam ma gare-garehe* [P-EN] 'white *mainjanga ma bayam*' V [NM2-0664] [HA]

- Heliotropium indicum* L. (Boraginaceae)
 + *o mainjanga ma bayam ma dorou* [P-EN] 'bad mainjanga ma bayam' (or) *o mainjanga ma bayam ma doka-dokara* [P-EN] 'red mainjanga ma bayam' V [NM2-0670] [HA] *Amaranthus spinosus* L. (Amaranthaceae)
- V *o beka* [SL] V [NM1-2458] det. not avail.
 T *o bee ma giofiki* [apparently CD but CD parts unfamiliar at Kampung Pasir Putih] (uncoll.)
 T *o behelo* [SL] V [NM2-0501] (det. not avail.)
 V *o beka* [SL, cf. *beka* 'female' (etym.?)] V [NM1-2458, NM2-0333] det. not avail.
 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 biáwa* [SL] V [BO, LD, HA] (probably *o nyawa ma biáwa* subclass): *Donax canniformis* (B. Forst.) K. Schum. (Marantaceae)
 o + *o manjanga ma biáwa* [CD-EN, deer + poss. + *biáwa* (q.v.); 'deer's *biáwa*']
 o + *o ode ma biáwa* [CD-EN, pig + poss. + *biáwa*; 'pig's *biáwa*']
 o - *o biáwa* [SL] (or) *o nyawa ma biáwa* [CD-EN, human + poss. + *biáwa* (q.v.); 'human's *biáwa*']
 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* (Cycadaceae)
 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) (Rhizophoraceae)
 V *o bidoho* [SL] 'sirih-pepper' V [below] *Piper* spp. (Piperaceae)
 v + *o bidoho ma dorou* [P-EN] 'bad sirih-pepper'
 v ~ *o fongoro* [SL] V [BO] [NM1-2318] *Piper insignilimbun* (Spreng.) Merr. [but cf. NM1-2784] *Piper fragile* Benth. (Piperaceae)
 v ~ *o tokata ma bidoho* [CD-EN, ghost + poss. + sirih-pepper; 'ghost's sirih-pepper'] V [BO] *Piper caninum* Bl. (Piperaceae)
 v - *o bidoho (ma oa)* '(good) sirih-pepper' V [NM1-2114; subclass ?] det. not avail.
 v ~ *o fofúru* [CX, < vb -*fúru* '(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 [NM1-2264] det. not avail.
 v ~ *o kulawa* [SL] V [NM2-0350, NM2-0558] [HA] *Piper* sp. [cf. NM1-2343] det. not avail. (Piperaceae)
- v ~ *o wera* [SL] (uncoll.)
 H *o bidolika* [SL] V [BO] *Piper tomentosum* (a.u.) [cf. NM2-0387] [HA] *Piper* sp. (Piperaceae)
 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 [NM1-2621] [BO] *Timonius rufescens* Boerl. [but cf. LD] *Timonius timon* (Spreng.) Merr. (Rubiaceae)
 T *o biorongo* [SL] V [NM1-2235] det. not avail.
 H *o bira-bira* [CX, ?< Tbl-H *bira* 'husked rice' + redup. (etym.?)] V [NM2-0144] det. not avail.
 V *o biraro* [SL] (uncoll.) Ph: *Psophocarpus tetragonolobus* (L.) DC. (Leguminosae)
 T=H *o biru* [CX, < vb -*biru* '(to be) green (or) blue']
 t=h - *o biru (ma beka)* [P-EN] '(female) biru' V [BO] *Indigofera tinctoria* L. (Leguminosae)
 t=h + *o biru ma nauru* [P-EN] 'male biru' V [NM2-0223] [HA] *Tephrosia* sp. (Leguminosae)
 H *o bitunu* [SL] V [BO] *Tectaria crenata* Cav. (Aspidiaceae)
 O *o biworo* [SL] V [BO, HA] *Alpinia nutans* (L.) Rosc. (Zingiberaceae)
 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 [NM1-2128] det. not avail.; V [NM1-2611] [BO] *Prairiea papuana* Becc. (Moraceae) [but cf. LD] *Ficus* sp. (Moraceae)
 t - *o bobaharama (o gota)* [P] '(tree) bobaharama' V (Of seven vouchers, four [NM1-2245, NM2-0376, NM2-0397, NM2-0522] identified [by LD, HA] as *Ficus* sp. (Moraceae); others [NM1-2131, NM1-2235, NM1-2892] det. not avail.; each of these seven vouchers apparently of a different species)
 + G1: *o biorongo* [SL]
 - G2: *o bobaharama* [SL]
 G1: *o bobaharama iti-tirii* [P-EN, 'run-aground banyan (as of a ship)']
 G2: *o bobaharama ma ngutuku ilage-lage* [P-EN, 'buttress-rooted banyan']
 T *o bobahiha* [SL, ?< CX] V [BO] *Securinega flexuosa* M.A. (Euphorbiaceae)
 H *o bobarai* [SL, ?< CX] V [BO] *Cassia tora* L. (Leguminosae)
 VxT *o bobihingo* [SL, ?< CX]
 v + *o bobihingo ma dorou* [P-EN] 'bad bobihingo' (or) *o bobihingo o gumini* [P] 'vine bobihingo' V [NM1-2477] (lost)

t	- <i>o bobihingo (ma oa)</i> [P-EN] '(good) <i>bobihingo</i> ' (or) <i>o bobihingo (o gota)</i> '(tree) <i>bobihingo</i> ' V [NM1-2321] [BO] <i>Aphania senegalensis</i> Radlk. (Sapindaceae) [but cf. NM1-2666] [BO] <i>Ormosia calavensis</i> Asaolo ex Blanco (Leguminosae)	o	- <i>o harangoto</i> [SL]
		o	- <i>o hawodá</i> [SL]
		o	- <i>o hitadi</i> [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)]
T	<i>o bobobira</i> [CX, < vb -bobira 'to have pimples' + (redup.); 'having pimples'] V [NM1-2562] [BO] <i>Jussiaea suffruticosa</i> L. (Onagraceae) [but cf. LD] <i>Ludwigia octovalvis</i> (Jacq.) Raven (Onagraceae)	o	- <i>o jouronga</i> [SL]
		o	- <i>o kohutáa</i> [SL]
O	<i>o boboro</i> [SL] V [BO] <i>Nypa fruticans</i> Wurmbr. (Palmae)	o	+ <i>o kohutáa-galela</i> [CD-EN] 'Galela <i>kohutáa</i> '
		o	- <i>o kohutáa</i> [SL]
T	<i>o bobungekomo</i> [SL, ?< CX] (uncoll.)	o	<i>o kohutáa ma gare-garehe</i> [P-EN] 'white <i>kohutáa</i> '
O	<i>o boci</i> [SL] V [BO] 'peanut' <i>Arachis hypogaea</i> L. (Leguminosae) [Note: the Indonesian & NMM word for 'peanut' or 'bean,' <i>kacang</i> , is occasionally used in Tbl for the nut or rarely even the entire plant of this species (thus: <i>o kacang</i>); however, the latter term was borrowed with a different meaning in Tbl (see the 'vine' <i>o kacang</i> below).]	o	<i>o kohutáa ma doka-dokara</i> [P-EN] 'red <i>kohutáa</i> '
		o	- <i>o kokihua</i> [CX, < vb -kokihi 'to have an inflorescence (said of banana plants)' + -ua 'not'; 'not having an inflorescence'] 'horn plantain'
H=O	<i>o boki ma bikini</i> [CD-EN, 'cat' + poss. + 'tail'; cat's tail'] V [NM1-2297] (lost)	o	- <i>o kuho ma haeke</i> [CD-EN, < 'kus-kus' + poss. + 'head'; 'kus-kus's head']
H	<i>o boki ma gumú</i> [CD-EN, 'cat' + poss. + 'whiskers'; 'cat's whiskers'] V [BO, LD] <i>Orthosiphon aristatus</i> Miq. (Labiatae)	o	- <i>o leleko</i> [SL]
O(P)	<i>o bokumu</i> [SL] V [NM2-0422] [HA] <i>Pandanus</i> sp. (Pandanaceae) [cf. NM1-2864] det. not avail.	o	- <i>o memekana</i> [SL, '(bamboo) fishing-pole' (so called because this banana variety's fruits curve like a bamboo fishing-pole does)]
O	<i>o bole</i> [SL] 'banana' (uncoll.) PT: <i>Musa</i> spp. (Musaceae) (all subclasses)	o	- <i>o móraka</i> [SL]
o	+ <i>o bole ma dorou</i> [P-EN] 'bad banana' (or) <i>o bole o fonganika</i> [P-EN] 'jungle banana'	o	- <i>o ngoheka ma oa</i> [CD-EN, 'woman' + X + 'good'; 'good woman' (etym.?)]
o	- <i>o kokawahi</i> [SL] V [US] <i>Heliconia indica</i> Lam. (Heliconiaceae)	o	- <i>o ngowaro ma jiburu</i> [CD-EN, '?' + poss. + '(bamboo) shoot']
o	- <i>o popaya</i> [SL]	o	- <i>o pihanga</i> [SL, cf. Ind & NMM <i>pisang</i> 'banana']
o	- <i>o bole (ma oa)</i> [P-EN] '(good) banana'	o	- <i>o puungu</i> [SL]
o	- <i>o amarei</i> (B; cf. D: <i>o kilotini</i>) [both SL]	o	- <i>o raja</i> [SL, < Ind & NMM 'king']
o	- <i>o bacan</i> [SL] (or) <i>o mas-bacan</i> [SL, but < NMM <i>mas</i> (cf. Ind <i>emas</i>) 'gold' + <i>bacan</i> 'Bacan (Island)'; NMM 'Bacan gold']	o	- <i>o raja</i> [SL]
o	- <i>o bahuku ma otini</i> [CD-EN, axe + poss. + shaft; 'axe shaft']	o	+ <i>o raja ma gare-garehe</i> [P-EN] 'white raja' (B; cf. D: <i>o raja ma kafo-kafo</i> [P-EN] 'gray raja')
o	- <i>o bitoanga</i> [SL]	o	- <i>o susu</i> [SL, 'milk']
o	- <i>o bole-akere</i> [CD-EX, <i>bole</i> (q.v.) 'banana' + -akere '(to be) watery'; 'watery banana']	o	- <i>o takoapi</i> [SL, but < NMM CD-EX <i>tako</i> 'afraid of' + <i>api</i> 'fire'; NMM 'afraid of fire' (so called because this variety's fruits cook very quickly)]
o	- <i>o capato</i> [SL, < NMM <i>capato</i> 'shoe'] (B; cf. D: <i>o banda</i> [SL])	o	- <i>o taratibi</i> [SL]
o	- <i>o dukono</i> [SL]	T	<i>o bole ma gomú-gomuku</i> [CD-EN < banana X which.is.ripe; 'ripe banana (fruit)'] V [BO] <i>Sterculia rubiginosa</i> Vent. v. <i>rubiginosa</i> (Sterculiaceae)
o	- <i>o guguli</i> [SL, 'sea-shell trumpet']	V	<i>o bonata ma unafa</i> [CD-EN, < 'Tilapia fish' + poss. + 'scales'; 'Tilapia fish scales' (so called because of the similarity in shape between this vine's leaves and Tilapia fish scales)] V [NM1-2277] det. not avail.
o	- <i>o gugúnu</i> [SL] (sometimes designated by the NMM <i>pisang tambaga</i> 'copper/brass/bronze banana')		
o	- <i>o gumáa</i> [SL, 'fish hook']		
o	- <i>o halenawo</i> [SL]		
o	- <i>o hanape</i> [SL]		

- T *o bonata ma unafa* [CD-EN, < 'Tilapia fish' + poss. + 'scales'; 'Tilapia fish scales' (so called because of the similarity in shape between this tree's leaves and Tilapia fish scales)] V [BO] *Phyllanthus* sp. (Euphorbiaceae)
- H *o bongo-bongo* [SL, ? < CX] V [NM2-0214] det. not avail.
- T *o bongono* [SL, 'club for beating bark cloth'] (uncoll.)
- V *o bori* [SL] V [NM1-2261] det. not avail. [NM2-0089] det. not avail. (Menispermaceae)
- 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* Moench. (Malvaceae)
- o ~ *o botara ma doka-dokara* [P-EN] 'red botara' V [BO] *Hibiscus sabdariffa* L. (Malvaceae)
- O(G) *o boteme* [SL] (Ph of living specimen det. by H. Conklin:) 'Italian millet' *Setaria italica* (L.) Beauv.; V [NM2-0364, NM2-0565] [HA] *Setaria* sp. (Gramineae)
- T *o boulamó* [CD-EX, < *bou* (cf. *bounu* 'smell') + *-lamo* (cf. *-lamoko*) 'big, strong'; Tte? 'strong smell'] (or) *o behe* [SL, cf. NMM *bohe*] V [BO] *Anisoptera thurifera* (Blanco) Bl. (Dipterocarpaceae)
- t ~ *o boulamó ma gare-garehe* [P-EN] 'white boulamó'
- t ~ *o boulamó ma gogurati* [P-EN] 'yellow boulamó'
- T *o bua-járák* [SL, but < Ind CD *bua(h)* 'fruit' + '?'] 'castor oil plant' PT: *Ricinus communis* L. [cf. V below] (Euphorbiaceae)
- t ~ *o bua-járák ma doka-dokara* [P-EN] 'red bua-járák' V [BO] *Ricinus communis* L. (Euphorbiaceae)
- t ~ *o bua-járák ma gare-garehe* [P-EN] 'white bua-járák' (uncoll.)
- T *o bua-nó* [SL, but < Ind CD *bua(h)* 'fruit' + '?'] V [HA] *Crescentia cujete* L. (Bignoniaceae)
- T *o bua-nona* [SL, but < Ind CD *bua(h)* 'fruit' + '?'] V [BO] *Annona squamosa* L. (Annonaceae)
- O(G) *o buapo* [SL] V [NM2-0519] [HA] '*Sorghum series Sativium*' (Gramineae)
- V *o bua-putri* [SL, but < Ind CD *bua(h)* 'fruit' + *puteri* 'princess'; 'princess's fruit'] V [LD] *Passiflora foetida* L. (Passifloraceae)
- T *o bua-yakis* [SL, but < Ind CD *bua(h)* 'fruit' + *yakis* 'monkey'; Ind 'monkey fruit'] V [BO] *Anacardium occidentale* L. (Anacardiaceae)
- O(P) *o buho* [SL] V [LD] *Pandanus* sp. (Pandaneaceae)
- V *o buhuru ma ngongokutu* [CD-EN, 'abscess' + poss. + 'cover'; 'abscess covering' (i.e., poultice); term recorded at Pasir Putih (Tbl-D)] V [NM2-0511] [HA] *Cissampelos pariera* L. (Menispermaceae). Note: the following term for a B⁰ class of 'vine' (uncollected), may be synonymous. Recorded at Loleba (Tbl-B): *o buhuru ma dadamunu* [CD-EN, 'abscess' + poss. + 'cover' (agentive n < vb *-tamunu* 'cover'); 'abscess cover (i.e., poultice)']
- O *o buko-buko* [SL, ? < CX] V [NM2-0315, NM2-0642] [HA] *Hydnophytum* sp. (Rubiaceae) [but cf. NM2-0268, NM2-0317] [HA] *Myrmecodia* sp. (Rubiaceae) (all epiphytic plants on mangrove trees; lower stem greatly swollen and having cavities inhabited by ants)
- V *o bukuru* [SL] V [NM1-2295] [BO] *Dioscorea bulbifera* L. (Dioscoreaceae) [but cf. NM1-2358] det. not avail. (different species)
- T *o bukuwini* [SL] V [NM1-2881] 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. (Gramineae)
- O *o bunga-báyam* [SL, but < Ind & NMM CD: *bunga* 'flower' + *bayam* (cf. Tbl *baya*, q.v.) 'amaranth'; 'amaranth flower'] V [HA] *Celosia cristata* L. (Amaranthaceae)
- V *o bunga-biru* [SL, but < Ind CD 'blue flower'] 'butterfly bean' V [BO] *Clitoria ternatea* L. (Leguminosae)
- T *o bunga-biru* [SL, but < Ind CD 'blue flower'] V [BO] *Melastoma affine* D. Don. (Melastomataceae)
- H *o bunga-dára* [SL, but ? < Ind & NMM CD: *bunga* 'flower' + '?' (cf. NMM *dara* 'blood') (etym.?)]
- h - *o bunga-dára* [SL, as above]
- h - *o bunga-dára (ma beka)* [P-EN] '(female) bunga-dára' V [NM1-2466] [BO] *Lepidogathis* sp. (Acanthaceae) [but cf. LD, same voucher:] *Peristrophe* sp. (Acanthaceae)
- h + *o bunga-dára ma nauru* [P-EN] 'male bunga-dára' V [NM2-0258] [HA] det. not avail. (Acanthaceae)
- h + *o bunga-dára o gahika* [P-EN] 'shore bunga-dára' V [NM1-2075] [BO] *Clerodendrum inermis* (L.) Gaertn. (Verbenaceae)
- T *o bunga-haji* [SL, but < Ind CD 'flower' + *haji* '(person who has made the pilgrimage to Mecca)'; 'haji's flower'] V [BO] *Caesalpinia pulcherrima* (L.) Swartz (Leguminosae)
- O(F) *o bunga jam duablás* [SL, but < Ind CD 'twelve o'clock flower'] V [NM1-2349] det. not avail.
- O(F) *o bunga jam sembilan* [SL, but < Ind CD 'nine o'clock flower'] V [NM1-2826] det. not avail.
- V *o bunga-kartás* [SL, but < NMM CD 'paper flower'] PT: *Bougainvillea* sp. (Nyctaginaceae)
- V *o bunga-konóp* [SL, < NMM CD, 'flower' + 'button' (NMM *knóp* < Dutch *knoop* or *knop*); 'button flower'] V [NM1-2797] det. not avail.
- T *o bunga-mantega* [SL, but < NMM 'butter flower'] V [BO] *Allamanda cathartica* L. (Apocynaceae)

- O(F) *o bunga-pagi-sore* [SL, but < NMM 'morning-evening flower,' so called because its flowers open at those times of the day] V [HA] *Calliandra surinamensis* Benth. (Leguminosae)
- O(F) *o bunga-penesilln* [SL, but < Ind CD 'penicillin flower' (so called because of medicinal use of the sap for healing wounds)] V [NM1-2778] det. not avail.
- O(F) *o bunga-popohu* [SL, ?< NMM CD, 'flower' + '?'] V [BO] *Ipomoea fistulosa* Mart. ex Choisy (Convolvulaceae)
- O(F) *o bunga-pót* [SL, but < NMM or Ind CD 'pot(ted) flower']
- o(f) *~ o bunga-pót ma doka-dokara* [P-EN] 'red *bunga-pót*' ('redness' here refers to flower color only) V [BO] *Gomphrena globosa* L. (Amaranthaceae)
- o(f) *~ o bunga-pót ma gare-garehe* [P-EN] 'white *bunga-pót*' ('whiteness' here refers to flower color only) V [BO] *Gomphrena globosa* L. (Amaranthaceae)
- T *o bunga-rampa* [SL, but ?< NMM CD 'spice flower'] (or) *o bunga rampé* [SL, but ?< NMM CD 'flower' + '?'] V [BO] *Acacia farnesiana* (L.) Willd. (Leguminosae)
- O(F) *o bunga-saloi* [SL, but < NMM 'saloi (carrying-basket) flower' (so called because the flower shape resembles the Halmaheran "backpack"-type carrying baskets)] (or) *o kiarono* [SL; this is the Tbl translation of the NMM word *saloi* 'carrying-basket.' This term appears to be used only in the phrase *o bunga o kiarono* 'carrying-basket flower.' The phrase implies that the B⁰ word is *o kiarono*, however, and it must be listed as such. However, this phrase is so seldom used that I think it may have been invented for me, as a "correct" Tbl translation of the NMM term *bunga-saloi* commonly used as a Tbl word at Pasir Putih.] V [HA] *Ipomoea crassicaulis* (Benth.) B.L. Robinson (Convolvulaceae)
- O(F) *o bunga-tanjung* [SL, but < NMM CD 'cape flower'] V [BO or LD] (both subclasses, see below) *Catharanthus roseus* (L.) G. Don. (Apocynaceae)
- o(f) *o bunga-tanjung ma doka-dokara* [P-EN] 'red *bunga-tanjung*' V [BO, LD] *Catharanthus roseus* (L.) G. Don. (Apocynaceae)
- o(f) *o bunga-tanjung ma gare-garehe* [P-EN] 'white *bunga-tanjung*' V [LD] *Catharanthus roseus* (L.) G. Don. (Apocynaceae)
- T *o bunga-té* [SL, but < NMM or Ind CD 'flower' + 'tea'; 'tea flower'] V [BO] *Carmona retusa* (Vahl) Masamune (Ehretiaceae)
- H *o bunga-té* [SL, but < NMM or Ind CD 'flower' + 'tea'; 'tea flower'] V [NM1-2499] [BO] *Alternanthera ficoides* (L.) R. Br. ex R. & S. [but cf. LD] *Alternanthera bettzickiana* (Reg.) Nichols (Amaranthaceae)
- O(F) *o bunga-ular* [SL, but < NMM or Ind CD 'flower' + 'snake'; 'snake flower'] V [HA] *Sansevieria* sp. (Agavaceae)
- 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) (or) *o luri ma daluku* [CD-EN, same etym. as above, but Tbl *busu* is substituted by its NMM translation, *luri* (so called because of this parrot's habit of congregating where this vine's flowers are in bloom)] V [NM2-0327, NM2-0706] [HA] *Mucuna* sp. (Leguminosae)
- V *o cade-cade* [CX, < vb *-cade* 'to show off, call attention (to oneself)' + (redup.); 'show off']
- v *- o cade-cade (ma beka)* [P-EN] '(female) *cade-cade*' V [BO] *Acacia pluricapitata* Stend. (Leguminosae)
- v *+ o cade-cade ma nauru* [P-EN] 'male *cade-cade*' V [HA] *Croton hirtus* Hérit. (Euphorbiaceae)
- T *o capáka* [SL, cf. NMM & Ind *cempaka*]
- t *- o capáka* [SL] V [NM2-0346] [HA] *Plumeria* sp. (Apocynaceae)
- t *+ o capáka o fonganika* [P-EN] 'jungle *capáka*' V [BO] [NM1-2457] *Cerbera floribunda* K. Schum. (Apocynaceae) [but cf. NM1-2850] *Kopsia arborea* Bl.
- T *o cengke* [SL, cf. Ind & NMM *cengke(h)*] Ph, PT: *Syzygium aromaticum* Kuntze (Myrtaceae)
- 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] [NM1-2379] *Caesalpinia globulorum* Bakh. f. & van Royen (Leguminosae) [but cf. NM1-2786] *Centella asiatica* (L.) Urb.
- H *o cinga-cinga* [SL, ? < CX]
- h *- o cinga-cinga (ma oa)* [P-EN] '(good) *cinga-cinga*' V [US] *Wollastonia biflora* DC. (Compositae)
- h *+ o cinga-cinga ma dorou* [P-EN] 'bad *cinga-cinga*' V [NM2-0663] [HA] Note: Unfortunately two plants were accidentally mixed in this voucher; one (given no. NM2-0663) is *Eleutheranthera ruderalis* (Sw.) Sch.-Bip. (Compositae); the other is *Ageratum conyzoides* L. (Compositae)
- T *o dadaromo ma hohakai* [CD-EN, 'blackener' (< *-taromo* 'black' + agentive redup.) + poss. + 'thing used for cooking' (< *-hakai* + agentive redup.); '(plant) used to cook black dye'] V [BO, LD]

- Alchornea rugosa* Muell. (Euphorbiaceae)
- T=H *o dadatara* [SL, ? < CX] V [BO] *Cassia occidentalis* L. (Leguminosae)
- T *o dadayongo* [SL, ? < CX] (uncoll.)
- O *o daluku* [SL] (or:) *o hepata* [SL] Note on dialectal variants: *o daluku* used in Tbl-B and Tbl-D; Hueting (1908c:135) gives *o hepata* as the Tbl-H form. He elsewhere (1908c:53) states (apparently for Tbl-H) that *o daluku* refers to the palm-wine from this plant (as I know it does also in the other dialects), but that the latter word is sometimes used (presumably in Tbl-H) as a *hohono* (substitution word to avoid saying an in-law name) for the plant itself. V [BO] *Arenga pinnata* (Wurmb.) Merr. (Palmae)
- 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.))
- T *o dedoro* [SL] V [NM2-0413] [HA] *Kleinhovia hospita* L. [cf. also NM1-2144, det. not avail.; and NM1-2554, same voucher identified by BO as *Kleinhovia hospita* L. (Sterculiaceae) and by LD as *Hibiscus* sp. (Malvaceae)]
- T *o deri-derihi* [CX, < *derihi* 'cup/bowl made of fan-palm leaf' + redup.; 'rather like a cup/bowl made of fan-palm leaf' (name is said to refer to the leaf shape of this cultivated 'tree')] V [NM2-0250] det. not avail.
- VxT *o dia-dia* [SL, ? < CX]
- v + *o dia-dia o gumini* [P] 'vine *dia-dia*' V [BO] *Monarthrocarpus securiformis* Merr. (Leguminosae)
- t - *o dia-dia (o gota)* [P] '(tree) *dia-dia*' V [BO] *Pongamia pinnata* Merr. (Leguminosae)
- O *o diba* [SL] V [NM2-0442] det. not avail. (Palmae)
- T=H *o digo* [SL]
- t=h ~ *o digo ma beka* [P-EN] 'female *digo*' V [BO,LD] *Sida acuta* Burm. f. (Malvaceae)
- t=h ~ *o digo ma nauru* [P-EN] 'male *digo*' V [BO] *Sida rhombifolia* L. (Malvaceae)
- H *o digo ma gilaongo* [P-EN, *digo* (q.v.) 'Sida spp.' + poss. + 'servant'; 'digo's servant'] V [BO] *Pseudelephantopus spicatus* (Aubl.) C.F. Baker (Compositae)
- O *o dilago* [SL] (or) *o bete* [SL, cf. NMM *bete*]
- o + *o bete-balanda* [SL, < NMM CD *bete* (q.v.) 'Colocasia sp.' + 'Dutch'; 'Dutch *Colocasia*'] Ph,PT: *Xanthosoma* sp. (Araceae)
- o - *o dilago* [SL] (or) *o bete* [SL] Ph,PT: *Colocasia* sp. or spp. (Araceae)
- o *o beloho* [SL, 'stake'] (or) *o bete-beloho* [CD-EN, 'Colocasia' + 'stake'; 'stake-*Colocasia*']
- o *o cere* [SL, < NMM 'pitcher'] (or) *o bete-cere* [CD-EN] 'Colocasia'+ 'pitcher'; 'pitcher-*Colocasia*']
- o *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 B⁰ classes in D; classification shown here is for B dialect.)
- H *o dilago-bunga* [CD, indet. 'Colocasia' + 'flower'; '?'] V [NM1-2657] det. not avail.
- V *o diti-diti* [SL, ? < CX] V [BO] *Marsdenia tenacissima* W. et Arn. (Asclepiadaceae)
- V *o dobe-dobe* [CX, < n *dobe* '(a Dutch coin)' + (redup.); 'rather like a *dobe* (coin)' (so called because of leaves' resemblance to small coins)] V [NM1-2834] det. not avail.
- T *o dodataiti* [CX, < -*taiti* 'be fast, in a hurry' (etym.?)] (or) *o dataiti* [CX, < -*taiti* (as above)] V [NM2-0140, NM2-0641] [HA] *Claoxylon* sp. (Euphorbiaceae)
- t *o dodataiti ma beka* [P-EN] 'female *dodataiti*' V [NM1-2793] [BO] *Premna obtusa* (a.u.) [but cf. LD, same voucher:] *Clerodendrum* sp. (Verbenaceae)
- t *o dodataiti ma nauru* [P-EN] 'male *dodataiti*' V [NM1-2512, NM1-2836] 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. (Rubiaceae)
- T *o dodiha ma kobongo* [CD-EN, snake(s) + poss. + bone(s); 'snake's bones'] (or) *o dodiha ma kobokobongo* [CD-EN, snake(s) + poss. + bone(s) + (redup.); 'snake's bones' (emphasizing separate, individual bones by means of the reduplication) (both terms refer to leaf placement along this vine's stem)] V [BO] *Ipomoea quamoclit* L. (Convolvulaceae)
- VxT *o dodófo* [CX, agentive n < vb -*tófo* '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 B⁰ term in B dialect:] *o juróto* [SL] (Note: D dialect considers this only a B⁰ class labeled by the B⁰ alternative *o juroto*, thus not a subclass of *o dodófo*) (uncoll.)
- t *o dodófo o gota* [P] 'tree *dodófo*' [alternative B⁰ term in B dialect:] *o paiyongifi* [SL] (Note: D dialect considers this only a B⁰ class labeled either by *o dodófo* or by its synonym *o*

- paiyongifi*) V [NM1-2022] [BO] *Aglaiia elaeagnoides* Benth. (Meliaceae) [but cf. NM1-2201] [LD] *Dysoxylum* sp. (seedling)
- V *o dodopongono* [CX, n < vb -*topongono* 'hard of hearing'; 'deafener?' (etym.?)] V [HA] *Gymnopetalum chinense* (Lour.) Merr. (Cucurbitaceae)
- O *o dokoto* [SL] V [NM1-2027] [BO] *Daemonorops* or *Calamus* [cf. NM2-0403] det. not avail. (Palmae, seedling)
- T *o doo-dooyo* [probably CX, < *dooyo* '(a large crab)' + (redup.)] V [NM1-2035] [BO] *Cynometra ramiflora* L. (Leguminosae) [but cf. V NM1-2269 (det. not avail.), possibly different species]
- T *o dowora* [SL]
- t - *o dowora* [SL] (or) *o helehekú* [SL, '(Dutch) gin bottle'] (uncoll.)
- t + *o komene* [SL, a 'tree' type (q.v.)] V [NM1-2152] 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. (Leguminosae)
- 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, < *dugáya* '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 [NM1-2561] det. not avail.
- T *o duo-duono* [SL, but ?< CX]
- t *o duo-duono ma beka* [P-EN] 'female *duo-duono*' V [NM1-2839] det. not avail.
- t *o duo-duono ma nauru* [P-EN] 'male *duo-duono*' V [LD] *Dysoxylum* sp. (Meliaceae)
- T *o duriana* [SL, cf. Ind *durian*] (uncoll.) Ph, PT: *Durio zibethinus* Murr. (Bombacaceae)
- T *o efi-efi* [SL, cf. Malay *api-api*] V [HA] *Avicennia* sp. (Avicenniaceae)
- T *o eláka* [SL] V [BO, LD] *Lawsonia inermis* L. (Lythraceae)
- T *o fahihúku* [SL] (B; cf. D: *o fafisúku* [SL]; cf. also H: *o hahihúku* [SL]) V [NM1-2020] [BO] *Elattostachys zippeliana* Radlk. (Sapindaceae) [but cf. V NM1-2293 [BO] *Euphorianthus obtusa* Radlk. (LD) *Lepisanthes tetraphylla* Radlk.
- t *o fahihúku ma doka-dokara* [P-EN] 'red *fahihúku*'
- t *o fahihúku ma gare-garehe* [P-EN] 'white *fahihúku*' V [NM1-2738] [BO] *Elattostachys zippeliana* Radlk. [cf. NM2-0262] [HA] *Clausena* sp. (Rutaceae)
- t *o fafisúku ma daro-daromo* [P-EN] 'black *fafisuku*' (recorded only at Pasir Putih, thus Tbl-D form is used as citation-form for this subclass) V [HA] *Clausena excavata* Burm. (Rutaceae)
- 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 [NM1-2440] [BO] *Alangium griffithii* (Clarke) Harms (Alangiaceae) [but cf. V NM1-2132 (det. not avail.), different species]
- T *o fisa* [SL, cf. *fisa* (Tbl-D) 'bark cloth' (such cloth can be made from this tree)] V [NM2-0661] [HA] "probably *Artocarpus* sp. (Moraceae)"
- O *o forofiaha* [SL] V [BO, HA] *Riedelia* sp. (Zingiberaceae)
- H *o fuusu* [SL] V [NM2-0576] det. not avail. (Zingiberaceae)
- H *o gaaluri* [SL] V [BO] *Croton hirtus* L'Her. (Euphorbiaceae)
- T *o gaapaho* [SL] V [NM2-0169] det. not avail.
- T *o gacuaka ma inomo* [CD-EN, < *gacuaka* '*Hypsipetes affinis* (a bird)' + poss. + 'food'; 'food of *Hypsipetes affinis*'] V [NM1-2584] [HA] *Meliosoma pinnata* L. (Meliosmaceae)
- T *o gagawi* [CX, redup. + *-gawi* 'to call (by waving the arm)'; 'calling by waving the arm' (etym.?)] V [NM2-0363] det. not avail.
- VxT *o gagilamo* [CD-EX, < *gagini* '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 [NM1-2476] det. not avail.
- t - *o gagilamo (o gota)* [P] '(tree) *gagilamo*' V [BO] *Breynia cernua* (Poir.) M.A. (Euphorbiaceae)
- H *o gaguru* [SL]
- h + *o manjanga ma gaguru* [CD-EN] 'deer's *gaguru*' V [NM1-2034] [BO] *Sphenomeris retusa* (Cav.) Maxon (Lindsaeaceae) [but cf. V NM1-2203] [LD] *Thelypteris* sp. (Thelypteridaceae)
- h - *o gaguru* [SL]
- h + *o gaguru ma nauru* [P-EN] 'male *gaguru*' (or) *o gaguru ma dorou* [P-EN] 'bad *gaguru*' V [NM1-2006] [BO] *Cyclosorus* sp. (Thelypteridaceae) [but cf. V NM1-2250] [LD] *Davallia* sp. (Davallia)
- h - *o gaguru (ma beka)* [P-EN] '(female) *gaguru*' (or) *o gaguru (ma oa)* [P-EN] '(good) *gaguru*' V [BO] *Diplazium esculentum* SN. (Anthyriaceae)
- T *o gahi-gahi* [CX, < vb *-gahi* 'to be salty' + (redup.); 'salty'] V [NM1-2126, NM1-2599] det. not avail.

- T *o galála* [SL] (or) *o ngoóá* [SL?] V [LD] *Erythrina* sp. (Leguminosae)
- H *o gambináha* [SL, but < Tte CD, cf. Tte *gam* 'town, village' + Tbl *-bináha* 'destroy' (cf. Tte, NMM *binasa*); 'destroys town' (folk etymology alludes to a presumed war medicine made using this plant)] V [NM1-2610] [BO] *Pogonatherum paniceum* (Lamk.) Hack. (Graminae) [but cf. LD] *Pogonatherum crinitium* (Thunb.) Kunth (Graminae)
- T *o gamonua* [SL] V [NM1-2736] [BO] *Litsea* sp. (Lauraceae)
- t *o gamonua ma nauru* [P-EN] 'male *gamonua*' (or) *o gamonua ma hoka ma guru-gurutu* [P-EN] 'long-leafed *gamonua*' V [NM1-2807] det. not avail.
- t *o gamonua ma beka* [P-EN] 'female *gamonua* (or) *o gamonua ma hoka ma do-dipóko* [P-EN] 'short-leafed *gamonua*' V [NM2-0193] det. not avail.
- T *o gamuráma* [SL] V [NM1-2320, NM2-0188] det. not avail.
- H *o gandaruha* [SL] (or) *o gandarusa* [SL] V [NM2-0368] [HA] *Chloranthus* sp. (Chloranthaceae) [cf. NM1-2528] det. not avail.
- H *o ganyimo ma rurubu* [CD-EN, '?' + poss. + rurubu 'herbaceous weed' V [NM1-2581] (lost)
- T *o gapáha* [SL] V [NM1-2346] det. not avail.
- H *o gare-garehe* [CX, participle from vb *-arehe* 'white'; 'white'] V [BO] *Peperomia pellucida* (L.) H.B.K. (Peperomiaceae)
- V *o gari-gari* [CX, < vb *-ari* 'cry, crying'] V [NM1-2345] [BO] *Dioscorea triphylla* L. (Discoreaceae) [but cf. LD, same voucher:] *Dioscorea* cf. *cumingii* (Discoreaceae) [cf. NM2-0615] [HA] *Dioscorea* cf. *triloba* (a.u.) (Discoreaceae)
- T *o gawi* [SL] V [NM1-2140] det. not avail.
- T *o gemihi* [SL]
- t + *o gemihi ma beka* [P-EN] 'female *gemihi*' V [BO] *Glochidion philippicum* (Cav.) C.B. Rob. (Euphorbiaceae)
- 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. (Begoniaceae)
- 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] *Ophiorrhiza canescens* Bl. (Rubiaceae)
- T *o gihaoro* [SL] V [BO, HA] *Commersonia bartramia* (L.) Merr. (Sterculiaceae)
- O *o gihóro* [SL] 'ginger' V [NM1-2889] det. not avail. Ph: *Zingiber officinale* Roxb. (Zingiberaceae) (both subclasses)
- o *o gihóro ma doka-dokara* [P-EN] 'red *gihóro*, V [US] *Zingiber* sp. (Zingiberaceae)
- o *o gihóro ma gare-garehe* [P-EN] 'white *gihóro*'
- T *o gilitopa* [SL] (or) *o papaceda* [SL] V [US] *Scaevola taccada* (Gaert.) Roxb. (Goodeniaceae)
- T *o giwa-giwanga* [CX, < vb *-giwanga* 'to move about (in place)'; 'moving about (in place)'] V [NM1-2306] det. not avail.
- T *o gobiti* [SL] V [NM1-2503] [BO] *Baccaurea racemosa* (Reinw. ex Bl.) M.A. (Euphorbiaceae)
- t *o gobiti ma beka* [P-EN] 'female *gobiti*' V [NM2-0330] [HA] *Baccaurea* sp. (Euphorbiaceae)
- t *o gobiti ma nauru* [P-EN] 'male *gobiti*' V [NM2-0297] [HA] *Ryparosa* sp. (Flacourtiaceae)
- T *o gobu-gobu* [SL, but ?<CX] V [NM1-2096] 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 [NM1-2712, NM1-2720] det. not avail.
- T *o gofása* [SL, cf. NMM *gofása*] (Note: the B dialect subclass *o kufu-kufu* below is considered a B⁰ class in D, and in the latter dialect is not referred to as *o gofása ma dorou*. Other superordinate and subordinate class relations remain the same in both dialects.)
- t + *o gofása ma dorou* [P-EN, 'bad *gofása*'] (B; cf. B and D: *o kufu-kufu* [SL, but ?<CX] (B⁰ term (see note above regarding D dialect)
- t + *o kufu-kufu ma hoka ialu-aluhu* [P-EN] 'small-leaved *kufu-kufu*' V [BO] *Lagerstroemia ovalifolia* T. & B. (Lythraceae)
- t - *o kufu-kufu* [SL, but ?<CX]
- t + *o kufu-kufu ma beka* V [NM1-2568, NM2-0228] det. not avail.
- t - *o kufu-kufu ma nauru* V [BO] *Alangium villosum* (Bl.) Wangerin (Alangiaceae)
- t - *o gofasa (ma oa)* [P-EN] '(good) *gofasa*'
- t *o hakaru* [SL, 'stone'] (or) *o gofasa ma daro-daromo* [P-EN] 'black *gofasa*' (uncoll.)
- t *o utongo* [SL, 'sago leaf-stalk'] (or, occasionally:) *o gofasa-gaba* [SL, but clearly < NMM *gofasa gaba* 'sago leaf-stalk *gofasa*'] (or) *o gofasa ma gare-garehe* [P-EN] 'white *gofasa*' V [BO] *Vitex cofassus* Reins. ex Bl. (Verbenaceae)
- H *o gofosonyinga* [SL] V [NM1-2774] [BO] *Boerhavia mutabilis* R. Br. (Nyctaginaceae) [but cf. LD] *Boerhavia diffusa* L. (Nyctaginaceae)

- H *o gogerehi* [CX, < vb -gerehi '(a disease)' (etym.?)] V [BO] *Alternanthera sessilis* (L.) DC. R.Br. ex R. & S. (Amaranthaceae)
- H *o gogiooko* [CX, < vb -kioko 'to be drowsy'; 'drowsiness (or sleep) inducer' (so called because of this plant's medicinal use to keep babies asleep soundly)] V [NM1-2776] [BO] *Biophytum reinwardtii* (Zucc.) Klotzsch var. (Oxalidaceae) [but cf. LD] *Biophytum sensitivum* (L.) DC. (Oxalidaceae) [cf. also V NM1-2415, apparently same species as NM1-2776]
- H *o gogitifiri* [CX, < gitifiri 'fingernail, toenail' + redup.; 'having nails'] V [NM2-0572] [HA] det. not avail. (Zingiberaceae)
- 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 [NM1-2216] det. not avail.; Ph: *Syzygium malaccenses* L. (Myrtaceae)
- 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. (Barringtoniaceae)
- T *o gogowáya* [CX < gowáya (q.v.) '*Psidium guajava*' + (redup.); 'rather like a gowaya'] V [NM1-2539] [BO] *Garoinia* sp. (Guttiferae) [but cf. LD] *Syzygium* sp. (Myrtaceae)
- H *o goguhungiri* [CX, < guhungiri '(a sea grass)' + redup.; 'rather like guhungiri sea grass'] V [HA] *Vittaria* sp. (Vittariaceae)
- VxT *o gogurati* [CX, < vb -kurati 'yellow'; 'yellow']
- v *o gogurati o gumini* [P] 'vine gogurati' V [NM2-0225, NM2-0569] det. not avail. (Menispermaceae)
- t *o gogurati o gota* [P] 'tree gogurati' (uncoll.)
- T *o gohi ma hahawo* [CD-EN, 'egg' + poss. + 'wrapper'; 'egg wrapper'] V [BO] *Sterculia urceolata* Sm. (Sterculiaceae)
- O(B) *o gohoboro* [SL] V [NM1-2854, NM2-0134, NM2-0248] det. not avail. (Bamboo) (Bambusa)
- H *o gohomanga ma aehe* [CD-EN, 'crocodile' + poss. + 'nest'; 'crocodile's nest'] V [NM1-2315] [HA] *Oplismenus* sp. (Gramineae)
- T *o gohora* [SL] 'nutmeg'
- t + *o gohora o fonganika* [P-EN] 'jungle nutmeg' (or B⁰ alternative) *o dikahuka* [SL]
- t - *o dikahuka (ma beka)* [P-EN] '(female) dikahuka' V [NM1-2274] det. not avail.
- t + *o dikahuka ma nauru* [P-EN] 'male dikahuka' V [NM1-2627] det. not avail.
- t - *o gohora* [SL] V, Ph, PT: *Myristica fragrans* Houtt. (Myristicaceae) (all subclasses)
- t + *o gohora ma nauru* [P-EN] 'male gohora' V [BO] *Myristica fragrans* Houtt. (Myristicaceae) (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-banda* [SL, but < Ind or NMM CD; Ind pala 'nutmeg' + banda (place name); 'Banda nutmeg']
- t ~ *o pala-botol* [SL, but < Ind or NMM CD; Ind pala 'nutmeg' + botol 'bottle'; 'bottle nutmeg'] (or) *o boto* [SL, Tbl 'bottle' (cf. NMM botol)]
- 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' + jáwa 'Java(nese)'; 'Javanese nutmeg']
- T=O *o gohubáa* [SL] V [BO] *Cassia alata* L. (Leguminosae)
- t=o *o gohubáa ma doka-dokara* [P-EN] 'red gohubáa'
- t=o *o gohubáa ma gare-garehe* [P-EN] 'white gohubáa'
- T *o goini* [SL] V [BO] *Ochrosia glomerata* Val. (Apocynaceae)
- H *o golioa* [SL] (uncoll.)
- T *o gomo-gomono* [CX, < gomono (a 'tree', q.v.) + redup.; 'rather like a gomono (tree)'] V [HA] *Morinda citrifolia* L. (Rubiaceae)
- T *o gomono* [SL] V [BO] *Artocarpus altilis* (Park.) Fosberg (Moraceae)
- t - *o gomono* [SL]
- t + *o gomono o fonganika* [P-EN] 'jungle gomono'
- O *o goóbe* [SL] V [NM2-0573] [HA] ?*Hornstedtia* sp. (Zingiberaceae)
- o *o giranga* [SL] (or) *o goóbe-giranga* [CD-EN]
- o *o goto* [SL] (or) *o goóbe-goto* [CD-EN]
- o *o huuhu* [SL] (B; cf. D dialect: *o fuusu* [SL, cf. 'herbaceous weed' of same name, q.v.]
- 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 B⁰ 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 góbe*)

- T *o gorofútu ma houru* [CD-EN, 'eyebrow' + poss. + 'medicine'; 'eyebrow medicine'] V [NM1-2519] [LD] *Ribara* sp. (Solanaceae) [but cf. BO] *Mathaea* sp. (Solanaceae)
- O(P) *o goroko ma ngauku* [CD-EN, '*Otus magicus* (an owl)' + poss. + 'ear'; 'ear of *Otus magicus* owl'] (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 [NM1-2676] 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 [NM1-2174] det. not avail.
- t *o goruo ma mirimi ma nauru* [P-EN] 'male *goruo ma mirimi*' V [NM1-2112] det. not avail. (2) D dialect subclasses:
- t *o goruo ma mirimi ma doka-dokara* [P-EN] 'red *goruo ma mirimi*' V [NM1-2620] 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. (Rubiaceae)
- V *o gotimono* [SL] (or) *o timu* [SL] (the latter term may be used in place of *gotimono* in compounds and phrases below) V [NM1-2461] det. not avail.
- v + *o gotimono o fonganika* [P-EN] 'jungle *gotimono*' V [NM2-0365] [HA] *Cucurbita* sp. (Cucurbitaceae)
- v + *o manjanga ma gotimono* [CD-EN, 'deer' + poss. + *gotimono* (q.v.); 'deer's *gotimono*'] V [NM1-2170] det. not avail.
- v + *o ode ma gotimono* [CD-EN, 'pig' + poss. + *gotimono* (q.v.); 'pig's *gotimono*'] (uncoll.)
- v - *o gotimono* [SL]
- v + *o timu-todore* [CD-EN, *timu* (synonym of *gotimono*) + *todore* 'Tidore (Island)'; 'Tidore *timu*'] V [NM2-0377] [HA] det. not avail. (Cucurbitaceae)
- v - *o timu* [SL] V [NM2-0301] *Cucurbita* sp.
- 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] *Rhaphidophora pinnata* (L.) Schott (Araceae) (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 B⁰ classes.)
- T *o gowáya* [SL] V [BO] *Psidium guajava* L. (Myrtaceae)
- V *o goyoko ma kikiHINGI* [CD-EN, 'eel' + poss. + '?' V [BP] *Scindapsus* sp. (Araceae)
- V *o goyoko ma pokoro* [CD-EN, 'eel' + poss. + 'stomach, belly'; 'eel's belly'] V [NM1-2570, NM1-2905, NM2-0129] [HA] det. not avail. (Flacourtiaceae)
- H *o guabébe* [SL]
- h - *o guabébe* [SL] V [US] *Impatiens* sp. (Balsaminaceae)
- h + *o guabébe o fonganika* [P-EN] 'jungle *guabébe*' V [HA] *Mirabilis jalapa* L. (Nyctaginaceae)
- 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. (Gramineae)]). (Sorghum?)
- T *o guawe* [SL] 'mango' V [BO] *Mangifera indica* L. (all subclasses) (Anacardiaceae)
- t - *o banga* [SL]
- t - *o dodo* [SL]
- t - *o gole* [SL]
- t - *o hilo* [SL, 'lamp, dammar resin']
- t - *o hitngki* [SL]
- t - *o ido* [SL]
- t - *o malaka* [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* 'flood'; n 'flood'] V [BO] *Ficus adenosperma* Miq. f. *angustifolia* (Moraceae)
- TxH *o guleulá* [SL]
- t + *o guleulá o gota* [P] 'tree *guleulá*' V [BO] *Drypetes* cf. *mucronata* Wright ex. Griseb. (Euphorbiaceae)
- h - *o guleulá (o rurúbu)* [P] '(herbaceous weed) *guleulá*' V [BO] *Lepidagathis robinsonii* Merr. (Acanthaceae)
- O *o guluaha* [SL] V [NM1-2861] [BO] *Languas galanga* (L.) Stuntz. (Zingiberaceae) [but cf. NM2-0283] [HA] *Alpinia* sp.
- O *o gulubenge* [SL] V [NM1-2010] det. not avail. (Palmae)
- 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. (Apocynaceae)
- T *o guluitokara* [CD-EX, < *gului* 'buttocks' + *-tokara*

- 'red'; 'red buttocks' (etym.?) V [NM1-2608] 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.?)] V [HA] *Cassytha* sp. (Lauraceae)
- VxT *o gumoanga* [SL]
- v - *o gumoanga (o gumini)* [P] '(vine) *gumoanga*' V [NM1-2194] 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] *Bauhinia* cf. *acuminata* L. (Leguminosae)
- T *o gumúru ma gohi* [CD-EN, '(type of bird)' + poss. + 'egg(s)'] V [NM1-2662] [BO] *Mathaea* sp. [LD] (*Solanaceae*) Kibara sp. (Monimiaceae)
- 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 [NM1-2818] 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] *Polyscias fruticosa* (L.) Harms. (Araliaceae)
- t *o gurabati ma gogurati* [P-EN] 'yellow *gurabati*' (or) *o gurabati ma hoka ikokurati* [P-EN] 'yellow-leafed *gurabati*' V [BO] *Polyscias fruticosa* (L.) Harms. (Araliaceae)
- T *o guráma* [SL] V [BO] *Inocarpus fagiferus* (Parkinson) Fosb. (Leguminosae)
- O *o gurati* [CX, < *-kurati* 'yellow, orange'; 'yellow, orange'] 'turmeric' Ph *Curcuma longa* L. (*Zingiberaceae*) (both subclasses)
- o - *o gurati (ma dutu)* [P-EN] '(genuine) *gurati*' V [NM1-2437] 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 [NM1-2259] det. not avail.
- T *o gutuhuru* [SL] V [LD] *Debregeasia* sp. (Urticaceae)
- 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] *Duabanga moluccana* Bl. (Soneratiaceae)
- T *o habana* [SL] V [NM1-2536] [BO] *Parinari* sp. (*Chrysobalanaceae*) [but cf. LD] *Alphitonia* sp. [cf. NM2-0014] [HA] *Alphitonia incana* (Roxb.) Kurz (*Rhamnaceae*)
- H *o hae-haeke* [CX, < n *haeke* 'head', or perhaps vb *-haeke* 'to have a head'; thus 'many-headed'?] V [BO] [NM1-2042] *Hyptis rhomboidea* Mart. & Gal. (*Labiatae*) [but cf. NM1-2719, NM1-2821] *Hyptis capitata* Jacq. (*Labiatae*)
- T *o hahahini* [CX, < vb *-hahini* 'to be hungry'; (etym.?)] V [BO] *Pleomele angustifolia* N.E. Brown
- T *o hai-haiti* [CX, < n *haiti* (q.v.) + (redup.); 'rather like a *haiti* (tree)'] V [BO] *Desmodium heterocarpum* (L.) D.C. (Leguminosae)
- VxT *o haiti* [SL]
- v *o haiti o gumini* [P] 'vine *haiti*' V [BO] *Iodes philippinensis* Merr. (*Icacinaceae*)
- t *o haiti o gota* [P] 'tree *haiti*' V [NM1-2334] [BO] *Desmodium gangeticum* (L.) DC. (Leguminosae) ([cf. NM1-2827] [BO] *Desmodium umbellatum* (L.) DC. (Leguminosae) [cf. NM1-2226] [LD] *Desmodium* sp. (Leguminosae) [cf. NM1-2331] [BO] *Canarium* sp. (*Burseraceae*))
- O(P) *o hakaru ma booteke* [CD-EN, 'stone' + poss. + '?'] V [NM2-0284] [HA] *Pandanus* sp. (*Pandaceae*)
- H *o hakaru ma bunga* [CD-EN, 'stone' + poss. + 'flower'; 'stone's flower'] *Elatostema* sp. (*Urticaceae*)
- T *o haketa* [SL] V [BO] *Wrightia calycina* D.C. (*Apocynaceae*)
- T *o halaka* [SL, 'silver'] V [NM1-2725] 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. (*Annonaceae*)
- T *o hale* [SL] (or) *o mantoongo* [SL] V [BO] *Syzygium* sp. (*Myrtaceae*)
- V *o hale-gumini* [CD-EN, < *hale* (q.v.) + 'vine'; 'vine *hale*'] V [BO] *Derris trifoliata* Lour. (Leguminosae)
- V *o hamáka* [SL, cf. NMM *samangka* or Ind *semangka* 'watermelon'] 'watermelon'
- v - *o hamáka* [SL] V [BO] *Citrulus lanatus* (Thunb.) Mansf. (*Cucurbitaceae*)
- v + *o hamáka ikuru-kurutu* [P-EN] 'long[-fruited] *hamáka*' V [NM2-0524] [HA] det. not avail. (*Cucurbitaceae*)
- 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* Koord. (*Rubiaceae*)
- V *o hambíki* [SL, cf. NMM *sambiki*] V [HA] *Cucurbita* sp. (*Cucurbitaceae*)
- T *o hamehe* [SL] V [NM1-2535] det. not avail. [cf. NM2-0139] [HA] *Macaranga tanarius* (L.) M.A. (*Euphorbiaceae*)
- VxT *o hamete* [SL]
- v + *o hamete o gumini* [P] 'vine *hamete*' V [BO] *Dalbergia parviflora* Roxb. (Leguminosae)

- t - *o hamete (o gota)* [P] '(tree) *hamete*' (uncoll.)
VxT *o hararoko* [SL]
v + *o hararoko o gumini* [P] 'vine *hararoko*' V [NM2-0090, NM2-0096, NM2-0581, NM2-0713] [HA] *Uvaria* sp. (Annonaceae) [but cf. NM1-2403] [BO] *Oxymitra cuneiformis* Zoll.
- t - *o hararoko (o gota)* [P] 'tree *hararoko*' (see determinations of subclasses below; also:) V [NM2-0299] [HA] *Uvaria* sp. [cf. NM2-0431] [HA] det. not avail. (Annonaceae) [cf. NM2-0512] [HA] *Mallotus* sp. (Euphorbiaceae)
- t + *o hararoko o fonganika* [P-EN] 'jungle *hararoko*' (or) *o hararoko o akeriha* [P-EN] 'freshwater/river *hararoko*' (or) *o hararoko ma hoka ialu-aluhu* [P-EN] 'small-leafed *hararoko*' V [BO] *Intsia bijuga* (Colebr.) O.K. (Leguminosae) [but cf. NM1-2739] [BO] *Mitrephora polypyrena* Miq. (Annonaceae)
- 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 [NM1-2247] [LD] *Polyalthia* sp. (Annonaceae)
- O *o hari-harimi* [CX, < *harimi* 'oar' + redup.; 'rather like an oar' (refers to leaf shape of this small, uncultivated, edible plant)] V [HA] *Ophioglossum* sp. (Ophioglossaceae)
- T *o hatobu* [SL] V [BO] [NM1-2665] *Canarium hirsutum* Willd. f. *scabrum* Bl. (Bursaceae) [but cf. NM1-2011] *Pometia tomentosa* (Bl.) T. et B. (Sapindaceae) [cf. also NM2-0349] [HA] *Aphanamixis* sp. (Meliaceae)
- VxT *o hauyo* [SL]
v + *o hauyo o gumini* [P] 'vine *hauyo*' V [BO] *Marsdenia tenacissima* W. et A. (Asclepiadaceae)
- t - *o hauyo (o gota)* [P] '(tree) *hauyo*' V [BO] *Dysoxylum* sp. (Meliaceae)
- 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'] V [NM1-2136] (lost)
- T *o haya* [SL] V [NM1-2740] [BO] *Diospyros pilosantha* Bl. [NM2-0645] [HA] *Diospyros* sp. (Ebenaceae) [but cf. NM2-0194] [HA] *Uvaria* sp. (Annonaceae)
- T *o hayamami* [SL] (see determinations for subclasses; also:) V [NM1-2198] [LD] *Ixora* sp. (Rubiaceae)
- t - *o hayamami (ma beka)* [P-EN] '(female) *hayamami*'
- t + *o hayamami ma doka-dokara* [P-EN] 'red *hayamami*' (uncoll.)
- HxO *o hehewehe* [SL]
h + *o hehewehe ma nauru* [P-EN] 'male *hehewehe*' (or) *o hehewehe ma dorou* [P-EN] 'bad *hehewehe*' V [NM1-2504] det. not avail. [cf. NM2-0146] [HA] *Mapania macrocephala* (Gaud.) K. Schum. (Cyperaceae) [cf. NM2-0292] [HA] *Hypolytrum* sp. (Cyperaceae)
- o - *o hehewehe (ma beka)* [P-EN] '(female) *hehewehe*' (or) *o hehewehe (ma oa)* [P-EN] '(good) *hehewehe*' V [NM1-2419] det. not avail. (Cyperaceae)
- T *o hekiri* [SL] V [NM1-2545] [BO] *Anthocephalus* sp. (Naucleaceae) [but cf. LD] *Nauclea orientalis* L. (Naucleaceae)
- O *o hekiri* [SL] (uncoll.)
- O *o hemu* [SL] (or) *o femu* [SL] V [NM1-2446] [BO] *Hydriastele rostrata* Burret (Palmae) [but cf. V NM1-2857] [BO] *Pinanga* sp. [cf. NM1-2310] [BO] *Caryota* sp. [cf. NM1-2012] det. not avail. (Palm)
- 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 [NM1-2642] [BO] *Tristellateia australasiae* A. Rich. (Malpighiaceae)
- v - *o hero ma rako* [CD-EN]
- v *o hero ma rako ma beka* [P-EN] 'female *hero ma rako*' V [NM2-0010, NM2-0102] [HA] *Micrechites polyantha* (Bl.) Miq. (Apocynaceae) [NM1-2715] det. not avail.
- v *o hero ma rako ma nauru* [P-EN] 'male *hero ma rako*' V [NM2-0517] det. not avail. (fern) [NM1-2078] 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 [NM1-2258] det. not avail.
- T *o hilli* [SL] (or) *o ngofawoe* [probably CD-EX, *ngofa* 'children, suckers, shoots (from base of a plant)' + *-woe* 'many'; 'many shoots'] V [BO] *Lithocarpus* sp. (Fagaceae)
- T *o hilo* [SL] 'dammar'
- t + *o iru* [SL] V [NM1-2254] det. not avail. [cf. NM2-0400] [HA] ?*Sterculia* sp. (Sterculiaceae)
- t - *o hilo (ma dutu)* [P-EN] '(genuine) *hilo*' (or) *o molefaono* [SL] V [NM2-0527] [HA] *Agathis* sp. (Araucariaceae)
- T *o hinangiri* [SL] V [BO] *Villebrunea rubescens* (Bl.) Blume (Urticaceae)
- T *o hinianga* [SL] V [NM1-2830] [BO] *Caesalpinia sappan* L. (Leguminosae) [cf. NM2-0113] [HA] *Cassia surattensis* Burm. f. (Leguminosae)

- T *o hitakono* [SL]
 t + *o hitakono o gahika* [P-EN] 'shore *hitakono*' (or alternative B⁰ term: *o kapuráca* (uncoll.)
 t + *o hitakono o fonganika* [P-EN] 'jungle *hitakono*' (uncoll.)
 t - *o hitakono* [SL] V [BO] *Calophyllum sulatri* Eeden. (Guttiferae)
 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 [NM1-2436] det. not avail.
- T *o hoboobo* [SL] V [BO] *Acalypha* cf. *amentacea* Roxb. (Euphorbiaceae)
 T *o hogili* [SL] (uncoll.)
 T *o hohaláka* [SL] V [NM2-0182] det. not avail.
 T *o hoharána* [SL, but ?< CX] V [BO] *Callicarpa bicolor* Juss. (Verbenaceae)
 T *o hohiaboro* [SL, but ?< CX] V [NM1-2572] [BO] *Alangium hirsutum* Bloemb. (Alangiaceae) [but cf. LD] *Ficus* sp. (Moraceae)
 T *o hohobóbo* [SL] V [NM2-0276] [HA] *Acalypha* cf. *centromalayca* Pax & Hoffm. (Euphorbiaceae)
 H *o hohodoa* [SL, but ?< CX] V [NM1-2652] det. not avail.
 H *o hohokíki* [CX, < n *hokíki* 'unpronged spear (or its tip)' + (redup.); 'rather like a *hokíki* spear tip' (so called because this plant's leaf shape recalls the spear tips' shape)] V [LD] *Emilia* sp. (Compositae)
 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. (Moraceae)
 v - *o hohononga* [CX] V [NM1-2052] det. not avail.
 T *o hokaregi* [CD-EX, < *hoka* 'leaf' + *-regi* 'to be lobed'; 'leaves (are) lobed'] V [NM1-2272] det. not avail.
 T *o homomara* [SL] V [BO] *Ficus ampelas* Burm. f. (Moraceae)
 TxV *o homooko* [SL]
 v + *o homooko o gumini* [P] 'vine *homooko*' V [NM1-2675] det. not avail.
 t - *o homooko (o gota)* [P] '(tree) *homooko*' V [BO] *Premna foetida* Reinw. ex Blume (Verbenaceae)
 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 (Verbenaceae)
 t - *o homooko o fonganika* [P-EN] 'jungle *homooko*' (uncoll.) Note: please see 5.2.1.3 above on the origin of this B² distinction of subclasses of *o homooko*.
- VxT *o hooro* [SL]
 v + *o hooro o gumini* [P-EN] 'vine *hooro*' V [NM1-2031] [BO] *Strychnos colubrina* L. (Strychnaceae) [but cf. NM1-2799] *Strychnos axillaris* Colebr. (Strychnaceae) [cf. also NM1-2872] [LD] *Pternandra* sp. (Melastomatae)
 t - *o hooro (o gota)* [P-EN] '(tree) *hooro*' V [NM1-2091, NM1-2727, NM1-2865] [BO] *Celtis philippensis* var. *wightii* Planch. (Ulmaceae) [but cf. NM1-2441] [LD] *Celtis latifolia* (Bl.) Planch. (Ulmaceae)
 T *o horobiingi* [SL] V [BO] *Euodia rosea* Merr. & Perry V (Rutaceae) [NM1-2449] det. not avail.
 t - *o horobiingi (ma beka)* [P-EN] '(female) *horobiingi*' V [NM1-2283] *Euodia rosea* Merr. & Perry (Rutaceae)
 t + *o horobiingi ma nauru* [P-EN] 'male *horobiingi*' V [NM2-0237] *Acronychia trifoliata* Zoll. & Mor. (Rutaceae)
 H *o horofiasa* [SL] V [NM2-0202] det. not avail.
 H *o horowai* [SL] V [BO] *Trachyspermum roxburghianum* (DC) Craib. (Umbelliferae)
 H *o hoye* [SL] (or) *o lou-lou* [SL, but ?< CX] V [BO] *Paspalum commersonii* Lamk. (Gramineae)
 T *o huaono ma guguriti* [CD-EN, '(type of fish)' + poss. 'stringer (used to string fish together for transporting them)'; 'huaono fish stringer'] V [NM1-2189, NM1-2654, NM1-2915] det. not avail. [cf. NM2-0302, NM2-0712] [HA] *Cynometra* sp. (Leguminosae)
 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 (Rutaceae)
 H *o huhu ma dara* [CD?, '?'] V [BO] *Eulophia squalida* Lindl. (Orchidaceae)
 H *o huhu ma liliara* [CD (indet.), '? + poss. + 'tie'] V [NM1-1071] (lost)
 H *o huhuteongo* [CD-EX, ?< huhu 'breast' + teongo 'to drip/ooze liquid'; 'the breast oozes milk' (etym.?)] V [NM2-0164] [HA] *Borreria* sp. (Rubiaceae) [but cf. NM1-2400] [LD] *Euphorbia* sp. (Euphorbiaceae)
 T *o hukupote* [SL] V [BO] *Semecarpus* cf. *longifolius* (Anacardiaceae)
 T *o hulahi* [SL] (probably same as *o sulasi* (q.v.))
 t *o hulahi ma doka-dokara* [P-EN] 'red *hulahi*' V

- [BO] *Ocimum sanctum* L. (Labiatae)
 t *o hulahi ma gare-garehe* [P-EN] 'white hulahi' V
 [BO] *Ocimum sanctum* L. (Labiatae)
 H *o hulahi ma dofu* [CD (indet.)] V [BO] *Ruellia* sp.
 (Acanthaceae)
 H *o hulahi ma dowa* [CD (indet.)] V [NM1-2092] det.
 not avail.
 T *o huleele* [SL] V [BO] *Solanum torvum* Swartz.
 (Solanaceae)
 t *o huleele ma beka* [P-EN] 'female huleele' V [BO]
Solanum sp. (Solanaceae)
 t *o huleele ma nauru* [P-EN] 'male huleele' V [BO]
Solanum sp. (Solanaceae)
 T *o hulumutu* [SL] V [NM1-2559] det. not avail. [cf.
 NM2-0100] [HA] *Macaranga* sp. (Euphorbiaceae)
 T *o humu ma boboha* [CD-EN, < *humu* '(water) well' +
 poss. + 'hitter'; 'well-hitter' (etym.?)] V [BO]
Jaegera sp. (Sapindaceae)
 T *o humuliti* [SL] (uncoll.)
 T *o hurudai* [SL] V [NM1-2176] det. not avail.
 V *o huru-hurutu* [CX, < *hurutu* (q.v.) + (redup.); 'rather
 like *hurutu* vine']
 v - *o huru-hurutu* [CX, same etym.] (uncoll.)
 v + *o huru-hurutu ma dorou* [P-EN] 'bad huru-
hurutu' V [NM2-0222] det. not avail.
 V *o hurutu* [SL]
 v - *o hurutu (ma oa)* [P-EN] '(good) *hurutu*' V
 [NM1-2125] det. not avail.
 v + *o hurutu ma dorou* [P-EN] 'bad *hurutu*' V
 [NM1-2625] [BO] *Millettia* sp. (Leguminosae)
 [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?)]
 h - *o igo-igono (ma beka)* [P-EN] '(female) *igo-igono*
 V [NM1-2569] (lost) [cf. NM2-0311]
 [HA] *Physalis* sp. (Solonaceae)
 h + *o igo-igono ma nauru* [P-EN] 'male *igo-igono*'
 V [NM2-0668] [HA] *Physalis* cf. *minima* L.
 (Solonaceae)
 O *o igono* [SL] 'coconut' Ph, PT: *Cocos nucifera* L.
 (Palmae) (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. (Lauraceae)
 V *o imara* [SL] (or) *o guhuongo* [SL] V [NM1-2357]
 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 [NM1-2713] [BO]
Leucosyke capitellata (Poir.) Wedd. (Urticaceae)
 [but cf. NM1-2319] [LD] ?*Pueraria* sp. (Legumi-
 nosae) [but cf. also NM1-2179 (det. not avail.)
 different species]
 V *o iwi* [SL] V [BO] *Calamus* sp. (Palmae)
 T *o jabaoto* [SL] V [BO] *Abroma mollis* DC. (Sterculi-
 aceae)
 T *o jaga-jaga* [CX, < -*jaga* 'to branch, fork' + redup.;
 '(the one) which branches, forks'] V [NM2-0381]
 [HA] *Diospyros* sp. (Ebenaceae)
 T *o jajame* [CX, < vb -*jame* 'pleasantly scented'] V
 [NM1-2138] det. not avail. [cf. NM2-0595] [HA]
Dolichandrone spathacea (L. f.) K. Sch. (Bignoni-
 aceae)
 H *o jalu-jalu* [SL, but ?< CX] V [BO] *Sesuvium*
portulacastrum (L.) L. (Aizoaceae)
 T *o jambula* [SL] V [NM1-2560] [BO] *Syzygium cumini*
 Druce (Myrtaceae) [cf. NM2-0217] [HA] *Syzygium*
cumini (L.) Skeels.
 HxO *o jara-jara* [SL, but ?< CX]
 h + *o jara-jara ma nauru* [P-EN] 'male *jara-jara*'
 [P-EN] *Rhynchospora rubra* (Lour.) Makino
 (Cyperaceae)
 o - *o jara-jara (ma beka)* [P-EN] 'female *jara-jara*'
 V [BO] *Spinifex littoreus* (Burm. f.) Merr.
 (Gramineae)
 H *o jara ma rurubu* [CD-EN, 'horse' + poss. +
 'herbaceous weed'; 'horse's weed'] V [BO, LD]
Zoysia matrella (L.) Merr. var. *pacifica* Gouds-
 waard (Gramineae)
 H *o jela-jela* [SL, but ?< CX]
 h - *o jela-jela (ma beka)* [P-EN] '(female) *jela-jela*
 V [NM1-2082, NM1-2794] [BO] *Paspalum*
conjugatum Berg. (Gramineae) [but cf. NM2-
 0132] [HA] *Digiraria* sp. (Gramineae)
 h + *o jela-jela ma nauru* [P-EN] 'male *jela-jela*' V
 [NM2-0510] [HA] *Brachiaria* sp. (Gramineae)
 [cf. NM2-0604] [HA] *Brachiaria* cf. *paspaloi-*
des (Presl) C.E. Hubb. (Gramineae)
 H *o jere ma bunga* [CD-EN, 'grave' + poss. + 'flower';
 'grave's flower'] V [BO] *Sambucus canadensis* L.

- (Sambucaceae)
- T *o jobirono* [SL]
- t - *o jobirono (ma beka)* [P-EN] '(female) *jobirono*' V [BO] *Zanthoxylum avicennae* (Lamk.) DC. (Rutaceae)
- t + *o jobirono ma nauru* [P-EN] 'male *jobirono*' V [LD] *Securinega* sp. (Euphorbiaceae)
- O *o jojibóbo* [SL] V [NM1-2912] det. not avail.
- T *o kaba-kaba* [SL, but ? < CX] V [NM1-2325] 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 (Araceae)
- V *o kaca-kacanga* [CX, < n *kacanga* (q.v.) + (redup.); 'rather like a *kacanga*']
- v *o kaca-kacanga ma beka* [P-EN] 'female *kaca-kacanga*' V [NM1-2239] det. not avail.
- v *o kaca-kacanga ma nauru* [P-EN] 'male *kaca-kacanga*' V [NM1-2279] det. not avail.
- V *o kacang* [SL, cf. Ind & NMM *kacang* 'peanut, bean'] Note: addition to the subclasses noted below, the Ind & NMM borrowing *o kacang* is occasionally used to designate the nuts, or even the plants, of the peanut, which is properly called *o boci* (q.v.) in Tbl.
- v ~ *o pooho* [SL] V [NM2-0585] [HA] *Lablab purpureus* Sweet (Leguminosae)
- v ~ *o tanuma* [SL] V [NM2-0586] [HA] *Lablab purpureus*
- V *o kacang-pánjang* [SL, but < Ind & NMM CD-EN, *kacang* 'bean' + *panjang* 'long'; 'long bean'; this term is used to designate the same species in NMM (& Ind?)] V [NM2-0360] [HA] *Vigna sesquipedalis* (L.) Fruw. (Leguminosae)
- T *o kadateke* [SL] V [BO] *Antidesma celebicum* Miq. (Stilaginaceae)
- T *o kafo* [CX, abstract n < vb *-kafo* 'to be gray'; 'grayness'] V [BO] *Rhus taitensis* Guillemin (Anacardiaceae)
- O *o kahitela-gota* [CD-EN, 'tree *kahitela*' (cf. *o kahitela-tonaka* (q.v.) 'ground(-dwelling) *kahitela*' 'sweet potato')] Ph, PT *Zea mays* L. (Gramineae) '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'
- O *o kahitela-tonaka* [CD-EN, 'ground (-dwelling) *kahitela*'; cf. *o kahitela-gota* (q.v.)] Ph, PT: *Ipomoea batatas* L. 'sweet potatoes' (Convolvulaceae) (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 [NM1-2134, NM2-0186] det. not avail.
- H *o kaho ma gina-gina* [CD-EN, 'dog' + poss. + *gina-gina* (redup. + *gina* 'load, things carried'); 'dog's load' (or) 'rather like a dog's load']
- h *o kaho ma gina-gina ma beka* [P-EN] 'female *kaho ma gina-gina*' V [NM2-0408] [HA] *Acalypha indica* L. (Euphorbiaceae)
- h *o kaho ma gina-gina ma nauru* [P-EN] 'male *kaho ma gina-gina*' (uncoll.)
- H *o kaho ma lego-legoro* [CD-EN, 'dog' + poss. + '?'] (or) *o kaho ma go-gamaoro* [CD-EN, 'dog' + poss. + '?'] V [BO] *Leptaspis urseolata* (Roxb.) R. Br. (Gramineae)
- H *o kaho ma rio* [CD-EN, 'dog' + poss. + 'track'; 'dog's tracks' (refers to leaf shape)] V [BO] *Pseudarthria viscida* (L.) W. & A. (Leguminosae)
- T *o kailáka* [SL] V [BO] *Premna* sp. (Verbenaceae)
- T *o kailupa* [SL] 'kapok'
- t + *o kailupa o fonganika* [P-EN] 'jungle kapok' (or) *o kakawehe* [SL] V [NM1-2726] det. not avail.
- t - *o kailupa (ma dutu)* [P-EN] '(genuine) kapok' (uncoll.) PT: *Ceiba pentandra* Gaertn. (Bombacaceae)
- H *o kakakara* [SL, but ? < CX] V [NM1-2153] det. not avail.
- O(B) *o kakale* [SL]
- o(b) - *o kakale* [SL] V [BO] *Schizostachyum* sp. (Gramineae)
- o(b) + *o kakale iho-hurewene* [P-EN] 'striped *kakale*' V [BO] *Schizostachyum* sp. (Gramineae)
- H *o kakanoko* [SL, but ? < CX] V [NM1-2105, NM1-2492] 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 [NM1-2553] [BO] *Centrosema pubescens* Benth. (Leguminosae) [cf. LD, same voucher:] *Clitoria* sp.
- 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. (Meliaceae)
- H *o kamo-kamoro* [SL, perhaps < CX but *-*kamoro* apparently unacceptable; 'distant low-lying cloud' (reference to "misty" effect of the many hair-like 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. (Gramineae)
- h + *o kamo-kamoro ma nauru* [P-EN] 'male *kamo-kamoro*' V [BO] *Cyrtococcum accrescens* Stapf. (Gramineae)
- T *o kanánga* [SL] V [BO] *Cananga odorata* (Lamk.) Hook. f. & Thoms. (Annonaceae)
- O *o kangkong* [SL, but apparently very recent borrowing < NMM & Ind *kangkong*, same meaning] V [NM2-0345] [HA] *Ipomoea* sp. (Convolvulaceae)
- T *o kapasá* [SL, cf. Ind *kapas*] 'cotton' V [BO] *Cossypium acuminatum* Roxb. (Malvaceae)
- H *o kapongo ma rurúbu* [CD-EN, 'village' + poss. + 'herbaceous weed'; 'herbaceous weed of the village'] Note: at Pasir Putih this name is lexemic. I was assured that this is the plant's only name, even though the plant grows in second-growth forest rather than in villages. V [NM1-2518] [BO] *Croton hirtus* Herit. (Euphorbiaceae)
- H *o karafe-gumi* [CD-EX, < n *karafe* 'mouse, rat' + *-gumi* 'to have whiskers/moustache'; 'mouse/rat has whiskers' (a reference to this fern's leaf shape and placement of leaves along the stem)]
- h + *o karafe-gumi o fonganika* [P-EN] 'jungle *karafe-gumi*' V [NM1-2249] [LD] (Voucher unfortunately mixed two species: *Thelypteris* sp. (Thelypteridaceae) [given no. NM2-2249-A] and *Medusanthera laxiflora* (Miers.) Howard (Icacinaceae) [cf. NM2-0567] 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. (Aspleniaceae)
- h - *o karafe-gumi (ma beka)* [P-EN] '(female) *karafe-gumi*' V [NM1-2106] det. not avail. (Fern)
- H *o karafe ma gumi* [CD-EN, 'mouse, rat' + poss. + 'whisker(s)'; 'rat's whiskers'] V [BO] *Fimbristylis ovata* (Burm. f.) Kern (Cyperaceae)
- 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 [NM1-2023] [BO] *Celtis philippensis* var. *wightii* Planch (Ulmaceae) [but cf. NM1-2426] [LD] *Celtis latifolia* (Ulmaceae) [cf. BO, same voucher:] *Ziziphus angustifolius* (Miq.) Hats. (Rhamnaceae)
- 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 [NM1-2127] det. not avail.
- H *o karo ma bunga* [CD-EN, 'coral' + poss. + 'flower'; 'coral flower'] V [BO] *Lycopodium carinatum* Desv. (Lycopodiaceae)
- H *o kastrolí* [SL, cf. NMM *kastrolí*, same meaning] V [NM1-2465] det. not avail.
- V *o kate-kate* [SL, but ?<CX] V [NM2-0247] [HA] *Caesalpinia major* (Medic.) Dandy & Exell (Leguminosae)
- v + *o kate-kate ma beka* [P-EN] 'female *kate-kate*' V [BO] *Taxotrophis ilicifolia* Vid. (Leguminosae)
- v - *o kate-kate (ma nauru)* [P-EN] '(male) *kate-kate*' V [NM1-2048] [BO] *Caesalpinia crista* L. (Rutaceae) [but cf. NM1-2098] [LD] *Zanthoxylum* sp. (Leguminosae) [cf. NM1-2225] [LD] *Dalbergia* sp. (Leguminosae)
- T *o kátok* [SL, recognized as a non-Tbl recent borrowing] V [NM2-0185] det. not avail. (Note: the individual who had recently introduced this cultivar to Pasir Putih from the Sangir Islands was still remembered at that village in 1981.)
- H *o katuri ma boboko* [CD-EN, 'palm-civet (*Paradoxurus hermaphroditus*)' + poss. + '?'] V [BO] *Adenostemma lavenica* (L.) O.K. (Compositae)
- 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 leucadendron* (L.) L. (Myrtaceae)
- T *o kayu-manis* [SL, but < Ind CD; Ind *kayu* 'wood' + Ind *manis* 'sweet'; 'sweet wood'] 'cinnamon' Ph: *Cinnamomum* sp. (Lauraceae)
- H *o keketuku* [SL, but ?<CX]
- h + *o keketuku o dalukika* [P-EN] 'sugar-palm (-dwelling) *keketuku*' V [BO] *Asplenium adiantoides* Raoul (Aspleniaceae)
- h + *o keketuku o fonganika* [P-EN] 'jungle *keketuku*' V [US] *Davallia trichomanoides* Bedd. (Davalliaceae)

- h - *o keketuku* [SL]
h + *o keketuku ma nauru* [P-EN] 'male *keketuku*' V [NM1-2422, NM2-0305] det. not avail.
h - *o keketuku (ma beka)* [P-EN] '(female) *keketuku*' V [NM1-2580] [BO] *Selaginella willdenowii* Baker (Selaginellaceae) [cf. NM2-0151] [HA] *Selaginella* sp. (Selaginellaceae) [cf. NM2-0516] [HA] *Microsorium* sp. (Polypodiaceae)
T *o keledongo* [SL] V [NM1-2145] [LD] *Aceratium* sp. (Elaeocarpaceae)
t + *o keledongo ma nauru* [P-EN] 'male *keledongo*' (Uncollected, unless NM1-2145 above is the 'male'—subclass information not recorded at time of collection)
t - *o keledongo (ma beka)* [P-EN] 'female *keledongo*' V [NM1-2030] [BO] *Timonius rufescens* Boerl. (Rubiaceae)
T *o kelo* [SL]
t + *o kelo o fonganika* [P-EN] 'jungle *kelo*' (uncoll.)
t - *o kelo* [SL] V [NM2-0705] [HA] *Cassia* sp. (Leguminosae)
T *o kiahu* [SL] V [NM1-2588] det. not avail.
H *o kiáwa* [SL]
h - *o kiáwa (ma oa)* [P-EN] '(good) *kiáwa*' (uncoll.)
h + *o kiáwa ma dorou* [P-EN] 'bad *kiáwa*' V [NM2-0294] [HA] det. not avail. (Araceae)
T *o kikihi* [SL] (uncoll.) (not same as *o kikiri*)
T *o kikiri* [SL] V [BO] *Leucosyke capitellata* (Poir.) Wedd. (Urticaceae)
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')] V [NM1-2529, NM2-0175] det. not avail.
H *o kocubo* [SL] Ph: *Datura* sp. V (Solanaceae) [NM1-2404] det. not avail.
T *o kofi* [SL] 'coffee' V [BO] *Coffea arabica* L. var. (Rubiaceae)
T *o kofi-kofi* [CX, < n *kofi* 'coffee' + (redup.); 'rather like a coffee (plant)'] V [NM1-2543] [BO] *Pavetta* cf. *sylvatica* Bl. (Rubiaceae) [cf. NM2-0115] [HA] *Pavetta* sp. (Rubiaceae) [but cf. NM2-0157] [HA] *Casearia* sp. (Flacourtiaceae) [NM2-0191] [HA] *Casearia halamaheriensis* v. Slooten (Flacourtiaceae) [but cf. NM1-2178] [LD] *Garcinia* sp. (Guttiferae)
H *o koha-koha* [SL, but ?<CX] V [NM1-2906] det. not avail.
h - *o koha-koha (ma beka)* [P-EN] '(female) *koha-koha*' V [NM2-0505] [HA] *Hedyotis biflora* (L.) Lamk. (Rubiaceae)
h + *o koha-koha ma nauru* [P-EN] 'male *koha-koha*' V [NM2-0504] [HA] *Oldenlandia dichotoma* Hook. (Rubiaceae)
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. (Compositae)
TxHxV *o kokabela* [SL]
t + *o kokabela o gota* [P] 'tree *kokabela*' V [LD] *Timonius* sp. (Rubiaceae)
v + *o kokabela o gumini* [P] 'vine *kokabela*' V [NM2-0570] [HA] cf. *Lindsaea* sp. (Lindsaeaceae)
h - *o kokabela (o rurúbu)* [P] '(herbaceous weed) *kokabela*'
h + *o kokabela o fonganika* [P-EN] 'jungle *kokabela*' V [NM2-0515] [HA] *Pteris* sp. (Pteridaceae)
h + *o kokabela o dalukika* [P-EN] 'sugar palm (-dwelling) *kokabela*' (so called because it grows on the "trunk" of *o daluku* (q.v.) 'sugar palm') V [NM1-2355] [BO] *Nephrolepis falcata* (Cav.) C. Chr. (Oleandraceae) [cf. NM2-0583, NM2-0602] det. not avail.
h - *o kokabela* [SL] V [BO] [NM1-2083] *Nephrolepis hirsutula* Presl (Oleandraceae) [but cf. NM1-2762] *Nephrolepis falcata* (Cav.) C. Chr. (Oleandraceae) [cf. NM2-0101, NM2-0189, NM2-0402] [HA] *Nephrolepis* sp. (Oleandraceae)
H *o kokailupa* [CX, < n *kailupa* (q.v.) 'kapok' + (redup.); 'rather like kapok']
h + *o kokailupa ma nauru* [P-EN] 'male *kokailupa*' V [NM1-2542] [BO] *Eclipta alba* (L.) Hassk. (Compositae) [but cf. LD] *Eclipta prostrata* (L.) L. (Compositae)
h - *o kokailupa (ma beka)* [P-EN] '(female) *kokailupa*' (uncoll.)
T *o kokareboko* [SL, but ?< CX] V [NM2-0095, NM2-0662] [HA] *Syzygium* sp. (Myrtaceae)
t + *o kokareboko o fonganika* [P-EN] 'jungle *kokareboko*' V [NM1-2146] [LD] *Garcinia* sp. (Guttiferae)
t - *o kokareboko* [SL, but ?< CX]
t *o kokareboko ma beka* [P-EN] 'female *kokareboko*' V [NM1-2418] [LD] *Phyllanthus semirachus* J.J. Sm. (Euphorbiaceae) [cf. NM2-0279] [HA] *Syzygium* sp. (Myrtaceae)
t *o kokareboko ma nauru* [P-EN] 'male *kokareboko*' V [NM1-2420] [LD] *Syzygium* sp. (Myrtaceae) [cf. BO, same voucher:] *Syzygium jambos* (L.) Alst. (Myrtaceae) [cf. also NM1-2544] [BO] *Harpulia* sp. (Sapindaceae) [cf. also NM2-0278] [HA] *Phyllanthus* sp. (Euphorbiaceae)
H *o kokayiyu* [SL] V [BO] *Mapania cuspidata* (Miq.) Uitt. var. *petiolata* (Clarke) Uitt. (Cyperaceae) [cf.

- NM2-0430, NM2-0443] [HA] *Pandanus* sp. (Pandaceae) [cf. also NM2-0142] det. not avail.
- T=HxH *o kokereehē* [SL, but ?<CX] (or) *o gogiro taka* [SL] (the latter term may be substituted for *kokereehē* in phrases below)
- t=h - *o kokereehē (ma beka)* [P-EN] '(female) *kokereehē*' V [BO] *Crotalaria retusa* L. (Leguminosae)
- h + *o kokereehē ma nauru* [P-EN] 'male *kokereehē*' V [HA] *Desmodium* sp. (Leguminosae)
- V *o kokobúbu* [SL] V [BO] *Psychotria sarmentosa* Bl. (Rubiaceae)
- T *o kokocubo* [CX, < n *kocubo* (q.v.) '*Datura* sp.' + (redup.); 'rather like a *kocubo* (plant)'] V [NM1-2733] det. not avail.
- H *o kokomomoko* [SL]
Note: in addition to the 'male' and 'female' subclasses below, V [NM1-2350] [BO] *Triumfetta rhomboidea* Jacq. [but cf. LD] *Triumfetta pilosa* Roth (Tiliaceae) was identified by informants as "a kind of *kokomomoko*" (*o kokomomoko o hara moi-oli*), thus in the B⁰ class, but not in either 'male' or 'female' sub-class.
- h + *o kokomomoko ma nauru* [P-EN] 'male *kokomomoko*' V [BO] *Urena lobata* L. f. *tomentosa* (Bl.) Borss. (Malvaceae)
- h - *o kokomomoko (ma beka)* [P-EN] '(female) *kokomomoko*' V [BO] *Urena lobata* L. f. *lobata* (Malvaceae)
- O(F) *o kokori* [SL] V [NM2-0352] [HA] *Acalypha* sp. (Euphorbiaceae)
- H *o kokuanyi* [SL] V [NM1-2081] [BO] *Eleutheranthera ruderalis* (Compositae) (Sw.) Sch. Bip. [but cf. NM1-2067] [BO] *Synedrella nodiflora* (L.) Gaertn. (Compositae)
- T *o kokulúbu* [SL]
- t ~ *o kokulúbu ma beka* [P-EN] 'female *kokulúbu*' V [BO] *Clausena harmandiana* Pierre ex Guill. (Rotaceae)
- t ~ *o kokulúbu ma nauru* [P-EN] 'male *kokulúbu*' (uncoll.)
- H *o kokunyinga* [SL] V [BO] *Ageratum conyzoides* L. (Compositae)
- T *o koledukuru* [SL] V [BO] *Lepidopetalum perrottetii* Blume (Sapindaceae)
- T *o komene* [SL] V [NM2-0207, NM2-0238] det. not avail. [cf. NM2-0635] [HA] *Morinda citrifolia* L. (Rubiaceae)
- t *o komene ma beka* [P-EN] 'female *komene*' V [NM1-2156] det. not avail.
- t *o komene ma nauru* [P-EN] 'male *komene*' V [NM1-2237] [BO] *Morinda bracteata* Roxb. (Rubiaceae)
- V *o korehára ma gumini* [CD-EN, 'north wind' + poss. + 'vine'; 'vine of the north wind'] V [NM1-2129, NM1-2207, NM1-2594] 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] *Harpullia arborea* Radlk.
- t - *o kowehe* [SL] V [BO] *Cyrtococcum patens* (L.) A. Camus (Gramineae)
- H *o koyoba ma gihoro* [CD-EN, 'eagle (q.v.)' + poss. + 'sharpening-stone'; 'eagle's sharpening-stone'] V [NM2-0203] det. not avail.
- H *o koyoba ma toimi* [CD-EN, 'eagle (q.v.)' + 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. (Orchidaceae)
- 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.) (Alliaceae)
- V *o kugete* [SL] V [NM1-2377, NM2-0221] det. not avail.
- v ~ *o kugete ma doka-dokara* [P-EN] 'red *kugete*'
- v ~ *o kugete ma gare-garehe* [P-EN] 'white *kugete*'
- T *o kuhawiri* [SL] V [NM1-2430] det. not avail. [cf. NM2-0588] [HA] "cf. *Actinedaphne* sp."
- H *o kuho ma gouru* [CD-EN, 'kus-kus' + poss. + 'testicles'; 'kus-kus's testicles'] V [BO] *Nervilia aragoana* Gaud. (Orchidaceae)
- 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] *Kleinhovia hospita* L. (Sterculiaceae)
- T *o kuhu-kúhu* [SL, but ?<CX] V [BO] *Schefflera* sp. (Araliaceae)
- T *o kuruhu* [SL] V [BO] *Koordersiodendron pinnatum* (Blanco) Merr. (Anacardiaceae)
- T *o kuto* [SL]
- t ~ *o kuto ma hoka ialu-aluhu* [P-EN] 'small-leafed *kuto*' V [NM1-2150] det. not avail.
- t ~ *o kuto ma hoka iregi-regi* [P-EN] 'lobed-leafed *kuto*' V [NM1-2360] det. not avail.
- T *o kuuhu ma didu* [CD-EN, '< '?' + poss. + 'perch/perching-place,' 'kuuhu's perching (resting) place'] (or) *o kuhu ma didu* [CD-EN, same etymology] V [NM1-2596] [BO] *Octomeles suma-*

- tranas* Miq. (Tetramelaceae) [cf. NM1-2754] [BO]
Terminalia microcarpa Decne. (Combretaceae)
- H *o lage-lage* [CX, < vb -lage 'lift' (etym.?)] V [BO]
Pronephrium sp. (Thelypteridaceae)
- VxT *o laimusa* [SL] (B; cf. D: *o maimusa*)
 t + *o laimusa o gota* [P] 'tree *laimusa*' V [BO]
Lantana sp. (Verbenaceae)
 v - *o laimusa o gumini* [P] 'vine *laimusa*'
 v + *o laimusa ma beka* [P-EN] 'female *laimusa*' V
 [BO] *Mimosa invisa* Mart. (Leguminosae)
 v - *o laimusa (ma nauru)* [P-EN] '(male) *laimusa*' V [BO] *Lantana camara* L. (Verbenaceae)
- V *o lake-lakeme* [SL, but ?< CX] V [NM2-0342] [HA]
Hoya sp. (Asclepiadaceae) [cf. NM2-0173] det. not avail.
- H *o lakodoto* [CD-EX, 'eye' + 'to be sharp'; 'sharp eyes' (apparently a reference to a medicinal use of the plant for improving vision)]
 h + *o lakodoto ma beka* [P-EN] 'female *lakodoto*' V [NM2-0148] [HA] ?*Hemigraphis* sp. (Acanthaceae)
 h - *o lakodoto (ma nauru)* [P-EN] '(male) *lakodoto*'
 h *o lakodoto ma doka-dokara* [P-EN] 'red *lakodoto*' V [BO] *Hemigraphis* cf. *ceramensis* Bremek. (Acanthaceae)
 h *o lakodoto ma gare-garehe* [P-EN] 'white *lakodoto*' V [BO] *Orthosiphon aristatus* (Bl.) Miq. (Labiatae)
- T *o lalade* [SL, but ?<CX] V [NM2-0395] [HA]
Antidesma sp. (Stilaginaceae)
- T *o lame* [SL] V [BO] *Neolitsea cassiaefolia* (Bl.) Merr. (Lauraceae)
- V *o lantoro* [SL, < Ind?] (Note: this 'vine' class is homonymous with the following 'tree' class; in both cases, the name is a recent borrowing not yet assimilated to Tbl phonology.) V [NM1-2101] det. not avail. [cf. NM1-2168] [BO] *Solanum* sp. (Solanaceae)
- T *o lantoro* [SL, < Ind] (See note under 'vine' of same name, above) V [NM1-2886] [HA] *Leucaena leucocephala* (Lam.) De Wit (Leguminosae)
- T *o laranga* [SL] (uncoll.)
- V *o lelele* [CX, < n. *lele* (q.v.) + (redup.), 'rather like *lele*'] V [NM1-2412] [BO] *Piper retrofractum* Vahl (Piperaceae) [but cf. LD, same voucher:] *Dichondra repens* Forst. (Convolvulaceae)
- V *o lele* [SL] V [NM1-2913] det. not avail.
- T *o leleko* [SL, but ?<CX]
 t + *o leleko o fonganika* [P-EN] 'jungle *leleko*' V [LD] *Aceratium* sp. (Elaeocarpaceae)
 t - *o leleko* [SL] Note: at Pasir Putih (Tbl-D) I was told that this class of 'tree' is commonly called *o huma-huma* [SL, but ?< CX] in Tobelo District (Tbl-H) (unconfirmed).
 t - *o leleko ma doka-dokara* [P-EN] 'red *leleko*' V [LD] *Pisonia* sp. (Nyctaginaceae)
 t - *o leleko ma gare-garehe* [P-EN] 'white *leleko*' V [NM1-2143] det. not avail.
- T *o libirini* [SL] V [BO] *Pipturus argenteus* (Forst.) Wedd. (Utricaceae)
- HxV *o lifi-lifiti* [CX, < vb -lifiti 'sprain' + (redup.); 'sprained']
 h - *o lifi-lifiti (ma beka)* [P-EN] '(female) *lifi-lifiti*' V [BO] [NM1-2057] *Centotheca lappacea* (L.) Desv. (Gramineae) [but cf. NM1-1232] *Commelina* sp. (Commelinaceae)
 v + *o lifi-lifiti ma nauru* [P-EN] 'male *lifi-lifiti*' V [NM2-0143] [HA] *Pollia* sp. (Commelinaceae)
- H *o lifi-lifiti ma dofa* [P-EN] 'counterfeit (of) *lifi-lifiti*' (q.v.) V [NM1-2107] [BO] det. not avail. (Sterculiaceae)
- T *o lifofoko* [SL] V [NM1-2604] 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 [NM1-2434] [BO] *Pterocarpus indicus* Willd. (Leguminosae)
 t - *o ligua ma gogurati* [P-EN] 'yellow *ligua*' V [NM2-0329] [HA] *Pongamia pinnata* (L.) Merr. (Leguminosae)
- O(P) *o liliama* [SL, but ?<CX] V [NM2-0252] [HA]
Pandanus sp. (Pandanaceae)
- H *o limaduku* [SL]
 h + *o limaduku ma beka* [P-EN] 'female *limaduku*' V [BO, LD] *Cyperus iria* L. (Cyperaceae)
 h - *o limaduku (ma nauru)* [P-EN] '(male) *limaduku*' V [NM1-2046] [BO] *Scleria scrobiculata* Nees & Mey. ex Nees [cf. NM2-0082] [HA] *Scleria* sp. (Cyperaceae)
- O *o liri* [SL]
 o - *o liri* [SL] (or) *o nyawa ma liri* [CD-EN, 'human' + poss. + *liri*; 'human's *liri*'] V [NM2-0561] [HA] *Cymbopogon* cf. *citratum* (DC.) Stapf (Gramineae)
 o + *o kaho ma liri* [CD-EN, 'dog' + poss. + *liri*; 'dog's *liri*'] V [NM2-0560] [HA] *Cymbopogon* cf. *citratum* (DC.) Stapf (Gramineae)
- H *o liri-liri* [CX, < n *liri* (q.v.) + (redup.); 'rather like *liri*'] V [BO] [NM1-2646] *Themeda gigantea* (Cav.) Hassk. (Gramineae) [but cf. NM1-2040] *Cyperus javanicus* Houtt. (Cyperaceae)
- T *o lobri* [SL] V [NM2-0179] [HA] *Clerodendrum* sp. (Verbenaceae)
- 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 [NM1-2507] det. not avail.
- V *o lolapáka* [SL]
- v + *o lolapáka ma beka* [P-EN] 'female *lolapáka*' V [NM1-2653] det. not avail.
- v - *o lolapáka (ma nauru)* [P-EN] '(male) *lolapáka*' V [BO] *Dischidia imbricata* (Bl.) Steud. (Asclepiadaceae)
- V *o lolaránga* [SL, but ?<CX] V [BO] *Cynanchum ovalifolium* Wight (Asclepiadaceae)
- V *o lolóro* [SL]
- v + *o lolóro ma nauru* [P-EN] 'male *lolóro*' V [BO] *Vigna marina* (Burm. f.) Merr. (Leguminosae)
- v - *o lolóro (ma beka)* [P-EN] '(female) *lolóro*' (uncoll.)
- H *o lore* [SL] V [NM2-0160] [HA] *Coix lachryma-jobi* L. (Gramineae)
- H *o luja* [SL]
- h + *o luja ma dorou* [P-EN] 'bad *luja*' V [BO] *Asystasia nemorum* Nees (Acanthaceae)
- h - *o luja (ma oa)* [P-EN] '(good) *luja*' V [NM2-0648] [HA] det. not avail. (Acanthaceae)
- T *o luka-lukama* [CX, < n *lukama* (q.v.) 'lansat fruit (tree)'+ (redup.); 'rather like a lansat tree']
- t - *o luka-lukama (ma beka)* [P-EN] '(female) *luka-lukama*' V [NM1-2802] det. not avail. [cf. NM1-2790] [BO] *Endiandra* sp. (Lauraceae) [cf. NM1-2735] [LD] ?*Dysoxylum* sp. (Meliaceae) [cf. BO, same voucher:] *Aglaiia* sp. (Meliaceae)
- t + *o luka-lukama ma nauru* [P-EN] 'male *luka-lukama*' V [NM2-0326] [HA] det. not avail. (Sapotaceae)
- T *o lukama* [SL] (uncoll.) PT: *Lansium domesticum* Jacq. 'lansat' (Meliaceae)
- T *o lulewi* [SL]
- t + *o papua* [SL] (or) *o lulewi-papua* [CD-EN, 'papua (variety of) *lulewi*'] V [LD] *Casuarina* cf. *equisetifolia* (Casuarinaceae)
- t - *o lulewi* [SL] (or) *o lulewi o akeriha* [P-EN] 'riparian *lulewi*' V [BO] *Casuarina sumatrana* Jungh ex de Vriese (Casuarinaceae)
- VxHxO *o maa-maata* [CX, < vb *-maata* 'cold' + (redup.); '(one) which is cold' (refers to this plant's medicinal use in reducing fevers)]
- v + *o maa-maata o gumini* [P] 'vine *maa-maata*' V [NM1-2575, NM2-0197] 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 [NM1-2859] [LD] *Costus* sp. [cf. NM2-0249, NM2-0624] [HA] *Costus speciosus* (Koenig) J.E. Sm. (Costaceae)
- h=o - *o maa-maata (o gota)* [P] '(tree) *maa-maata*' (so called because, though small, it has a straight, upright stem) V [NM1-2091, NM1-2623, NM2-0172] [BO, US] *Kalanchoe pinnata* (Lamk.) Pers. (Crassulaceae) [but cf. NM1-2197] [LD] *Costus* sp. (Costaceae)
- T *o mabanoka manga hikata* [CD-EN, 'Maba (person of Maba ethnic group of Halmahera) + poss. + 'pin (for boat planks)'; 'Maba boat pin'] V [NM2-0380] [HA] *Colubrina* cf. *beccariana* (a.u.) (Rhamnaceae)
- H *o mai-maihi* [SL, but ?<CX; cf. *-maihi* 'to divine'] V [NM2-0584] [HA] *Eleusine indica* (L.) Gaertn. (Gramineae)
- h - *o mai-maihi (ma beka)* [P-EN] '(female) *mai-maihi*' V [NM1-2482] [BO] *Sporobolus dianther* (Retz.) Beauv. (Gramineae) [but cf. LD and J. Reeder:] *Sporobolus indicus* (L.) R. Br. (Gramineae)
- h + *o mai-maihi ma nauru* [P-EN] 'male *mai-maihi*' V [NM1-2257] det. not avail.
- H *o mainjanga ma hulawoto ma ngangaike* [CD-EN, 'deer' + poss. + 'pickings (from teeth)' + poss. + 'remover' (< vb, *aiki* 'remove'); 'deer's toothpick'] V [NM2-0370] [HA] *Pouzolzia* sp. (Urticaceae)
- 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 [NM1-2275] det. not avail. [cf. NM2-0369] [HA] det. not avail. (Lauraceae)
- T *o mako-makoro* [CX, < *-makoro* 'large male wild hog'] (or) *o cengke ma dofa* [P-EN] 'counterfeit of (the) clove (tree)' V [BO] [NM1-2655] *Syzygium aromaticum* (L.) Merr. & Perry (Myrtaceae) [but cf. LD, same voucher:] *Syzygium* sp.
- T *o malepuutu* [SL] V [BO] *Salix tetrasperma* Roxb. (Salicaceae)
- T *o mali-mali* [CX, < vb *-mali* 'bitter' + (redup.); 'which is bitter'] V [NM1-2326] [BO] *Sloetia elongata* Koord. (Urticaceae)
- T *o mamu* [SL] V [NM2-0566] [HA] "cf. *Sloanea* sp." (Elaeocarpaceae)
- O *o manahi* [SL] PT, Ph: *Ananas comosus* (L.) Merr. 'pineapple' (Bromeliaceae)
- Note: Subclassification at Loleba (Boeng dialect) and Pasir Putih (Dodinga dialect) are considered separately here.
- 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] V [NM2-0255] [HA] *Pandanus* sp. (Pandaceae)
- T *o manoko ma babahana* [CD-EN, 'bat' + poss. + '?'] V [BO] *Decaspermum* sp. (Myrtaceae)
- T *o manoko ma boboha* [CD-EN, 'bat (flying mammal)' + poss. + 'club, bat (for hitting)'; 'club for hitting bats'] V [BO, LD] *Decaspermum bracteatum* (Roxb.) Schott. (Myrtaceae) [cf. LD, same voucher:] *Decaspermum* cf. *rubrum* Bl. (Myrtaceae) [cf. NM1-2647] [BO] *Garcinia parviflora* (Miq.) Miq. (Guttiferae) [cf. NM2-0406] [HA] *Decaspermum* cf. *bracteatum* (Myrtaceae) [NM2-0232] [HA] *Decaspermum* sp.
- H *o manuru* [SL] V [BO] *Jasminum sambac* Soland. (Oleaceae)
- T *o mayoro* [SL]
- t + *o mayoro ma roehe itoka-tokara* [P-EN] 'red-trunked *mayoro*' V [BO] *Syzygium racemosum* Bl. (Myrtaceae)
- t - *o mayoro (ma roehe iare-arehe)* [P-EN] '(white-trunked) *mayoro*' (uncoll.)
- T *o meata* [SL] V [NM1-2301] [BO] *Micromelum diversifolium* Miq. (Rutaceae) [but cf. NM1-2432] [BO] *Garcinia celebica* L. (Guttiferae) [NM2-0542] [HA] *Garcinia* sp.
- T *o meha-mehanga* [CX, < vb -*mehanga* 'to be hirsute'; 'hirsute' (so called because of hirsute leaves)] V [BO] *Antiaris toxicaria* (Pers.) Lesch. (Moraceae)
- V *o meleu ma gitifiri* [CD-EN, '*meleu* megapode bird (q.v.)' + poss. + 'claw'; 'megapode's claw'] V [NM2-0502] [HA] det. not avail.
- T *o melunu ma gule* [CD-EN, '*melunu* (fish)' + poss. + 'necklace'; '*melunu* fish's necklace'] V [BO] *Euonymus javanicus* Bl. (Celastraceae)
- V *o migi* [SL]
- v + *o migi o tonakika* [P-EN] 'ground(-dwelling) *migi*' V [NM1-2228, NM1-2251] 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 [NM1-2060] [BO] *Rhaphidophora* sp. (Araceae) [cf. NM2-0263, NM2-0383] [HA] *Pothos* sp. (Araceae) [cf. NM1-2804] [BO] *Scindapsus* cf. *pictus* Hassk. (Araceae) [cf. NM1-2141, NM1-2164, NM1-2214, NM1-2243] det. not avail.
- 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 [NM1-2858] [BO] *Rhaphidophora pinnata* (L. f.) Schott. (Araceae)
- T *o moa-moana* [CX, < vb -*moana* 'to split open (of fruit)'] V [NM1-2177] det. not avail. [cf. NM2-0244] [HA] *Ervatamia* sp. (Apocynaceae)
- T *o moata* [SL] V [NM2-0404] [HA] det. not avail. (Monimiaceae)
- T *o mohara* [SL] V [BO] *Drypetes globosa* P. et H. (Euphorbiaceae)
- t - *o mohara* [SL] V [NM1-2765] [BO] *Drypetes globosa* P. et H. (Euphorbiaceae)
- t + *o mohara o gahika* [P-EN] 'shore *mohara*' V [NM2-0597] det. not avail.
- O *o mokuru* [SL] (uncoll.) Ph, PT: *Areca* sp. or spp. 'areca palm' (Palmae)
- o + *o dipongo* [SL]
- o - *o mokuru* [SL]
- T *o moliorata* [SL] V [NM1-2016] [BO] *Chilocarpus* sp. (Apocynaceae) [but cf. NM1-2428] [LD] *Garcinia* sp. (Guttiferae)
- T *o mologotu* [SL] (uncoll.)
- O *o momongere* [SL, but ?<CX] V [NM1-2907, NM2-0518] det. not avail. Ph: *Kaempferia* sp. (Zingiberaceae)
- H *o momorútu* [SL, but ?< CX] V [NM2-0578, NM2-0672] det. not avail. (Zingiberaceae)
- V *o mongóyo* [SL]
- v + *o mongóyo ma nauru* [P-EN] 'male *mongóyo*' V [NM1-2382] [BO] *Pteris ensiformis* Burm. (Pteridaceae) [cf. NM2-0166] det. not avail.
- v - *o mongóyo (ma beka)* [P-EN] 'female *mongóyo*' V [NM1-2044] [BO] *Lygodium circinnatum* (Burm. f.) sw. (Schizaeaceae) [cf. NM2-0568] [HA] *Lygodium* sp. (Schizaeaceae) (Note: both subclasses apparently same genus, possibly same species.)
- v - *o mongóyo ma gare-garehe* [P-EN] 'white *mongóyo*' (name refers to light color of stem used in basket-weaving)
- v - *o mongóyo ma daro-daromo* [P-EN] 'black *mongóyo*' (name refers to dark color of stem used in basket-weaving)
- VxT *o moowoete* [SL]
- v - *o moowoete o gumini* [P] 'vine *moowoete*' V [NM2-0098, NM2-0640] [HA] *Mussaenda* sp.

- (Rubiaceae)
- t ~ *o moowoete o gota* [P] 'tree moowoete' V [NM1-2195] [LD] *Mussaenda* sp. (Rubiaceae) [cf. NM1-2484] [BO] *Carmona* sp. (Ehretiaceae)
- VxT *o morihuhuku* [SL]
- v + *o morihuhuku o gumini* [P] 'vine morihuhuku' V [NM1-1158] (lost)
- t - *o morihuhuku (o gota)* [P] '(tree) morihuhuku' V [NM1-2573] [BO] *Pycnarrhena manillensis* Vidal (Menispermaceae) [cf. NM1-2835] [LD] *Kibara* sp.
- V *o muroraha* [SL] V [LD] *Clematis* sp. (Ranunculaceae)
- T *o mutuu* [SL] V [BO] *Melochia umbellata* Stapf (Sterculiaceae)
- T *o namo-namo* [SL, but ?<CX] (uncoll.)
- T *o namo-namo ma dofa* [P-EN] 'counterfeit namo-namo' V [BO] *Intsia bjuga* (Colebr.) D.K. (Leguminosae)
- T *o nanalingi* [SL]
- t *o nanalingi ma beka* [P-EN] 'female nanalingi' V [NM2-0630] [US] *Xylocarpus moluccensis* (Lamm.) Roem. (Meliaceae)
- t *o nanalingi ma nauru* [P-EN] 'male nanalingi' (uncoll.)
- T *o nangka-balánda* [SL, but < Ind CD 'jackfruit' + 'Dutch'; 'Dutch jackfruit'] V [BO] *Annona muricata* L. (Annonaceae)
- 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 populnea* (L.) Soland. (Malvaceae)
- t *o nawoko ma lako o gahika* [P-EN] 'shore nawoko ma lako' V [LD] *Hernandia nymphaeifolia* Kubitzki (Hernandiaceae)
- V *o ngabao* [SL]
- v *o ngabao ma beka* [P-EN] 'female ngabao' V [BO] *Stemona curtisii* Lour. (Stemonaceae)
- v *o ngabao ma nauru* [P-EN] 'male ngabao' V [BO] *Dioscorea bulbifera* L. (Dioscoreaceae)
- T *o ngaeke* [SL] V [NM2-0328] [HA] *Pometia pinnata* J.R. & G. Forst. (Sapindaceae)
- T *o ngahiri* [CX, ? < vb 'swallow'; 'swallow'] V [NM1-2361] det. not avail.
- T *o ngalumu* [SL] V [NM1-2200] [LD] *Macaranga* sp. [cf. NM2-0219] [HA] *Mallotus mollissimus* (Giesel) Airy Shaw (Euphorbiaceae)
- 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. (Guttiferae)
- H *o ngangangoro* [CX, < vb -wangoro 'sparkle'; 'sparkling']
- h + *o ngangangoro ma nauru* [P-EN] 'male ngangangoro' V [NM1-2475] [LD] *Centotheca latifolia* Trin. (Gramineae) [cf. NM2-0181, NM2-0271] det. not avail.
- h - *o ngangangoro (ma beka)* [P-EN] '(female) ngangangoro' V [NM1-2352] [LD] *Alpinia* sp. (Zingiberaceae) [cf. NM2-0145] [HA] *Ottobchia* sp. (Zingiberaceae)
- T *o ngapo* [SL] V [BO] *Diospyros maritima* Bl. (Ebenaceae)
- 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 [NM1-2236] det. not avail.
- O *o ngauku ma hahakara* [CD-EN, 'ear' + poss. + 'picking tool, pick'; 'ear-pick'] V [NM1-2515] [BO] *Oplismenus compositus* (L.) Beauv. (Gramineae) [cf. NM2-0657] [HA] *Digitaria* sp. (Gramineae)
- V *o ngau-ngauku* [CX, < n ngauku 'ear(s)'; 'rather like ears'] V [BO] *Rhaphidophora* sp. (Araceae)
- T *o ngeceda* [SL] [B dialect; cf. D:] *o ngeteda* [SL] V [NM2-0110] det. not avail.
- 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. (Burseraceae)
- H *o ngiuru* [SL] V [NM2-0445] [HA] *Gleichenia* sp. (Gleicheniaceae)
- h - *o ngiuru (ma beka)* [P-EN] '(female) ngiuru' V [NM1-2630] det. not avail.
- h + *o ngiuru ma nauru* [P-EN] 'male ngiuru' V [NM1-2524] [BO] *Gleichenia linearis* (Burm.) Clarke (Gleicheniaceae)
- 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* Bl. (Rutaceae)
- 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 [NM1-2351] [BO] *Cynanchum ovalifolium* Wight (Asclepiadaceae) [but cf. NM1-2352] *Parsonsia cumingiana* D.C. (Apocynaceae) [cf. also NM2-0119] [HA] *Mars-*

- denia* sp. (Asclepiadaceae)
- H *o ngo boki ami pine* [CD-EN (feminine name marker), + 'Boki (name, meaning 'cat') + poss. + 'rice'; 'cat's rice'] V [LD] *Themeda* sp. (Gramineae)
- T *o ngodóro* [SL] V [BO] *Microcos ceramensis* Burret (Tiliaceae)
- 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 [NM1-2810] [BO] *Garcinia dulcis* (Roxb.) Kurz [but cf. LD] *Calophyllum* sp. (Guttiferae)
- H *o ngohaka manga buku ma didino* [CD-EN, 'child, baby' + poss. + 'knee' + poss. + 'massage oil'; 'massage oil for babies' knees'] V [NM1-2566] det. not avail.
- T *o ngotiri ma emanga* [CD-EN, 'boat' + poss. + '?'] V [BO] *Terminalia* sp. (Combretaceae)
- H *o nguhumu* [SL] V [NM1-2113] det. not avail. [NM2-0094] [HA] *Imperata cylindrica* (L.) Beauv. (Gramineae)
- 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* (= *purpurea*) L. Soland. ex Park. (Anacardiaceae)
- 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 (Anacardiaceae)
- T *o nguna-ngunanga* [CX, < vb -*wunanga*; (etym.?)] V [BO, LD] *Fatoua pilosa* Gaud. (Moraceae)
- TxV *o ngunguningi* [CX, < vb -*wuningi* 'to watch, look at' (etym.?)]
- t - *o ngunguningi (o gota)* [P] '(tree) *ngunguningi*' V [BO] *Grewia laevigata* Val. (Tiliaceae)
- v - *o ngunguningi o gumini* [P] 'vine *ngunguningi*' V [NM2-0242] [HA] *Grewia acuminata* Juss. (Tiliaceae)
- O *o ngura* [SL] V [NM2-0644] det. not avail. Note: this is a wild banana (apparently *Musa* sp. (Musaceae)). Though other such plants are placed in the *o bole* 'banana' class (q.v.), this one is not (at Kampung Pasir Putih).
- V *o nguroto ma doa* [CD-EN, 'tendon' + poss. + '?'] V [NM1-2205] det. not avail.
- T=H *o ngutuku ma gogurati* [CD-EN, 'root' + X + 'yellow'; 'yellow root'] V [BO] *Fatoua pilosa* Gaud. (Moraceae)
- T *o niara* [SL]
- t + *o nia-mára* [SL?]
- *o niara o fonganika* [P-EN] 'jungle *niara*' V [NM1-2151] det. not avail.
- t + *o hibúru* [SL] (or) *o hubúru* [SL]
- t - *o niara* [SL] V [NM2-0534] [HA] *Canarium* sp. (Burseraceae)
- T *o nongu* [SL] (uncoll.)
- T *o nouku* [SL] V [BO] *Ficus melinocarpa* Bl. (Moraceae)
- T *o nututu* [SL] V [NM1-2787] [BO] *Melochia umbellata* [cf. NM2-0580] [HA] *M. umbellata* (Houtt.) Stapf (Apocynaceae)
- T *o oaha* [SL]
- t - *o oaha (o fonganika)* [P-EN] '(jungle) *oaha*' V [BO] *Diospyros* cf. *heterocarpa* (Ebenaceae)
- t + *o oaha o dotoika* [P-EN] 'cape *oaha*' V [NM1-2230, NM1-2233] det. not avail.
- t + *o oaha o gahika* [P-EN] 'shore *oaha*' (or:) *o oaha o pekeika* [P-EN] 'mud(-flat) *oaha*' V [NM1-2218, NM1-2267, NM1-2100] det. not avail.
- T *o ode ma futu* [CD-EN, 'pig' + poss. + 'night?'] V [BO] *Diospyros cauliflora* Bl. (Ebenaceae)
- 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 [NM1-2026] [BO] *Maniltoa* sp. (Leguminosae) [cf. NM1-2199] [HA] *Cynometra* sp. (Leguminosae)
- 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 [NM1-2241] det. not avail.
- t - *o oenge (ma beka)* [P-EN] '(female) *oenge*' V [NM1-2202] det. not avail.
- O *o okiri* [SL] V [NM1-2874] det. not avail.
- T *o paáte* [SL] V [NM1-2184, NM2-0226] det. not avail.
- T *o pacikára* [SL]
- t *o pacikára o gahika* [P-EN] 'shore *pacikára*' V [NM1-2470] [BO, LD] *Pittosporum moluccanum* (Lamk) Miq. (Pittosporaceae) [NM2-0375] [HA] (same det.) [but cf. NM2-0553] [HA] *Linociera* sp.
- t *o pacikára ihohihika* [P-EN] 'thorny *pacikára*' V [BO, LD] *Pittosporum ferrugineum* Ait. (Pittosporaceae)
- T *o paiyongihí* [SL] V [NM1-2878] det. not avail.
- T *o pangáha* [SL]
- t - *o pangáha (ma oa)* [P-EN] '(good) *pangáha*' V [NM2-0550] [HA] *Discocalyx* sp. (Myrsinaceae) [cf. NM2-0158] [HA] det. not avail. (Sapotaceae) [cf. NM2-0158] [HA] *Barringtonia* sp. (Barringtoniaceae)
- t + *o pangáha ma dorou* [P-EN] 'bad *pangáha*' V [NM1-2565] det. not avail.
- 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.) Miens ex Hook. f. & Thoms. (Menispermaceae)
- T *o papaooto* [SL, but ?<CX] V [BO] *Erythrina orientalis* (L.) Murr. (Leguminosae)
- V *o papare* [SL] V [NM2-0382] det. not avail. (Cucurbitaceae)
- T=O *o papudóo* [SL]
- t + *o papudóo o fonganika* [P-EN] 'jungle *papudóo*' (uncoll.)
- t=o - *o papudóo* [SL]
- t=o *o papudóo ma hoka inou-nouhu* [P-EN] 'smooth-leaved *papudóo*' V [BO] *Acanthus ebracteatus* Vahl (Acanthaceae)
- t=o *o papudóo ma hoka iho-hihika* [P-EN] 'thorny-leaved *papudóo*' V [BO] *Acanthus ilicifolius* L. (Acanthaceae)
- V *o patola* [SL] V [NM2-0359] [HA] det. not avail. (Cucurbitaceae) Note: probably *Trichosanthes* sp.; cf. widely used Malay (orig. Sanskrit) term *patola* 'snake gourd' (*Trichosanthes*).
- T *o pea-pea* [SL, but ?<CX] V [BO, LD] *Endospermum moluccanum* Becc. (Euphorbiaceae)
- O *o peda* [SL] (uncoll.) Ph, PT: *Metroxylon* sp. or spp. 'sago palm' (Palmae)
- 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, 'sugar palm' (synonym of *o daluku*, q.v.) (thus this sago is compared to the sugar palm)]
- 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]
- H *o peda ma ora* [CD-EN, 'sago' + poss. + '?'] V [NM2-0150] [HA] det. not avail. (Fern)
- V *o peda-peda* [CX, redup. + 'sago'; 'rather like sago' (due to similarity of habitat?)] V [NM2-0177] [HA] *Capparis* sp. (Capparidaceae)
- O *o pehana* [SL] (uncoll.)
- O *o pepetingi* [SL, but ?<CX] V [BO] *Arenga obtusifolia* Mart. (Palmae)
- O *o petele* [SL] V [NM1-2210] det. not avail.
- T *o pilawana* [SL] V [BO] *Vitex trifolia* L. (Verbenaceae)
- 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 [NM1-2624] det. not avail. (see note above under B⁰ term *o pine*).
- o(g) - *o pine* [SL] V [BO] *Oryza sativa* L. (Gramineae) (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. (Gramineae)
- T *o pipidóro* [SL] V [BO] *Codiaeum variegatum* (L.) Bl. (Euphorbiaceae)
- T *o pogihoro* [SL] V [NM1-2162] [BO] *Maesa tetrandra* (Roxb.) DC. (Myrsinaceae) [but cf. NM1-2648] [BO] *Maesa* sp. (different species) (Myrsinaceae)
- T *o pohi-pohi* [SL, but ?<CX] V [HA] *Sonneratia alba* J. Smith (Sonneratiaceae)
- T *o poko-pokoro* [CX, < n *pokoro* 'stomach' + redup.; '?'] V [NM1-2080, NM2-0196] 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] V [NM2-0520] [HA] *Ficus* sp.

- (Moraceae)
- 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. (Moraceae)
- V *o poparaaka* [SL, but ?<CX] (uncoll.)
- T *o popewi* [SL] (or) *o pupewi* [SL] V [NM1-2868] [BO] *Albizia saponaria* Bl. (Leguminosae) [but cf. LD, same voucher:] *Pithecellobium* sp. [NM2-0234] [HA] *Albizia saponaria* (Lour.) Bl. ex Miq. (Leguminosae)
- T *o popopara* [SL, but ?<CX] V [BO] *Diospyros nigra* Perr. (Ebenaceae)
- T *o poro-poroho* [probably CX] V [BO] *Adenanthera pavonina* L. (Leguminosae)
- O *o pudaka* [SL] V [BO] *Pandanus amaryllifolius* Roxb. (Pandaneaceae)
- T *o pugu-pugutu* [probably CX]
- t - *o pugu-pugutu (ma beka)* [P-EN] '(female) pugu-pugutu' V [BO] *Claoxylon longifolium* (Bl.) Endl. ex Hassk. (Euphorbiaceae)
- t + *o pugu-pugutu ma nauru* [P-EN] 'male pugu-pugutu' V [NM2-0147] [HA] *Lunasia amara* Blanco (Rutaceae)
- O *o puhelingi* [SL] V [NM1-2472, NM2-0198] det. not avail.
- V *o puku* [SL] V [NM1-2472, NM2-0198] [BO, LD] *Cissampelos pareira* L. (Menispermaceae) [cf. NM2-0571] [HA] *Pueraria* cf. *pulcherrima* Merr. ex Koord.-Schum. (Leguminosae)
- T *o pulahari* [SL] V [NM2-0153] *Lepiniopsis ternatensis* Val. (Apocynaceae)
- T *o putiána ma gitifiri* [CD-EN, 'ghost (of a woman who died in childbirth; cf. Malay *pontianak*)' + poss. + 'claws, (finger- or toe-) nails'; 'putiána (ghost)'s claws'] V [NM1-2855] det. not avail. [NM2-0393] *Schefflera* sp. (Araliaceae)
- O *o puungu* [SL] (uncoll.)
- H *o puusu ma gumí* [CD-EN, 'cat' + poss. + 'whisker(s)'; 'cat's whiskers'] V [BO] *Vernonia cinerea* (L.) Less. (Compositae)
- O(B) *o rabánga* [SL] V [NM1-2848, NM2-0436] det. not avail.
- T *o rabatingo* [SL] (B; cf. D dialect:) *o rabatigo* (uncoll.)
- T *o rai* [SL] (uncollected 'tree'; cf. NON-BREATHING 'mushroom' of same name)
- H *o rai-rai* [SL, but ?<CX] V [BO] *Cenchrus brownii* R. & S. (Gramineae)
- T *o rambutan* [SL, Ind *rambutan* '*Nephelium* sp.']
- t + *o ace* [SL] (or) *o rambutan-ace* [SL, but < Ind or NMM *rambutan aceh* 'Aceh (North Sumatra) *rambutan*'] V [NM1-2755] det. not avail.
- t - *o rambutan* [SL] PT: *Nephelium* sp. (Sapindaceae)
- T *o ranga* [SL] (uncoll.)
- H *o rautengo* [SL, but Tte CD?; Tte rau 'leaf,' *tengo* 'single'; 'single leaf' (?)] V [BO] *Nervilia aragana* Gaud. (Orchidaceae)
- O *o rica* [SL, cf. NMM *rica*] V (for subclasses *o manado*, *o helehekú*, *o gopu*; all these definitely, and others apparently, same species) [BO] *Capsicum frutescens* L. (Solanaceae)
- 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 be silent'; 'silence'] V [NM1-2809] [BO] *Agrostistachys* cf. *gaudichandii* (Euphorbiaceae) [but cf. LD, same voucher:] *Gardenia* cf. *pterocalyx* Val. (Rubiaceae) [NM1-2639] det. not avail.
- t *o riidi ma nauru* [P-EN] 'male riidi' V [NM1-2429] det. not avail.
- t *o riidi ma beka* [P-EN] 'female riidi' V [NM1-2487] *Codiaeum variegatum* (L.) Bl. (Euphorbiaceae)
- 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 [NM1-2424] det. not avail.
- T *o rofisi* [SL, cf. vb (from this noun?) -*rofisi* 'to twist, gnarl'] V [NM1-2102] [LD] *Syzygium* sp. [cf. NM2-0334] [HA] *Syzygium* sp. (Myrtaceae) [cf. NM1-2808] det. not avail.
- VxH *o roma* [SL]
- v - *o roma (ma beka)* [P-EN] '(female) roma' V [US] *Flagellaria indica* L. (Flagellariaceae)
- h + *o roma ma nauru* [P-EN] 'male roma' V [BO] *Spathoglottis plicata* Bl. (Orchidaceae)
- TxH *o roringohana* [SL, but ?<CX]
- h + *o roringohana ma dorou* [P-EN] 'bad roringohana' V [US] *Justicia* sp. (Acanthaceae)
- t - *o roringohana* [SL] V [NM1-2054] [BO] *Gendarussa vulgaris* Nees (Acanthaceae) [NM2-0083] det. not avail.
- (Note: for discussion of the classification shown here, see 5.2.1.3.)
- t *o roringohana ma nauru* [P-EN] 'male roringohana' (or) *o roringohana o fonganika* [P-EN] 'jungle roringohana' V [NM1-2516] *Pittosporum ferrugineum* Ait. (Pittosporaceae)
- 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*' V [NM2-0389] det. not avail. (Acanthaceae)
- T *o rorúmu* [SL] (or) *o rurúmu* [SL] V [BO] *Heritiera littoralis* Dryand. ex Ait. (Sterculiaceae)
- V *o rotu-rotu* [CX, < vb *-rotu* 'crackle'; 'crackle' (so called because this vine makes a sharp crackling sound if twisted)] V [NM1-2389] [BO, LD] *Cissus nodosa* Bl. (Vitaceae) [cf. NM2-0362] [HA] *Cayratia* sp. (Vitaceae)
- T *o rubu* [SL] V [LD] ?*Walsura* sp. (Meliaceae)
- H *o ruju-ruju* [CX, cf. vb. *-ruju* 'rub'] (uncoll.)
- T *o ruhu* [SL] V [NM1-2354] [BO] *Trema orientalis* (L.) Bl. [but cf. LD] *Trema tomentosa* (Roxb.) Hara (Ulmaceae)
- t - *o ruhu (ma beka)* [P-EN] '(female) *ruhu*' V [NM2-0126] [HA] *Trema cannabina* Lour. (Ulmaceae)
- t + *o ruhu ma nauru* [P-EN] 'male *ruhu*' V [NM2-0240] [HA] *Trema orientalis* (L.) Bl. (Ulmaceae)
- H *o ruju-ruju* [SL, but ?< CX] V [NM2-0104] [HA] *Cyperus cyperoides* (L.) O.K. (Cyperaceae) [cf. NM2-0331] [HA] *Plectranthus* sp. (Labiatae)
- VxT *o rukiti* [SL]
- v + *o rukiti ma dorou* [P-EN] 'bad *rukiti*' V [BO] *Gnetum gnetonoides* Brongn. (Gnetaceae)
- t - *o rukiti (ma oa)* [P-EN] '(good) *rukiti*' V [LD] *Gnetum* sp. (Gnetaceae)
- O *o sayur-cina* [SL, but < Ind & NMM CD-EN *sayur* 'vegetable' + *cina* 'Chinese'; 'Chinese vegetable'] (or) *o cinaka manga uge* [CD-EN, 'Chinese people' + '(human plural) poss.' + 'vegetable'; 'Chinese people's vegetable' (this is a rarely used Tobelo translation of the more common Ind & NMM term given previously)] V [NM2-0220] det. not avail.
- V *o siafu* [SL] V [NM2-0587] [HA] *Dioscorea* sp. (Dioscoreaceae)
- H *o sike-sike* [SL, but ?<CX] (or:) *o hike-hike* [SL, but ?<CX] V [NM1-2462] det. not avail. [NM2-0507] [HA] *Ocimum tenuiflorum* L. (Labiatae)
- V *o sone-kodiho* [SL, but ?< Tte CX, cf. *sone* Tte 'kill, die' + '?'] V [NM2-0503] [HA] *Tetracera* cf. *nordiana* F. v. M. (Dilleniaceae)
- T *o sosólo* [SL] V [BO] *Acalypha hellwigii* Warb. (Euphorbiaceae)
- 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. (Ulmaceae)
- H *o sulasi* [SL] (Note: probably same as *o hulahi*, q.v.) V [BO] *Ocimum basilicum* L. (Labiatae)
- O *o tabako* [SL] PH, PT: *Nicotiana tabacum* L. (Solanaceae) '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 [NM1-2221, NM1-2270, NM1-2469] det. not avail.
- t - *o tabidonga* [SL] V [NM2-0130] [HA] *Allophylus cobbe* (L.) Raesch. (Sapinaceae)
- t + *o tabidonga o gahika* [P-EN] V [NM2-0208] det. not avail.
- H=O *o tabihahu* [SL] (in Tbl-D often pronounced:) *o tabisasu* [SL]
- h + *o tabihahu ma dorou* [P-EN] 'bad *tabihahu*' V [NM1-2617] [BO] *Bauhinia* cf. *acuminata* L. (Leguminosae) [but cf. NM1-2482] [BO] *Sporobolus diander* (Retz.) Beauv. (Graminaeae) [cf. LD & J. Reeder, same voucher:] *Sporobolus indicus* (L.) R. Br. (Graminaeae)
- h=O - *o tabihahu (ma oa)* [P-EN] '(good) *tabihahu*' (or) *o tabihahu (ma dutu)* [P-EN] '(genuine) *tabihahu*' V [NM1-2613] [BO] *Acriopsis javanica* Reinw. (Orchidaceae) [but cf. NM1-2598] [BO] *Dendrobium calceolum* Roxb. (Orchidaceae)
- h=O - *o tabihahu (ma beka)* [P-EN] '(female) *tabihahu*' V [NM2-0412, NM2-0539] [HA] *Dendrobium* sp. (Orchidaceae)
- h=O + *o tabihahu ma nauru* [P-EN] 'male *tabihahu*' V [NM2-0709] *Dendrobium* sp. (Orchidaceae) [NM2-0343] det. not avail.
- H *o tadauru ma houru* [CD-EN, 'hair' + poss. + 'medicine (incl. cosmetic preparation)'; 'cosmetic preparation for the hair' (so called because the leaves are used as shampoo)] V [NM1-2517] det. not avail.
- T *o taehe ma futu* [CD-EN, 'piglet' + poss. + 'night (?)'] V [NM1-2546] det. not avail.
- T *o taehe ma gitifiri* [CD-EN, 'piglet' + poss. + 'claw(s)'; 'piglet's claws'] V [BO] *Maniltoa* sp. (Leguminosae)
- T *o taehe ma huhuhumu* [CD-EN, 'piglet' + poss. + '?'] V [LD] *Drypetes* sp. (Euphorbiaceae)
- H=O(F) *o tahubé* [SL] V [NM1-2849] [BO] *Canna coccinea* Mill. (Cannaceae) [but cf. V NM1-2408] [BO] *Canna coccinea* Mill. [cf. LD] *Canna indica* L. (Cannaceae)
- O *o tahubf* [SL] (or) *o kaboja* [SL] Ph, PT: *Manihot esculenta* Crantz (Euphorbiaceae) (PT: all subclasses)

- o + *o inggerehe* [SL, 'English'] V [NM2-0078] [HA] *Manihot esculenta* Crantz.
- o - *o tahubí* [SL]
- o + *o karet* [SL, < Ind *karet* '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 Molucas)']
- o - *o leleko* [SL, q.v.]
- o - *o lolobáta* [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] V [NM2-0589] [HA] det. not avail. (Palmae)
- V *o take* [SL] [NM1-2002] aff. *Calamus* sp. [US] (Palmae)
- H *o takiu* [SL]
- h + *o takiu ma nauru* [P-EN] 'male takiu' V [NM1-2481] [LD] *Cyperus brevifolius* (Rottb.) Hassk. (Cyperaceae) [but cf. BO]: *Cyperus kyllingia* Endl. (Cyperaceae)
- h - *o takiu (ma beka)* [P-EN] '(female) takiu' V [NM1-2792] [LD] *Cyperus rotundus* L. (Cyperaceae) [but cf. BO] *Cyperus kyllingia* Endl. (Cyperaceae)
- T *o takupoa* [SL?]
- t + *o takupoa o dotoika* [P-EN] 'cape takupoa' V [BO] *Rapanea* cf. *rawacensis* (DC.) Mez. (Myrsinaceae)
- t - *o takupoa* V [BO] *Psychotria leptothyrsa* Miq. (Rubiaceae)
- V *o tali* [SL] V [BO] *Piper insignilimbun* DC. (Piperaceae)
- O *o tamate* [SL] Ph, PT: *Lycopersicum esculentum* Mill. (Solanaceae) 'tomato' (all subclasses)
- o + *o balibi* [SL, q.v.]
- o - *o tamate* [SL]
- O *o tamelo* [SL] Ph: *Phaseolus vulgaris* L. (Leguminosae)
- O *o tanuma* [SL] Ph: *Phaseolus radiatus* L. (Leguminosae)
- VxHxO *o tarate* [SL] 'orchid'
- v + *o tarate o gumini* [P] 'vine tarate' V [BO, US] *Bulbophyllum* sp. (Orchidaceae)
- h + *o tarate o tonakika* [P-EN] 'ground(-living) tarate'
- h *o tarate ma beka* [P-EN] 'female tarate' V [BO] *Eulophia squalida* Lindl. (Orchidaceae)
- h *o tarate ma nauru* [P-EN] 'male tarate' V [BO] *Eulophia javanica* J.J.S. (Orchidaceae)
- o - *o tarate (ma dutu)* [P-EN] '(genuine) tarate' V [NM1-2637] det. not avail. [NM2-0433] [HA] *Dendrobium* sp. (Orchidaceae)
- T *o tatama* [SL] V [NM1-2421] 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 [NM1-2771] det. not avail.
- t - *o tataulu* [CX] V [BO] *Ficus adenosperma* Miq. (Moraceae)
- T *o tataulu ma amoko* [CD-EN, *tataulu* (the 'tree'? q.v.) + poss. + 'size, bigness'; 'the big tataulu (tree) (?)'] V [NM1-1190] (lost)
- T *o tato ma gohi* [CD-EN, 'trigger fish' + poss. + 'egg(s)'; 'trigger fish eggs'] V [BO, LD] *Colubrina asiatica* (L.) Brongn. (Rhamnaceae)
- T *o taulate* [SL] V [BO] *Canarium hirsutum* Willd. var. *hirsutum* f. *scabrum* (Bl.) (Burseraceae)
- T *o tawa* [SL] V [NM1-1106] (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 (Ehretiaceae)
- t **o te* [SL] 'tea'
- T *o tela-tela* [SL, but ?<CX] V [NM2-0211] [HA] *Aegicerus corniculatum* (L.) Blanco (Myrsinaceae)
- V *o telelika* [SL] (or) *o totofora* [SL, but ?<CX] V [NM1-2313] [BO] *Secamone villosa* Bl. (Asclepiadaceae) [LD] *Sarcolobus* sp. (Asclepiadaceae)
- 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 [NM1-2590] det. not avail.
- O(B) *o tetewanga* [SL] V [BO] *Schizostachyum* sp. (Gramineae)
- O(B) *o tiba* [SL] V [BO, US] *Schizostachyum lima* (Blanco) Merr. (Gramineae)
- T *o tiba ma mehanga* [CD-EN, 'tiba bamboo (q.v.)' + poss. + 'small spicules'; 'bamboo's spicules'] V [NM1-2157] det. not avail.
- T *o tifiriki* [SL]
- t + *o tifiriki ma gare-garehe* [P-EN] 'white tifiriki' V [NM1-2161] det. not avail.

- t - *o tifiriki (ma doka-dokara)* [P-EN] '(red) *tifiriki*' V [BO] *Palaquium lobbianum* Burck. (Sapotaceae)
- T *o tigo-tigono* [CX, < vb *-tigono* 'to flow (of plant sap)'; 'flowing sap'] V [BO] *Pimeleodendron amboinicum* Hassk. (Euphorbiaceae)
- T *o tiingi* [SL] (uncoll.) (indet. mangrove)
- T *o tiliho* [SL]
- t + *o tiliho-huhuku* [CD; *-huhuku* '?'] (B; cf. D dialect:) *o tiliho-fusuku* (same as above) V [NM1-2130, NM1-2242] det. not avail.
- t + *o tiliho o gahika* [P-EN] 'shore *tiliho*' V [NM1-2219] det. not avail.
- t - *o tiliho* [SL] V [NM2-0372] *Terminalia catappa* L. (Combretaceae)
- V *o tiliho-gumini* [CD-EN, 'tiliho (a tree, q.v.)' + 'vine'; 'vine *tiliho*'] V [BO] *Agrostistachys maesoana* Vidal (Euphorbiaceae)
- T *o timilongo* [SL] V [NM1-2256, NM1-2530] det. not avail.
- T *o tioua* [SL] V [NM1-2182] det. not avail. [cf. NM2-0084, NM2-0631] [HA] *Micromelum* sp. (Rutaceae)
- H=O *o titibi* [SL] V [US] *Zingiber* sp. (Zingiberaceae)
- O(B) *o todoku* [SL]
- o(b) + *o todoku ma dorou* [P-EN] 'bad *todoku*' V [US] *Bambusa atra* Lindl. (Gramineae)
- o(b) - *o todoku (ma oa)* [P-EN] '(good) *todoku*' V [US] *Bambusa atra* Lindl. (Gramineae)
- H *o tokata ma gole-gole* [CD-EN, 'ghost' + poss. + '?'] V [NM2-0593] *Achyranthes aspera* L. (Amaranthaceae) [but cf. NM2-0403, NM2-0509] [HA] *Cyathula prostrata* (L.) Bl. (Amaranthaceae)
- T *o tome-tome* [SL, but ?< CX]
- t - *o tome-tome* [SL, but ?< CX] V [NM1-2709] [BO] *Scolopia spinosa* (Roxb.) Warb. (Flacourtiaceae) [cf. NM2-0286] [HA] *Flacourtia* sp. (Flacourtiaceae)
- t + *o tome-tome o fonganika* [P-EN] 'jungle *tome-tome*' V [NM1-2248] [LD] *Gonocaryum littorale* (Bl.) Sleum. (Icacinaceae)
- O(B) *o tonga-jáwa* [SL, but Ind CD?] V [BO] *Schizostachyum brachycladum* Kurz (Gramineae)
- O *o topáya* [SL] (uncoll.) Ph, PT: *Carica papaya* L. (Caricaceae) (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 pa-
- paya']
- 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 [NM1-2238] det. not avail.
- t - *o torobúku (ma dutu)* [P-EN] '(genuine) *torobúku*' V [LD] *Guettarda speciosa* L. (Rubiaceae)
- V *o torófuku* [SL] (or) *o to-torófuku* [CX, < n *torófuku* (q.v.) + (redup.)] V [NM1-2004] [BO] *Trichosanthes* sp. (Cucurbitaceae)
- T *o totabako* [CX, < n *tabako* 'tobacco'; 'rather like a tobacco (plant)'] V [NM2-0105] [HA] *Solanum* sp. (Solanaceae)
- t + *o totabako ma nauru* [P-EN] 'male *totabako*' V [NM1-2497] det. not avail.
- t - *o totabako (ma beka)* [P-EN] '(female) *totabako*' V [NM1-2308] det. not avail. [NM2-0178] [HA] *Blumea* sp. (Compositae)
- 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. (Euphorbiaceae)
- h - *o totaleo ma hohorene (ma beka)* [P-EN] '(female) *totaleo ma hohorene*' V [NM1-2117] det. not avail. [cf. NM2-0559] [HA] *Plectranthus scutellarioides* (L.) R. Br. (Labiatae)
- T *o totaleo ma ruoho* [CD-EN, 'chicken' + poss. + '?']
- t + *o totaleo ma ruoho o fonganika* [P-EN] 'jungle *totaleo ma ruoho*' V [NM1-2171] 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] *Codiaeum variegatum* (L.) Bl. (Euphorbiaceae)
- t *o totaleo ma ruoho ma nauru* [P-EN] 'male *totaleo ma ruoho*' V [NM1-2695] det. not avail.
- V *o totofora* [SL] V [NM1-2313] [BO] *Secamone villosa* Bl. (Asclepiadaceae) [cf. LD, same voucher:] *Sarcolobus* sp.
- T *o totopáya* [CX, < n *topáya*, (q.v.) 'papaya'; 'rather like a papaya'] V [BO] *Euodia latifolia* DC. (Rutaceae)
- V *o totorofuku* [SL] V [NM1-2871] [BO] *Momordica cochinchinensis* Spreng. (Cucurbitaceae)
- VxO *o totufufungu* [SL, but ?< CX]
- v + *o totufufungu o gumini* [P] 'vine *totufufungu*' V [NM1-2480] det. not avail.
- o - *o totufufungu* [SL, but ?< CX] (or) *o totufufungu (ma dutu)* [P-EN] '(genuine) *totufufungu*' V [NM1-2785] [BO] *Microsorium punctatum*

- Copel. (Polypodiaceae) [but cf. NM1-2388 (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 [NM1-2548] det. not avail.
- h *o totufufungu ma dofa ma nauru* [P-EN] 'male totufufungu ma dofa' V [NM1-2547] det. not avail.
- V *o totufufungu ma ngutuku* [CD-EN, totufufungu (q.v.) + poss. + 'root'; 'totufufungu's root'] V [LD] *Pyrrosia* sp. (Polypodiaceae)
- V *o toyogata* [SL] V [BO] *Dioscorea alata* L. (Dioscoreaceae) 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'] V [NM2-0274] [HA] *Osmoxylon* sp. (Araliaceae)
- t *o toyomo ma beka* [P-EN] 'female toyomo' V [BO] *Trevesia sundaica* Miq. (Araliaceae)
- t *o toyomo ma nauru* [P-EN] 'male toyomo' V [NM1-2438] det. not avail.
- T *o tuáda* [SL] V, PT: *Artocarpus heterophyllus* Lamk. (Moraceae) (all subclasses)
- t *o cuaraka* [SL]
- t *o balula* [SL] (or) *o tuada iko-karau* [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. (Myrsinaceae)
- T *o turi* [SL] V [BO] *Sesbania javanica* Miq. (Leguminosae)
- V *o turi-turi* [CX, turi (q.v.) + (redup.); 'rather like a turi (q.v.) tree' V [BO, LD] *Abrus precatorius* L. (Leguminosae)
- 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 [NM1-2904] (damaged) det. not avail. (?Euphorbiaceae)
- h + *o tutulaka o rurubu* [P-EN] 'weed tutulaka' (uncoll.) (Photographs of specimen [PMT 79-3-1, nos. 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 [NM1-2273] det. not avail.
- O(B) *o tuwiki* [SL]
- o(b) - *o tuwiki* [SL] V [BO, US] *Schizostachyum lima* (Blanco) Merr. (Gramineae)
- 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 (Gramineae)
- V *o ubi* [SL]
- v + *o ubi ma dorou* [P-EN] 'bad ubi' V [BO] *Dioscorea esculenta* (Lour.) Burk. (Dioscoreaceae)
- v - *o ubi (ma oa)* [P-EN] '(good) ubi' (uncoll.) Ph: *Dioscorea hispida* Dennstedt (Dioscoreaceae) 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 [NM1-2124, NM1-2169] det. not avail. Ph, PT: *Hibiscus* sp. (Malvaceae)
- O *o ugaka* [SL] (uncoll.) PT: *Saccharum officinarum* L. (Gramineae) (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 aulóto*, q.v.) + poss. + 'septum (of bamboo)'; 'septum of gaawo (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 5.2.3.5.)
- h + *o uga-ugaka ma nauru* [P-EN] 'male uga-ugaka' V [BO] *Dendrobium* cf. *lancifolium* A. Rich. (Orchidaceae)
- h - **o uga-ugaka ma beka* [P-EN] 'female uga-ugaka' (Locally posited class, see 5.2.3.5.)
- 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. (Euphorbiaceae)
- 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] *Merremia umbellata* (L.) Hallier f. (Convolvulaceae)

- H *o uungu* [SL] V [NM2-0313] det. not avail.
- T *o wada-wada* [SL, but ?<CX] V [BO, LD] *Murraya paniculata* (L.) Jack (Rutaceae)
- T *o wama* [SL] PT: *Citrus* spp. (Rutaceae) 'citrus tree' V
- t ~ *o giranga* [SL] v
- t ~ *o hangkari* [SL] V [HA] *Citrus* sp.
- 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* '?'] v
- 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
- t ~ *o nawoko ma wama* [CD-EN, 'fish' + poss. + *wama* (q.v.); 'fish's citrus']
- t ~ *o nipis* [SL] t
- T *o wama-wama* [CX, < n *wama* (q.v.) + (redup.)] V [BO] *Drynaria sparsisora* T. Moore (Polypodiaceae)
- V *o wange ma dingoto* [CD-EN, 'sun' + poss. + '(object sent)'; 'object sent by the sun'] V [BO, LD] *Freycentia* sp. (Pandanceae)
- 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 [NM1-2587, NM1-2586] det. not avail.
- T *o watagooko* [SL] V [BO] *Claoxylon longifolium* (Bl.) Endl. ex Hassk. (Euphorbiaceae)
- 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. (Nepenthaceae) 'pitcher plant'
- T *o wee-wee* [SL] V [BO] *Macaranga involucrata* (Roxb.) Baill. (Euphorbiaceae)
- O *o weka* [SL]
- o + *o weka ma nauru* [P-EN] 'male *weka*' V [BO] *Licuala* sp. (Palmae)
- o - *o weka (ma beka)* [P-EN] '(female) *weka*' Ph: *Corypha* sp. (Palmae) 'emperor palm' V [NM2-0176, NM2-0605] det. not avail. (Palmae)
- V *o weka-weka* [CX, < n *weka* (q.v.) + (redup.); 'rather like a *weka* (palm, q.v.)']
- v - *o weka-weka (ma beka)* [P-EN] '(female) *weka-weka*' V [NM1-2391] det. not avail. [cf. NM2-0404] [HA] *Microsorium* sp. (Polypodiaceae)
- v + *o weka-weka ma nauru* [P-EN] 'male *weka-weka*' V [NM2-0312] det. not avail. (Fern)
- O *o widara* [SL] (uncoll.) Ph: *Alocasia* sp. or spp. (Araceae)
- o + *o lea* [SL] (or) *o widara ma dutu* [P-EN] 'genuine *widara*'
- o - *o widara* [SL] Note: the phrasal part *ma dutu* 'genuine' is here used for the marked subclass rather than the unmarked one; cf. also similar cases in the *o nawoko* 'fish' subdomain, esp. *o nogi-nogi* (q.v.)
- 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* Bremek. (Acanthaceae)
- 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. (Acanthaceae)
- T *o woki-woki* [SL] V [BO] *Solanum melongena* L. 'eggplant' (all subclasses?—but see note following first subclass below)
- t + *o woki-woki ma popolulu* [P-EN] 'round (spherical) *woki-woki*' V [NM1-2852] [BO] *Solanum melongena* L. (Solanaceae) [but cf. NM2-0344] [HA] *Solanum verbascifolium* L. (Solanaceae)
- 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*' *o woki-woki ma gare-garehe* [P-EN] 'white *woki-woki*'
- T *o wowe* [SL] V [NM2-0425] [HA] *Dracaena* sp. (Agavaceae)
- H *o wugu-wúgu* [SL, but ?<CX]
- h - *o wugu-wúgu (ma beka)* [P-EN] '(female) *wugu-wúgu*' V [BO, LD] *Cyathea* sp. (Cyatheaceae)
- h - *o wugu-wúgu ma nauru* [P-EN] 'male *wugu-wúgu*' V [NM2-0574] det. not avail. (Fern)
- T *o wuhi-wuhi* [SL, but ?<CX] V [BO] *Planchonella oxyedra* Auct. non Dub. (Sapotaceae)
- 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 fruticosa* (L.) A. Chev. (Agavaceae)
- t *o wuu ma gare-garehe* [P-EN] 'white *wuu*' V [BO] *Pleomele angustifolia* (Roxb.) N.E. Brown (Agavaceae)
- h + *o wuu ma dorou* [P-EN] 'bad *wuu*' V [BO] *Pollia secundiflora* (Bl.) Bakh. f. (Commelinaceae)
- T *o yahe* [SL]
- t + *o yahe-binggo* [CD-(indet.), *yahe* (q.v.) + '?'] V [BO] *Peltophorum pterocarpum* (DC.) Back. (Leguminosae)
- t - *o yahe* [SL] V [BO] *Albizia falcataria* (L.) Fosb. (Leguminosae)
- V *o yahe-gumini* [CD-EX, *yahe* ('a 'tree,' q.v.) + vb. -*gumini* 'to be a vine, rope-like'; 'the rope-like/vine-like *yahe* (tree)'] (Note: at Pasir Putih, the

'tree' *yabe* and this class are not considered subclasses of some higher-level class. Consequently this class may not be referred to as **yabe*.)
 V [NM2-0125, NM2-0596] [HA] *Dalbergia* cf.

ferruginea Roxb. (Leguminosae)
 T *o yangere* [SL] V [BO] *Alstonia scholaris* (L.) R. Br.
 (Apocynaceae)
 T *o yuyu* [SL] V [NM1-2253, NM2-0224] det. not avail.

Appendix 2

The Tobelo Classification of FAUNAL FORMS

A2.0 Introduction

This appendix records information about all known Tobelo basic classes of FAUNAL FORM and their subclasses. As in the Appendix for FLORAL FORMS, "loose terms" are not 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).

Any non-local animal whose name occurs in the Bible (camels, asses, etc.) or in local publications or mass media, can be discussed in Tobelo using the animal's Indonesian name, preceded by the *o* noun-marker. In such cases, no attempt is made to assimilate the Indonesian term to Tobelo phonology, and we can therefore consider such terms intrusive. Only when such animals actually occur in the regions where I did field work are they included here, even if (as in the case of the 'turkey,' *o ayam-balánda*) they were known during my stay by only a single, prized, individual bird kept on Halmahera.

This appendix summarizes data on B⁺¹ class membership by listing the subclasses of each B⁺¹ class separately. Within each B⁺¹ class, the B⁰ and B⁻ classes are listed alphabetically by the basic terms that designate them. This is a more "traditional" taxonomic arrangement than that used above for FLORAL FORMS. It reflects the fact that the Tobelo classification of FAUNAL FORMS has far fewer irregularities like the cross-cutting classes and ambiguous superclass memberships so common among the FLORAL FORMS listed in Appendix 1.

Nomenclatural information about each term is recorded using the same conventions that were explained in the introduction to the Appendix on FLORAL FORMS. Additional notes or comments (e.g., on dialectal differences in details of the classification) may be noted after those entries to which they apply. Where those comments have not already made clear the scientific determinations of species denoted by the folk terms, each entry concludes with the scientific name and, wherever possible, an English gloss for the term.

Within each B⁺¹ grouping, basic (B⁰) terms are alphabetically listed as the main entry immediately to the right of B⁺¹ class symbols, which appear at the left margin; B⁻¹ terms appear at the first indent; B⁻² appear at the second indent; B⁻³ terms appear at the third indent; and, finally, B⁻⁴ terms appear at the fourth indent. One term (either the most common or, where borrowed terms are commonly used as synonyms, that term locally thought to be "original" Tobelo) has been chosen as the "citation-term" for each class, and its synonyms are 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 3.2.2.3).

As in the FLORAL FORM Appendix, 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.

The other symbols used in providing nomenclatural information are the same as those used in Appendix 1.

The following tallies will summarize data on each of the five subclasses of FAUNAL FORM: *o totaleo* 'bird,' *o dodiha* 'snake,' *o nawoko* 'fish,' *o bianga* 'mollusk,' and, finally, all "unaffiliated" animals "(OTHER)." Numbers at far left indicate the section numbers of this Appendix.

B ⁺¹ class	B ⁰ classes	B ⁰ terms	Terminal taxa	Terms (total)
2.1 'bird'	86	123	110	174
2.2 'snake'	11	12	14	16
2.3 'fish'	159	190	250	358
2.4 'mollusk'	73	73	74	82
2.5 (OTHER)	91	102	148	195
TOTAL	420	500	596	825

A2.1 *o totaleo* 'bird'

[SL; this B⁺¹ term may be considered *o totaleo*₁ 'bird,' homonymous with *o totaleo*₂ (q.v. below, this Appendix) 'chicken']

o agemeleko [CD-EN, < trunc. *agere* 'stump' + *-meleko* 'to have one for each'; 'having (only) one (of these birds) on each stump'] or *o peleagere* [CD-EN, ? < trunc. *-peleke* 'to trip (on something)' + *agere* 'stump'; 'to trip on a stump'] [Etym. disc.: *agemeleko* rather than *peleagere* generally used in D dialect; *peleagere* recorded among Tbl speakers on Obi Island (1983) and one informant from K. Tobe (Tobelo District, Halmahera) responded that *F. moluccensis* is called *peleagere* there. The association with stumps, apparently referring to *F. moluccensis*, derives from two facts: (1) this bird usually nests in dead, broken-off stumps of *o daluku* (*Arenga pinnata*) and *o baru* (q.v.) palms; (2) it is commonly seen

in cleared, recently burned and planted fields, and is said to prefer that habitat because its food consists of the earthworms, lizards, and grasshoppers commonly found there; it is thus usually seen resting on dead trees or palms or their stumps.] Disc.: The focus of this type, based on etymology, on consistency of application of the term, and on the fact that *Falco moluccensis* is the only species to which the term is applied familiar to many Tbl, seems to be *F. moluccensis*. The speckled appearance of that falcon, however, may contribute to the fact that several rather rare members of the cuckoo family were also given this name, including the only specimen found of *Cuculus saturatus*, and one of the two specimens of *Eudynamys scolopacea* (the other specimen was called *o luo-luo*, q.v.). Gloss: 'Falcon (*Falco moluccensis*), and similarly sized, generally speckled cuckoos frequenting swidden areas.'

o awana ma gagawi [CD-EN, < 'rain' + poss. + 'caller (< -gawi vb. 'to call from a distance by signalling with one's arm' + redup.)'; 'caller of rain'] [Etym. disc.: So named because of this bird's habit of flying in large numbers just before rain starts and in light rain. This bird is said to be especially active before and during rains, flying in all directions. However, S. Somadikarta (pers. comm.) notes that some members of the genus *Collocalia* are associated with the coming of the rainy season in Java. Hueting, 1908c:21 translates this term *zwaluw* 'swallow.' This bird is occasionally referred to by Tbl using the NMM term *burung gareja* 'church bird,' due to its habit of nesting under eaves of tall buildings, of which churches are the most familiar local examples.] Disc.: This term was applied to *Collocalia vanikorensis* and *C. esculenta*, as well as *Hirundo tahitica javanica* and *H. rustica gutturalis*; no specimen of these genera was called by any other Tbl term. Gloss: 'swallows and swiftlets' (all local spp. of *Hirundo* and *Collocalia*).

o ayam-balanda [SL in Tbl, but clearly < Ind & NMM CD-EN, Ind & NMM *ayam* 'chicken' + NMM *balanda* (cf. Ind *Belanda*) 'Dutch'; 'Dutch chicken' (common Ind & NMM term for 'turkey')] 'turkey' *Meleagris gallopavo*

o bebe [SL, < NMM *bebe* 'duck' (see etym. of "Batavian Malay" term *bebek*, Burkill, 1935:883)] 'domesticated duck & goose'

- *o bebe* [etym. as above] *Anas* spp. 'domesticated duck.'

+ *o bebe-gansa* [CD-EN, < *bebe* (q.v.) 'duck' + *gansa* < Ind & NMM *gangsa* 'goose'; 'goose-duck'] '(domesticated) goose' *Anser* spp. 'domesticated goose.'

+ *o bebe-australia* [CD-EN, < *bebe* (q.v.) 'duck' + 'Australia(n)'; 'Australian duck'] Disc.: Applied only to *Pelecanus conspicillatus*, a pelican that reached Hal-mahera briefly in 1979 (when I salvaged one dead specimen) due to drought conditions elsewhere, and has not been sighted since. Local radios reported they had flown in from Australia. These birds elicited intense

interest among Tobelo who had never seen pelicans before. A few villagers used the name *o bebe-amerika* or *o bebe-german* ('American duck,' 'German duck') before generally settling on 'Australian duck,' the name these well-remembered birds maintain today. *Pelecanus conspicillatus*.

o biáwa ma totaleo [CD-EN, *biáwa* (plant, q.v.) '*Donax cannaeformis*' + poss. + 'bird'; 'bird of *Donax cannaeformis*'] [Etym. disc.: This bird is said to frequent *Donax* stands.] This term is difficult to gloss because each bird to which it was applied belongs to a species generally referred to by another term. The term seems to indicate those flycatchers frequenting *Donax* stands, and it is possible that some Tobelo simply assume that flycatchers frequenting those stands are of a different kind. Yet the term is not merely descriptive of birds from a location; it is treated as a true contrasting B⁰ class of birds. All denotata of both terms are flycatchers (Muscicapidae). The term *o biáwa ma totaleo* was used in only one case for *Myiagra galeata* (otherwise called *o gumi-gumi*, q.v.), in two cases for *Monarcha trivirgatus* (otherwise called *o gumi-gumi*, q.v.), and in one case for *Piezorhynchus alecto* (otherwise called *o motiwówo*, q.v.). (Perhaps, mistakenly, it was also recorded once on Obi Island [where a different dialect is spoken] as a term for *Zosterops atriceps*, which is generally put in the *o ciciulu* (q.v.) class by Dodinga dialect speakers.)

o boa [SL] or *o hilidoro* [SL] or *o filidoro* [Etym.: all three terms are used in D dialect. [Etym. disc. At Wari (H. dialect), a single very immature specimen of *D. hottentottus* was given the name *o bikihago* [CD-EX, < trun. *bikini* 'tail' + *-hago* '(be) twins'; 'twin (double-splayed) tail'; this term was unfamiliar to D dialect speakers, and in any case its referent is suspect because of the immaturity of the specimen; cf. also *o bikihaanga* under *o gie-giete* (q.v.)]. *Dicrurus hottentottus*.

o boke-bokeke [CX, (redup.) + vb. *-bokeke* '(to have) scar(s), scab(s)'; 'having scars (or) scabs'] [Etym. disc.: the name refers to the patches of color on the chest and underside the wing of *E. orientalis* (which, though a migrant, is more common than the endemic *E. azureus*). The distasteful name also corresponds to the offensive smell of this bird, locally considered to be inedible even by dogs.] Disc.: The name was applied to both *E. orientalis* and *E. azureus*, the former generally green in color and the latter generally blue. For purposes of collecting birds it became necessary to distinguish the two species, which is difficult in Tbl, because that language has only one word for both 'blue' and 'green.' Thus we invented the subclasses *o boke-bokeke i-biru-daun* [P-EN] and *o boke-bokeke i-biru-langit* [P-EN] (using NMM-derived terms to distinguish the kinds of 'blue/green'): 'the leaf-blue/green *boke-bokeke* (*E. orientalis*), vs. 'the sky-blue/green *boke-bokeke* (*E. azureus*). These terms

may still be in use on Halmahera, but they were invented by me, and quickly assimilated by the Tobelo, purely for my collecting activities. *Eurystoma* spp.

o botikouku [SL] *Oriolus phaeochromus*.

o busu [SL] (also known by the Ind & NMM borrowing:) *o luri* [SL, < Ind NMM *luri*] [Etym. disc.: The Ind/NMM term is esp. used in the context of capturing for sale, or selling, these domesticated lorries]. *Lorius garrulus garrulus*.

o butuimi [SL, cf. fish *o butuimi* (q.v.)] (also known as:) *o madaama ma dofa* [CD-EN, 'frigate-bird' + X + 'false (counterfeit)'; 'false frigate-bird'] *Oceanodroma matsudairae*.

o caongo [SL] (or) *o cao-caongo* [CX, < *caongo* (q.v.) + redup.] [Etym. disc.: Cf. *o cao-caongo ma ngofaka* (q.v.) 'child of *cao-caongo*, used for *Myzomela obscura*; this fact implies that *o caongo* could have *ma ayo* 'parent' added to it. However, the term *o (cao-)caongo ma ayo* was never observed, though informants agreed it could be said (invented?) to distinguish this class from the 'child' class. See discussion of the 'parent-child' relation under the 'child' term.] *Melitograis gilolensis*.

o cao-caongo ma ngofaka [P-EN, < *cao-caongo* (q.v.) + poss. + child' 'child of *caongo*'] (also, less commonly:) *o cao-caongo ma gilaongo* [P-EN, 'servant of *cao-caongo*']. [Etym. disc.: This term is used only for *Myzomela obscura*, which frequently feeds with *Melitograis gilolensis*, and which has similar body coloration, and which is incidentally in the same avian family (Meliphagidae). It is possible that there may also be a mimicry relation between the two species, with the smaller species imitating the larger for protection. Use of the 'child' designation here and elsewhere in Tbl classification does not imply that the Tbl consider the 'child' to be the physical offspring of the 'parent' form—it is merely a nomenclatural device indicating that in some way a smaller form is closely associated with a larger one (cf. White and Bruce, 1986:396, which misinterprets my pers. comm. on this point). This class is generally considered a B⁰ term; however, some people consider it a subclass of *o ciciulu* (q.v.)] *Myzomela obscura*. (Note: This term was also recorded on Obi Island for a single specimen of *Myzomela obscura rubrotincta*, which does not occur on Halmahera.)

o ciciulu [SL] (or) *o cucuili* [SL] (both terms used in B and D dialects; cf. H dialect:) *o kaalbi* [SL]. [Etym. disc.: the H dialect term is rarely used in the South; however, the NMM term *burung-cui* is occasionally heard, thus: *o burung-cui*. Disc.: This "complex" of very small birds clearly has the common *Nectarinia* spp. as its focus, both *N. sericea auriceps* and *N. jugularis frenata*. The term is also used for *Zosterops atriceps*, a species of similar size with a back colored greenish yellow like the backs of (female) *Nectarinia*. The naming of *Zosterops* typifies the variability of forms of phrasal names; all variations of the name are endocentric phrases, with *ciciulu* as the

head, and all variations emphasize the difference in chest color between *Z. atriceps* and the spp. of *Nectarinia* on Halmahera, thus (see below) 'the white *ciciulu*,' 'the gray/dusky *ciciulu*,' or 'the *ciciulu* with the white (or gray/dusky) chest.' Presumably also because of its small size, and its extended beak, *o cao-caongo ma ngofaka* (q.v.) '*Myzomela obscura*' is considered by some people to be a subclass of *o ciciulu*, and that species is occasionally simply referred to as *o ciciulu*.

+ *o ciciulu iare-arehe* [P-EN, 'white *ciciulu*'] (or) *o ciciulu ma ale ma ngunungie iare-arehe* [P-EN, '*ciciulu* having a white chest'] (or) *o ciciulu ikafo-kafo* [P-EN, 'gray/dusky *ciciulu*'] (or) *o ciciulu ma ale ma ngunungie ikafo-kafo* [P-EN, '*ciciulu* with the gray/dusky chest'] *Zosterops atriceps*. (However, the two terms with 'gray/dusky' were applied on two occasions to *Myzomela obscura* though other informants, who admitted that *M. obscura* could be considered a *ciciulu*, still considered both cases mistaken.)

- *o ciciulu* [SL, as above] *Nectarinia* spp.

- *o ciciulu* [SL, as above] All male and female *Nectarinia* spp. that are not in black adult male plumage.

+ *o ciciulu-taluke* [CD-EN, *ciciulu* (q.v.) + *taluke* '?'] (or) *o taluke* [SL] the *Nectarinia sericea auriceps* in the beautiful dark black plumage (usually only of adult males) having a bright iridescent green crown and bright iridescent blue back and throat.

(Note: see also *o cao-caongo ma ngofaka* (q.v.) for its relation to the *ciciulu* class, as posited by some Tobelo.)

o ciciulu ma dofa [P-EN, 'counterfeit *ciciulu*'] *Dicaeum erythrothorax schistaceiceps*.

o cicoro [SL, onomatopoeic] *Eos squamata*

o ciungu [SL] *Centropus goliath*

- *o ciungu* [SL] *C. goliath* in normal plumage

+ *o ciungu ma heheke* [P-EN, 'ugly (dirty) *ciungu* albino form of *C. goliath*']

o cucupaanga [CD-EX, < NMM *cucu* 'to poke (something)' + *paanga* 'elbow'; 'poke the elbow' (name is said to refer to this bird's habit of never staying still when perched, moving body and tail around thus resembling a person constantly being poked in the elbow)] (or) *o baikole* [SL, cf. NMM *burung baikole Rhipidura leucophrys*].

o culuku [SL, onomatopoeic] (or) *o puluku* [SL, onomatopoeic] *Centropus bengalensis*

o duma-duma [CX, < NMM *duma* (cf. Tbl *dugama*) 'to pole (one's way in a raft/boat along a river or coast)'] Disc: This term is applied to both *Puffinus leucomelas* and *Sula leucogaster*, and no other term was obtained for either species. The term may thus be glossed 'large, black (or dark) and white seabird.' The name apparently characterizes (or caricatures) both birds' method of swimming along the surface.

o foo-fóo [SL, onomatopoeic, referring to the call of *Pitta maxima*].

- *o foo-fóo* [SL, as above] *Pitta maxima* + *o foo-fóo o*

- fonganika* [P-EN, 'the jungle foo-fóo'] (or) *o gorotóngo* [SL] *Pitta erythrogaster*
- o gacuaka* [SL] (or) *o gaacuaka* [SL] *Hypsipetes affinis*
- o gie-giete* [CX, < -giete 'to smile, laugh' (so called because of the two white stripes in the mouth area, which, when it lands, cause this bird to appear to be smiling or laughing)] (Synonym: In B dialect at Loleba (but not in D dialect), this bird is named *o bikihaanga* [CD-EN, < trunc. *bikini* 'tail' + *-haanga* 'to be cleft/forked'; 'cleft tail' (a reference to this bird's distinctive widely forked tail feathers)]. (Note: On Obi Island (different Tbl dialect) several specimens of this species were termed *o hambúru ma dorou* [P-EN, 'the evil/bad hamburu']. The word *hamburu* is unfamiliar to D-dialect informants.) *Hemiprocne mystacea*.
- o ginene* [SL] (An owl, uncollected. However, cf. discussion of *o wuku* (q.v.) below, the latter term being used for *Ninox connivens* and *N. scutulata*; the term *o goroko* (q.v.) is used for *Otus magicus*; thus the only owl on Halmahera that I have not collected is *Ninox squamipila*, and this is the most obvious candidate for the denotata of this Tbl term *o ginene*.)
- o gofotodano* [SL, though possibly a CD from another language, trunc. *gofotoro* (q.v.) + *dano* '?'] *Loriculus amabilis*
- o gofotoro* [SL] *Lorius roratus vosmaeri*, females. Note: Males of this species are termed *o uboro* (q.v.). Though Tbl recognize that one is male and the other female and that they mate, each sex is accorded its own B⁰ term.
- o gogotengaka* [SL] *Tanyptera galatea browningi*. Note: The following subclasses are not considered or recognized as growth classes.
- *o gogotengaka* [SL] *T. g. browningi* in adult, generally blue, plumage
 - + *o gogotengaka ipo-pereeke* [P-EN, 'the dirty *gogotengaka*'] immature or adolescent *T. g. browningi* in mottled brownish plumage
- o goguhumutu* [CX, < -guhumutu 'to prod, poke' + agentive redup.; 'the prodder, the poker' (refers to these shorebirds' habit of poking their long beaks into the sand). 'larger plovers, larger sandpipers' This term is used for *Numenius phaeopus*, *Heteroscelus brevipes*, and *Xenus cinereus* (cf. *o pupu* below for smaller plovers, smaller sandpipers, and knots).
- Note: On Obi Island (different Tbl dialect), Tbl speakers use their dialect's form, *o gogusumutu*, for the Moluccan woodcock (*Scolopax rochussennii*), another member of the same avian family (Scolopacidae), which, though not a shorebird, has feeding habits similar to plovers and sandpipers. *Scolopax rochussennii* is not found on Halmahera. The classification of plovers and sandpipers in Obi's dialect of Tbl remains unknown.
- o goroko* [SL, onomatopoeic, referring to the sound made by this owl (but cf. Tbl -guroko 'to snore')] *Otus magicus leucospilus*.
- o gotoaka* [SL] (sometimes also known by an NMM borrowing:) *o gatála* [SL, < NMM *gatála* (*Cacatua* spp.), cf. Ind *kakatua* *Cacatua alba*.
- o gulelanga* [SL] (or) *o gogulelanga* [gulelanga (q.v.) + redup.] [Ety. disc.: etymology uncertain, the expected root *-kulelanga does not occur in Tbl and is unknown to informants, but *gogulelanga* is (according to those familiar with such closely-guarded esoteric knowledge) a passive vb. generally meaning to be afflicted with a disease that leads to craziness or mental illness; its position in the folk classification of diseases, and its relation (if any) to the bird so named, are unknown to me.] (Note on synonymy: acc. to D dialect speakers, this is known in H dialect as: *o totoroa* [SL]) *Tanygnathus megalorhynchos*. (Note: The Obi subsp., *T. megalorhynchos obiensis*, is known by the same Tbl terms, *o gulelanga* and *o gogulelanga*, on that island.)
- o gumi-gumi* [CX, < *gumi* 'mustache' + redup.; 'having a mustache' (a reference to the prominent whisker-like barbless sensory feathers projecting from the base of the beak of these "flycatchers") 'flycatchers (except the brightly-colored *Piezorhynchus alecto*)'
- *o gumi-gumi* [CX, as above] *Monarcha trivirgatus* and *Myiagra galeata* (cf. discussion above of the problematic term *o biawa ma totaleo*; also, this name was assigned by some Tobelo to two examples (both in dusky plumage) of *Piezorhynchus alecto*, though a large series of the latter species, collected over several years, was almost universally labeled *o motiwowo*, q.v.)
 - + *o gumi-gumi iburi-buri* 'mottled *gumi-gumi*' *Monarcha pileatus*
- o gumúru* [SL] (Synonyms: The same B⁰ class of bird is sometimes referred to in D dialect with the NMM-derived term *o kum-kum-biru* [SL in Tbl, but < NMM P-EN, 'blue/green *kum-kum* [*D. bicolor*].] At Loleba [B dialect], *D. bicolor* was known either as *o gumúru* or by a Tbl translation of the NMM term: *o ngoku ma biru-biru* [P-EN, 'blue/green *ngoku* [*D. bicolor*,' although this phrase was considered unacceptable by D-dialect speakers.) Disc.: The term *gumúru* is used for *Columba vitiensis* and apparently for all local *Ducula* spp. except *D. bicolor* (the latter, termed *o ngoku*, has a distinctive non-iridescent black and white coloration). Unfortunately, I was never able to obtain a specimen of *D. rosacea*, although one nineteenth-century specimen was collected from NW Halmahera (White and Bruce, 1986:207). This term, then, is definitely applied to *Ducula basilica*, *D. perspicillata*, and *D. concinna*, as well as *Columba vitiensis*, and may be glossed 'large iridescent-colored pigeon(s).'
- o habiana* [SL] *Megapodius wallacei*
- o hayaniti* [SL] (or) *o hayangiti* [SL] (or) *o hohayaniti* [CX, redup. + *hayaniti* (q.v.)] (or) *o hohayangiti* [CX, redup. + *hayaniti* (q.v.)] *Lycocorax pyrrhopterus pyrrhopterus* (Note: cf. the Obi dialect term *o tutubuuku* (q.v., below)

- used there for the Obi subspecies *L. p. obiensis*. If Tbl speakers from Obi were exposed to the Halmahera subspecies and Halmaherans to the Obi subspecies, these terms could more easily be considered synonymous.)
- o helewopoga* [SL, but possibly from CD *helewo* 'stone' + *-poga* '?,' latter morpheme unfamiliar to D-dialect informants] (or) *o heleopoga* [SL?] (or) *o leleopoga* [SL?] Uncollected.
- o hetaka* [SL] 'ground-dwelling large rails'
- o hetaka ma you iko-kurati* [P-EN, 'yellow-legged *hetaka*'] *Gymnocrex plumbeiventris*.
- o hetaka ma you itoka-tokara* [P-EN, 'red-legged *hetaka*'] (Note: According to one informant from Kampung Toniku, Jailolo District, this bird is called *o huwiha* in the Tbl dialect spoken there.) *Habroptila wallacii*
- o hetaka ma gilaongo* [P-EN, 'false/counterfeit *hetaka*'] *Rallina fasciata*
- o hiba* [SL, cf. NMM *burung siba Geoffroyus geoffroyi cyanicollis*]
- + *o hiba ma dorou* [P-EN, 'bad *hiba*'] (or) *o hiba ma beka* [P-EN, 'female *hiba*'] (or) *o hiba ma dopongono* [P-EN, 'deaf *hiba* (so called because these "female" *hiba* do not react attentively to the human voice as "males" do)] Females of *G. g. cyanicollis*, and occasionally also the males, having a black beak and less red plumage; these birds are considered female by the Tobelo, and are in fact generally female although some males have this female plumage.
- *o hiba (ma oa)* [P-EN, '(good) *hiba*'] (or) *o hiba ma nauru* [P-EN, 'male *hiba*'] Males of *G. g. cyanicollis* and occasional females having the typical male plumage including red cheeks and beak. These can be domesticated and taught to imitate the human voice.
- o hilidoro* [SL] *Dicrurus hottentottus* (Note: Although many specimens were obtained, I am unsure of the subspecies on Halmahera (cf. White and Bruce, 1986:317), where this term is used. Several specimens of the Obi subspecies *D. h. guillemardi* were also termed *o hilidoro* in the Tbl dialect of that island.)
- o hiringiti* [SL] (or) *o firingiti* [SL] *Caloenas nicobarica*
- o hohonotoko* [CX, < redup. + *honoroko* 'chisel'; 'rather like a chisel' (referring to chisel-like shape of these nightjars as they fly)]
- *o hohonotoko* [CX, as above] *Caprimulgus macrurus*
- + *o hohonotoko itoka-tokara* [P-EN, 'red *hohonotoko Aegotheles crinifrons*']
- o horoga ma totoku* [CD-EN, 'heaven (cf. Ind *sorga*)' + poss. + n. < vb. *toku* 'to walk along (something)'; 'thing that walks along (some path of) heaven' (so named because it flies so high)] *Lalage aurea*
- o huma-huma* [CX, < *huma* 'manta ray' (so called because the bird is perceived to fly with wings swept out like a manta ray's fins)] *Artamus leucorhynchus*
- o humu ma doporono* [CD-EN, < 'well' + poss. + n. < vb.
- toporono* 'dig (with a scratching motion), scratch out'; 'the scratcher-out of wells' (so called because this bird frequently scratches the soil up)] (or) *o tokata ma huhuloko* [CD-EN, 'ghost' + poss. + n. < vb. *-huloko* 'to send (on an errand), to order'; 'errand-runner of the ghosts' (so called because this bird is thought to occasionally be possessed by a ghost)] (or) *o duulungu* [SL, apparently a Tabaru word but used in Tbl at Kampung Pasir Putih (D dialect)] (or) *o guhulo* [SL] *Chalcophaps indica*
- o idihi* [SL, prob. onomatopoeic] (rarely called *o idi-idi* [SL, prob. onomatopoeic; cf. NMM *burung idi-idi* 'idi-idi bird']) 'starling' (*Aplonis* spp.). This term is used for both *Aplonis metallica* and *A. mysolensis*.
- (Note: while the Tbl realize that each *o totaleo*₁ 'bird' may be either 'male' or 'female,' the Tbl sexual subdivision of this B⁰ class is not biologically accurate:)
- o idihi ma beka* [P-EN, 'female *idihi*'] The adolescents of both *A. metallica* and *A. mysolensis*, characterized by white breast plumage with thin stripes of black.
- o idihi ma nauru* [P-EN, 'male *idihi*'] The adults of both *A. metallica* and *A. mysolensis*, characterized by dark black breast plumage.
- o ilu-ilumu* [SL, but ?< CX] (D and H dialects; cf. H dialect:) *o tagiroi* [SL] (or, also H dialect:) *o tagiroi-roi* [SL or irregular CX, *tagiroi* + apparently meaningless reduplication of final syllables] 'kingfishers' (Note: This term, applied to all local *Halcyon* spp. (see below), is sometimes used to refer to *Tanysipetera galatea* (usually called *o gogotengaka*, q.v.), although most Tbl-D speakers consider that a mistake.)
- *o ilu-ilumu (ma oa)* [P-EN, '(good) *ilu-ilumu*'] (or) *o ilu-ilumu o gahika* [P-EN, 'shore *ilu-ilumu*'] *Halcyon sancta* and *Halcyon diops*
- + *o ilu-ilumu o fonganika* [P-EN, 'jungle *ilu-ilumu*'] (or) *o ono* [SL] *Halcyon funebris*
- + *o ilu-ilumu ma dorou* [P-EN, 'bad/evil *ilu-ilumu*'] (or) *o ilu-ilumu o akerika* [P-EN, 'river *ilu-ilumu*'] (or) *o ilu-ilumu o ngairika* [P-EN, 'creek *ilu-ilumu*'] *Ceyx lepidus* and *Alcedo atthis*
- o kapa-kapa* [SL, but cf. NMM CX *kapas-kapas* ('cotton' + redup.) in NMM *burung kapas-kapas* 'cotton-cotton bird' (same species)] *Artamus leucorhynchus leucopygialis*
- o kawih* [SL] This term is apparently used for all local *Accipiter* spp., i.e.: *A. griseogularis*, *A. erythrauchen*, *A. henicogrammus*, and *A. soloensis* (although I never saw or obtained *A. meyerianus*), and for *Aviceda subcristata*. Gloss: 'hawks' (*Accipiter* spp. + *Aviceda subcristata*.)
- o kigi-kigini* [SL, but ?< CX] uncollected (thought to generally be inhabited by a ghost; cf. *o kou-kou* below)]
- o kohe* [SL] *Aceros plicatus ruficollis*
- o kou-kou* [SL, but ?< CX] uncollected, and probably uncollectable! This is always considered to be a ghost in

the form of an invisible bird that is heard at night flying around villages crying “kou! kou!” to announce impending death. Unlike other birds that can be inhabited by ghosts, this creature is a ghost, yet it is also considered a *totaléo*₁ ‘bird’

- o koyoba* [SL] ‘eagle’ *Haliaetus leucogaster*, *Aquila gurneyi*, and *Pandion haliaetus* (I came across a single dead *Aquila gurneyi* in 1979 at K. Loleba, and saw one kept as a pet; both were called *o koyoba*; I am unsure how that species fits the subclassification below, because I discovered the subclasses much later and never came across another *A. gurneyi*.)
- o koyoba ma dutu* [P-EN, ‘(true) *koyoba*’] *Haliaetus leucogaster*
- o koyoba itumu-tumunu* [P-EN, ‘*koyoba* that dives; diving *koyoba*’] *Pandion haliaetus*
- o kukuhiúu* [SL, onomatopoeic] or *o kukuúu* [SL, onomatopoeic] *Reinwardtoena reinwardtii*
- o loliowaha* [apparently CD-EX, **loli* ‘?’ + *-owaha* ‘to whistle’ (folk etym.: so called because this bird makes a whistling sound)] uncollected.
- o luluga* [SL] *Macropygia amboinensis*
- o lungunu ma babaiti* [CD-EN, ‘grave’ + poss. + n. *babaiti* ‘digger’ (< vb. *-faiiti* ‘to dig’); ‘grave digger’ (so called for its habit of scooping up a mud nest and laying eggs inside)] *Egretta sacra*
- o luo-luo* [SL, but not onomatopoeic] *Eudynamis scolopacea*.
Gloss is based on identification of one specimen; the other specimen of *E. scolopacea* was identified as *o agemeleko* (q.v., above, for discussion).
- o madaama* [SL] ‘frigate bird’ (*Fregata minor* and *Fregata ariel*, the only local spp. of *Fregatidae*)
- o meleu* [SL] *Megapodius freycinet* (optionally subdivided into size classes:)
- + G1 *o puka* [SL] (or, non-lexemically:) *o meleu ma puka* [P-EN, *meleu* (q.v.) + poss. + *puka* (q.v.) ‘pre-adult (of megapodes)’; ‘pre-adult *meleu*’] hatchling to adolescent *M. freycinet*
- G2 *o meleu* [SL, as above] (or, non-lexemically:) *o meleu ma baluhu* [P-EN, *meleu* (q.v.) + poss. + ‘adult’; ‘adult *meleu*’] adult *M. freycinet*
- o mogoyuku* [SL] ‘fruit dove’ (*Ptilinopus* spp., see below). (Note: I never obtained *P. bernsteinii* and am unsure how it fits into the subclassification below; all other Halmahera spp. are termed *o mogoyuku*)
- o boboroto* [CX, redup. + *-bororoto* ‘blotched, spattered (as with paint)’; ‘having blotches’ (so called because of brilliant patches of color in plumage)] the male *Ptilinopus superbis* in “superb” plumage including purple crown and splashes of white, green, and bright purple
- *o motikalú* [SL] (for most Halmaheran speakers of Tbl, this B⁻¹ subclass includes only *Ptilinopus hyogaster*, but due to my collecting activities the folk classification was extended to Obi Island, and the new species found there

incorporated as follows:)

- *o motikalú* [SL] (or rarely:) *Ptilinopus hyogaster*
- + *o motikalú de ma hohorenoka* [P-EN, ‘the *motikalú* with the *hohorene* (comb, as on a chicken’s head)’] *Ptilinopus granulifrons* Note: I am partly responsible for the “creation” of the name for this species of bird unknown on Halmahera, because in 1983 I obtained funding and permits for Halmaheran Tbl collectors to visit Obi, and I sent them a picture of *Ptilinopus granulifrons*, saying it was unknown in American collections, that we would like some, and that it looked “like a *motikalú*” but had “something like a *hohorene* (‘comb’)” on its head (the distinctive granulation on the cere at the top of the beak of this species). The bird is still talked about now in Halmahera, and the name coined seems destined to stay part of the Tbl folk classificatory system there as long as this Obi Island bird is remembered. I am unsure of its classification by Tbl speakers on Obi.
- *o motikalú ma dofa* [P-EN, ‘false/counterfeit *motikalú* (q.v.)’] females of *Ptilinopus superbis*
- o motiwówo* [SL] *Monarcha alecto* (but cf. *o biáwa ma totaleo* (q.v.) above)
- o muoto* [SL] *Alisterus amboinensis hypophonius*
- o ngidili* [SL] *Charmosyna placentis*
- o ngoku* [SL] *Ducula bicolor* (Note: See under *o gumúru* (q.v.) for an explanation of the use of *o ngoku ma biru-biru* (‘blue *ngoku*’), recorded at Loleba (B dialect), apparently as a translation of an NMM term, to signify the class normally called *o gumúru*. That usage of *o ngoku*, however, was considered unacceptable by D dialect informants, and since *o gumúru* is also acceptable in B dialect, we may conclude that this probably involves a B-dialect translation of the NMM term *kum-kum* that has not yet interfered with the Tbl classificatory structure, and is in any case unacceptable in D dialect.)
- o ngoroko* [SL] (or less commonly:) *o ngoro-ngoroko* [CX, redup. + *ngoroko* (q.v.)] *Tadorna radjah*
- o ori-ori* [SL] *Tachybaptus ruficollis*
- o pipitodéhe* [SL, but from Tte CD-EX, *pipi* ‘money’ + *todéhe* ‘I ask for’; ‘I ask for money’; (so called because of the folk belief that this cuckoo’s call portends the arrival of the tax collector)] (or) *o tiwitodéhe* [SL, but from mixed Tbl & Tte CD-EX, *tiwi* (Tbl) ‘money’ + *todéhe* (Tte) ‘I ask for’; ‘I ask for money’ (same etym.)] *Cacomantis variolosus*
- o pipo* [SL, onomatopoeic] *Pachycephala pectoralis*
- o pole-pole* [SL] *Haliastur indus*
- o pombo* [SL, cf. NMM *pombo*, same meaning] ‘city pigeon’ *Columba livia*
- o pombofúru* [CD-EN, *pombo* (q.v.) + *-fúru* ‘(to be) wild, untamed’; ‘wild *pombo* (pigeon)’] (or) *o terkúkur* [SL, clearly a term borrowed from NMM *terkúkur*, but used in Tbl despite its foreign phonology] *Streptopelia chinensis*

o pupu [SL] 'smaller plovers, smaller sandpipers, and knots'
This term encompasses *Calidris ruficollis*, *Charadrius leschenaultii*, and *Actitis hypoleucos*.

o takúru [SL] *Ixobrychus flavicollis*

o tagahehaka [SL] 'cuckoo-shrikes' *Coracina* spp. (Note: Unfortunately I never obtained the rare endemic Halmahera Cuckoo-shrike *C. parvula*, known from very few specimens ever found, and I am unsure of its position in the subclassification below. Both other local spp. were familiar to the Tbl.)

- *o tagahehaka* [SL] *Coracina papuensis melanolora*

+ *o tagahehaka o fonganika* [P-EN, 'jungle tagahehaka'] *Coracina atriceps*

o tee-teeke [CX, redup. + *-teeke* 'to make a snapping sound'; 'one that makes a snapping sound' (so called because of the sound of snapping [like snapping shut scissors] made by this bird as it flies) *Locustella fasciolata*

o toge [SL]

- *o toge* [SL] *Amaurornis olivaceus*

+ *o toge iburi-buri* [P-EN, 'mottled toge'] *Rallus philippensis*

o totaleo [SL] 'chicken' (or) *o totaleo-berera* [CD-EN, 'chicken/bird' + *berera* 'village'; 'village chicken/bird'] (Note: In this work the term may also be written *o totaleo₂* 'chicken,' as distinct from *o totaleo₁* 'bird.') 'domestic chicken' *Gallus gallus*.

o totoai [SL] *Lonchura molucca*

o tumara [SL] (or) *o wuu* [SL, said to be onomatopoeic] (or, rarely:) *o suéngko* [SL, apparently < NMM, occasionally borrowed and used in Tbl despite its foreign phonology] 'herons, night-herons, and egrets' *Nycticorax caledonicus hilli*, *Egretta sacra*, *Ardea alba*, and *Ardea sumatrana*.

o turi-turi [SL] (or, rarely:) *o siru-siru* [SL] *Merops ornatus*

o tutubuuku [SL, but ? < CX] (Obi dialect of Tbl) *Lycocorax pyrrhopterus obiensis* (Note: cf. the D & B dialect term *o hayaniti* (q.v., above) used on Halmahera for that island's subspecies *L. p. pyrrhopterus*. If Tbl speakers from Halmahera were exposed to the Obi subspecies and Obi Islanders to the Halmahera subspecies, these terms could more easily be considered synonymous.)

o uboro [SL] 'female (of) *Lorius roratus vosmaeri*' (Note: cf. *o gofótoro* (q.v. above) meaning male *L. r. vosmaeri*.)

o ula-ula [SL] 'tern' *Sterna hirundo longipennis*

o weka-weka [SL] *Semeioptera wallacii*

o weu [SL] (uncollected)

o wewoho [SL] (uncollected)

o wogono [SL] 'crows' (*Corvus* spp.)

- *o wogono* [SL] *Corvus validus*

+ *o wogono-todore* [CD-EN *wogono* (q.v.) + *todore* 'Tidore (Island)'; 'Tidore wogono'] *Corvus orru*

o wuku [SL] '(some) hawk-owls' (*Ninox* spp., partial) (Note: This term is used for *Ninox connivens* and for the

migratory *Ninox scutulata*. However, the only other hawk-owl occurring on Halmahera, *Ninox squamipila*, remains the only Halmaheran owl that I never obtained. Either *N. squamipila*, like the other two hawk-owls, is in the *wuku* class, or, more likely, it is the denotata of the one Tbl class of owls for which I obtained no specimen: *o ginene* (q.v.). If *N. squamipila* is considered *o wuku* by Tbl, then another owl, termed *o ginene* by the Tbl, may be present on Halmahera, unbeknownst to ornithologists.)

A2.2 *o dodiha* [SL] 'snake'

o biha [SL, n. *biha* 'venom, poison,' cf. vb. *-biha* 'to be venomous,' referring to the fact that this is the region's most venomous and deadly snake] *Candoia aspera* (Note: This Tbl name was confirmed on Obi Island in 1983, where a specimen was obtained; although this death adder is not found on Halmahera, its reputation is widespread.)

o boboro ma diaoto [CD-?EN, *boboro* 'Nipa palm') + poss. + '?'] *Acrochordus granulatus*

o gatu [SL] *Macropophis halmaherica* [Note: Because of its striking ability to "fly" (actually glide) through the air, this snake is well known, and the many variations in this species' coloration are often given distinct names in Tbl. This subclassification may also be important because of the local belief that any *gatu* snake will fly toward any human wearing clothes having the same color pattern as its own skin. Each subclass was collected, and all are of the same zoological species.]

o gatu ma daro-daromo [P-EN, 'black *gatu*']

o gatu ma gogurati [P-EN, 'yellow *gatu*']

o gatu ikaba-kaba [P-EN, 'mottled *gatu*']

o gatu ma kafo-kafo [P-EN, 'gray *gatu*']

o gumulamo [?CD-EN, ?< *gumu* '?' + trunc. *lamoko* 'big'; '?'] *Python reticulatus*

o kaingóo [SL] 'sea snake' *Laticauda colubrina* (collected, several localities) and *Laticauda* sp. (unobtained, but observed)

o lako-iwa [CX, < *lako* 'eye' + *-iwa* 'be absent'; 'having no eye(s),' probably a reference to this snake's poor eyesight] *Brachyorrhus albus*

o ngohokumu [SL] (or) *o gohi yanahi-nahiri* [CD-EN, 'egg(s)' + redup. + 'it eats'; 'the one that eats eggs'] (or) *o totaruna* [SL] *Boiga irregularis*

o ngohabeloro [CD-EN, < *ngoha* (trunc. of *ngohaka*) 'child' + *-beloro* 'to set stakes or poles'; (etym. uncertain)] (or) *o tonaka ma dutu* [CD-EN, < 'land' + poss. + 'lord, master'; 'lord of the land'] *Stegonotus batjanensis*

o pakaka [SL] *Candoia carinata*

o pocoglíi [SL] *Cerberus rhyncops*

o populegana [SL] *Dendrelaphis caudolineatus modestus*

A2.3 *o nawoko* [SL] 'fish'

Note: In addition to "fish," this B⁺¹ class includes whales (*o hore*), dolphins (*o iafa*), and the manatee (*o kobo*).

o abáa [SL] (or, to distinguish this freshwater fish from the 'abáa shark' [*o garangoto o abáa*, q.v.]:) *o abáa o akeriha* [P-EN, 'freshwater abáa'] sp. undet. (Rhyacichthyidae)

o ado [SL] (or) *o lado* [SL, cf. NMM *lado*, same meaning] 'sea eel' (many collected, all sp. undet. of the family Muraenidae, except as noted below, and two *Neopomacentrus* sp. of the family Pomacentridae)

o ado iubutu-túbuku [P-EN, 'black-spotted *ado*'] uncoll.

o ado ma doka-dokara [P-EN, 'red *ado*'] sp. undet. (Scaridae)

o ado iburi-buri [P-EN, 'mottled *ado*'] uncoll.

o babanga ma kai [CD-EN, '*babanga* (q.v.) mangrove' + poss. + 'bark'; 'bark of the *babanga* mangrove tree'] sp. undet. (Serranidae)

o bai-baiti [SL, but ? < CX]

- *o bai-baiti* [SL, as above] or *o bai-baiti o dowongiika* [P-EN, 'shore *bai-baiti*'] many collections, most sp. undet. (Gobiidae); one *Exyrias* sp. (Gobiidae); one *Belobranchus belobrancha* (Eleotridae); one *Exyrias* sp. (Gobiidae); one sp. undet. (Moringuidae); one sp. undet. (Synodontidae)

+ *o bai-baiti ma kafo-kafo* [P-EN, 'gray *bai-baiti*'] sp. undet. (NM1F350)]

+ *o bai-baiti ma lukuiha* (or) *o bai-baiti ma lukuika* (or) *o bai-baiti ma lukuino* [all P-EN meaning '*bai-baiti* from the deep (sea)'] two collections *Valenciennea* cf. *v. longipinnis* (Gobiidae); one *Istigobius onatus* (Gobiidae)

+ *o bai-baiti o ngigorika* [P-EN, '*bai-baiti* of rocky areas'] spp. undet. (Gobiidae and Eleotridae)

o balawai [SL] sp. undet. (Drepanidae)

o baru ma hoka [CD-EN, '*baru* (q.v.) tree (*Hibiscus tiliaceus*)' + poss. + 'leaf'; 'leaf of the *baru* tree' (so called because this fish's shape resembles that tree's leaf)] *Scatophagus argus* (Scatophagidae)

o bega [SL] several collections: *Eleotris* cf. *melanosoma* (Eleotridae); *Ophiocara porocephala* (Eleotridae); *Butis butis* (Eleotridae); *Butis amboinensis* (Eleotridae); *Belobranchus belebrancha* (Eleotridae); *Callogobius producta* (Gobiidae); *Stigmatogobius* sp. (Gobiidae); *Bathygobius* sp. (Gobiidae)

o beene [SL] (or) *o púuhu* [SL]. Note: This class of fishes is termed (*ikan*) *kobós* 'kobós (fish)' in NMM, which distinguishes *kobós air* 'freshwater kobós' from *kobós laut* 'sea kobós.' Apparently as a translation of this NMM classification into Tobelo, I once recorded the Tbl term *o beene o akeriha* 'freshwater beene' at Loleba in 1978. However, other Tbl speakers at that village said they considered the expression unacceptable, noting that the NMM *kobós air* should be called *o dungiri* (q.v.) in Tbl,

and not subsumed under the *o beene* class at all.

- *o beene* [SL] spp. undet. (Gobiidae and Eleotridae); sp. undet. (Serranidae).

+ *o murumu* [SL; cf. *o murumu* 'star, starfish'] *Acentrogobius* cf. *janthinopterus*

o beletomo [SL] uncoll.

o bido-bidoho [CX, < *bidoho* (q.v.) '*Piper* spp. (betel-pepper)' + redup.; 'rather like a betel-pepper' (so called because of this fish's elongated shape like that of the fruit of betel-peppers)] (or) *o bobidoho* [CX, < *bidoho* (as above) + agentive redup.; here used as an alternative form of reduplication, apparently on the analogy of the more usual *bido-bidoho*]

o biha-biha [D dialect term; CX, < vb. *-biha* 'to be poisonous, venomous' + redup.; 'the one that is poisonous, venomous' (so called because of the venom in the prickling spines of this fish)] (cf. B & H dialect term: *o hiringe* [SL, term used in H & B dialects] sp. undet. (Siganidae)

o biwo ma ayo [CD-EN; note this CD has the same form as the phrase 'mother of *biwo*,' but it is not a phrase (thus, for example, the class cannot be referred to as *ma ayo* 'its mother,' and there is no 'child' subclass of *biwo*); < *biwo* '?' + poss. + 'mother'; '*biwo*'s mother'] sp. undet. (Gobiidae)

o babooyo [SL] *Sillago sihama* (Sillaginidae)

o bobára [SL]. Note: In addition to the subclasses below, the fish termed *o lakofúku* (q.v.) is considered by some B dialect informants to be a subclass of *o bobára*, and is indeed termed *bobára* in NMM as well. However, following the prevailing classification in D dialect, it is listed as a separate B⁰ class here.

- *o bobára* [SL] sp. undet. (Carangidae)

+ *o gidi-gidi* [SL, but ? < CX] uncoll.

+ *o bobára imuu-múmuru* [P-EN, 'the *bobara* that has *mumuru* (leaf-ribs of the sugar palm leaf)' (apparently a reference to prominent stripes like leaf-ribs of the sugar palm leaf)] uncoll.

+ *o kokotu* [CX, redup. + vb. *-kotu* 'to be black'; 'the one that is black'] sp. undet. (Stromateidae), and sp. undet. (Acanthuridae)

+ *o lakolci* [SL, but ? < Tte or other language CD, *lako* 'eye' + *ici* '?'] sp. undet. (Carangidae)

+ *o nyao-soremo* [SL, but apparently < Tte CD-EN, Tte *nyao* 'fish' + *soremo* '?'] uncoll.

+ *o tataulu* [SL, 'jellyfish'] (or) *o tataulu ma nawoko* [CD-EN, 'jellyfish' + poss. + 'fish'; 'the jellyfish fish'] sp. undet. (Carangidae)

+ *o bobara ma gare-garehe* [P-EN, 'white *bobara*,' perhaps formed by analogy with NMM *bobara puti* 'white *bobara*' (same meaning)] sp. undet. (Carangidae)

o boboro ma diaoto [CD-EN, < *boboro* (q.v.) '*Pandanus* sp.' + poss. + *diaoto* '?'] spp. undet. (Ophichthidae, Moringuidae, and Anguillidae)

- o bole-bole* [CX, < vb. *-bole* '(to be) soft, flaccid'; 'the one that is soft, flaccid'] spp. undet. (Labridae)
- o bonata* [SL] sp. undet. (Lutjanidae)
- o botila* [SL] sp. undet. (Lethrinidae)
- o botila-haro* [CD-EN, *botila* + *haro* '?']
- o hikuda* [SL]
- o bubuguraci* [CD-EX, *bubu* 'roof-slat' + vb. *guraci* 'gold'; 'golden roof-slat'] uncoll.
- o butuimi* [SL] uncoll.
- o cara* [SL] uncoll.
- o capadéke* [SL] sp. undet. (Antennariidae)
- o cioongo* [SL]
- *o cioongo* [SL] *Alepes vari* (Carangidae)
- + *o ciong-papanga* [CD-EX (cf. NMM *ciong-papang*, same meaning), *ciong* (truncated and NMM form of *cioongo*, q.v.) + vb. *-papanga* '(to be in the form of a) plank'; '*cioongo* in the form of a plank' (so called because this fish is more elongated and straight, unlike the 'round *cioongo*' subclass below)] (or) *o papanga* [SL, 'plank' (cf. NMM *papang* 'plank')] both subclasses below: sp. undet. (Carangidae)
- G1 *o ciong-sai* [SL, but ?< CD in another language (not NMM)] juvenile forms of this fish
- G2 *o ciong-papanga* [CD-EN, as above] (or) *o papanga* [SL, as above] adult forms of this fish
- + *o ciong-polulu* [CD-EX, *ciong* (truncated and NMM form of *cioongo*, q.v.) + vb. *-polulu* 'to be round'; 'the round *cioongo*'] sp. undet. (Carangidae)
- o cooro* [SL] (occasionally referred to by a borrowing from NMM *gorára*, thus:) *o gorára* [SL, considered unacceptable by some Tbl though recognized as NMM]
- *o cooro* [SL] (or) *o gorára* [SL] sp. undet. (Lutjanidae)
- + *o cooro de ma ingi-ingiroka* (or) *o gorára de ma ingi-ingiroka* [both P-EN, '*cooro* / *gorára* with teeth' (or) *o cooro iingi-ingiri* (or) *o gorára iingi-ingiri* [P-EN, 'toothed *gorára*']. Note: In B-dialect (Loleba), though not in D-dialect, this subclass is referred to as *o gorára ma nauru* 'male *gorára*,' in contrast to the *o cooro-tamate* (or) *o gorára-tamate* (below), which is termed 'female'; both contrasting with the unmarked subclass and with the others.) sp. undet. (Lutjanidae)
- + *o cooro-tamate* (or) *o gorára-tamate* [both CD-EN, *cooro* (q.v.) or *gorára* (synonym, q.v.) + 'tomato'; 'the tomato *cooro/gorára*']. Note: In B dialect (Loleba), though not in D dialect, this subclass is referred to as *o gorára ma beka* 'female *gorára*,' in contrast to the *o cooro/[gorára] de ma ingi-ingiroka* (above), which is termed 'male'; both contrasting with the unmarked subclass and with the others.) sp. undet. (Lutjanidae)
- + *o cooro ihuo-huoto* [P-EN, 'pointed *cooro*'] (or) *o gorára ihuo-huoto* [P-EN, 'pointed *gorára*'] (uncoll.)
- + *o cooro-kilotini* [CD, *cooro* (q.v.) + '*kilotini* (q.v.)'] (or) *o kilotini* [SL] sp. undet. (Lutjanidae)
- o dadaboa* [SL] (or) *o dodaboa* [SL] *Toxotes chatareus* (Toxotidae)
- o dadiaanga* [SL, in D dialect] (or) *o dadiánga* [SL, in B dialect] (both forms may be used as head-words in terms for the subclasses below:)
- *o dadiaanga* [SL] *Abudefduf* sp. (Pomacentridae)
- + *o dadiaanga o pahika* [P-EN, 'coral(-dwelling) *dadiaanga*'] *Dascyllus aruanus* (Pomacentridae)
- + *o dadiaanga ma lukuika* [P-EN, '*dadiaanga* from the deep (sea)'] *Abudefduf saxatilis* (Pomacentridae)
- o deo* [SL, cf. NMM *deho* (same meaning)] sp. undet. (Scombridae)
- +G1 *o komo* [SL]. Note: Tt Loleba (B dialect), I recorded the following form for this class, though it is considered unacceptable by D dialect speakers: *o deo-kómo* [CD-EN, 'the *komo* (form of) *deo*'] 'juvenile form of the *deo* fish'
- G2 *o deo* [SL]
- o dobidono* [SL] *Zenarchopterus gilli* (Hemiramphidae)
- o dolohi* [SL] (or) *o dolosi* [SL]
- *o dolohi* [SL] (or) *o dolosi* [SL] sp. undet. (Lutjanidae) and *Caesio cuning* (Caesionidae)
- + *o dolohi-papanga* [CD-EX *dolohi* (q.v.) + vb. *-papanga* '(to be in the form of a) plank'; '*dolohi* in the form of a plank' (so called because this fish is more elongated and straight or plank-shaped, cf. the 'pointed *dolohi*' below)] sp. undet. (Lutjanidae)
- + *o dolohi ihuo-huoto* [P-EN, 'pointed *dolohi*'] (uncoll.)
- o dudéke* [SL] 'puffer fish.' Note: See also *o hundána* 'porcupine fish' below, considered a contrasting subclass in D dialect but considered a subclass of *o dudéke* in B dialect.
- o dudéke ma dorou* [P-EN, 'bad/evil *dudéke*'] spp. undet. (Tetraodontidae)
- o dudéke ma oa* [P-EN, 'good *dudéke*'] (or) *o youwóko* [SL] sp. undet. (Tetraodontidae)
- o dudéke o akeriha* [P-EN, 'freshwater *dudéke*'] sp. undet. (Tetraodontidae)
- o hamu* [SL, *hamu* (q.v.)], a reference to the large size of this puffer fish, which is metaphorically compared to the *hamu* fish] (or) *o dudeke-hamu* [CD-EN, etym. as above; 'the *hamu* *dudéke*] *Arothron aerostaticus* (Tetraodontidae)
- o duimi* [SL] (or) *o dui-duimi* [CX, *duimi* (q.v.) + redup.] *Hyporhamphus quoyi* (Hemiramphidae)
- o dungiri* [SL]
- *o dungiri* [SL] (or) *o dungiri ma kafo-kafo* [P-EN, 'gray *dungiri*] *Bostrychus sinensis* (Eleotridae), *Butis* sp. (Eleotridae), *Ophiocara porocephala* (Eleotridae), *Hypseleotris* sp. (Eleotridae), *Eleotris* cf. *melanosoma* (Eleotridae), *Glossogobius giurus* (Gobiidae), *Stomatogobius* sp. (Gobiidae)
- + *o dungiri ma gogurati* [P-EN, 'yellow *dungiri*'] sp. undet.
- + *o murumu* [SL, 'star, starfish'; etym. uncertain] *Ophiocara aporos* (Eleotridae)
- o fajabau* [CD-EX, *faja* 'dirty, foul' + NMM *bau* 'smell' 'foul smell'] sp. undet. (Haemulidae)
- o gaca* [SL, cf. NMM *ikan gaca* ('*gaca* fish')] (or, alternate

- form from Kampung Wasile (B-dialect): *o sigáca* [SL] *Diodon* sp. (Diodontidae) (cf. NM1F141 from Wasile:) sp. undet. (Lutjanidae)
- o gaeru ma nawoko* [CD-EN, 'sea anemone' + poss. + 'fish'; 'sea anemone's fish' (so called because this fish lives symbiotically with sea anemones) *Amphiprion ocellaris*, *A. polymnus*, and *Amphiprion* sp. (Pomacentridae)
- o gaka-gakana* [CX, < n. *gakana* 'knife' + redup.; 'rather like a knife'] sp. undet. (Centriscidae)
- o gao* [SL] sp. undet. (Rachycentridae)
- o garangoto* [SL] (or, occasionally:) *o gorangoto* [SL, cf. NMM *gorango*, same meaning] 'shark'
- o abáa* [SL, the name of a fish (q.v.)]
- o abáa ma dorou* [P-EN, 'evil/bad *abáa*'] (or) *o abáa ma fugu* [P-EN, etym.?] (uncoll.)
- o abáa ma oa* [P-EN, 'good *abáa*'] (uncoll.)
- o delo* [SL] sp. undet. (Carcharhinidae)
- o garagaji* [SL, 'saw'] (uncoll.) (Based on description, this is the term for 'sawfish' (Pristiophorae))
- o garangoto ma eebe youkúúku* [CD-EX, 'shark' + poss. + *eebe* 'dorsal and anal (not pectoral or tail) fins' + *yo-uku-uku* vb. 'it burns downward'; 'the shark's dorsal and anal fins are burned' (so called because of the blackened color of those fins on this species)] sp. undet. (Carcharhinidae)
- o garangoto ma túkuru* [?CD, *garangoto* + poss. + '?'] sp. undet. (Sphyrnidae)
- o gorango-bintang* [SL, but clearly a NMM CD, NMM *gorango* 'shark' + *bintang* 'star'; 'star-shark' (so called because of the white spots on the body of this, the world's largest fish)] (uncoll. and unobserved, but from description this must be the 'whale shark' *Rhincodon typus* (Rhincodontidae))
- o hawali* [SL] sp. undet. (Carcharhinidae)
- o huhu* [SL, cf. *huhu* 'milk'] (or) *o garango-huhu* [CD-EN, < trunc. form of *garangoto* (q.v.) + *huhu* 'milk'; 'milk-*garangoto*'] sp. undet. (Orectolobidae)
- o huo-huoto* [CX, < vb. *-huoto* 'to be pointed' + redup.; 'the pointed one'] sp. undet.
- o leleko* [SL] (uncoll.)
- o matupuru* [SL] 'hammerhead shark'; sp. undet. (Sphyrnidae)
- o ngunubole* [CD-EX, < trunc. form of *ngunungu* 'nose' + vb. *-bole* '(to be) weak'; '(its) nose is weak'] sp. undet. (Carcharhinidae)
- o turuhi ma garangoto* [CD-EN, *turuhi* (q.v.) (a type of fish) + poss. + *garangoto*; 'the *turuhi* fish's *garangoto*'] sp. undet. (Carcharhinidae)
- o gega* [SL] sp. undet. (Lutjanidae)
- o gehedemo* [SL, but ?< foreign CD] spp. undet. (Nemipteridae), also *Scolopsis ciliatus* (Nemipteridae)
- o gigo* [SL] *Remora remora* and *Echeneis naucrates* (both Echeneidae)
- o goga* [SL, name recorded at Loleba (B dialect) but unfamiliar to D dialect speakers] sp. undet. (Lutjanidae)
- o gogolebo* [SL] sp. undet. (Carangidae) (not the same as *o gogolóbo* below, which is a B-dialect term for *o gogóbo*, q.v.)
- o gogóbo* [SL, term in D dialect] (or, in B dialect at Loleba:) *o gogolóbo* [SL] *Hemiramphus far* (Hemiramphidae)
- o gogotána* [SL] sp. undet. (Chaetodontidae)
- o gohomanga ma hilawoto ma hahakara* [CD-EN, 'crocodile' + poss. + *hilawoto* 'teeth (? , translated as 'teeth' in this CD, though known to me only from this fish name)' + poss. + 'pick, picking tool'; 'crocodile's tooth-pick' (so called because of the elongated body-shape of pipefishes, though seahorses, which do not have that shape, are denoted by the same term)] (or) *o gohomanga ma ngauku ma hahakara* [CD-EN, 'crocodile' + poss. + 'ear' + 'pick, picking tool'; 'crocodile's ear-pick' (etym. same as above)] 'pipefish and seahorses' spp. undet. of Syngnathidae, and: *Oostethus brachyurus brachyurus*, *Syngnathoides biaculeatus*, *Choeroichthys brachysoma*, and *C. haematopterus* (all Syngnathidae).
- o golemaka* [SL] (uncoll., apparently a ray fish; considered a B⁰ term in D dialect, but cf. alternative B dialect placement of this class below, under *o noara*, q.v.)
- o golila* [SL] spp. undet. (Teraponidae)
- o gopunu* [SL] sp. undet. (Acanthuridae)
- o gorara-jáwa* [CD-EN, *gorára* (= *cooro* q.v., a fish) + 'Java(nese)'; 'Javanese *gorára*']. Note: Despite its name, this is not considered a subclass of *o gorára* or *o cooro* by D dialect speakers. (uncoll.)
- o gorogoto* [SL] (or) *o go-gorogoto* [CX, *gorogoto* (q.v.) + redup.] *Mesopristes cancellatus* (Teraponidae)
- o goruo* [SL]. Note: The unmarked subclass below is further divided into growth stages as shown:
- *o goruo* [SL] (also referred to in B (not D) dialect as:) *o goruo (ma oa)* [P-EN, '(good) *goruo*'] sp. or spp. undet. (Mugilidae). (Also subdivided into growth stages, as follows:)
 - G1 *o pokodéke* [(D dialect) CD-EX, trunc. *pokoro* 'stomach' + *-déke* '(to be) inflated'; 'inflated stomach'] (cf. B dialect term:) *o gorofea* [SL]
 - G2 *o goruo* [SL]
 - G3 *o copiloto* [SL]
 - G4 *o moowo* [SL]. Note: This is used in D dialect, but not B dialect, for the largest *goruo*, ~75 cm or more in length.
- + *o goruo ma puniti* [CD-EN, *goruo* + poss. + 'coconut husk'; '*goruo*'s coconut husk' (so called because of the hardness of the dorsal region of this *goruo*, making it difficult to spear from above)] (also referred to in B (not D) dialect as:) *o goruo ma dorou* [P-EN, 'bad/evil *goruo*'] sp. or spp. undet. (Mugilidae)
- o goyoko* [SL]
- *o goyoko (ma dutu)* [P-EN, '(true) *goyoko*'] spp. undet. (Anguillidae)
 - + *o beluku* [SL] sp. undet. (Anguillidae)
 - + *o tuguihi* [SL] sp. undet. (Anguillidae)

- o gosao* [SL] (or) *o gofao* [SL] (uncoll.)
- o gumi-gumi* [CX, < vb. -*gumi* 'to have a mustache' + redup.; 'having a mustache' (a reference to the fleshy barbels on the snouts of these fish)]
- *o gumi-gumi* [CX, as above] (or) *o gumi-gumi o ngigorika* [P-EN, 'rock(-dwelling) *gumi-gumi*'] spp. undet. (Mullidae) and: *Atherinomorus lacunosus* (Atherinidae); *Upeneus* sp. (Mullidae)
 - + *o gumi-gumi o gahi ma naurino* [P-EN, (literally) 'gumi-gumi from the male sea' (i.e., from the open sea of the Pacific, coming into Kao bay in seasons of strong North winds)] *Pseudopenes* sp. (Mullidae)
 - + *o gumi-gumi ma luku-ino* [P-EN, 'deep-water *gumi-gumi*'] (uncoll.)
- o gumúru* [SL; cf. also the bird of the same name, no apparent connection] spp. undet. (Pomacentridae)
- o gutu-gete* [SL]
- *o gutu-gete* [SL, cf. NMM: *ikan gete-gete* 'gete-gete fish'] spp. undet. (Ambassidae and Gerridae) and: *Ambassis* sp. (Ambassidae)
 - + *o gutu-gete ma ayo* (or) *o gutu-gete ma yeha* [both P-EN, both meaning 'gutú-gete's mother'] spp. undet. (Apogonidae)
- o hahuru ma tatádaka* [CD-EN, < *hahuru* 'white-water, rapids (in a stream or river)' + poss. + 'leaper'; '(fish that) leaps through rapids'] (or) *o hahuru ma dódomo* [CD-EN, < 'white-water, rapids' + poss. + 'peak'; 'peak of the rapids'] (uncoll.)
- o hakaru ma timi* [(D dialect term) CD-EN, 'stone(s)' + poss. + 'area underneath (something)'; 'underneath stones' (a reference to this fish's normal habitat)] (cf. B dialect term:) *o urupirini* [CD-EX, < *uru* 'mouth' + *-pirini* '(to be) thick'; '(its) mouth is thick'] *Plectorhynchus gibbosus* Lac. (Pomadasyidae), but cf. NM2D353 identified as *Thryssa baelama* (Engraulidae), and NM1F035, sp. undet. (Haemulidae)
- o hama-hama* [SL] Although Tbl posit two subclasses, specimens of both subclasses proved to be the same biological species: *Platycephalus indicus* (Platycephalidae). The 'mud' subclass is said not only to be found in intertidal mudflat and mangrove areas, but also to be darker in color (blending in with that substrate), while the 'sand' subclass is said to be lighter in color, and to prefer sandy areas.
- o hama-hama o pekeika* [P-EN, 'mud(-dwelling) *hama-hama*']
 - o hama-hama o dowongiika* [P-EN, 'sand(-dwelling) *hama-hama*']
- o hamu* [SL]. Note: The unmarked subclass below is further divided into growth stages as shown:
- *o hamu* [SL] spp. undet. (Serranidae)
 - G1 *o kaidau* (up to ~10 cm in length)
 - *o kaidau* [SL] spp. undet. (Serranidae)
 - + *o kaidau ma doka-dokara* [P-EN, 'red *kaidau*] spp. undet. (Serranidae)
 - G2 *o buri* [SL, cf. (homonymous?) vb. *-buri* 'to be mottled (in color)'] (~10–30 cm)
 - G3 *o kokofa* [SL] (~30–50 cm)
 - G4 *o hamu* [SL, as above] (~50–100 cm)
 - G5 *o hapatanga* [SL] (or) *o roto* [SL] (>1 meter)
 - + *o hamu-pakaka* [CD-EN, *hamu* (q.v.) + *-pakaka* '(to be) splotched with colors like the *pakaka* (q.v.) snake'; '*hamu* that is splotched with colors like the *pakaka* snake'] sp. undet. (Serranidae)
 - + *o hamu-ginene* [CD-EN, *hamu* (q.v.) + *ginene* (q.v., an owl)] (or) *o goropa-ginene* [CD-EN, same etym.; *goropa* is NMM word for *hamu*] sp. undet. (Serranidae)
- o hangu-hangu* [SL] (uncoll.)
- o hanogaya* [SL] spp. undet. (Lobotidae)
- o haradina* [SL, cf. NMM: *sardencis*, probably < Dutch *sardientjes* (diminutive plural of Dutch *sardine* 'sardine') 'little sardines'] spp. undet. (Clupeidae)
- o harimi ma beleti* [CD-EN, 'oar' + poss. + 'blade (of oar)'; 'blade of oar' (a reference to the shape of this fish)]
- *o harimi ma beleti* [CD-EN, as above] sp. undet. (Pempferidae); but cf. NM1F049, identified as sp. undet. (Monodactylidae)
 - + *o harimi ma beleti o hakaruika* [P-EN, 'rock(-dwelling) *harimi ma beleti*'] *Pempheris vanicolensis* (Pempferidae)
- o hibiháwa* [SL] spp. undet. (Carangidae)
- o hikuda* [SL] sp. undet. (Lethrinidae)
- o hilowana* [SL] spp. undet. (Belonidae), and see identifications of specimens collected in subclasses (below):
- o yarusako* [SL, but CD-EN in NMM?, apparently < NMM *yaru* (NMM term for *hilowana*) + *sako* '?'] spp. undet. (Belonidae)
 - o bobarabete* [SL] spp. undet. (Belonidae) and: *Tylosurus crocodilus crocodilus* (Belonidae), *Strongylura incisa* (Belonidae)
 - o hilowana ma lukuika* [P-EN, 'deep(-water) *hilowana*'] *Tylosurus acus melanotus* (Belonidae)
 - o guhungiika ma hilowana* [P-EN, '*hilowana* (dwelling in) *guhungi* (or *guhungiri* q.v., a 'seaweed')'] sp. undet. (NM1F298)
- o hohodono* [SL] spp. undet. (Gobiidae) and: *Globiibius giurus* (Gobiidae), *Bostrychus sinensis* (Eleotridae), and *Syngnathoides biaculeatus* (Syngnathidae)
- o hohomare* [SL] sp. undet. (Carangidae) and *Caranx sexfasciatus* (Carangidae)
- o hohononga* [CX, < *hononga* 'half, (one of two) side(s)' + redup.; 'having one side'] spp. undet. (Cynoglossidae) and spp. undet. (Soleidae)
- o hohononga ma niraka* [P-EN, 'right(-sided) *hohononga*'] 'Cynoglossidae and Soleidae whose eyes develop on the right side of the body (the left side kept downward along the surface as the fish swims)'
 - o hohononga ma gubadi* [P-EN, 'left(-sided) *hohononga*'] 'Cynoglossidae and Soleidae whose eyes develop on the left side of the body (the right side kept downward along

- the surface as the fish swims)'
- o hore* [SL] (uncoll.) 'whale' (i.e., all local whales, though this B⁰ term does not signify dolphin/porpoise [*o iafa*, q.v.], or the manatee (*o kobo*, q.v.), both also considered 'fish.')
- o huaono* [SL] sp. undet. (Scombridae) and *Rastrellinger kanagurta* (Scombridae)
- G1 *o megi* [SL]
- G2 *o huaono* [SL]
- G3 *o udengo* [SL]
- o hulutana* [SL] (uncoll.)
- o huma* [SL] (uncoll., apparently a ray fish; considered a B⁰ term in D dialect, but cf. alternative B dialect placement of this class below, under *o noara*, q.v.)
- o hunána* [SL] (Note: B dialect informants at Loleba consider this class a subclass of *o dudéke* (q.v.), though in D dialect it is a contrasting B⁰ term.) spp. undet. (Diodontidae) and *Diodon liturosus* Shaw (Diodontidae)
- o iafa* [SL] 'dolphin, porpoise' (Delphinidae; *Tursiops* sp. and others)
- o ido* [SL, D dialect term] (or) *o kapópo* [SL, B dialect term] (uncoll.)
- o ila* [SL] spp. undet. (Kyphosidae)
- o iye* [SL, D dialect] (or) *o ile* [SL, B dialect] (uncoll.)
- o janga-janga* [CX, redup. + *-janga* 'to sparkle, glitter'; 'one that sparkles, glitters'] Subclassification different in D and B dialects:
- (1) Subclasses in D dialect:
- *o janga-janga* [CX, as above] (or) *o janga-janga ma ngoa-ngoata* [P-EN, 'the wide *janga-janga*'] sp. undet. (Gerridae)
 - + *o janga-janga ilebi-lebi* [P-EN, (etym. uncertain)] sp. undet. (Gerridae)
 - + *o janga-janga ihuo-huoto* [P-EN, 'pointed (sharp) *janga-janga*'] sp. undet. (Gerridae)
- (2) Subclasses in B dialect:
- ~ *o janga-janga ma nauru* [P-EN, 'male *janga-janga*'] sp. undet. (Gerridae)
 - ~ *o janga-janga ma beka* [P-EN, 'female *janga-janga*'] sp. undet. (Gerridae)
- o kabi-kabingi* [CX, < *kabingi* 'goat' + redup.; 'rather like a goat'] (uncoll.)
- o koibo* [SL] sp. undet. (Plotosidae)
- o kokucubili* [SL] (specimens apparently mixed under the same field number; one of the two identifications given is spurious:) (either) *Pomacentrus* sp. (Pomacentridae) (or) sp. undet. (Labridae)
- o kolibóbo* [SL, D dialect term] (or, in B dialect:) *o pohi-pohi ma hoka* [CD-EN, *pohi-pohi* (q.v., a mangrove tree) + poss. + leaf; '*pohi-pohi* leaf' (a reference to this fish's shape)] (NM1F196 identified as:) *Dascyllus trimaculatus* (Pomacentridae) (but cf. NM1F488:) sp. undet. (Chaetodontidae)
- o koouno* [SL] (or) *o kolouno* [SL] (Note: Either form may be used as headword to designate the subclasses below.)

- Various spp. (see below) of Atherinidae. Growth classes cross-cut the taxonomic subclasses based on differences in morphology or habitat:
- + G1 *o koouno ma boro* [P-EN, *koouno* (q.v.) + poss. + *boro* 'immature form of *koouno*'; the *koouno*'s immature form']
 - G2 *o koouno* [SL]
- Note also the taxonomic subclasses cross-cutting growth classes:
- *o koouno* [SL] (or) *o koouno (ma oa)* [P-EN, '(good) *koouno*'] *Atherinomorus cylindricus*, *Atherinomorus duodecimalis*, and *Atherion elymus* (all Atherinidae)
 - + *o urupóro* [CD-EX, *uru* 'mouth' + *-póro* '?'] (or) *o koouno o ngigorika* [P-EN, 'rocky-area(-dwelling) *koouno*'] *Atherinomorus endrachtensis* (Atherinidae)
- o kulála* [SL] *Scolopsis temporalis* (Nemipteridae), *Cryptocentrus* sp. (Gobiidae), and *Istiblennius* sp. (Blenniidae)
- o kuluri* [SL]
- *o kuluri* [SL] *Zonogobius oliatus* and *Callogobius maculipinnis* (both Gobiidae), *Neopomacentrus* sp., *Glyphidodontops* sp. (both Pomacentridae), and spp. undet. (Holocentridae)
 - + *o kuluri-gáca* [CD?, *kuluri* (q.v.) + *gáca* or *-gáca* '?'] spp. undet. (Holocentridae)
- o kobo* [SL] (observed but uncollected; clearly the manatee or dugong:) *Dugong dugon*
- o laaba* [SL] (or, occasionally:) *o lompa* [SL, clearly a borrowing from NMM, cf. NMM *ikan lompa* 'lompa fish'] sp. undet. (Engraulidae)
- o lakopeda* [CD, *lako* 'eye' + *peda* '?'] *Scolopsis margaritifera* (Nemipteridae), sp. undet. (Nemipteridae), and sp. undet. (Scolopsidae)
- o lakofúku* [CD-EX, *lako* 'eye' + poss. + *-fúku* '?'] sp. or spp. undet. (Carangidae)
- o lakoria* [SL] (or, occasionally:) *o lakoriha* [SL, but both ?<CD in another language, *lako* 'eye' + *-ria* or *riha* '?']
- *o lakoria* [SL, as above] (or) *o lakoria ma beka* [P-EN, 'female *lakoria*' (or) *o lakoria ma dutu* [P-EN, 'true/genuine *lakoria*'] *Nemipterus hexodon* (Nemipteridae) and sp. undet. (Nemipteridae)
 - + *o lakoria ihuo-huoto* [P-EN, 'pointed *lakoria*'] (or) *o lakoria ma nauru* [P-EN, 'male *lakoria*']. (Note: In referring to this subclass as 'male,' Tbl are making a nomenclatural distinction, not a judgment of the sex of the fish; as one informant from Pasir Putih told me, "We just call it male but sometimes the male has eggs in it.") sp. or spp. undet. (Nemipteridae)
 - + *o lakoria-ngólo* [SI, but ?< CD, *lakoria* (q.v.) + *ngolo* '?'] (term used in B dialect, unknown to my D dialect informants) sp. undet. (Nemipteridae)
- o lalanga* [SL] sp. undet. (Carangidae)
- o liguha* [SL] sp. undet. (Lactariidae)
- o litaimi* [SL, cf. NMM *ikan sumasi*, term used for same fish] sp. or spp. undet. (Lutjanidae)
- o litau-dolosi* [SL, but ?<CD, '?' + *dolosi* (q.v., a kind of

- 'fish') sp. undet. (Lutjanidae)
- o lodi* [SL] sp. undet. (Serranidae)
- o lou-lou* [SL, cf. also 'bird' with this name] spp. undet. (Lutjanidae)
- o lulule* [SL, 'butterfly']
- o lulule ma beka* [P-EN, 'female lulule'] spp. undet. (Chaetodontidae)
- o lulule ma nauru* [P-EN, 'male lulule'] spp. undet. (Chaetodontidae)
- o ma-maana* [CX, < vb. *-maana* 'to be agape, open-mouthed' + redup.; '(the one) that is open-mouthed, agape' (a reference to the fact that this fish is thought to swim with its mouth constantly wide open)] *Pentapodus trivittatus* (Nemipteridae)
- o makehe* [SL] spp. undet. (Clupeidae) and *Abudefduf lorentzi* (Pomacentridae)
- o mako-makoro* [CX, < n. *makoro* 'male wild hog' + redup.; 'rather like a male wild hog'] sp. undet. (Labridae)
- o mamini* [SL] sp. undet. (Labridae)
- o mei* [SL] sp. or spp. undet. (Chirocentridae)
- o melumu* [SL] *Amphiprion* sp. (Pomacentridae) and spp. undet. (Labridae)
- *o melumu* [SL] (or) *o melumu ma biru-biru* [P-EN, 'blue/green melumu'] (or) *o melumu (ma oa)* [P-EN, 'good melumu'] *Amphiprion* sp. (Pomacentridae) and spp. undet. (Labridae)
- + *o melumu ma kafo-kafo* [P-EN, 'gray melumu'] (or) *o melumu ma gilaongo* [P-EN, 'servant of melumu (q.v.)'] (NM1F508:) sp. undet. (Labridae) (but cf. NM1F510, collected at same place and seen by same informants, who agreed both collections should be labeled by this term:) sp. undet. (Scaridae)
- o melumu ma dofa* [P-EN, 'false melumu (q.v.)'] sp. undet. (Labridae)
- o memehanga* [CX, < vb. *-mehanga* 'hair-like growths on stems or leaves of plants, often stinging or itchy to the touch' + redup.; '(the one) having hair-like growths that cause stinging or itching when touched'] *Cantherhines* sp. (Monacanthidae)
- o mofi* [SL] sp. or spp. undet. (Carangidae)
- o mudao* [SL] sp. or spp. undet. (Ephippidae)
- o mumuru ma nawoko* [CD-EN, 'sea anemone' + poss. + 'fish'; 'sea anemone's fish' (so called because these fish live symbiotically with sea anemones)] spp. undet. (Apogonidae)
- o nawoko ma hononga* [CD-EN, 'fish' + poss. + 'half'; 'fish's half (i.e., 'half of a fish')] spp. undet. (Bothidae, Psettodidae, and Cynoglossidae)
- o nawoko ma hononga ma gubadi* [P-EN, 'left(-sided) nawoko ma hononga (so called because the eyes are on the left side of the fish, which swims right-side downward)] spp. undet. (Pleuronectidae and Bothidae)
- o nawoko ma hononga ma niraka* [P-EN, 'right(-sided) nawoko ma hononga (so called because the eyes are on the right side of the fish, which swims left-side downward)] spp. undet. (Psettodidae)
- o ngafi* [SL] 'anchovies' spp. undet. (Clupeidae)
- o ngomu* [SL]
- *o ngomu* [SL] *Pomacentrus* sp. (Pomacentridae)
- + *o ngomu ma lukuika* [P-EN, 'deep(-sea-dwelling) ngomu'] *Neopomacentrus* sp. (Pomacentridae)
- o ngowaro* [SL] *Hemiramphus lutkei* (Hemiramphidae)
- o ngulungana* [SL] (uncoll.)
- o nguti-nguti* [SL, but ?>CX] (uncoll.)
- o nikere* [SL] sp. undet. (Gobiidae)
- o noara* [SL] 'ray-fishes.' Note: Six terms (*o gogudai*, *o gorofutu*, *o golemaka*, *o huma*, *o mangihli*, and *o paapaaka*) have been listed in this Appendix as B⁰ terms contrasting with *noara*, following the classification done in D dialect. However, in B dialect at Loleba, the terms *o golemaka*, *o huma*, *o mangihli*, and *o paapaaka* are considered subclasses of *o noara*. In addition, some B-dialect informants consider that both the *o gogudai* and *o gorohutu* terms also label B⁻¹ subclasses of *o noara*, while other B-dialect informants consider *o gorofutu* to be a marked subclass of *o gogudai*. Although all those terms have been listed elsewhere in this Appendix, to show the D dialect classification, the alternative B dialect ways of classifying them are noted below as well.
- o hopaya* [SL] (uncoll.)
- o hubiubu* [SL] sp. undet.
- o kekere* [CX, < vb. *-kekere* 'to abrade by rubbing with an abrasive substance' + redup.; '(one which) abrades' (a reference to the use of the skin of this ray as an abrasive for "sanding" wood, etc., to make it smooth)] sp. undet. (Dasyatidae)
- o nenaha* [SL] Observed but uncoll.; this is the Giant Manta ray (*Manta birostris*)
- o ngota-ngotara* [CX, < *ngotara* (a frog) + redup.; 'rather like a *ngotara* frog' (etym. uncertain)] (uncoll.)
- o populaana* [SL] *Himantura uarnak* (Forskael, 1775) (Dasyatidae) and sp. undet. (Dasyatidae)
- o teroua* [SL] (uncoll.)
- Note: In addition to the above subclasses found in D and B dialects, B also includes the following subclasses, which are considered B⁰ terms in D, and so listed elsewhere in this Appendix:
- o golemaka* [SL] (uncoll.)
- o huma* [SL] (uncoll.)
- o mangihli* [SL] (uncoll.)
- o paapaaka* [SL] (uncoll.)
- Note two alternatives in B dialect for the subclassification of the following two classes, each of whose labels clearly denotes a single biological species. Either both are contrasting B⁻¹ subclasses, or *o gorofutu* is a B⁻² subclass; both alternatives are shown below:
- Alternative 1:
- o gorofutu* [SL] (or, more rarely:) *o gorohutu* [SL] *Dasyatis*

- kuhlii* (Muller and Henle, 1841)
o gugudai [SL] *Taeniura lymma* (Forskael, 1775)
 Alternative 2:
o gugudai [SL]
 - *o gugudai* [SL] *Taeniura lymma* (Forskael, 1775)
 + *o gorofútu* [SL] (or, more rarely:) *o gorohútu* [SL]
Dasyatis kuuhlii (Muller and Henle, 1841)
o nogi-nogi [SL] all subclasses, spp. undet. (Tetraodontidae)
 - *o nogi-nogi* [SL] spp. undet. (Tetraodontidae)
 + *o nogi-nogi ma lukuiha* [P-EN, 'deep(-sea-dwelling) *nogi-nogi*'] (or) *o nogi-nogi ma dutu* [P-EN, 'true/genuine *nogi-nogi*'] sp. undet. (Tetraodontidae)
o noofo [SL] 'venomous fish with poisonous spines' spp. undet. (Scorpaenidae) and sp. or spp. undet. (Synancejidae)
o hamu [SL, cf. the *hamu* (q.v.) fish of the same name] sp. undet. (Scorpaenidae)
o hiringe [SL] sp. undet. (Scorpaenidae)
o kukihi [SL] sp. undet. (Scorpaenidae)
o lulewi [SL] (or) *o lelewi* [SL] sp. undet. (Scorpaenidae)
o noru [SL] *Selaroides leptolepis* (Carangidae)
o nunukono [SL, but ?<CX] *Ulua mentalis* (Carangidae) and *Ulua* sp. (Carangidae)
o nyaobelo [SL, but ?< Tte CD, Tte *nyao* 'fish' + *belo* 'stake'; (etym. uncertain)]
o oci [SL] *Selar boops* (Carangidae) and sp. undet. (Carangidae)
o ogama ma nawoko [CD-EN, '?' + poss. + 'fish'] spp. undet. (Centriscidae) and *Terapon* sp. or spp. (Teraponidae)
o paapaaka [CX, < vb. *-paaka* 'to slip on a slippery surface' + redup.; '(one) which slips'] (uncoll., apparently a ray fish; considered a B⁰ term in D dialect, but cf. alternative B dialect placement of this class below, under *o noara*, q.v.)
o pegé [SL] (or) *o pegée* [SL] (or) *o lahi* [SL, < NMM *ikan lasi* 'lasi fish'] *Scomberoides commersonnianus* (Carangidae) and sp. or spp. undet. (Carangidae)
o ponihí [SL] (uncoll.)
o popayaama [SL] 'mudskippers'
 - *o popayaama* [SL] (or) *o popayaama ma dutu* [P-EN, 'true/genuine *popayaama*'] (or) *o popayaama o hokiika* [P-EN, '*popayaama* (dwelling in areas of) *hoki* (q.v., mangroves)] *Periophthalmodon schlosseri* and *Periophthalmus* sp. (Periophthalmidae) and sp. or spp. undet. (Periophthalmidae)
 + *o popayaama ma dorou* [P-EN, 'bad/evil *popayaama*'] (or) *o rongorogoto* [SL, but ?>CX] sp. undet. (Periophthalmidae)
o pulo-pulono [CX, < vb. *-pulono* 'stare' + redup.; '(the one) which is staring'] collected, but sp. undet.
o puuhu [SL] collected, but sp. undet.
o ragu-ragumu [CX, < *ragumu* q.v. (a lizard) + redup.; 'rather like a *ragumu* lizard] spp. undet. (Synodontidae)
o rajabau [CD-EX, < *raja* (Malay) 'king' + *-bau* 'to smell, stink'; 'king stinks'] *Diagramma pictum* (Haemulidae)
o roi [SL]
 - *o roi* [SL] (or) *o roi ma lukuiha* [P-EN, 'deep(-sea-dwelling) *roi*'] *Pomadasys argenteus* Forsk. (Haemulidae) and sp. or spp. undet. (Haemulidae)
 + *o roi-guhungi* [CD-EN, '*guhungi* (sea-weed) (variety of) *roi*'] sp. undet. (Serranidae)
o sorihi [SL] collected, but sp. undet.
o sumasi [SL] *Anodontostoma chacunda* (Clupeidae)
o suo [SL, most common in D dialect] (or) *o huo* [SL, rather more common in B dialect] (or) *o huoto* [SL, rather more common in B dialect] 'barracuda.' Note: Growth stages partially cross-cut the taxonomic subclassification, as shown below. Either of the other two forms of *o suo* (*o huo* or *o huoto*) may be substituted in the terms below:
o dodoma [SL] (uncoll.)
o suo ma bikini ikukurati [P-EN, '*suo* having a yellow tail'] sp. or spp. undet. (Sphyraenidae). Note: Members of this class are more frequently denoted by the appropriate growth stage term below than by this phrase.
 G1 *o hagalú* [SL]
 G2 *o rawo-rawo* [SL]
o suo-puti [D dialect term, SL but < NMM CD, *suo* 'barracuda' + *puti* 'white'] (or, in B dialect:) *o huo ma gare-garehe* [P-EN, 'white *huo*'] *Sphyraena forsteri* (Sphyraenidae) and sp. or spp. undet. (Sphyraenidae). Note: Members of this class are more frequently denoted by the appropriate growth stage term below than by this phrase.
 G1 *o suo-buri* [CD-EX, as above]
 G2 *o ngelapa* [SL]
o suru [SL] *Elagatis bipinnulata* (Carangidae)
o tambúru [SL] sp. undet. (Fistulariidae)
o tatameri [D dialect, SL] (or) *o totameri* [B dialect, SL] sp. or spp. undet. (Leiognathidae)
 - *o tatameri* [D dialect, SL] (or) *o totameri* [B dialect, SL]
 + *o tatameri-lelepa* [D dialect, CD, *tatameri* (q.v.) + '?''] (or, in B dialect:) *o lelepa* [SL?] (uncoll.)
 + *o tatameri-fúgu* [D dialect, CD, *tatameri* (q.v.) + '?''] (or, in B dialect:) *o totameri-fúgu* [same etym.]
o tataulu ma nawoko [CD-EN, 'jellyfish' + poss. + 'fish'; 'jellyfish's fish' (so called because this fish lives symbiotically with jellyfish)] sp. or spp. undet. (Carangidae)
o tato [SL] 'triggerfishes and similarly shaped fish' (spp. undet. Balistidae; also sp. undet. Monacanthidae)
o kuhéhe [SL] *Abalistes stellatus* (Balistidae)
o tato-mia [SL, but ?<CD] (uncoll.)
o dowongiika ma tato [P-EN, 'sand(-dwelling) *tato*'] sp. undet. (Balistidae)
o arukika ma tato [P-EN, 'cave(-dwelling) *tato*'] (or) *o haarika ma tato* [P-EN, 'grotto(-dwelling) *tato*'] (or) *o tato ma dutu* [P-EN, 'true/genuine *tato*] sp. undet.
o telembaca [CD-EX, < trunc. *teleme* 'vulva, female pudenda']

- + *-baca* 'evenness with, state of being on a level with' (said to be so called because of this fish's association with sea urchins, apparently because at least some fish denoted by this term hover within the sea urchin's spines for protection, thus considered somehow on a level with the mouth—locally called 'vulva'—of that animal)] sp or spp. undet. (Apogonidae) and sp. undet. (Labridae)
- o toni* [SL, cf. NMM *ikan toni* 'toni fish'] sp. undet. (Exocoetidae)
- o torouro* [SL] *Megalaspis cordyla* (Carangidae) and sp. undet. (Carangidae)
- o totabako* [apparently CX, < *tabako* 'tabacco, cigarette' + redup. (etym. uncertain)] spp. undet. (Chaetodontidae). Note: 'Male' and 'female' are used as a nomenclatural device to name the two subclasses, without regard to the sex of the fish, presence of eggs, etc.
- o totabako ma beka* [P-EN, 'female *totabako*'] sp. undet. (Chaetodontidae)
- o totabako ma nauru* [P-EN, 'male *totabako*'] sp. undet. (Chaetodontidae)
- o totaope* [SL] *Istiblennius* sp. or spp. (Blenniidae), sp. undet. (Blenniidae), *Istigobius ornatus*, *Callogobius* cf. *okinawae*, and *Cryptocentrus* cf. *strigilliceps* (all Gobiidae), and spp. undet. (Gobiidae)
- o tudele* [SL] (or) *o tude* [SL, cf. NMM *ikan tude* 'tude fish'] sp. or spp. undet. (Carangidae)
- o tupa-tupa* [SL] *Ostracion tuberculatus* (Ostraciontidae) and sp. or spp. undet. (Ostraciontidae)
- o turuhi* [D dialect, SL] (cf. B dialect form:) *o taruhi* [SL] *Scomberomorus commerson* (Scombridae)
- +G1 *o koouno ma niho* [CD-EN, 'koouno (q.v., a fish)' + poss. + '?'] (from hatchling to ~40 cm in length)
- G2 *o turuhi* [SL] (from ~40 cm to maximum length of over 1 m)
- o tuta* [SL] sp. undet. (Sphyraenidae) and *Anodontostoma chacunda* and *Nematalosa come* (both Clupeidae). Note: This B⁰ class is also subdivided into growth classes, as shown below:
- +G1 *o guemaya* [SL] (or) *o go-guemaya* [CX, *guemaya* (q.v.) + redup.]
- G2 *o tuta* [SL]
- o ugaka ma hoka* [CD-EN, 'sugar cane' + poss. + 'leaf'; 'leaf of sugar cane' (a reference to the shape of this fish), cf. NMM *ikan daun tobu* 'sugar-cane leaf fish'] *Trichiurus lepturus* (Trichiuridae)
- o uili* [SL] (uncoll.)
- o wange ma gurati* [CD-EN, 'sun' + poss. + 'goldness'; 'sun's goldness' (or) 'golden sun'] (uncoll.)
- o wawaru* [SL, but cf. *baru* in NMM term for this fish, *ikan daun baru* 'baru (*Hibiscus tiliaceus*) leaf fish'] sp. or spp. undet. (Scatophagidae)
- o wogo-wogono* [CX, < 'wogono (q.v., a crow)' + redup.; 'rather like a crow' (a reference to the black color of many kinds of this fish)]

- *o wogo-wogono* [CX, as above] *Pomacentrus* sp. or spp., *Neopomacentrus* sp. or spp., *Eupomacentrus* sp. or spp., and *Paraglyphidodon* sp. or spp. (all Pomacentridae)
- + *o wogo-wogono o pahika* [P-EN, 'coral(-dwelling) wogo-wogono] *Dischistodus* sp. or spp. and *Abudefduf* sp. or spp. (Pomacentridae)
- + *o wogo-wogono ma lukuika* [P-EN, 'deep(-sea-dwelling) wogo-wogono] *Pomacentrus* sp. or spp. (Pomacentridae)
- o yaro* [SL] (uncoll., said not to be the same fish as *o yaru* below)
- o yaru* [SL] Observed but uncollected; very large sailfish, marlins, and swordfish.
- *o yaru* [SL] (uncoll.)
- + *o yaru-popohu* [apparently CD, *yaru* (q.v.) + '?'] (uncoll.)

A2.4 *o bianga* [SL, cf. NMM *bia*] 'mollusk'

- o aruho* [SL] spp. undet. (Gastropoda; Marine Prosobranchia)
- o baa-baana* [SL, but ?< CX] spp. undet. (Pelecypoda; Isognomonidae)
- o bulanga* [SL] (or) *o babulanga* [SL ('ba' here is not a redup. prefix)] spp. undet.
- o bahu-bahuku* [CX, < *bahuku* 'axe' + redup.; 'rather like an axe'] spp. undet. (Pelecypoda; Marine Bivalve)
- o bahu-bahuku ma nauru* [P-EN, 'male *bahu-bahuku*'] spp. undet. (Pelecypoda; Marine Bivalve)
- o bahu-bahuku ma nauru* [P-EN, 'male *bahu-bahuku*'] spp. undet. (Pelecypoda; Marine Bivalve)
- o bekere* [SL]
- *o bekere* [SL] spp. undet. (Marine Prosobranchia)
- + *o bekere ma yeha* [P-EN, 'mother of *bekere*' (a reference to the larger size of these Prosobranchs)] spp. undet. (Marine Prosobranchia, and Ovulidae)
- o bia-cina* [CD-EN, < trunc. *bianoa* 'shell' (cf. NMM & Ternatese *bia* 'mollusk') + *cina* 'China, Chinese'; 'Chinese mollusk' (Note: This CD is apparently borrowed from another language; there is no vb. *-*cina* in Tbl, and the CD cannot be exocentric.)] spp. undet. (Pelecypoda; Marine Bivalves)
- o bia-cina ma dofa* [P-EN, 'counterfeit *bia-cina* (q.v.)'] spp. undet. (Pelecypoda; Marine Bivalves)
- o bia-garo* [SL, but probably NMM CD; 'mollusk' + '?'] spp. undet. (Tridacnidae)
- o bia-haki* [CD-EX, trunc. *bianoa* 'mollusk' (cf. NMM & Ternatese *bia* 'shell') + *-haki* 'to be fatty, to have much fat'; 'the shell is fatty')] (or) *o moco-mocoro* [SL, but ?< CX] spp. undet. (Gastropoda; Marine Bivalves)
- o bobili* [SL] spp. undet. (Gastropoda; Conidae)
- o bobongono* [SL, but ?< CX] spp. undet. (Pelecypoda; Marine Bivalves)
- o boki ma gule* [CD-EN, 'cat' + poss. + '?'] spp. undet. (Gastropoda; Marine Prosobranchia)
- o boro-boroho* [CX, < n. *boroho* 'boil, abscess' + redup.;

- 'rather like an abscess' (alternatively:) < vb. *-boroho* 'to have a boil, abscess' + redup.; '(one) having a boil, abscess' 'sea anemones growing on the outer surfaces of Praguroid-inhabited Gastropod shells.' Note: Although these anemones grow on the outer surface of shells, they are thought to be *bianga* 'mollusks' somehow associated with the shells. Tobelo do not realize that the Gastropods have already died and left the shell before the anemones grow on them.
- o bukuhiri* [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o caparete [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o caparuku [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o ciciru [CX, < *-ciru* 'to shave, scrape' + agentive redup.; 'scraper, scraping tool' (a reference to the shape of this bivalve)] (or) *o ciru-ciru* [CX, < *-ciru* 'to shave, scrape' + redup.; '(one) which scrapes' (same etymological reference)] spp. undet. (Pelecypoda; Marine Bivalves)
o dao-daoto [SL] spp. undet. (Arcidae)
o daro-daro [SL] spp. undet. (Gastropoda; Marine Prosobranchia)
o difa-difa [SL] spp. undet. (Gastropoda; Marine Prosobranchia) *o dirihi* [SL] spp. undet. (Neritidae)
o dirihi [SL] spp. undet. (Neritidae)
o dodiaduku [SL] spp. undet.
o dodiha ma gogerena [CD-EN, < 'snake' + poss. + 'pillow (< *-kerena* 'to rest one's head upon')'; 'snake's pillow'] 'small land snails' spp. undet. (Gastropoda, Land Prosobranchs)
o doro-doro [SL] spp. undet. (Neritidae)
o feene ma hoata [CD-EN, 'sea turtle' + poss. + 'footprint'; 'sea turtle's footprint'] spp. undet. (Pelecypoda; Marine Bivalves)
o firi-firi [SL] spp. undet. (Pectinidae)
o gagiene [CX, n. < vb. *-gagiene* 'to be of many colors, polychrome'] spp. undet. (Pelecypoda; Marine Bivalves)
o gogihóro [SL, but ?< CX] spp. undet. (Gastropoda; Marine Prosobranchia)
o gogilki [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o gogotoaka [CX, < *gotoaka* (q.v.) 'white cockatoo' + redup.; 'rather like a white cockatoo'] spp. undet. (Pelecypoda; Arcidae)
o guewa [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o haoha [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o hege [SL] spp. undet. (Gastropoda; Trochidae)
o hege ma gilaongo [P-EN, 'servant of *hege*'] spp. undet. (Gastropoda; Marine Prosobranchia)
o hihiri ma nqi [CD-EN, < *hihiri* (unknown to my informants, but recorded for H dialect Tbl in Hueting's dictionary (1908c:149) as meaning 'gnat, mosquito') + poss. + 'place (for something), container (for something)'] spp. undet. (Pelecypoda; Marine Bivalves)
o hohaijawi [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o humani [SL] spp. undet. (Gastropoda; Land Prosobranchs)
o jojongo [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o kahorihiki [SL] spp. undet. (Gastropoda; Crepidulidae)
o kekewoko [SL] spp. undet. (Pelecypoda; Isognomonidae)
o kokaábo [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o kokori [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o koli [SL] spp. undet. (Pelecypoda; Corbiculidae)
o korehára ma tatadaka [CD-EN, 'north wind, north monsoon' + poss. + 'thing that makes blunt (< agentive redup. + vb. *-tadaka* 'to make (a pointed thing) blunt')'; 'thing that makes the north wind blunt'] spp. undet. (Gastropoda; Trochidae)
o kutu-kuturu [SL, ?< CX] spp. undet. (Gastropoda; Freshwater Prosobranchs)
o laji-laji [SL] spp. undet. (Pelecypoda; Trochidae)
o lakotaromo [CD-EX, < *lako* 'eye' + *-taromo* '(be) black'; '(its) eye is black' (a reference to the dark operculum)] spp. undet. (Gastropoda; Marine Prosobranchs)
o lilingi [SL] spp. undet. (Gastropoda; Marine Prosobranchs)
o lobi-lobi [apparently SL, cf. *lobi* 'cloud,' no apparent relation] spp. undet. (Littorinidae)
o lolo [SL, cf. vb. *-lolo* 'to feel (with the fingers or hand inside a closed cylinder or similar container),' and cf. NMM *lolo* 'vagina'] (or) *o bia-lolo* [CD-ED, < trunc. *bianga* 'shell' (cf. NMM & Ternatese *bia* 'mollusk') + *lolo* (q.v., the B⁰ class of mollusk)] spp. undet. (Gastropoda, Cypraeidae)
o lonokoi [SL] spp. undet. (Gastropoda; Strombidae)
o mailófo [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o makilihi [SL] spp. undet. (Gastropoda; Marine Prosobranchs)
o mede-mede [SL?, or CX? (cf. *mede* 'moon')] spp. undet. (Gastropoda; Freshwater Prosobranchs)
o mulaha ma bianga [CD-EN, 'mid-tide (the period between ebb tide and neap tide)' + poss. + 'mollusk'; 'the mid-tide mollusk'] spp. undet. (Conidae)
o mulo [SL] spp. undet. (Tonniidae)
o nagí-nagimi [CX, < *-nagimi* 'to be in debt' + redup.; '(one) which is in debt' (etym.?)] spp. undet. (Pelecypoda; Marine Bivalves)
o nikere [SL] spp. undet. (Gastropoda; Marine Prosobranchs)
o ofele [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o oha-oha [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o paoto [SL] 'large land snail' spp. undet. (Gastropoda; Land Prosobranch)
o papaco [SL] spp. undet. (Pelecypoda; Marine Prosobranchia)
o pea-pea [SL] spp. undet. (Pelecypoda; Isognomonidae)
o popogane [SL] spp. undet. (Pelecypoda; Neritidae)
o taehe ma giufiri [CD-EN, 'piglet' + poss. + 'claw'; 'piglet's claw'] spp. undet. (Mytilidae)
o talupihí [SL] *Pinna* spp. (Pinnidae) (both subclasses):
 ~ *o talupihí ma beka* [P-EN, 'female *talupihí*']
 ~ *o talupihí ma nauru* [P-EN, 'male *talupihí*']
o tataapa [SL] spp. undet. (Pelecypoda; Marine Bivalves)
o tolu-tolumu [CX, < n. *tolumu* 'sun hat (very wide cone-shaped hat)' + redup.; 'rather like a *tolumu* hat' (a reference to the similarity between the shape of these hats)

- and the limpet's shape]] spp. undet. (Gastropoda; Epitoniidae)
- o totawáa* [SL] spp. undet. (Chitonidae) (both subclasses:)
- o wange-wange* [CX, < n. *wange* 'day, daytime' + redup. (here redup. has idiomatic meaning:) 'during daytime'] (or) *o totawange* [SL but probably < CD, **tota* '?' (probably related to *totawáa* q.v.) + *wange* 'day, daytime' (cf. *futu-futu* subclass below)] spp. undet. (Chitonidae)
- o futu-futu* [CX, < n. *futu* 'night, nighttime' + redup. (here redup. has idiomatic meaning:) 'during nighttime'] spp. undet. (Chitonidae)
- o uru-bututu* [CD-EX, < *uru* 'mouth' + *-bututu* 'to be pinned up'; '(its) mouth is pinned up'] spp. undet. (Gastropoda; Marine Prosobranchia)
- A2.5 *o aewani*₂ [SL] 'mere animals' and unaffiliated FAUNAL FORMS**
- Basic (B⁰) subclasses of *o aewani*₂ 'mere animal' are here indicated by (M, m) at left. The basic (B⁰) subclasses of *aewani*₁ 'animal,' which are not 'mere animals' and are unaffiliated with any B⁺¹ class, are here indicated by (U, u) at left. (As in Appendix 1.1, the upper case letters are used at left for basic classes, lower case for sub-basic classes.)
- M *o aili* [SL] 'centipede (except for long, thin phosphorescent centipedes that shine in the dark—see *o biláma*, q.v.)' Chilopoda (partial)
- M *o ai-aili* [CX, < *aili* 'centipede'; 'rather like a centipede'] Polychaeta (partial) (spp. undet.). (Marine polychaete worms having a large number of leg-like projections resembling centipedes.)
- M *o ake-akeme* [CX, < vb. *-akeme* '(to be) meaty, fleshy' + redup.; '(one) which is meaty, fleshy' (a reference to the lack of hard parts on slugs)]
- m - *o ake-akeme (o dudungino)* [P-EN, '(dry land [dwelling]) *ake-akeme*'] '(terrestrial) slug' (terrestrial Pulmonates)
- m + *o ake-akeme o gahika* [P-EN, 'sea-water-dwelling *ake-akeme*'] 'sea slug' (marine Pulmonates)
- M *o aoro* [SL] uncoll. (Insecta?)
- M *o arára* [SL] 'spider (except wolf spiders (*o oanga*, q.v., and Salticidae (*o gufuru ma dadagoko*, q.v.))' Arachnidae (partial)
- U *o au* [SL] 'heavy, short, and stocky skinks (cf. *o ragumu*, q.v., for other skinks)' *Tiliqua gigas* and *Eugongylus mentovarius*
- U *o bengi-bengi* [SL] *Cuora amboinensis*
- M *o biláma* [SL, cf. *o biláma* 'phosphorescence in sea water, e.g., during a red tide'] 'long, thin phosphorescent centipedes that shine in the dark—cf. *o aili*, q.v.) Myriapoda (partial)
- m - *o biláma* [SL] (small, long, common phosphorescent centipedes)
- m + *o biláma ma ayo* [P-EN, 'mother of *biláma*'] (occasionally found large phosphorescent centipedes, ~6–7 cm or more in length)
- U *o boki* [SL] '(domesticated) cat' *Felis catus* L.
- M *o bum-búm* [SL, onomatopoeic, referring to noise of wings] spp. undet. (Hymenoptera, a wasp that nests in holes that it digs in the sand)
- M *o busu-busu* [SL or possibly < *busu* ('a parrot, *Lorius garrulus*' + redup.; 'rather like a *L. garrulus* parrot' (possibly a reference to this bug's bright red color)] spp. undet. (Hemiptera)
- M *o butéteke* [SL] 'termite' (Isopoda)
- M *o dangánga* [SL] spp. undet. (Hemiptera)
- m *o dangága* [SL] (smaller forms of these Hemiptera)
- m *o dangága ma ayo* [P-EN, 'mother of *dangánga*'] (larger forms of these Hemiptera)
- M *o dobi-dobiki* [CX, < *dobiki* 'broken-off half (of a thing broken in two)' + redup.; 'rather like broken-off halves' (a reference to the way the click beetle appears to be in two parts (head + thorax and abdomen), and when disturbed makes a sudden movement with a clicking or snapping sound like breaking itself into two halves, thereby propelling itself away to escape predators)] (or) *o dapo-dapoko* [SL?] 'click beetle' (Coleoptera; Elateridae)
- U *o dode* [SL] Decapoda (partial), 'shrimp, lobster'
- u *o dode-panangi* [CD, *dode* (q.v.) + '?']
- u *o gohihi* [SL]
- u *o guluwoata* [CD-EX, trunc. *gulumu* 'pincer (e.g., of shrimp, crab)' + *-woata* 'to be wide'; '(its) pincer is wide']
- u *o hakilóro* [D dialect, SL] (or, in B dialect:) *o hakiróro* [SL]
- u *o hohoongana* [SL]
- u *o mahia*
- Note: In B dialect, *o hoowene* is also considered a B⁻¹ subclass of *o dode*; it is here recorded here as a separate B⁰ class in accordance with its placement in D dialect.
- U *o domba* [SL, cf. Ind *domba* 'sheep'] 'sheep' (never observed by Tobelo I met, but mentioned in Tobelo translations of Bible stories (Ellen, 1933)) *Ovis* sp.
- M *o fee-feene* [CX, < *feene* 'sea turtle' + redup.; 'rather like a sea turtle'] 'water-boatmen' (aquatic Hemiptera) (Corixidae)
- U *o feene* [SL] 'sea turtle' (cf. turtle found on land and in fresh water, called *o bengi-bengi*, q.v.)
- u *o haawaku* [SL, cf. n. *haawaku*, a long shield having ridges lengthwise from top to bottom,

- similar to the ridges along the carapace of this turtle] *Dermochelys coriaca*
- u *o mataapa* [SL] sp. undet.
- u *o wuhi* [SL, cf. *wuhi* 'comb (traditionally made from the carapace of these sea turtles)'] (both subclasses:) *Eretmochelys imbricata*
- u - *o wuhi* [SL]
- u + *o nogi-nogi* [SL, metonymic transfer from (unmarked) *o nogi-nogi* (q.v.) fish, which is considered inedible and poisonous; this "variety" of *wuhi* sea turtle is also considered inedible]
- M *o gaawuhi* [SL] '(adult) dragonfly' (Odonata, adults)
- M *o gaeru* [SL] 'sea anemone' (Anthozoa, partial)
- M *o gaili* [SL] 'maggot (Diptera, larvae), endoparasitic worm (including nematodes and trematodes)'
- M *o gani* [SL] 'ectoparasitic arthropod, including fleas (Siphonaptera), lice (Mallophaga, Anopleura), and ticks (Ixodidae)' Note: subclasses of questionable lexemic status can readily be formed for these, such as: *o kaho ma gani* 'dog ticks (or fleas)'; *o ode ma gani* 'pig ticks' *o totaleo ma gani* 'chicken (wing- and feather-) lice'; *o karianga ma gani* 'Varanid lizard ticks'; and the (unmarked?) *o gani* or *o nyawa nanga gani* '[our head] lice (of people).' I would consider these expressions non-lexemic, since such expressions can be formed for any animal on which ectoparasites occur. Tobelo apparently consider head-lice a "normal" human ectoparasite, but when ticks occur on humans they are usually referred to as *o ode ma gani* 'pig ticks,' and thought to have come off a pig. These terms can not denote leeches (*o gofoa*, q.v.).
- M *o gilidanga* [SL] '(adult) bluebottle fly' (Diptera; Sarcophagidae, adults)
- U *o gito* [SL] *Petaurus breviceps* (Mammalia; Marsupialia)
- M *o gofoa* [SL] 'leech' (Herodinia)
- M *o gogoapa* [SL] (uncoll.; Insecta?)
- M *o gogomoma* [CX, < *gomoma* 'mosquito' + redup.; 'rather like a mosquito'] 'water scorpion' (Hemiptera; Nepidae)
- M *o goguhu* [SL] 'cockroach (including unwinged early growth stages) (Orthoptera; Blattidae)
- U *o gohomanga* [SL] 'crocodile' *Crocodylus porosus*
- M *o gomoma* [SL] 'mosquito' (Note: Aquatic larval forms are recognized by at least some Tobelo as early stages in the formation of a mosquito, and may be referred to as *o gomoma ma ngofaka* 'child of mosquito') (Diptera; Culicidae)
- M *o gorehe* [SL] (or) *o gore-gorehe* [?SL (onomatopoeic?) or ?CX (*gorehe* + redup.)] (or, recorded in B dialect, where both other terms are also used:) *o kokereeh*e [SL but ?< CX, cf. plant by same name] 'cicada' (Cicadidae)
- M *o gufuru* [SL, D dialect; cf. B dialect:] *o guhuru* [SL] 'housefly' (Diptera; Muscidae, adults)
- M *o gufuru ma dadagoko* [(D dialect) CD-EN, 'housefly' + poss. + 'trap (i.e., thing for trapping)'; 'trap for houseflies'] (or, two forms recorded in B dialect:) *o guhuru ma dadagoko* [CD-EN, same etymology] (or) *o guhuru ma lologuru* [CD-EN, possibly same etymology; 'housefly' + poss. + '?'] 'jumping spider' (Arachnida, Salticidae)
- M *o gumemene* [SL] 'tiny insects or arachnids such as mites and chiggers (especially those obtained while walking through primary forest) that cause itchiness of the skin' (Trombiculidae, and other very small, minimally visible Arachnids or Insects causing itchiness). Note: This Tobelo word, in addition to this original meaning, is increasingly coming to correspond to the full range of meanings of the Indonesian word *kuman*, which includes 'germs (of disease),' as Tobelo learn the "germ theory of disease" from cosmopolitan medical practitioners like local doctors and nurses. Thus people now say they do not stay too close to people with serious illnesses because they fear the *gumemene* 'germs' of the illness. Compare the definition of Indonesian *kuman* (from Echols and Shadily, 1983:202): "1. tiny insects like mites (cause scabies, etc.). 2. germ, microbe. 3. small particles."
- M *o guru* [SL] 'tiny beetles that bore into wood, bamboo, maize, etc.; borers' spp. undet. (Coleoptera). Note: It is possible to form many expressions of questionable lexemic status based on this term, including: *o tiba ma guru* 'bamboo (*Schizostachyum* spp.) borer,' etc.
- M *o habeta* [SL] 'larvae of large weevils' (Coleoptera, partial, larvae)
- m - *o habeta (ma oa)* [P-EN] '(good) *habeta*' 'edible large weevil larvae'
- m *o habeta o baruika* [P-EN] '*habeta* (found in *baru* (q.v., a palm)'
- m *o habeta o dalukika* [P-EN] '*habeta* (found in *daluku* (q.v., a palm, *Arenga pinnata*)'
- m *o habeta o igonika* [P-EN] '*habeta* (found in coconut palms'
- m *o habeta o ketokika* [P-EN] '*habeta* (found in sago palms'
- m *o habeta o pepetingika* [P-EN] '*habeta* (found in *pepetingi* (q.v., a palm)'
- m *o habeta o wekaika* [P-EN] '*habeta* (found in *weka* (q.v., a palm)'
- m + *o habeta (ma dorou)* [P-EN] '(bad/evil) *habeta*'

- (or) *o habeta o gotaika* [P-EN] 'large weevil larvae (found in) wood (i.e., not palm)' (considered inedible)
- M *o habeta ma ayo* [P-EN] '*habeta*'s mother' adult weevils (the adult form of the larvae called *o habeta*).' Note: These adult forms may not be termed *o habeta*, thus the 'mother' class may not be considered a "growth stage" subclass, for it is not a subclass of some higher-level **habeta* class. Nevertheless, Tobelo clearly recognize the relationship between these two.
- U *o hapi* [SL, < Malay *sapi*, same meaning] 'cow, bull' *Bos taurus*
- M *o harawéde* [SL] *Bronchocela cristatellus*
- M *o hari-harimi* [CX, < n. *harimi* 'oar' + redup.; 'rather like an oar'] (term obtained only in B dialect; in D dialect these Orthoptera are merged into the B⁰ class *o kahóho*, q.v.) spp. undet. (Orthoptera, partial)
- M *o hilo ma totodenge* [apparently originally a CD, 'star' + poss. + '?'] 'starfish and crown-of-thorns starfish' Echinodermata; Asteroidea (partial). (Note: Some people include brittle stars (Ophiuroidea), others think brittle stars cannot properly be labeled by this term, though no other term for 'brittle star' was obtained.) This does not include sea cucumbers (*o taripanga*, q.v.) or sea urchins (*o mumuru*, q.v.).
- M *o hohagaleke* [SL] 'small geckos' (*Hemidactylus frenatus* and *Gehyra mutilata*). (Compare *o hohipohuku* (q.v.) 'large geckos')
- M *o hohipohuku* [D dialect; SL] (or, in B dialect:) *o hohipouku* [SL] 'large geckos' *Gekko vittatus*, *Gehyra marginata*, and *Lepidodactylus lugubris*.
- U *o hoowene* [SL] (Note: This is considered a B⁰ term in D dialect at Pasir Putih, but a B⁻¹ subclass of *o dode* (q.v., 'shrimp') in B dialect at Loleba.) 'large sea lobster' sp. or spp. undet. (Decapoda, partial)
- M *o iuru* [SL] 'ant (except weaver ants, see *o kane-kane*)' Note: Different subclassification obtained at Loleba (B dialect) and Pasir Putih (D dialect). Each is shown here.
1. Subclassification in B dialect (Loleba):
- m + *o loliowaha* [SL]
- m - *o loliowaha* [SL] sp. or spp. undet. (wingless forms)
- m + *o loliowaha ma ayo* [P-EN, 'mother of *loliowaha*'] 'winged forms of *loliowaha* ants'
- m + *o goguhulo* [SL]
- m - *o goguhulo* [SL] sp. or spp. undet. (wingless forms)
- m + *o goguhulo ma ayo* [P-EN, 'mother of *goguhulo*'] 'winged forms of *goguhulo* ants'
- m + *o iuru ihoo-hóho* [P-EN, 'ant that flies; flying ant'] possibly *Monomorium* spp. Note: This is the only subclass of 'ants' that is not further subdivided into 'winged' and 'unwinged' forms, the former being termed 'mother' to the latter. This one subclass indicates that the gloss of *ma ayo* 'mother' as 'winged forms (of an ant)' is inadequate, since this flying ant is only known in its winged form. These pesty winged ants swarm in vast droves to kerosene lamps (even through mosquito nets) during Halmahera's many rainy nights, making most work impossible (cf. NMM terms *bifi hujan* or *bifi ujang*, both meaning 'rain ant'). Thus this ant is anomalous because it is so clearly associated with a single context; the unwinged forms would not be recognized as related, because they are never seen in that context.
- m - *o iuru* 'tiny ant' (two named subclasses plus a large "residue" that cannot be considered a subclass similar to the others; see 5.2.2.1)
- m *o iuru ma doka-dokara* [P-EN, 'red ant'] sp. undet.
- m *o iuru ma daro-daromo* [P-EN, 'black ant'] sp. undet.
- m [R] [Residue of many other spp. of tiny ants]
2. Subclassification in D dialect (Pasir Putih)
- m + *o totuhulo* [SL] (possibly synonymous with *o totuhulo* (q.v.) in B dialect, above)
- m - *o totuhulo* [SL] sp. or spp. undet. (wingless forms)
- m + *o totuhulo ma ayo* [P-EN, 'mother of *totuhulo*'] 'winged forms of *totuhulo* ants'
- m + *o bebanga* [SL]
- m - *o bebanga* [SL] sp. or spp. undet. (wingless forms)
- m + *o bebanga ma ayo* [P-EN, 'mother of *bebanga*'] 'winged forms of *bebanga* ants'
- m + *o ngago* [SL]
- m - *o ngago* [SL] sp. or spp. undet. (wingless forms)
- m + *o ngago ma ayo* [P-EN, 'mother of *ngago*'] 'winged forms of *ngago* ants'
- m + *o iuru ihoo-hóho* [P-EN, 'ant that flies; flying ant'] possibly *Monomorium* spp. (see explanation of this anomalous subclass under entry for this same term as used in B dialect subclassification of *o iuru* (q.v.), above)
- m - *o iuru* 'tiny ant' (two named subclasses plus a large "residue" that cannot be considered a subclass similar to the others)

- m *o iuru ma doka-dokara* [P-EN, 'red ant'] sp. undet.
- m *o iuru ma daro-daromo* [P-EN, 'black ant'] sp. undet.
- m [R] [Residue of many other spp. of tiny ants]
- M *o kaahóho* [SL, but possibly < CX in another language; cf. Tbl -*hóho* 'fly'] (or) *o boto-bóto* [SL, apparently borrowing from NMM *boto-boto* or from another NH language (Pagu, Ternate) that uses this term] '(some) grasshoppers' spp. undet. (Orthoptera) (Note: cf. *o hari-harimi* (q.v.), a B⁰ B dialect term for some grasshoppers; those grasshoppers, however, are termed *o kaahóho* in D dialect)
- U *o kaateko* [SL] 'edible frog' *Rana arfarki* and *Rana papua*
- M *o kabi-kabingi* [CX, *kabingi* 'goat' + redup.; 'rather like a goat'] spp. undet. (Coleoptera)
- U *o kabingi* [SL] 'goat' *Capra hircus*
- U *o kaho* [SL] 'dog' *Canis familiaris*
- M *o kaho-kaho* [CX, *kaho* 'dog' + redup.; 'rather like a dog'] spp. undet. (Coleoptera)
- M *o kane-kane* [SL, cf. NMM *gunane*] 'weaver ant' *Oecophylla smaragdina*
- m - *o kane-kane* [SL, as above] (unwinged forms of *O. smaragdina*)
- m + *o kane-kane ma ayo* [P-EN, 'mother of kane-kane'] (winged forms of *O. smaragdina*)
- M *o karafe* [SL] 'rat, mouse, shrew'
1. D dialect subclassification (at Pasir Putih) (note: the placement of *Rattus exulans* in this dialect remains unknown):
- m + *o gugúnu ma dedetoro* (term used in D & B dialect) [CD-EN, 'length of bamboo (used for baking and storing sago)' + poss. + 'thing that slices (< -*tetoro* 'to cut up with short slicing strokes')'; '(animal) that slices up bamboos holding sago (e.g., by gnawing)'] (or) *o gugúnu ma roreno* (D dialect term) [CD-EN, 'length of bamboo (used for baking and storing sago)' + poss. + 'thing that nibbles (< -*reno* 'to nibble at something causing it to have holes in it')'; '(animal) that nibbles (puts holes into) bamboos holding sago'] (cf. B dialect term *o gugunu ma ngongohama*, q.v., below) *Suncus murinus*
- m + *o porogi* [SL] *Rattus rattus*
- m - *o karafe* [SL, as above]
- m - *o karafe* [SL, as above] *Murid* sp.
- m + *o karafe o fonganika* [P-EN, 'jungle karafe'] (Tobelo refer to this very large *karafe* found in primary forest. The few specimens of this group brought to me, however, have all been large specimens of *Rattus rattus* collected from locations near primary forest. Yet this

term is not considered synonymous with *o porogi*. This may indicate that Tobelo are aware of some minor difference between *R. rattus* found in villages and those from primary forest. Alternatively, the large specimens of *R. rattus* found in that context may be locally grouped with another large, as yet undiscovered species of rat from primary forest areas.)

2. B dialect subclassification (at Loleba) (note: inadequate numbers of specimens were found at Loleba, though the subclassification's terminology is, to my knowledge, complete):

- m + *o gugúnu ma dedetoro* (term used in D & B dialect) [CD-EN, 'length of bamboo (used for baking and storing sago)' + poss. + 'thing that slices (< -*tetoro* 'to cut up with short slicing strokes')'; '(animal) that slices up bamboos holding sago (e.g., by gnawing)'] (or) *o gugunu ma ngongohama* (B dialect term) [CD-EN, 'length of bamboo (used for baking and storing sago)' + poss. + 'thing that enters (< -*wohama* 'to enter')'; '(animal) that enters bamboos holding sago'] *Suncus murinus*
- m + *o nguti-nguti* [SL, but ?< CX] (This term unfamiliar to D dialect informants) *Rattus exulans*
- m - *o karafe* [SL, as above] *Rattus rattus* and *Murid* sp.
- U *o karianga* [SL] 'Varanid lizard.' Note: Although the subclasses below are widely known, there were too few collections, and (worse yet) far too little agreement, to settle the question of how Tobelo actually subclassify the Varanid lizards of Halmahera. The inconclusive data is presented here in its entirety (USNM numbers refer to Herpetology Division catalog, Smithsonian Institution):
- u *o biru* [SL, cf. -*biru* 'to be green (or) blue'] *Varanus indicus* (USNM 215905, 215908, 237438, 237441, 237442, and 237693)
- u *o hahoro* [SL] *Varanus indicus* (USNM 215906)
- u *o liini* [SL] *Varanus indicus* (USNM 215907, 216006), *Hydrosaurus weberi* (USNM 215804)
- u *o pelo-pelo* [SL] (Note: although not recorded at the time these specimens were collected, the following term was also given to me as a synonym of this B⁻¹ class:) *o hide-hidete* [CX, < vb. -*hidete* 'to sail' + redup.; '(one) which sails' (a reference to the sail-like crest along this lizard's back)] *Hydrosaurus weberi* (USNM 215805, 237436, 237437), *Hydrosaurus amboinensis* (USNM 237667)
- U *o katuri* [SL] 'palm civet' *Paradoxorus tangalunga*

- U *o koru* [SL] 'crab' (Decapoda, partial). Note on subclassification: in B dialect at Loleba, *o putati* (q.v.) 'coconut crab' and *o wungama* (q.v.) 'hermit crab' are considered B⁻¹ subclasses of *o koru* 'crab.' However, with this annotation stated here and repeated at each of those two entries, those classes are here listed as B⁰ terms, representing the D dialect subclassification.
- u *o aere ma gagawi* [CD-EN, < 'high tide' + poss. + 'caller (< vb. -gawi 'to call from a distance by signalling with one's arm')'; 'caller of high tide' (apparently a reference to the fiddler crab's habit of frequently moving its one overgrown pincer in a motion similar to calling (-gawi), and to its habitat of intertidal flats)] 'fiddler crab'
- u *o boku-bokumu* [SL, but ?< CX (cf. n. *bokumu* q.v., a pandanaceous plant)]
- u *o dooyo* [SL]
- u - *o dooyo* [SL]
- u + *o tongooto* [SL]
- u *o fee-feene* [CX, < n. *feene* (q.v.) 'sea turtle' + redup.; 'rather like a sea turtle']
- u *o hohonotoko* [CX, < n. *honotoko* 'chisel' + redup.; 'rather like a chisel']
- u *o kamanáa* [SL]
- u *o kapunane* [SL] (or) *o nikere ma ayo* [P-EN] 'mother + poss. + *nikere* '(a fish, Gobiidae, q.v.)'; 'mother of *nikere*'
- u *o kokaregehe* [SL, but ?< CX]
- u *o kukupi* [SL]
- u *o kumo* [SL]
- u *o nanihi* [SL]
- u *o nahini o gahika* [P-EN, 'sea(water) *nahini*']
- u *o nahini o akeriha* [P-EN, 'fresh-water *nahini*']
- u *o nganggoro* [SL] 'ghost crab'
- u *o penga ma hoka* [apparently CD-EN, < '?' + poss. + 'leaf']
- u *o parito* [SL] (or) *o poparito* [CX, *parito* (q.v.) + redup.]
- u *o rujubi* [SL]
- u *o tamalelara* [SL]
- u *o tiliho ma hoka* [CD-EN, 'tiliho' (q.v., a tree) + poss. + 'leaf'; 'leaf of *tiliho*'] (or) *o tiliho ma kai* [CD-EN, 'tiliho' (q.v., a tree) + poss. + 'bark'; 'bark of *tiliho*']
- M *o kote-kote* [SL, but ?> CX] (uncoll.; Insecta?)
- U *o kuda* [SL, < Malay *kuda* 'horse'] 'horse'
- U *o kuho* [SL] 'cus-cus' *Phalanger orientalis*. Note: At Loleba (B dialect) I obtained names of two subclasses, although at Pasir Putih (D dialect) informants were unfamiliar with those. Specimens of both subclasses brought to me at Loleba turned out to be the same species, *P. orientalis*. The subclassification at Loleba is represented below:
- u *o migi ma kuho* [P-EN, 'migi' (q.v.), a vine' + poss. + *kuho* (q.v.); 'migi's cus-cus']
- u *o mede ma kuho* [P-EN, 'moon' + poss. + *kuho* (q.v.); 'moon's cus-cus']
- M *o kulubati* [SL] 'earthworm' (Annelida, partial). Note: In B dialect at Loleba, this class is subdivided into an unmarked *kulubati* class (which labels all "usual" earthworms found in village and farm soils), and the marked subclass *o tongo-tongo* (q.v.), which I never collected in a B dialect-speaking area. However, I did collect one quite large earthworm, locally called *o tongo-tongo*, in a forested area at Dorosago (Maba District) in 1981, and D dialect informants considered that this *tongo-tongo* class, represented by the specimen I had found, was a separate B⁰ term. Thus this appears to be an instance in which B dialect considers *tongo-tongo* a B⁻¹, and D dialect a B⁰, term. With that annotation, the D dialect is followed for purposes of listing both terms in this Appendix.
- M *o lefaiii* [SL] 'sandfly' (Ceratopogonidae; esp. *Culicoides* spp.)
- M *o lefere* [SL] (or) *o dadaka* [SL] 'millipede (having widened, relatively flat body segments, instead of round ones (cf. *o murimi*, q.v.))' spp. undet. (Myriapoda)
- M *o loliowaha* [SL, no apparent association with 'whistling' although folk etymology for the name of a bird with the same name (*o loliowaha*, q.v.) stresses its ability to -owaha 'whistle'] (uncoll.—Insecta?; cf. bird of the same name)
- M *o longu-longu* [SL, but ?> CX] 'large grasshopper' (probably distinguished from other grasshopper species (cf. *o kaahóho*) because this very large species occasionally flies in vast swarms destroying crops in its path, and is thus of considerable economic importance. sp. undet. (Orthoptera).
- M *o lulule* [SL] 'adult butterfly or moth' (Lepidoptera, adult). Note: In D dialect at Pasir Putih, this term designates all adult Lepidoptera; cf. *o pipiti* 'caterpillar (or other Lepidopteran larva), or similar larva.' Tobelo are often unaware of the fact that caterpillars become butterflies or moths; the pupa is termed *o lulule ma gohi* 'butterfly's egg.'
- U *o mainjanga* [(D dialect) SL] (or, in B dialect:) *o manjanga* 'deer' *Cervus timorensis*
- M *o mĩmiri* [SL] 'millipede (having rounded body segments and a generally cylindrical shape, as contrasted with *o lefere*, q.v.)'

- M *o moloiru* [SL] (uncoll.; Insecta?)
- M *o mumuru* [SL] 'sea urchin' (Asteroidea; partial)
- M *o muru-murutu* [CX, < -*murutu* 'to grunt (said of wild pig)' + redup.; '(one) which grunts (like a wild pig)'] spp. undet. (Coleoptera)
- M *o ngami-ngamiri* [CX, < -*amiri* 'to be rotten'; 'rotten'] (uncoll.; Insecta?)
- U *o ngotara* [SL] (or, more commonly:) *o ngotan-gotara* [CX, < *ngotara* (q.v.) + redup.] 'larger tree frog' *Litoria infrafrinata*
- M *o nipa-nipa* [SL] '(kind of) wasp' sp. or spp. undet. (Hymenoptera, Vespidae)
- U *o nuhu-nuhu* [SL] 'squid' (Cephalopoda)
- u *o utubelo* [SL] (or) *o utuhaya* [SL] spp. undet.
- u *o utumare* [SL] (or) *o nuhu-nuhu o ngigorika* [P-EN, 'squid (dwelling in) rocky places'] (or) *o nuhu-nuhu o hakaruika* [P-EN, 'rock (-dwelling) squid'] spp. undet.
- M *o oanga* [SL] 'wolf spider' (Arachnida, Lycosidae)
- U *o ode* [SL] '(wild or domesticated) pig' *Sus scrofa*.
- M *o ofungu* [SL, cf. NMM *ofu*] 'wasp' Vespidae (partial, cf. *o nipa-nipa*, q.v. '(kind of) wasp')
- m *o humungara* [SL] spp. undet.
- m *o toi-toimi* [CX, < -*toimi* 'to spear' + redup.; '(one) that spears' (a reference to the painfulness of this wasp's sting)] (or) *o to-toimi* [CX, same etymology] spp. undet.
- m *o tubuyongo* [SL] (or) *o totubuyongo* [CX, *tubuyongo* (q.v.) + redup.] spp. undet.
- M *o peo-peoto* [SL, but ?> CX] 'praying mantis, walking stick, and walking leaf' (Orthoptera, partial: Mantidae and Phasmatidae).
- M *o pidiloongo* [SL] 'mantis shrimp' (Stomatopoda)
- M *o pipiti* [SL] 'Lepidopteran larvae, and similar larval forms' (see note under *o lulule* (q.v.) on Tobelo lack of awareness that caterpillars become butterflies, etc.)
- U *o putati* [SL] 'coconut crab' *Birgus* sp. Note: Considered a B⁻¹ subclass of *o koru* 'crab' in Tbl-B; considered a B⁰ class in Tbl-D.
- M *o ragumu* [SL] 'smaller skink' This name was recorded for *Lamprolepis smaragdina*, *Mabuya multifasciata*, *Emoia sorex*, *Emoia submetallica*, *Emoia atrocostata*, *Emoia keukenthali*, and
- Lipinia noctua*
- U *o tali* [SL] 'octopus' (Octopoda)
- M *o tali-tali* [SL] 'crown-of-thorns starfish' (Echinodermata; Asteroidea, partial)
- U *o tataulu* [CX, < vb. -*taulu* '1. to stick to, 2. to be glue-like or sticky' + redup.; '(one) that is sticky, glue-like'] 'jellyfish, medusa' Coelenterata (partial)
- U *o tauja* [SL] (or) *o taripanga* [SL, cf. Malay & NMM *trípang*] 'sea-cucumber' Holothurian
- u + *o taripanga ma dutu* [P-EN, 'true/genuine *taripanga*'] (Note: Malay name for this is used rather than conceptually possible but never heard Tbl translation **o tauja ma dutu* 'true/genuine *tauja*,' probably because this Holothurian is gathered for sale to Malay-speaking traders, rarely eaten by the Tbl themselves.) sp. undet.
- u + *o mauahi* [SL] (or) *o taripanga-mauahi* [CD-EN, 'the *mauahi* (variety of) *taripanga*'] (Note: Again, the preference for the Malay term seems related to the fact that these are gathered for sale to Malay-speaking traders.) sp. undet.
- u - *o tauja* [SL] (or) *o taripanga* [SL, as above] 'non-saleable Holothurians'
- M *o teteté* [SL, onomatopoeic] (or) *o tereteté* [SL, onomatopoeic] 'small tree-frog (cf. *o ngotara* (q.v.) 'larger tree-frog')' *Litoria* spp. (excluding *L. infrafrinata*) and *Oreophryne moluccensis*
- M *o tii-tiihi* [CX, < -*tiihi* 'to flatulate' + redup.; '(one) that flatulates' (a reference to the sound made by its wing-beat as this beetle flies)] spp. undet. (Coleoptera)
- M *o totófo* [?SL, or possibly ?CX, < -*tofo* 'to feed' + redup.; 'one that feeds'] (uncoll.; Insecta?)
- M *o wawoko* [SL] 'palolo worm' (Polychaeta, partial)
- m - *o wawoko* [SL] '(smaller-sized) palolo worm' sp. or spp. undet.
- m + *o wawoko ma ayo* [P-EN, 'mother of *wawoko*'] '(larger-sized) palolo worm' sp. or spp. undet.
- M *o wungama* [SL] 'hermit crab' (Praguridae). Note: Considered a B⁻¹ subclass of *o koru* 'crab' in Tbl-B; considered a B⁰ class in Tbl-D, as indicated here.

Appendix 3

The Tobelo Classification of the Other BIOTIC FORMS

A3.0 Introduction

This Appendix summarizes information on those few BIOTIC FORMS that are neither FLORAL FORMS (Appendix 1) nor FAUNAL FORMS (Appendix 2). Nomenclatural information, and information on field collections, is summarized as in previous appendixes. These folk classes often cross-cut a biologist's taxonomies—one basic term (*o lulumiti* 'moss, mould, bryozoa, smaller algae') even designates some representatives of both plant and animal kingdoms.

A3.1 (Sexual BIOTIC FORMS:) NON-BREATHERS

As illustrated in the diagram on page 48 (Chapter 4), FLORAL FORMS and FAUNAL FORMS together comprise the unlabeled class of SEXUAL BIOTIC FORMS, which has here been called BREATHERS because its members are associated with a 'throat' or organ of breathing. The other subclass of SEXUAL BIOTIC FORM may be termed NON-BREATHER and contains the 'seaweed' (collectively called *o rurubu o gahika*) and *o kalibaharu* 'black coral.' Evidence has been given above (Chapter 4.3) that the 'seaweed' term is an intrusive recent borrowing, translating the Indonesian (or its related NMM) term *rumpul laut*. The recorded subclasses of NON-BREATHER follow, listing *o kalibaharu* first:

- o kalibaharu* [SL] 'black coral' (Antipatharia)
- *o kalibaharu (ma beka)* [P-EN] '(female) kalibaharu'
- + *o kalibaharu ma nauru* [P-EN] 'male kalibaharu'

(Below: members of the B⁺, apparently intrusive class of NON-BREATHER labeled *o rurubu o gahika*.)

- o guhungiri* [SL] (a sea grass)
- *o guhungiri* [SL] (a sea grass)
- *o guhungiri (ma beka)* [P-EN] 'female guhungiri' (a seagrass)
- + *o guhungiri ma nauru* [P-EN] 'male guhungiri' V [HA] *Vittaria* sp. (Vittariaceae)
- + *o guhungiri o akeriha* [P-EN] 'freshwater guhungiri' V [HA] *Potanogeton* sp.
- o ogama* [SL] (sea grass) V [NM2-0287] det. not avail.
- R [Residue of other sea grasses and large seaweeds]

A3.2 Other (Unaffiliated) BIOTIC FORMS

The remaining four unaffiliated subclasses of BIOTIC FORM are considered non-sexual (not considered to have 'male' and 'female' forms) and are considered not to have 'throats' or organs of breathing. They do 'live' (-wango), however.

o gauku [SL] 'mushroom, shelf fungi'

Note: Mushrooms and shelf fungi are commonly distinguished as either the marked *o gauku ma dorou* [P-EN] 'bad gauku' or the unmarked *o gauku (ma oa)* '(good) gauku.' The latter are considered edible. I was often told that "all" mushrooms and shelf fungi can be eaten; there is no Tobelo tradition of poisonous Halmaheran toadstools, mushrooms, or shelf fungi. Only the "good" *gauku*, however, are considered tasty. That distinction between "good" and "bad" *gauku* cross-cuts the folk taxonomy, as shown below, because *o rai* 'shelf fungi' can be either "good" (edible) or "bad" (inedible/untasty).

- *o nagi-nagimi* [CX, < -nagimi 'to be indebted'; 'indebted' (etym.?)] V [NM2-0318] det. not avail. (Fungus)
- *o ngau-ngauku* [CX, < ngauku 'ear' + redup.; 'rather like an ear' (a reference to the shape of this mushroom's cap)] V [NM2-0437] det. not avail. (Fungus)
- *o ngongawate* [SL] V [NM2-0447, NM2-0439, NM2-0209, NM2-0620] det. not avail. (Fungus)
- *o ngunugogo* [CX-EX, < ngunu (truncation of ngunungu 'nose') + -gogo 'to be hairy'; 'nose is hairy'] V [NM2-0438] det. unavail. (Fungus)
- *o rai* [SL, cf. 'tree' of same name, q.v.] 'shelf fungus'
- *o rai (ma oa)* [P-EN] '(good) rai' (so called because this subclass contains edible rai) V [NM2-0310, NM2-0436] det. not avail. (Fungus) 'edible shelf fungus'
- + *o rai ma dorou* [P-EN] 'bad rai.' (Note: Similar to 'good' rai, but very untasty, not eaten.) V [NMI-2119] det. not avail. (Fungus) 'inedible shelf fungus'
- *o tegele* [SL] V [NM2-0435, NM2-0436] det. not avail. (Fungus)
- o pahi* [SL, cf. NMM *pasi* 'coral, most sponges (except barrel sponges, cf. *o tali ma kiarono)*']
- o tali ma kiarono* [CD-EN, 'octopus' + poss. 'carrying-basket'; 'octopus's carrying basket'] 'barrel sponges'
- o lulumiti* [SL] 'moss, mould, lichen, bryozoa, smaller algae'

Appendix 4

Systematic List of Botanical Taxa, with Index to Tobelo Basic (B⁰) Classes

Family Species	Tobelo B ⁰ term	Appendix no.
ACANTHACEAE		
<i>Acanthus ebracteatus</i> Vahl.	<i>o papudóo</i>	1.1
<i>Acanthus ilicifolius</i> L.	<i>o papudóo</i>	1.1
<i>Asystasia nemorum</i> Nees	<i>o luja</i>	1.1
<i>Gendarussa vulgaris</i> Nees	<i>o roringohana</i>	1.1
<i>Hemigraphis bicolor</i> Bl. Hall	<i>o aerani</i>	1.1
	<i>o wile-wile</i>	1.1
<i>Hemigraphis</i> cf. <i>ceramensis</i> Bremek.	<i>o lakodóto</i>	1.1
	<i>o wile-wile</i>	1.1
? <i>Hemigraphis</i> sp.	<i>o lakodóto</i>	1.1
<i>Justicia</i> sp.	<i>o aili ma ditoko</i>	1.1
	<i>o roringohana</i>	1.1
<i>Lepidagathis</i> sp.	<i>o bunga-dára</i>	1.1
<i>Lepidagathis robinsonii</i> Merr.	<i>o guleulá</i>	1.1
<i>Peristrophe</i> sp.	<i>o bunga-dára</i>	1.1
<i>Ruellia</i> sp.	<i>o hulahi ma dofu</i>	1.1
<i>Strobilanthes</i> sp.	<i>o aerani</i>	1.1
undetermined	<i>o roringohana</i>	1.1
AGAVACEAE		
<i>Cordyline fruticosa</i> (L.) A. Chev.	<i>o wuu</i>	1.1
<i>Dracaena</i> sp.	<i>o wowe</i>	1.1
<i>Pleomele angustifolia</i> N.E. Brown	<i>o hahahini</i>	1.1
	<i>o wuu</i>	1.1
<i>Sansevieria</i> sp.	<i>o bunga-ular</i>	1.1
ALANGIACEAE		
<i>Alangium griffithii</i> (Clarke) Harms	<i>o fenga</i>	1.1
<i>Alangium hirsutum</i> Bloemb.	<i>o hohiaboro</i>	1.1
<i>Alangium villosum</i> (Bl.) Wangerin	<i>o gofása</i>	1.1
ALLIACEAE		
<i>Allium ascalonium</i> L.	<i>o bawanga</i>	1.1
<i>Allium cepa</i> L.	<i>o bawanga</i>	1.1
<i>Allium retrofractum</i>	<i>o kucai</i>	1.1
<i>Allium tuberosum</i> Roxb.	<i>o kucai</i>	1.1
AMARANTHACEAE		
<i>Achyranthes aspera</i> L.	<i>o tokata ma gole-gole</i>	1.1
<i>Alternanthera bettzickiana</i> (Reg.) Nichols	<i>o bunga-té</i>	1.1
<i>Alternanthera ficoides</i> (L.) R. Br. ex R. & S.	<i>o bunga-té</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Alternanthera sessilis</i> (L.) R. Br. ex R. & S.	<i>o gogerehi</i>	1.1
<i>Amaranthus hybridus</i> L.	<i>o baya</i>	1.1
<i>Amaranthus spinosus</i> L.	<i>o baya</i>	1.1
<i>Amaranthus tricolor</i> L.	<i>o baya</i>	1.1
<i>Celosia argentea</i> L.	<i>o baya</i>	1.1
<i>Celosia cristata</i> L.	<i>o bunga-báyam</i>	1.1
<i>Cyathula prostrata</i> (L.) Bl.	<i>o tokata ma gole-gole</i>	1.1
<i>Gomphrena globosa</i> L.	<i>o bunga-pót</i>	1.1
AMARYLLIDACEAE		
<i>Anacardium occidentale</i> L.	<i>o bua-yakis</i>	1.1
<i>Pancreatium zeylanicum</i> L.	<i>o bawa-bawanga</i>	1.1
ANACARDIACEAE		
<i>Mangifera indica</i> L.	<i>o guawe</i>	1.1
<i>Koordersiodendron pinnatum</i> (Blanco) Merr.	<i>o aunu ma gilioro</i>	1.1
	<i>o kuruhu</i>	1.1
<i>Semecarpus</i> sp.	<i>o hehene</i>	1.1
<i>Semecarpus</i> cf. <i>longifolius</i>	<i>o hukupote</i>	1.1
<i>Spondias</i> cf. <i>dulcis</i> Saoland ex Park.	<i>o ngulu</i>	1.1
<i>Spondias pinnata</i> (L. f.) Kurz	<i>o ngulu</i>	1.1
<i>Rhus taitensis</i> Guillemin	<i>o kafo</i>	1.1
ANNONACEAE		
<i>Annona muricata</i> L.	<i>o nangka-balánda</i>	1.1
<i>Annona squamosa</i> L.	<i>o bua-nona</i>	1.1
<i>Cananga odorata</i> (Lmk.) Hook f. & Thoms.	<i>o kanánga</i>	1.1
<i>Mitrephora polypyrena</i> Miq.	<i>o hararoko</i>	1.1
<i>Oxymitra</i> sp.	<i>o halale ma ngutuku</i>	1.1
<i>Oxymitra cuneiformis</i> Zoll.	<i>o hararoko</i>	1.1
<i>Polyalthia</i> sp.	<i>o hararoko</i>	1.1
<i>Uvaria</i> sp.	<i>o hararoko</i>	1.1
	<i>o haya</i>	1.1
ANTHYRIACEAE		
<i>Diplazium esculentum</i> Sw.	<i>o gaguru</i>	1.1
APOCYNACEAE		
<i>Allamanda cathartica</i> L.	<i>o bunga-mantega</i>	1.1
<i>Alstonia scholaris</i> (L.) R. Br.	<i>o yangere</i>	1.1
<i>Catharanthus roseus</i> L.	<i>o bunga-tanjung</i>	1.1
<i>Cerbera floribunda</i> K. Schum.	<i>o capáka</i>	1.1
<i>Cerbera</i> sp.	<i>o guluihuputu</i>	1.1
<i>Chilocarpus</i> sp.	<i>o moliorata</i>	1.1
<i>Ervatamia</i> sp.	<i>o moa-moana</i>	1.1
<i>Kopsia arborea</i> Bl.	<i>o capáka</i>	1.1
<i>Lepiniopsis ternatensis</i> Val.	<i>o pulahari</i>	1.1
<i>Melochia umbellata</i> (Houtt.) Stapf.	<i>o nututu</i>	1.1
<i>Micrechites polyantha</i> Miq.	<i>o hero ma rako</i>	1.1
<i>Micrechites serpyllifolia</i>	<i>o ai-aili</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Ochrosia glomerata</i>	<i>o goini</i>	1.1
<i>Parsonia cumingiana</i> DC.	<i>o ngo beye ami hogo</i>	1.1
<i>Plumeria</i> sp.	<i>o capáka</i>	1.1
ARACEAE		
<i>Alocasia</i> sp.	<i>o widara</i>	1.1
<i>Colocasia</i> sp.	<i>o dilago</i>	1.1
<i>Homalomena cordata</i> Schott	<i>o kabingi ma gouru</i>	1.1
<i>Pothos</i> sp.	<i>o miigi</i>	1.1
<i>Rhaphidophora pinnata</i> (L. f.) Schott	<i>o gotoaka ma paka</i>	1.1
<i>Rhaphidophora</i> sp.	<i>o miigi</i>	1.1
	<i>o ngau-ngauku</i>	1.1
<i>Scindapsus</i> sp.	<i>o goyoko ma kikihingi</i>	1.1
<i>Scindapsus</i> cf. <i>pictus</i> Hassk.	<i>o miigi</i>	1.1
<i>Xanthosoma</i> sp.	<i>o dilago</i>	1.1
undetermined	<i>o kiáwa</i>	1.1
ARALIACEAE		
<i>Osmoxylon</i> sp.	<i>o toyomo</i>	1.1
<i>Polyscias fruticosa</i> (L.) Harms.	<i>o gurabati</i>	1.1
<i>Schefflera</i> sp.	<i>o kuhu-kúhu</i>	1.1
	<i>o putiána ma gitifiri</i>	1.1
<i>Trevesia sundaica</i> Miq.	<i>o toyomo</i>	1.1
ARAUCARIACEAE		
<i>Agathis</i> sp.	<i>o hilo</i>	1.1
ASCLEPIADACEAE		
<i>Asclepias curassavica</i>	<i>o aerani</i>	1.1
<i>Cynanchum ovalifolium</i> Wight	<i>o lolaránga</i>	1.1
	<i>o ngo beye ami hogo</i>	1.1
<i>Dischidia imbricata</i> (Bl.) Steud.	<i>o lolapáka</i>	1.1
<i>Hoya</i> sp.	<i>o lake-lakeme</i>	1.1
<i>Marsdenia tenacissima</i> W. et Arn.	<i>o diti-diti</i>	1.1
	<i>o hauyo</i>	1.1
<i>Marsdenia</i> sp.	<i>o ngo beye ami hogo</i>	1.1
<i>Sarcolobus</i> sp.	<i>o teleliko</i>	1.1
	<i>o totofora</i>	1.1
<i>Secamone villosa</i> Bl.	<i>o teleliko</i>	1.1
ASPIDACEAE		
<i>Tectaria crenata</i> Cav.	<i>o bitumu</i>	1.1
ASPLENIACEAE		
<i>Asplenium adiantoides</i> Raoul	<i>o keketuku</i>	1.1
<i>Asplenium excisum</i> Presl.	<i>o karafe-gumi</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
AVERRHOACEAE		
<i>Averrhoa bilimbi</i> L.	<i>o balím̄bi</i>	1.1
<i>Averrhoa carambola</i> L.	<i>o balím̄bi</i>	1.1
AVICENNIACEAE		
<i>Avicennia</i> sp.	<i>o efi-efi</i>	1.1
AIZOACEAE		
<i>Sesuvium portulacastrum</i> (L.) L.	<i>o jalu-jalu</i>	1.1
BALSAMINACEAE		
<i>Impatiens</i> sp.	<i>o guabébe</i>	1.1
BARRINGTONIACEAE		
<i>Barringtonia</i> sp.	<i>o gogoa</i>	1.1
	<i>o pangáha</i>	1.1
BEGONIACEAE		
<i>Begonia</i> sp.	<i>o gie-giete</i>	1.1
BIGNONIACEAE		
<i>Crescentia cujete</i> L.	<i>o bua-nó</i>	1.1
<i>Dolichandrone spathacea</i> (L. f.) K. Sch.	<i>o jajame</i>	1.1
BOMBACACEAE		
<i>Ceiba pentandra</i> Gaertn.	<i>o kailupa</i>	1.1
<i>Durio zibethinus</i> Murr.	<i>o duriana</i>	1.1
BORAGINACEAE		
<i>Heliotropium indicum</i> L.	<i>o baya</i>	1.1
BROMELIACEAE		
<i>Ananas comosus</i> (L.) Merr.	<i>o manahi</i>	1.1
BURSERACEAE		
<i>Canarium</i> sp.	<i>o haiti</i>	1.1
	<i>o ngeyehaka</i>	1.1
	<i>o niara</i>	1.1
<i>Canarium hirsutum</i> Willd. f. <i>scabrum</i> Bl.	<i>o hatobu</i>	1.1
	<i>o taulate</i>	1.1
CANNACEAE		
<i>Canna coccina</i> Mill.	<i>o tahubé</i>	1.1
<i>Canna indica</i> L.	<i>o tahubé</i>	1.1
CAPPARIDACEAE		
<i>Capparis</i> sp.	<i>o peda-peda</i>	1.1
CARICACEAE		
<i>Carica papaya</i> L.	<i>o topáya</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
CASAURINACEAE		
<i>Casaurina</i> cf. <i>equisetifolia</i>	<i>o lulewi</i>	1.1
<i>Casaurina sumatrana</i> Jungh. ex de Vriese	<i>o lulewi</i>	1.1
CELASTRACEAE		
<i>Euonymus javanicus</i> Bl.	<i>o melumu ma gule</i>	1.1
CHLORANTHACEAE		
<i>Chloranthus</i> sp.	<i>o gandaruha</i>	1.1
CHRYSOBALANACEAE		
<i>Parinari</i> sp.	<i>o habana</i>	1.1
COMBRETACEAE		
<i>Terminalia catappa</i> L.	<i>o tiliho</i>	1.1
<i>Terminalia microcarpa</i> Decne.	<i>o kuuhu ma didu</i>	1.1
<i>Terminalia</i> sp.	<i>o ngotiri ma emanga</i>	1.1
COMMELINACEAE		
<i>Commelina</i> sp.	<i>o lifi-lifiti</i>	1.1
<i>Pollia</i> sp.	<i>o lifi-lifiti</i>	1.1
<i>Pollia secundiflora</i> (Bl.) Bakh. f.	<i>o wuu</i>	1.1
COMPOSITAE		
<i>Adenostemma lavenica</i> (L.) O.K.	<i>o katuri ma boboko</i>	1.1
<i>Ageratum conyzoides</i> L.	<i>o aunu ma dodogumu</i>	1.1
	<i>o cinga-cinga</i>	1.1
	<i>o kokunyinga</i>	1.1
<i>Bidens pilosa</i> L.	<i>o kohe ma kakoto</i>	1.1
<i>Blumea</i> sp.	<i>o totabako</i>	1.1
<i>Eclipta alba</i> (L.) Hassk.	<i>o kokailupa</i>	1.1
<i>Eclipta prostrata</i> (L.) L.	<i>o kokailupa</i>	1.1
<i>Eleutheranthera ruderalis</i> (Sw.) Sch. Bip.	<i>o cinga-cinga</i>	1.1
	<i>o kokuanyi</i>	1.1
<i>Emilia</i> sp.	<i>o hohokiki</i>	1.1
<i>Pluchea indica</i> Less.	<i>o balontas</i>	1.1
<i>Pseudoelephantopus spicatus</i> (Aubl.) C.F. Baker	<i>o digo ma gilaongo</i>	1.1
<i>Synedrella nodiflora</i> (L.) Gaertn.	<i>o kokuanyi</i>	1.1
<i>Veronia cinerea</i> (L.) Less.	<i>o puusu ma gumi</i>	1.1
<i>Wollastonia biflora</i> DC.	<i>o cinga-cinga</i>	1.1
CONVOLVULACEAE		
<i>Dichondra repens</i> Forst.	<i>o leeléle</i>	1.1
<i>Ipomoea batatas</i> L.	<i>o kahitela-tonaka</i>	1.1
<i>Ipomoea crassicaulis</i> (Benth.) B.L. Robinson	<i>o bunga-saloi</i>	1.1
<i>Ipomoea fistulosa</i> Mart. ex Choisy	<i>o bunga-popohu</i>	1.1
<i>Ipomoea quamoclit</i> L.	<i>o dodiha ma kobongo</i>	1.1
<i>Ipomoea</i> sp.	<i>o kangkong</i>	1.1
<i>Merremia umbellata</i> (L.) Hallier f.	<i>o ulo</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
COSTACEAE		
<i>Costus speciosus</i> (Koenig) J.E. Sm.	<i>o maa-maata</i>	1.1
<i>Costus</i> sp.	<i>o maa-maata</i>	1.1
CRASSULACEAE		
<i>Kalachoe pinnata</i> (Lamk.) Pers.	<i>o maa-maata</i>	1.1
CUCURBITACEAE		
<i>Citrulus lanatus</i> (Thunb.) Mansf.	<i>o hamáka</i>	1.1
<i>Cucurbita</i> sp.	<i>o gotimono</i>	1.1
	<i>o hambiki</i>	1.1
<i>Gynopetalum chinense</i> (Lour.) Merr.	<i>o dodopongono</i>	1.1
<i>Momordica cochinchinensis</i> Spreng.	<i>o totorofuku</i>	1.1
<i>Trichosanthes</i> sp.	<i>o patola</i>	1.1
	<i>o torofuku</i>	1.1
undetermined	<i>o papare</i>	1.1
	<i>o patola</i>	1.1
CYATHEACEAE		
<i>Cyathea</i> sp.	<i>o wugu-wugu</i>	1.1
CYCADACEAE		
<i>Cycas</i> cf. <i>rumphii</i>	<i>o bico</i>	1.1
CYPERACEAE		
<i>Cyperus brevifolia</i> (Rottb.) Hassk.	<i>o takiu</i>	1.1
<i>Cyperus cyperoides</i> (L.) O. Kuntze	<i>o ruju-ruju</i>	1.1
<i>Cyperus iria</i> L.	<i>o limaduku</i>	1.1
<i>Cyperus javanicus</i> Houtt.	<i>o liri-liri</i>	1.1
<i>Cyperus kyllingia</i> Endl.	<i>o takiu</i>	1.1
<i>Cyperus rotundus</i> L.	<i>o takiu</i>	1.1
<i>Fimbristylis ovata</i> (Burm. f.) Kern	<i>o karafe ma gumi</i>	1.1
<i>Hypolytrum</i> sp.	<i>o hehewehe</i>	1.1
<i>Mapania cuspidata</i> ((Miq.) Uitt.) var. <i>petiolata</i> (Clark) Uitt.	<i>o kokayiyu</i>	1.1
<i>Mapania macrocephala</i> (Gaud.) K. Sch.	<i>o hehewehe</i>	1.1
<i>Rhynchospora rubra</i>	<i>o jara-jara</i>	1.1
<i>Scleria</i> sp.	<i>o limaduku</i>	1.1
DAVALLIACEAE		
<i>Davallia</i> sp.	<i>o gaguru</i>	1.1
<i>Davallia trichomanoides</i> Bedd.	<i>o keketuku</i>	1.1
DILLENACEAE		
<i>Tetracera</i> cf. <i>nordiana</i> F. v. M.	<i>o sone-kodiho</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
DIOSCOREACEAE		
<i>Dioscorea alata</i> L.	<i>o toyogata</i>	1.1
<i>Dioscorea bulbifera</i> L.	<i>o bukuru</i>	1.1
	<i>o ngabao</i>	1.1
<i>Dioscorea</i> cf. <i>cumingii</i>	<i>o gari-gari</i>	1.1
<i>Dioscorea esculenta</i> (Lour.) Burk.	<i>o ubi</i>	1.1
<i>Dioscorea hispida</i> Dennstedt	<i>o ubi</i>	1.1
<i>Dioscorea triphylla</i> L.	<i>o gari-gari</i>	1.1
<i>Dioscorea</i> sp.	<i>o siafu</i>	1.1
DIPTEROCARPACEAE		
<i>Anisoptera thurifera</i> (Blanco) Bl.	<i>o boulamu</i>	1.1
EBENACEAE		
<i>Diospyros cauliflora</i> Bl.	<i>o ode ma futu</i>	1.1
<i>Diospyros</i> cf. <i>heterocarpa</i>	<i>o oaha</i>	1.1
<i>Diospyros maritima</i> Bl.	<i>o ngapo</i>	1.1
<i>Diospyros nigra</i> Perr.	<i>o popopara</i>	1.1
<i>Diospyros pilosanthera</i> Blanco	<i>o haya</i>	1.1
<i>Diospyros</i> sp.	<i>o jaga-jaga</i>	1.1
EHRETIACEAE		
<i>Carmona retusa</i> (Vahl) Masamune	<i>o bunga-té</i>	1.1
	<i>o te</i>	1.1
<i>Carmona</i> sp.	<i>o moowoete</i>	1.1
ELAEOCARPACEAE		
<i>Aceratium</i> sp.	<i>o keledongo</i>	1.1
	<i>o leleko</i>	1.1
<i>Sloanea</i> sp.	<i>o mamu</i>	1.1
EUPHORBIACEAE		
<i>Acalypha</i> cf. <i>amentacea</i> Roxb.	<i>o hoboobo</i>	1.1
<i>Acalypha</i> cf. <i>centromalayca</i> Pax & Hoffm.	<i>o hohobóbo</i>	1.1
<i>Acalypha hellwigii</i> Warb.	<i>o sosólo</i>	1.1
<i>Acalypha indica</i> L.	<i>o kaho ma gina-gina</i>	1.1
<i>Acalypha wilkesiana</i> M.A.	<i>o totaleo ma hohorene</i>	1.1
<i>Acalypha</i> sp.	<i>o baru-bongana</i>	1.1
	<i>o kokori</i>	1.1
<i>Agrostistachys maesoana</i> Vidal	<i>o tiliho-gumini</i>	1.1
<i>Agrostistachys</i> cf. <i>pterocalyx</i> Val.	<i>o riidi</i>	1.1
<i>Alchornea rugosa</i> Vell.	<i>o dadaromo ma hohakai</i>	1.1
<i>Baccaurea macrophylla</i> M. A.	<i>o uhele</i>	1.1
<i>Baccaurea racemosa</i> (Reinw. ex Bl.) M.A.	<i>o gobiti</i>	1.1
<i>Breynia cernua</i> (Poir.) M.A.	<i>o gagilamo</i>	1.1
<i>Claoxylon</i> sp.	<i>o dodataiti</i>	1.1
<i>Claoxylon longifolium</i> (Bl.) Endl. ex Hassk.	<i>o pugu-pugutu</i>	1.1
	<i>o watagooko</i>	1.1
<i>Codiaeum variegatum</i> (L.) Bl.	<i>o riidi</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.	
<i>Croton hirtus</i> L'Her.	<i>o totaleo ma ruoho</i>	1.1	
	<i>o gaaluri</i>	1.1	
	<i>o cade-cade</i>	1.1	
	<i>o kapongo ma rurúbu</i>	1.1	
	<i>o mohara</i>	1.1	
	<i>o guleulá</i>	1.1	
	<i>o taehe ma huhuhumu</i>	1.1	
	<i>o pea-pea</i>	1.1	
	<i>o huhuteongo</i>	1.1	
	<i>o gemihi</i>	1.1	
	<i>o wee-wee</i>	1.1	
<i>Drypetes globosa</i> P. & H. <i>Drypetes cf. mucronata</i> Wright ex Griseb. <i>Drypetes</i> sp. <i>Endospermum moluccanum</i> Becc. <i>Euphorbia</i> sp. <i>Glochidion philippicum</i> (Cav.) C.B. Rob. <i>Macaranga involucrata</i> (Roxb.) Baill. <i>Macaranga tanarius</i> (L.) M.A. <i>Macaranga</i> sp.	<i>o hamehe</i>	1.1	
	<i>o hulumu</i>	1.1	
	<i>o ngalumu</i>	1.1	
	<i>o alou</i>	1.1	
	<i>o hararoko</i>	1.1	
	<i>o ngalumu</i>	1.1	
	<i>o tahubi</i>	1.1	
	<i>o bonata ma unafa</i>	1.1	
	<i>o kokareboko</i>	1.1	
	<i>o kokareboko</i>	1.1	
	<i>o balakang-babíji</i>	1.1	
<i>Phyllanthus</i> sp. <i>Phyllanthus tenuirachis</i> J.J.Sm. <i>Phyllanthus urinaria</i> L. <i>Pimeleodendron amboinicum</i> Hassk. <i>Ricinus communis</i> L. <i>Securinega flexuosa</i> M.A. <i>Securinega</i> sp.	<i>o tigo-tigono</i>	1.1	
	<i>o baacai</i>	1.1	
	<i>o bua-jáarak</i>	1.1	
	<i>o bobahiha</i>	1.1	
	<i>o jobirono</i>	1.1	
	FAGACEAE		
	<i>Lithocarpus</i> sp.	<i>o hilli</i>	1.1
	FLACOURTIACEAE		
	<i>Casearia</i> sp.	<i>o kofi-kofi</i>	1.1
	<i>Flacourtia</i> sp.	<i>o tome-tome</i>	1.1
	<i>Homalium foetidum</i> Benth.	<i>o atebahi</i>	1.1
<i>Ryparosa</i> sp.	<i>o gobiti</i>	1.1	
<i>Scolopia spinosa</i> (Roxb.) Warb.	<i>o tome-tome</i>	1.1	
undetermined	<i>o goyoko ma pokoro</i>	1.1	
FLAGELLARIACEAE			
<i>Flagellaria indica</i> L.	<i>o roma</i>	1.1	
GLEICHENIACEAE			
<i>Gleichenia linearis</i> (Burm.) Clarke	<i>o ngiuru</i>	1.1	
<i>Gleichenia</i> sp.	<i>o ngiuru</i>	1.1	
GNETACEAE			
<i>Gnetum gnemonoides</i> Brongn.	<i>o rukiti</i>	1.1	
<i>Gnetum</i> sp.	<i>o rukiti</i>	1.1	

Family Species	Tobelo B ⁰ term	Appendix no.
GOODENIACEAE		
<i>Scaevola taccada</i> (Gaert.) Roxb.	<i>o gilitopa</i>	1.1
GRAMINEAE		
<i>Arundo donax</i> L.	<i>o baburu</i>	1.1
	<i>o bulu-balánda</i>	1.1
<i>Bambusa atra</i> Lindl.	<i>o todoku</i>	1.1
<i>Bracharia</i> cf. <i>paspaloides</i> (Presl) C.E. Hubb.	<i>o jela-jela</i>	1.1
	<i>o pine-pine</i>	1.1
<i>Cenchrus brownii</i> R. & S.	<i>o rai-rai</i>	1.1
<i>Centotheca lappacea</i> (L.) Desv.	<i>o lifi-lifiti</i>	1.1
<i>Centotheca latifolia</i> Trin.	<i>o ngangangoro</i>	1.1
<i>Coix lachryma-jobi</i> L.	<i>o lore</i>	1.1
<i>Cymbopogon</i> cf. <i>citratu</i> s (DC.) Stapf	<i>o liri</i>	1.1
<i>Cyrtococcum accrescens</i> Stapf.	<i>o kamo-kamoro</i>	1.1
<i>Cyrtococcum patens</i> (L.) A. Camus	<i>o kowehe</i>	1.1
<i>Digitaria</i> sp.	<i>o jela-jela</i>	1.1
	<i>o ngauku ma hahakara</i>	1.1
<i>Eragrostis tenella</i> (L.) Beauv. ex R. & S.	<i>o kamo-kamoro</i>	1.1
<i>Gigantochloa atter</i> (Hassk.) Kurz ex Munro	<i>o aulóto</i>	1.1
<i>Imperata cylindrica</i> (L.) Beauv.	<i>o nguhumu</i>	1.1
<i>Leptaspis urseolata</i> (Roxb.) R. Br.	<i>o kaho ma lego-legoro</i>	1.1
<i>Oryza sativa</i> L.	<i>o pine</i>	1.1
<i>Oplismenus</i> sp.	<i>o gohomanga ma aehe</i>	1.1
<i>Oplismenus compositus</i> (L.) Beauv.	<i>o ngauku ma hahakara</i>	1.1
<i>Paspalum commersonii</i> Lamk.	<i>o hoye</i>	1.1
<i>Paspalum conjugatum</i> Berg.	<i>o jela-jela</i>	1.1
<i>Pogonatherum crinitum</i> (Thunb.) Kunth	<i>o gambináha</i>	1.1
<i>Saccharum officinarum</i> L.	<i>o ugaka</i>	1.1
<i>Schizostachyum</i> sp.	<i>o kakale</i>	1.1
	<i>o tetewanga</i>	1.1
<i>Schizostachyum brachycladum</i> Kurz	<i>o tonga-jáwa</i>	1.1
	<i>o tuwiki</i>	1.1
<i>Schizostachyum lima</i> (Blanco) Merr.	<i>o tiba</i>	1.1
	<i>o tuwiki</i>	1.1
<i>Setaria</i> sp.	<i>o boteme</i>	1.1
<i>Setaria italica</i> L.	<i>o guapo</i>	1.1
"Sorghum" series <i>Sativium</i>	<i>o buapo</i>	1.1
<i>Spinifex littoreus</i> (Burm. f.) Merr.	<i>o jara-jara</i>	1.1
<i>Sporobolus diander</i> (Retz.) Beauv.	<i>o mai-maihi</i>	1.1
	<i>o tabihahu</i>	1.1
<i>Sporobolus indicus</i> (L.) R. Br.	<i>o mai-maihi</i>	1.1
	<i>o tabihahu</i>	1.1
<i>Themeda gigantea</i> (Cav.) Hassk.	<i>o liri-liri</i>	1.1
<i>Themeda</i> sp.	<i>o ngo boki ami pine</i>	1.1
<i>Zea mays</i> L.	<i>o kahitela-gota</i>	1.1
<i>Zoysia matrella</i> (L.) Merr. var. <i>pacifica</i> Goudswaard	<i>o jara-jara ma rurúbu</i>	1.1
undetermined Bamboo	<i>o gohoboro</i>	1.1
GUTTIFERAE		
<i>Calophyllum sulatri</i> Eeden.	<i>o hitakono</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Calophyllum</i> sp.	<i>o ngohaka ma iyo-iyoko</i>	1.1
<i>Garcinia</i> sp.	<i>o gogowaya</i>	1.1
	<i>o kofi-kofi</i>	1.1
	<i>o kokareboko</i>	1.1
	<i>o meata</i>	1.1
	<i>o moliorata</i>	1.1
<i>Garcinia celebica</i> L.	<i>o meata</i>	1.1
<i>Garcinia dulcis</i> (Roxb.) Kurz	<i>o ngohaka ma iyo-iyoko</i>	1.1
<i>Garcinia parviflora</i> (Miq.) Miq.	<i>o manoko ma boboha</i>	1.1
<i>Garcinia parvifolia</i> (Miq.) Miq.	<i>o ngami-ngamiri</i>	1.1
HELICONIACEAE		
<i>Heliconia indica</i> Lam.	<i>o bole</i>	1.1
HERNANDIACEAE		
<i>Hernandia nymphaeifolia</i> Kubitzki	<i>o nawoko ma lako</i>	1.1
ICACINACEAE		
<i>Gonocaryum littorale</i> (Bl.) Sleum.	<i>o tome-tome</i>	1.1
<i>Iodes philippinensis</i> Merr.	<i>o haiti</i>	1.1
<i>Medusanthera laxiflora</i> (Miers) Howard	<i>o karafe-gumi</i>	1.1
LABIATAE		
<i>Hyptis capitata</i> Jacq.	<i>o hae-haeke</i>	1.1
<i>Hyptis rhomboidea</i> Mart. & Gal.	<i>o hae-haeke</i>	1.1
<i>Ocimum basilicum</i> L.	<i>o sulasi</i>	1.1
<i>Ocimum sanctum</i> L.	<i>o hulahi</i>	1.1
<i>Ocimum tenuiflorum</i> L.	<i>o sike-sike</i>	1.1
<i>Orthosiphon aristatus</i> (Bl.) Miq.	<i>o boki ma gumi</i>	1.1
	<i>o lakodoto</i>	1.1
<i>Plectranthus</i> sp.	<i>o ruju-ruju</i>	1.1
<i>Plectranthus scutellarioides</i> (L.) R. Br.	<i>o totaleo ma hohorene</i>	1.1
LAURACEAE		
<i>Cassytha</i> sp.	<i>o gumiguraci</i>	1.1
<i>Cinnamomum</i> sp.	<i>o kayu-manis</i>	1.1
<i>Cryptocarya</i> sp.	<i>o iko</i>	1.1
<i>Endiandra</i> sp.	<i>o luka-lukama</i>	1.1
<i>Litsea</i> sp.	<i>o gamonua</i>	1.1
<i>Neolitsea cassiaefolia</i> (Bl.) Merr.	<i>o lame</i>	1.1
undetermined	<i>o make</i>	1.1
LEGUMINOSAE		
<i>Abrus precatorius</i> L.	<i>o turi-turi</i>	1.1
<i>Acacia farnesiana</i> (L.) Willd.	<i>o bunga-rampa</i>	1.1
<i>Acacia pluricapitata</i> Steud.	<i>o cade-cade</i>	1.1
<i>Adenanthera pavonina</i> L.	<i>o poro-poroho</i>	1.1
<i>Albizia saponaria</i> (Lour.) Bl. ex Miq.	<i>o popewi</i>	1.1
<i>Albizia falcataria</i> (L.) Fosb.	<i>o yahe</i>	1.1
<i>Arachis hypogaea</i> L.	<i>o boci</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Bauhinia</i> cf. <i>acuminata</i> L.	<i>o gumoanga</i>	1.1
	<i>o tabihahu</i>	1.1
<i>Caesalpinia crista</i> L.	<i>o kate-kate</i>	1.1
<i>Caesalpinia globulorum</i> Bakh. f. & Van Royen	<i>o ciciru</i>	1.1
<i>Caesalpinia major</i> (Medic.) Dandy & Exell	<i>o kate-kate</i>	1.1
<i>Caesalpinia pulcherima</i> (L.) Swartz	<i>o bunga-haji</i>	1.1
<i>Calliandra surinamensis</i> Benth.	<i>o bunga-pagi-sore</i>	1.1
<i>Cassia alata</i> L.	<i>o gohubáa</i>	1.1
<i>Cassia occidentalis</i> L.	<i>o dadatará</i>	1.1
<i>Cassia sappan</i> L.	<i>o hinianga</i>	1.1
<i>Cassia surattensis</i> Burm. f.	<i>o hinianga</i>	1.1
<i>Cassia tora</i> L.	<i>o bobarai</i>	1.1
<i>Centrosema pubescens</i> Benth.	<i>o kalapa-honenge</i>	1.1
<i>Clitoria ternatea</i> L.	<i>o bunga-biru</i>	1.1
<i>Clitoria</i> sp.	<i>o kalapa-honenge</i>	1.1
<i>Crotalaria retusa</i> L.	<i>o kokereehe</i>	1.1
<i>Cynometra ramiflora</i> L.	<i>o doo-dooyo</i>	1.1
<i>Clitoria</i> sp.	<i>o kalapa-honenge</i>	1.1
<i>Crotalaria retusa</i> L.	<i>o kokereehe</i>	1.1
<i>Cynometra ramiflora</i> L.	<i>o doo-dooyo</i>	1.1
<i>Cynometra</i> sp.	<i>o huaono ma guguriti</i>	1.1
	<i>o ode ma gitihiri</i>	1.1
<i>Dalbergia parviflora</i> Roxb.	<i>o hamete</i>	1.1
<i>Dalbergia</i> cf. <i>ferrugiana</i> Roxb.	<i>o yahe-gumini</i>	1.1
<i>Dalbergia</i> sp.	<i>o kate-kate</i>	1.1
<i>Derris trifoliata</i> Lour.	<i>o halegumini</i>	1.1
<i>Derris</i> sp.	<i>o hurutu</i>	1.1
<i>Desmodium gangeticum</i> (L.) DC.	<i>o haiti</i>	1.1
<i>Desmodium heterocarpum</i>	<i>o hai-haiti</i>	1.1
<i>Desmodium umbellatum</i> (L.) DC.	<i>o ategou</i>	1.1
	<i>o haiti</i>	1.1
<i>Erythrina</i> sp.	<i>o galála</i>	1.1
<i>Erythrina orientalis</i> (L.) Murr.	<i>o papaooto</i>	1.1
<i>Indigofera tinctoria</i> L.	<i>o biru</i>	1.1
<i>Inocarpus fagiferus</i> (Park.) Fosb.	<i>o guráma</i>	1.1
<i>Intsia bijuga</i> (Colebr.) O.K.	<i>o hararoko</i>	1.1
	<i>o namo-namo ma dofa</i>	1.1
<i>Lablab purpureus</i> Sweet	<i>o kacangá</i>	1.1
<i>Leucaena leucocephala</i> (Lam.) De Wit	<i>o lantóro</i>	1.1
<i>Maniltoa</i> sp.	<i>o ode ma gitihiri</i>	1.1
	<i>o taehe ma gitifiri</i>	1.1
<i>Millettia</i> sp.	<i>o hurutu</i>	1.1
<i>Mimosa invisa</i> Mart.	<i>o laimusa</i>	1.1
<i>Monarctocarpus securiformis</i> Merr.	<i>o dia-dia</i>	1.1
<i>Mucuna</i> sp.	<i>o busu ma dalu-daluku</i>	1.1
<i>Petalophorum pterocarpum</i> (DC.) Back.	<i>o yahe</i>	1.1
<i>Phaseolus radiatus</i> L.	<i>o tanuma</i>	1.1
<i>Phaseolus vulgaris</i> L.	<i>o tamelo</i>	1.1
<i>Pithecellobium</i> sp.	<i>o popewi</i>	1.1
<i>Pongamia pinnata</i> (L.) Merr.	<i>o dia-dia</i>	1.1
	<i>o ligua</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Pseudarthria viscida</i> (L.) W. & A.	<i>o kaho ma rio</i>	1.1
<i>Pterocarpus indicus</i> Willd.	<i>o ligua</i>	1.1
? <i>Pueraria</i> sp.	<i>o ingiri ma gegéhe</i>	1.1
<i>Pueraria</i> cf. <i>pulcherrima</i> Merr. ex Koord.-Schum.	<i>o puku</i>	1.1
<i>Ormosia calavensis</i> Asaolo ex Blanco	<i>o bobihingo</i>	1.1
<i>Psophocarpus tetragonolobus</i> (L.) DC.	<i>o biraro</i>	1.1
<i>Sesbania javanica</i> Miq.	<i>o turi</i>	1.1
<i>Sophora tomentosa</i> L.	<i>o dudeke ma gohi</i>	1.1
<i>Tamarindus indicus</i> L.	<i>o asang-jáwa</i>	1.1
<i>Taxotrophis ilicifolia</i> Vid.	<i>o kate-kate</i>	1.1
<i>Tephrosia</i> sp.	<i>o biru</i>	1.1
<i>Vigna marina</i> (Burm. f.) Merr.	<i>o lolóro</i>	1.1
<i>Vigna sesquipedalis</i> (L.) Fruw.	<i>o kacang-pánjang</i>	1.1
LINDSABACEAE		
<i>Lindsaea</i> sp.	<i>o kokabela</i>	1.1
<i>Sphenomeris retusa</i> (Cav.) Maxon	<i>o gaguru</i>	1.1
LORANTHACEAE		
<i>Dendrophthoe pentandra</i> (L.) Bl.	<i>o bahi-bahi</i>	1.1
LYCOPODIACEAE		
<i>Lycopodium carinatum</i> Desv.	<i>o karo ma bunga</i>	1.1
LYTHRACEAE		
<i>Lagerstroemia ovalifolia</i> T. & B.	<i>o gofása</i>	1.1
<i>Lawsonia inermis</i> L.	<i>o eláka</i>	1.1
MALPIGHIACEAE		
<i>Tristellateia australasiae</i> A. Rich.	<i>o hero ma rako</i>	1.1
MALVACEAE		
<i>Abelmoschus esculentus</i> Moench.	<i>o botara</i>	1.1
<i>Gossypium acuminatum</i> Roxb.	<i>o kapasa</i>	1.1
<i>Hibiscus sabdariffa</i> L.	<i>o botara</i>	1.1
<i>Hibiscus tiliaceus</i> L.	<i>o baru</i>	1.1
<i>Hibiscus</i> sp.	<i>o dedoro</i>	1.1
	<i>o ubo-ubo</i>	1.1
<i>Sida acuta</i> Burm. f.	<i>o digo</i>	1.1
<i>Sida rhombifolia</i> L.	<i>o digo</i>	1.1
<i>Thespesia populnea</i> (L.) Soland.	<i>o nawoko ma lako</i>	1.1
<i>Urena lobata</i> L. f. <i>tomentosa</i> (Bl.) Borss.	<i>o kokomomoko</i>	1.1
<i>Urena lobata</i> L. f. <i>lobata</i>	<i>o kokomomoko</i>	1.1
MARANTACEAE		
<i>Donax canniformis</i> (B. Forst.) K. Schum.	<i>o biáwa</i>	1.1
MELASTOMACEAE		
<i>Melastoma affine</i> D. Don.	<i>o bunga-biru</i>	1.1
<i>Pternandra</i> sp.	<i>o hooro</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
MELIACEAE		
<i>Aglaia elaeagnoidea</i> Benth.	<i>o dodofo o gota</i>	1.1
<i>Aglaia</i> sp.	<i>o luka-lukama</i>	1.1
<i>Aglaia</i> sp.	<i>o kamayua</i>	1.1
<i>Aphanamixis</i> sp.	<i>o hatobu</i>	1.1
<i>Dysoxylum</i> sp.	<i>o dodofo o gota</i>	1.1
	<i>o duo-duono</i>	1.1
	<i>o hauyo</i>	1.1
	<i>o luka-lukama</i>	1.1
<i>Lansium domesticum</i> Jacq.	<i>o lukama</i>	1.1
? <i>Walsura</i> sp.	<i>o rubu</i>	1.1
<i>Xylocarpus moluccensis</i> (Lam.) M. Roem.	<i>o nanalingi</i>	1.1
MELIOSMACEAE		
<i>Melisoma pinnata</i> L.	<i>o gacuaka ma inomo</i>	1.1
MEMECYLACEAE		
<i>Memecylon</i> sp.	<i>o bangata</i>	1.1
<i>Plectronia</i> sp.	<i>o bangata</i>	1.1
MENISPERMACEAE		
<i>Cissampelos pariera</i> L.	<i>o buhuru ma ngongokutu</i>	1.1
	<i>o puku</i>	1.1
<i>Tinospora crispa</i> Miers (L.) Miers ex Hook. f. & Thoms.	<i>o papaita</i>	1.1
undetermined	<i>o gogurati</i>	1.1
MONIMIACEAE		
<i>Ribara</i> sp.	<i>o gorofútu ma houru</i>	1.1
<i>Kibara</i> sp.	<i>o gumuru ma gohi</i>	1.1
	<i>o morihuhuku</i>	1.1
<i>Pycnarrhena manillensis</i> Vidal	<i>o morihuhuku</i>	1.1
undetermined	<i>o moata</i>	1.1
MORACEAE		
<i>Antiaris toxicaria</i> (Pers.) Lesch.	<i>o meha-mehanga</i>	1.1
<i>Artocarpus</i> sp.	<i>o amo</i>	1.1
	<i>o fisa</i>	1.1
<i>Artocarpus altilis</i> (Park.) Fosb.	<i>o gomono</i>	1.1
<i>Artocarpus heterophyllus</i> Lamk.	<i>o tuáda</i>	1.1
<i>Fatoua pilosa</i> Gaud.	<i>o nguna-ngunanga</i>	1.1
	<i>o ngutuku ma gogurati</i>	1.1
<i>Ficus</i> sp.	<i>o bobaharama</i>	1.1
	<i>o hohiaboro</i>	1.1
	<i>o poo-pooto</i>	1.1
<i>Ficus adenosperma</i> Miq.	<i>o tataulu</i>	1.1
<i>Ficus adenosperma</i> Miq. f. <i>angustifolia</i>	<i>o guihi</i>	1.1
<i>Ficus ampelos</i> Burm. f.	<i>o homomara</i>	1.1
<i>Ficus melinocarpa</i> Bl.	<i>o nouku</i>	1.1
<i>Ficus punctata</i> Thunb.	<i>o hohononga</i>	1.1
<i>Prainea papuana</i> Becc.	<i>o bobaharama</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
MUSACEAE		
<i>Musa</i> spp.	<i>o bole</i>	1.1
	<i>o ngura</i>	1.1
MYRSINACEAE		
<i>Aegiceras corniculatum</i> (L.) Blanco	<i>o tela-tela</i>	1.1
<i>Discocalyx</i> sp.	<i>o pangáha</i>	1.1
<i>Embelia</i> sp.	<i>o tui</i>	1.1
<i>Maesa tetrandra</i> (Roxb.) DC.	<i>o pogihoro</i>	1.1
<i>Maesa</i> sp.	<i>o pogihoro</i>	1.1
<i>Rapanea</i> cf. <i>rawacensis</i> (DC.) Mez	<i>o takupoa</i>	1.1
MYRISTICACEAE		
<i>Myristica fragrans</i> Houtt.	<i>o gohora</i>	1.1
MYRTACEAE		
<i>Decaspermum</i> sp.	<i>o manoko ma babahana</i>	1.1
<i>Decaspermum bracteatum</i> (Roxb.) Schott	<i>o manoko ma boboha</i>	1.1
	<i>o rofisi</i>	1.1
<i>Psidium guajava</i> L.	<i>o gowáya</i>	1.1
<i>Syzygium</i> sp. [= <i>Eugenia</i> sp.]	<i>o baa-babanga</i>	1.1
	<i>o gogowáya</i>	1.1
	<i>o hale</i>	1.1
	<i>o kokareboko</i>	1.1
	<i>o mako-makoro</i>	1.1
	<i>o rofisi</i>	1.1
<i>Syzygium aromaticum</i> Kuntze	<i>o cengke</i>	1.1
	<i>o mako-makoro</i>	1.1
<i>Syzygium cumini</i> (L.) Skeels	<i>o jambula</i>	1.1
<i>Syzygium jambos</i> (L.) Alst.	<i>o kokareboko</i>	1.1
<i>Syzygium malaccense</i> (L.) Merr. & Perry	<i>o gogoa</i>	1.1
<i>Syzygium ramosum</i> (Bl.) DC.	<i>o mayoro</i>	1.1
NAUCLEACEAE		
<i>Anthocephalus</i> sp.	<i>o hekiri</i>	1.1
<i>Nauclea orientalis</i> L.	<i>o hekiri</i>	1.1
<i>Uncaria</i> sp.	<i>o abete</i>	1.1
NEPENTHACEAE		
<i>Nepenthes</i> sp.	<i>o wato-wato ai koworo</i>	1.1
NYCTAGINACEAE		
<i>Boerhavia diffusa</i> L.	<i>o bae-bae</i>	1.1
	<i>o gofosonyinga</i>	1.1
<i>Boerhavia mutabilis</i> R. Br.	<i>o gofosonyinga</i>	1.1
<i>Bougainvillea</i> sp.	<i>o bunga-kartás</i>	1.1
<i>Mirabilis jalapa</i> L.	<i>o guabébe</i>	1.1
<i>Pisonia</i> sp.	<i>o leleko</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
OLEACEAE		
<i>Jasminum sambac</i> Soland	<i>o manúru</i>	1.1
OLEANDRACEAE		
<i>Nephrolepis falcata</i> (Cav.) C. Chr.	<i>o kokabela</i>	1.1
<i>Nephrolepis hirsutula</i> Presl.	<i>o kokabela</i>	1.1
<i>Nephrolepis</i> sp.	<i>o kokabela</i>	1.1
ONAGRACEAE		
<i>Jussiaea suffruticosa</i> L.	<i>o bobobira</i>	1.1
<i>Ludwigia octovalvis</i> (Jacq.) Raven	<i>o bobobira</i>	1.1
OPHIGLOSSACEAE		
<i>Ophioglossum</i> sp.	<i>o hari-harimi</i>	1.1
ORCHIDACEAE		
<i>Acriopsis javanica</i> Reinw.	<i>o tabihahu</i>	1.1
<i>Bulbophyllum</i> sp.	<i>o tarate</i>	1.1
<i>Dendrobium calceolum</i> Roxb.	<i>o tabihahu</i>	1.1
<i>Dendrobium</i> cf. <i>lancifolium</i> A. Rich.	<i>o koyoba ma toimi</i>	1.1
	<i>o uga-ugaka</i>	1.1
<i>Dendrobium</i> sp.	<i>o tabihahu</i>	1.1
	<i>o tarate</i>	1.1
<i>Eulophia javanica</i> J.J.S.	<i>o tarate</i>	1.1
<i>Eulophia squalida</i> Lindl.	<i>o huhu ma dara</i>	1.1
	<i>o tarate</i>	1.1
<i>Luisia</i> sp.	<i>o tutulaka</i>	1.1
<i>Nervilia aragoana</i> Gaud.	<i>o kuho ma gouru</i>	1.1
	<i>o rautengo</i>	1.1
<i>Spathoglottis plicata</i> Bl.	<i>o roma</i>	1.1
OXALIDACEAE		
<i>Biophytum reinwardtii</i> (Zucc.) Klotzsch var.	<i>o gogiooko</i>	1.1
<i>Biophytum sensitivum</i> (L.) DC.	<i>o gogiooko</i>	1.1
PALMAE		
<i>Areca</i> sp.	<i>o mokuru</i>	1.1
<i>Arenga obtusifolia</i> Mart.	<i>o pepetingi</i>	1.1
<i>Arenga pinnata</i> (Wurmb.) Merr.	<i>o daluku</i>	1.1
<i>Calamus</i> sp.	<i>o iwi</i>	1.1
aff. <i>Calamus</i> sp.	<i>o take</i>	1.1
<i>Caryota</i> sp.	<i>o hemu</i>	1.1
<i>Cocos nucifera</i> L.	<i>o igono</i>	1.1
<i>Corypha</i> sp.	<i>o weka</i>	1.1
<i>Hydriastele rostrata?</i> Burret	<i>o hemu</i>	1.1
<i>Licuala</i> sp.	<i>o weka</i>	1.1
<i>Metroxylon</i> sp.	<i>o peda</i>	1.1
<i>Nypa fruticans</i> Wurmb.	<i>o boboro</i>	1.1
<i>Pinanga</i> sp.	<i>o hemu</i>	1.1
uncollected palm	<i>o baru</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
undetermined palm	<i>o diba</i>	1.1
	<i>o dokoto</i>	1.1
	<i>o gulubenge</i>	1.1
	<i>o tajóngo</i>	1.1
PANDANACEAE		
<i>Freycentia</i> sp.	<i>o wange ma dingoto</i>	1.1
<i>Pandanus</i> sp.	<i>o bokumu</i>	1.1
	<i>o buho</i>	1.1
	<i>o kokayiyu</i>	1.1
	<i>o liliama</i>	1.1
	<i>o manarama</i>	1.1
<i>Pandanus amaryllifolius</i> Roxb.	<i>o pudaka</i>	1.1
PASSIFLORACEAE		
<i>Passiflora foetida</i> L.	<i>o bua-putri</i>	1.1
PEPEROMIACEAE		
<i>Peperomia pellucida</i> (L.) H.B.K.	<i>o gare-garehe</i>	1.1
PIPERACEAE		
<i>Piper caninum</i> Bl.	<i>o bidoho</i>	1.1
<i>Piper fragile</i> Benth.	<i>o bidoho</i>	1.1
<i>Piper insignilimbun</i> DC.	<i>o tali</i>	1.1
<i>Piper retrofractum</i> Vahl	<i>o leeléle</i>	1.1
<i>Piper</i> sp.	<i>o bidolika</i>	1.1
PITTOSPORACEAE		
<i>Pittosporum ferrugineum</i> Ait.	<i>o pacikára</i>	1.1
	<i>o roringohana</i>	1.1
<i>Pittosporum moluccanum</i> (Lamk.) Miq.	<i>o pacikára</i>	1.1
POLYPODIACEAE		
<i>Drynaria sparsisora</i> T. Moore	<i>o wama-wama</i>	1.1
<i>Microsorium punctatum</i> Copel.	<i>o totufufungu</i>	1.1
<i>Microsorium</i> sp.	<i>o keketuku</i>	1.1
	<i>o weka-weka</i>	1.1
<i>Pyrosia</i> sp.	<i>o totufufungu</i>	1.1
PTERIDACEAE		
<i>Pteris</i> sp.	<i>o kokabela</i>	1.1
<i>Pteris ensiformis</i> Burm.	<i>o mongóyo</i>	1.1
RANUNCULACEAE		
<i>Clematis</i> sp.	<i>o muroraha</i>	1.1
RHAMNACEAE		
<i>Alphitonia</i> sp.	<i>o habana</i>	1.1
<i>Alphitonia incana</i> (Roxb.) Kurz	<i>o habana</i>	1.1
<i>Colubrina asiatica</i> (L.) Brongn.	<i>o tato ma gohi</i>	1.1
<i>Colubrina</i> cf. <i>beccariana</i>	<i>o mabanoka manga hikata</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Ziziphus angustifolius</i> (Miq.) Hats.	<i>o karianga ma akiri</i>	1.1
RHIZOPHORACEAE		
<i>Bruguiera gymnorrhiza</i> (L.) Lam.	<i>o babanga</i>	1.1
<i>Rhizophora apiculata</i> Bl.	<i>o babanga</i>	1.1
uncollected mangrove tree	<i>o bido-bidoho</i>	1.1
RUBIACEAE		
<i>Borreria laevis</i> (Lam.) Grisb.	<i>o aerani</i>	1.1
<i>Borreria</i> sp.	<i>o huhuteongo</i>	1.1
<i>Canthium</i> sp.	<i>o bangata</i>	1.1
<i>Coffea arabica</i> L. var.	<i>o kofi</i>	1.1
<i>Gardenia</i> cf. <i>pterocalyx</i> Val.	<i>o gota ma amoko</i>	1.1
	<i>o riidi</i>	1.1
<i>Guettarda speciosa</i> L.	<i>o torobúku</i>	1.1
<i>Hedyotis biflora</i> (L.) Lamk.	<i>o koha-koha</i>	1.1
<i>Hydnophytum</i> sp.	<i>o buko-buko</i>	1.1
<i>Ixora</i> sp.	<i>o hayamami</i>	1.1
<i>Morinda bracteata</i> Roxb.	<i>o komene</i>	1.1
<i>Morinda citrifolia</i> L.	<i>o gomo-gomono</i>	1.1
	<i>o komene</i>	1.1
<i>Mussaenda</i> sp.	<i>o moowoete</i>	1.1
<i>Myrmecodia</i> sp.	<i>o buko-buko</i>	1.1
<i>Oldenlandia dichotoma</i> Hook.	<i>o koha-koha</i>	1.1
<i>Ophiorrhiza canescens</i> Bl.	<i>o gie-giete</i>	1.1
<i>Ophiorrhiza</i> cf. <i>neglecta</i> Bl.	<i>o dode ma panga</i>	1.1
<i>Pavetta</i> cf. <i>sylvatica</i> Bl.	<i>o kofi-kofi</i>	1.1
<i>Pavetta</i> sp.	<i>o kofi-kofi</i>	1.1
<i>Plectronia</i> sp.	<i>o bangata</i>	1.1
<i>Psychotria leptothyrsa</i> Miq.	<i>o takupoa</i>	1.1
<i>Psychotria sarmentosa</i> Bl.	<i>o kokobúbu</i>	1.1
<i>Randia oppositifolia</i> Koord	<i>o hamangau</i>	1.1
<i>Timonius rufescens</i> Boerl.	<i>o biniari</i>	1.1
	<i>o keledongo</i>	1.1
<i>Timonius timon</i> (Spreng.) Merr.	<i>o biniari</i>	1.1
<i>Timonius</i> sp.	<i>o kokabela</i>	1.1
RUTACEAE		
<i>Acronychia trifoliata</i> Zoll. & Mor.	<i>o horobiingi</i>	1.1
<i>Citrus</i> sp.	<i>o wama</i>	1.1
<i>Clausena excavata</i> Burm.	<i>o fahihúku</i>	1.1
<i>Clausena harmandiana</i> Pierre ex Guill.	<i>o kokulúbu</i>	1.1
<i>Euodia aromatica</i> Bl.	<i>o ngo bao ami bahuku ma otini</i>	1.1
<i>Euodia latifolia</i> DC.	<i>o totopáya</i>	1.1
<i>Euodia rosea</i> Merr. & Perry	<i>o horobiingi</i>	1.1
<i>Lunasia amara</i> Blanco	<i>o pugu-pugutu</i>	1.1
<i>Luvunga sarmentosa</i> (Bl.) Kurz	<i>o hugerongo</i>	1.1
<i>Micromelum diversifolium</i> Miq.	<i>o meata</i>	1.1
<i>Micromelum</i> sp.	<i>o tioua</i>	1.1
<i>Murraya paniculata</i> (L.) Jack	<i>o wada-wada</i>	1.1
<i>Zanthoxylum avicennae</i> (Lamk.) DC.	<i>o jobirono</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Zanthoxylum</i> sp.	<i>o kate-kate</i>	1.1
SALICACEAE		
<i>Salix tetrasperma</i> Roxb.	<i>o malepuutu</i>	1.1
SAMBUCACEAE		
<i>Sambucus canadensis</i> L.	<i>o jere ma bunga</i>	1.1
SAPINDACEAE		
<i>Aphania senegalensis</i> Radlk.	<i>o bobihingo</i>	1.1
<i>Allophylus cobbe</i> (L.) Raeusch.	<i>o akar-paniki</i>	1.1
	<i>o tabidonga</i>	1.1
<i>Elattostachys zippeliana</i> Radlk.	<i>o fahihuku</i>	1.1
<i>Euphorianthus obtusa</i> Radlk.	<i>o fahihuku</i>	1.1
<i>Harpullia</i> sp.	<i>o kokareboko</i>	1.1
<i>Harpullia arborea</i> Radlk.	<i>o kowehe</i>	1.1
<i>Jaegera</i> sp.	<i>o humu ma boboha</i>	1.1
<i>Lepidopetalum perrottetii</i> Blume	<i>o koledukuru</i>	1.1
<i>Lepisanthes tetraphylla</i> Radlk.	<i>o fahihuku</i>	1.1
<i>Nephelium</i> sp.	<i>o rambutan</i>	1.1
<i>Pometia pinnata</i> J.R. & G. Forst.	<i>o ngaeke</i>	1.1
<i>Pometia tomentosa</i> (Bl.) T. et B.	<i>o hatobu</i>	1.1
SAPOTACEAE		
<i>Palaquium lobbianum</i> Burck.	<i>o tifiriki</i>	1.1
<i>Planchonella linggensis</i> (Burck.) Pierre	<i>o wuhi-wuhi</i>	1.1
undetermined	<i>o luka-lukama</i>	1.1
SCHIZAEACEAE		
<i>Lygodium circinnatum</i> (Burm. f.) Sw.	<i>o mongoyo</i>	1.1
<i>Lygodium</i> sp.	<i>o mongoyo</i>	1.1
SCROPHULARIACEAE		
<i>Lindernia crustacea</i> (L.) F.v.M.	<i>o bae-bae</i>	1.1
<i>Torenia fragrans</i> (Bl.) K. & V.	<i>o hayamami</i>	1.1
SELAGINELLACEAE		
<i>Selaginella willdenowii</i> Baker	<i>o keketuku</i>	1.1
	<i>o keketuku</i>	1.1
<i>Selaginella</i> sp.	<i>o keketuku</i>	1.1
SOLANACEAE		
<i>Capsicum frutescens</i> L.	<i>o rica</i>	1.1
<i>Datura</i> sp.	<i>o kocubo</i>	1.1
	<i>o kokocubo</i>	1.1
<i>Lycopersicum esculentum</i> Mill.	<i>o tamate</i>	1.1
<i>Mathaea</i> sp.	<i>o gorofutu ma houru</i>	1.1
<i>Mathaea</i> sp.	<i>o gumuru ma gohi</i>	1.1
<i>Nicotiana tabacum</i> L.	<i>o tabako</i>	1.1
<i>Physalis</i> sp.	<i>o igo-igono</i>	1.1
<i>Physalis</i> cf. <i>minima</i> L.	<i>o igo-igono</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Solanum melongena</i> L.	<i>o woki-woki</i>	1.1
<i>Solanum torvum</i> Swartz	<i>o huleele</i>	1.1
<i>Solanum verbascifolium</i> L.	<i>o woki-woki</i>	1.1
<i>Solanum</i> sp.	<i>o lantóro</i>	1.1
	<i>o totabako</i>	1.1
SONNERAITIACEAE		
<i>Duabanga moluccana</i> Bl.	<i>o haawaku</i>	1.1
<i>Sonneratia alba</i> J.Smith	<i>o pohi-pohi</i>	1.1
STEMONACEAE		
<i>Stemona curtisii</i> Lour.	<i>o ngabao</i>	1.1
STERCULIACEAE		
<i>Abroma mollis</i> DC.	<i>o jabaoto</i>	1.1
<i>Commersonia bartramia</i> (L.) Merr.	<i>o gihaoro</i>	1.1
<i>Heritiera littoralis</i> Dryand. ex Ait.	<i>o rorúmu</i>	1.1
<i>Kleinhovia hospita</i> L.	<i>o dedoro</i>	1.1
	<i>o kuho ma rio</i>	1.1
<i>Melochia umbellata</i> Stapf	<i>o mututu</i>	1.1
<i>Sterculia rubiginosa</i> Vent.	<i>o bole ma gomu-gomuku</i>	1.1
<i>Sterculia urceolata</i> Sm.	<i>o gohi ma hahawo</i>	1.1
<i>Sterculia</i> sp.?	<i>o hilo</i>	1.1
undetermined	<i>o lifi-lifiti ma dofa</i>	1.1
STILAGINACEAE		
<i>Antidesma celebicum</i> Miq.	<i>o kadateke</i>	1.1
<i>Antidesma</i> sp.	<i>o lalade</i>	1.1
STRYCHNACEAE		
<i>Strychnos axillaris</i> Colebr.	<i>o hooro</i>	1.1
<i>Strychnos colubrina</i> L.	<i>o hooro</i>	1.1
TETRAMELACEAE		
<i>Octomeles sumatranus</i> Miq.	<i>o kuuhu ma didu</i>	1.1
THELYPTERIDACEAE		
<i>Cyclosorus</i> sp.	<i>o gaguru</i>	1.1
<i>Pronephrium</i> sp.	<i>o lage-lage</i>	1.1
<i>Thelypteris</i> sp.	<i>o gaguru</i>	1.1
	<i>o karafe-gumi</i>	1.1
TILIACEAE		
? <i>Grewia</i> sp.	<i>o hugerongo</i>	1.1
<i>Grewia acuminata</i> Juss.	<i>o ngunguningi</i>	1.1
<i>Grewia laevigata</i> Val.	<i>o ngunguningi</i>	1.1
<i>Microcos ceramensis</i> Burret	<i>o ngodoro</i>	1.1
<i>Triumfetta pilosa</i> Roth	<i>o kokomomoko</i>	1.1
<i>Triumfetta rhomboidea</i> Jacq.	<i>o kokomomoko</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
ULMACEAE		
<i>Celtis latifolia</i> (Bl.) Planch.	<i>o hooro</i>	1.1
	<i>o karianga ma akiri</i>	1.1
<i>Celtis philippensis</i> var. <i>wightii</i> Planch.	<i>o hooro</i>	1.1
	<i>o karianga ma akiri</i>	1.1
<i>Trema cannabina</i> Lour.	<i>o ruhu</i>	1.1
	<i>o sosonyinga</i>	1.1
<i>Trema orientalis</i> (L.) Bl.	<i>o ruhu</i>	1.1
<i>Trema tomentosa</i> (Roxb.) Hara	<i>o ruhu</i>	1.1
UMBELLIFERAE		
<i>Trachyspermum roxburghianum</i> (DC.) Craib.	<i>o horowai</i>	1.1
URTICACEAE		
<i>Debregeasia</i> sp.	<i>o gutuhuru</i>	1.1
<i>Elatostema</i> sp.	<i>o hakaru ma bunga</i>	1.1
<i>Leucosyke capitellata</i> (Poir.) Wedd.	<i>o ingiri ma gegéhe</i>	1.1
	<i>o kikiri</i>	1.1
<i>Pipturus argenteus</i> (Forst.) Wedd.	<i>o libirini</i>	1.1
<i>Pouzolzia</i> sp.	<i>o mainjanga ma hilawoto ma ngangaiki</i>	1.1
<i>Sloetia elongata</i> Koord.	<i>o mali-mali</i>	1.1
<i>Villebrunea rubescens</i> (Bl.) Blume	<i>o hinangiri</i>	1.1
VERBENACEAE		
<i>Callicarpa bicolor</i> Juss.	<i>o hoharána</i>	1.1
<i>Clerodendrum</i> sp.	<i>o dodataiti</i>	1.1
	<i>o lobiri</i>	1.1
<i>Clerodendrum inerme</i> (L.) Gaertn.	<i>o bunga-dára</i>	1.1
<i>Lantana camara</i>	<i>o laimusa</i>	1.1
<i>Lantana</i> sp.	<i>o laimusa</i>	1.1
<i>Premna foetida</i> Reinw. ex Blume	<i>o homooko</i>	1.1
<i>Premna odorata</i> Blanco	<i>o homooko</i>	1.1
<i>Premna</i> sp.	<i>o kailáka</i>	1.1
<i>Vitex cofassus</i> Reins. ex Bl.	<i>o gofása</i>	1.1
VITACEAE		
<i>Cayratia</i> sp.	<i>o rotu-rotu</i>	1.1
<i>Cissus nodosa</i> Bl.	<i>o rotu-rotu</i>	1.1
VITTARIACEAE		
<i>Vittaria</i> sp.	<i>o goguhungiri</i>	3.1
ZINGIBERACEAE		
<i>Alpinia nutans</i> (L.) Rosc.	<i>o biworo</i>	1.1
<i>Alpinia</i> sp.	<i>o guluaha</i>	1.1
	<i>o ngangangoro</i>	1.1
<i>Curcuma longa</i> L.	<i>o gurati</i>	1.1
<i>Hornstedtia</i> sp.	<i>o goobe</i>	1.1
<i>Kaempferia</i> sp.	<i>o momongere</i>	1.1
<i>Languas galanga</i> (L.) Stuntz.	<i>o guluaha</i>	1.1
<i>Riedelia</i> sp.	<i>o forofiaha</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
<i>Zingiber cassumunar</i> Roxb.	<i>o bangilée</i>	1.1
<i>Zingiber officinale</i> Roxb.	<i>o gihóro</i>	1.1
<i>Zingiber</i> sp.	<i>o titlbi</i>	1.1
undetermined	<i>o fuusu</i>	1.1
	<i>o gogitifiri</i>	1.1
	<i>o momorútu</i>	1.1
Family undetermined		
	<i>o badaewa</i>	1.1
	<i>o bafasa</i>	1.1
	<i>o balakama</i>	1.1
	<i>o beka</i>	1.1
	<i>o behelo</i>	1.1
	<i>o biorongo</i>	1.1
	<i>o bira-bira</i>	1.1
	<i>o bonata ma unafa</i>	1.1
	<i>o bongo-bongo</i>	1.1
	<i>o bori</i>	1.1
	<i>o bukuwini</i>	1.1
	<i>o bunga jam duablas</i>	1.1
	<i>o bunga jam sembilan</i>	1.1
	<i>o bunga-konóp</i>	1.1
	<i>o bunga penesilín</i>	1.1
	<i>o deri-derihi</i>	1.1
	<i>o dilago-bunga</i>	1.1
	<i>o dobe-dobele</i>	1.1
	<i>o dugáya ma iyoko</i>	1.1
	<i>o gaapaho</i>	1.1
	<i>o gagawi</i>	1.1
	<i>o gahi-gahi</i>	1.1
	<i>o gamuráma</i>	1.1
	<i>o gapáha</i>	1.1
	<i>o gawi</i>	1.1
	<i>o giwa-giwanga</i>	1.1
	<i>o gobu-gobu</i>	1.1
	<i>o gobu-gobu ma gohi</i>	1.1
	<i>o goruo ma mirimi</i>	1.1
	<i>o gotimono</i>	1.1
	<i>o guluiokara</i>	1.1
	<i>o haláka</i>	1.1
	<i>o hide-hidete</i>	1.1
	<i>o hohaláka</i>	1.1
	<i>o hohodoa</i>	1.1
	<i>o hokaregi</i>	1.1
	<i>o horofiasa</i>	1.1
	<i>o hulahi ma dowa</i>	1.1
	<i>o hurudai</i>	1.1
	<i>o huru-hurutu</i>	1.1
	<i>o imara</i>	1.1
	<i>o jolibóbo</i>	1.1

Family Species	Tobelo B ⁰ term	Appendix no.
	<i>o kaba-kaba</i>	1.1
	<i>o kaca-kacanga</i>	1.1
	<i>o kahobikini</i>	1.1
	<i>o kakakara</i>	1.1
	<i>o kakanoko</i>	1.1
	<i>o karianga ma hoata</i>	1.1
	<i>o kastroli</i>	1.1
	<i>o katok</i>	1.1
	<i>o kiahu</i>	1.1
	<i>o kobo-kobongo</i>	1.1
	<i>o korehára ma gumini</i>	1.1
	<i>o koyoba ma gihoro</i>	1.1
	<i>o kugete</i>	1.1
	<i>o kuhawiri</i>	1.1
	<i>o lele</i>	1.1
	<i>o lifofoko</i>	1.1
	<i>o lobo-loboro</i>	1.1
	<i>o meleu ma gitifiri</i>	1.1
	<i>o ngahiri</i>	1.1
	<i>o ngasáfa</i>	1.1
	<i>o ngeceda</i>	1.1
	<i>o ngohaka manga buku ma didino</i>	1.1
	<i>o nguroto ma doa</i>	1.1
	<i>o ogama</i>	3.1
	<i>o okiri</i>	1.1
	<i>o paate</i>	1.1
	<i>o paiyongihi</i>	1.1
	<i>o peda ma ora</i>	1.1
	<i>o petele</i>	1.1
	<i>o poko-pokoro</i>	1.1
	<i>o puhelingi</i>	1.1
	<i>o rabánga</i>	1.1
	<i>o riwoto</i>	1.1
	<i>o sayur-cina</i>	1.1
	<i>o tabidonga</i>	1.1
	<i>o tadauru ma houru</i>	1.1
	<i>o taehe ma futu</i>	1.1
	<i>o tatama</i>	1.1
	<i>o teleme ma ngongopuru</i>	1.1
	<i>o tiba ma mehanga</i>	1.1
	<i>o timilongo</i>	1.1
	<i>o totufufungu ma dofa</i>	1.1
	<i>o tuuru ma diaoto</i>	1.1
	<i>o uungu</i>	1.1
	<i>o wange ma duga</i>	1.1
	<i>o yuyu</i>	1.1
Algae, undetermined	<i>o lulumiti</i>	3.2
Fungi, undetermined	<i>o gauku</i>	3.2
	<i>o nagi-nagimi</i>	3.2
	<i>o ngongawate</i>	3.2

Family Species	Tobelo B ⁰ term	Appendix no.
	<i>o ngunungu</i>	3.2
	<i>o rai</i>	3.2
	<i>o tegele</i>	3.2

SYNONOMIES

- o babanga: *Rhizophora apiculata* Bl. = *Bruguiera gymnorrhiza* (L.) Lam.
o bahi-bahi: *Dendrophthoe pentandra* (L.) Bl. = *Loranthus pentandrus* L.
o bangata: *Plectronia* sp. = *Canthium*
o biáwa: *Thalia canniformis* G. Forst. = *Donax canniformis* (G. Forst.) K. Schum.
o bunga-bayam: *Celosia cristata* L. = *Celosia argentea* L.
o cinga-cinga: *Wollastonia biflora* (L.) DC. = *Wedelia biflora* (L.) DC.
o forofiaha: *Riedelia* sp. = *Lantana*
o gilitopa: *Scaevola taccada* (Gaerth.) Roxb. = *Scaevola sericea* Vahl
o gofosonyinga: *Boerhavia diffusa* L. = *Boerhavia mutabilis* R. Br.
o hahahini: *Dracena angustifolia* Roxb. = *Pleomele angustifolia* (Roxb.) N.E. Brown
o hale ma ngutuku: *Oxymitra* sp. = *Friesodielsia* sp.
o hararoko: *Oxymitra* sp. = *Friesodielsia* sp.
o hinangiri: *Villebrunea scabra* = *V. rubescens* (Bl.) Bl.
o homooko o ngairiha: *Premna pubescens* Blume = *P. odorata* Blanco
o hulahi: *Ocimum sanctum* L. = *O. tenuiflorum* L.
o ingiri ma gegehe: *Leucosyke alba* Wedd. = *L. capitellata* (Poir.) Wedd.
o kabingi ma gouru: *Homalomena aromatica* Schott. = *H. cordata* Schott
o kacanga: *Dolichos lablab* L. = *Lablab purpureus* (L.) Sweet
o kamo-kamoro: *Eragrostis plumosa* Link = *E. tenella* (L.) Beauv. ex R. & S.
o kapongo ma rurúbu: *Croton hirsutus* L'Herit. = *C. glandulosus* L. var. *hiata*
o koha-koha: *Oldenlandia biflora* L. = *Hedyotis biflora* (L.) Lam.
o kokailupa ma nauru: *Eclipta alba* (L.) Hassk. = *E. prostrata* (L.) L.
o kokuanyi: *Eleutheranthera ovata* Poit. et Steud. = *E. ruderalis* (Sw.) Sch.-Bip.
o komene ma nauru: *Morinda bracteata* Roxb. = *M. citrifolia* L.
o kucai: *Allium tuberosum* Roxb. = *A. odoratum* L.
o kuho ma gouru: *Nervilia aragoana* Gaud. = *N. flabelliformis* L.
o lolapaka: *Dischidia collyris* Wall. = *D. imbricata* (Bl.) Steud.

Appendix 5

Systematic List of Zoological Taxa, with Index to Tobelo Basic (B⁰) Classes

Taxon	Tobelo B ⁰ term	Appendix no.
PORIFERA		
‘except barrel sponges’	<i>o pahi</i>	3.2
‘barrel sponges’	<i>o tali ma kiarono</i>	2.5
SCHYPHOZOA		
‘jellyfish, medusa’	<i>o tataulu</i>	2.5
ANTHOZOA		
‘sea anemone’	<i>o gaeru</i>	2.5
‘sea anemones on pragurid-inhabited gastropod shells’	<i>o boro-boroho</i>	2.4
‘coral’	<i>o pahi</i>	3.2
Antipatharia	<i>o kalibaharu</i>	3.1
TREMATODA		
	<i>o gaili</i>	2.5
NEMATODA		
	<i>o gaili</i>	2.5
POLYCHAETA		
‘palolo worm’	<i>o wawoko</i>	2.5
Undetermined Polychaeta	<i>o ai-aili</i>	2.5
OLIGOCHAETA		
	<i>o kulubati</i>	2.5
HIRUDINEA		
	<i>o gofoa</i>	2.5
MOLLUSCA		
Chitonidae		
spp. undet.	<i>o totawáa</i>	2.4
Marine Prosobranchia		
spp. undet.	<i>o aruho</i>	2.4
	<i>o bekere</i>	2.4
	<i>o boki ma gule</i>	2.4
	<i>o daro-daro</i>	2.4
	<i>o dodiha ma gogerena</i>	2.4
	<i>o gogihóro</i>	2.4
	<i>o hege ma gilaongo</i>	2.4
	<i>o lakotaromo</i>	2.4
	<i>o lilingi</i>	2.4

Taxon	Tobelo B ⁰ term	Appendix no.
	<i>o makilihi</i>	2.4
	<i>o nikere</i>	2.4
	<i>o uru-bututu</i>	2.4
Freshwater Prosobranchia		
spp. undet.	<i>o kutu-kuturu</i>	2.4
	<i>o mede-mede</i>	2.4
Land Prosobranchia		
spp. undet.	<i>o humani</i>	2.4
	<i>o paoto</i>	2.4
Conidae		
spp. undet.	<i>o bobili</i>	2.4
	<i>o mulaha ma bianga</i>	2.4
Epitoniidae		
spp. undet.	<i>o tolu-tolumu</i>	2.4
Trochidae		
spp. undet.	<i>o hege</i>	2.4
	<i>o korehára ma tatadaka</i>	2.4
Tonnidae		
spp. undet.	<i>o mulo</i>	2.4
Littorinidae		
spp. undet.	<i>o lobi-lobi</i>	2.4
Neritidae		
spp. undet.	<i>o difa-difa</i>	2.4
	<i>o dirihi</i>	2.4
	<i>o doro-doro</i>	2.4
Crepidulidae		
spp. undet.	<i>o kahorihiki</i>	2.4
Cypraeidae		
spp. undet.	<i>o lolo</i>	2.4
Ovulidae		
spp. undet.	<i>o bekere</i>	2.4
Strombidae		
spp. undet.	<i>o longkoi</i>	2.4
Nudibranchia 'sea slug'	<i>o ake-akeme</i>	2.5
Terrestrial pulmonates		
Stylommatophora 'terr. slugs'	<i>o ake-akeme</i>	2.5
Isognomonidae		
spp. undet.	<i>o baa-baana</i>	2.4
	<i>o kekewoko</i>	2.4
	<i>o pea-pea</i>	2.4
Neritidae		
spp. undet.	<i>o popogane</i>	2.4
Arcidae		
spp. undet.	<i>o gogotoaka</i>	2.4
Mytilidae		
spp. undet.	<i>o taehe ma gitifiri</i>	2.4
Pinnidae		
<i>Pinna</i> spp.	<i>o talupihi</i>	2.4
Pectinidae		
spp. undet.	<i>o firi-firi</i>	2.4
Corbiculidae		

Taxon	Tobelo B ⁰ term	Appendix no.
spp. undet.	<i>o koli</i>	2.4
Tridacnidae		
spp. undet.	<i>o bia-garo</i>	2.4
Marine bivalves		
spp. undet.	<i>o bahu-bahuku</i>	2.4
	<i>o bia-cina</i>	2.4
	<i>o bia-cina ma dofa</i>	2.4
	<i>o bobongono</i>	2.4
	<i>o bukuhiri</i>	2.4
	<i>o caparete</i>	2.4
	<i>o caparuku</i>	2.4
	<i>o ciciru</i>	2.4
	<i>o feene ma hoata</i>	2.4
	<i>o gagiene</i>	2.4
	<i>o gogiliki</i>	2.4
	<i>o guewa</i>	2.4
	<i>o haoha</i>	2.4
	<i>o hihiri ma ngi</i>	2.4
	<i>o hohaijawi</i>	2.4
	<i>o jojongo</i>	2.4
	<i>o kokaábo</i>	2.4
	<i>o kokori</i>	2.4
	<i>o mailófo</i>	2.4
	<i>o nagi-nagimi</i>	2.4
	<i>o ofele</i>	2.4
	<i>o oha-oha</i>	2.4
	<i>o tataapa</i>	2.4
Gastropoda or Pelecypoda		
spp. undet.	<i>o bia-haki</i>	2.4
	<i>o laji-laji</i>	2.4
	<i>o papaco</i>	2.4
	<i>o bulanga</i>	2.4
Cephalopoda		
Decapoda	<i>o nuhu-nuhu</i>	2.5
Octopoda	<i>o tali</i>	2.5
ARTHROPODA		
Arachnida		
'spider (except wolf spiders and Salticidae)'	<i>o arára</i>	2.5
Salticidae	<i>o gufuru ma dadagoko</i>	2.5
Lycosidae		
'wolf spiders'	<i>o oanga</i>	2.5
Acarina		
Ixodidae	<i>o gani</i>	2.5
Trombiculidae	<i>o gumemene</i>	2.5
CRUSTACEA		
Malacostraca		
Stomatopoda	<i>o pidiloongo</i>	2.5
Decapoda		
'shrimp, lobster'	<i>o dode</i>	2.5
'lobster' spp. undet.	<i>o hoowene</i>	2.5

Taxon	Tobelo B ⁰ term	Appendix no.
'crab'	<i>o koru</i>	2.5
<i>Birgus</i> sp.	<i>o putati</i>	2.5
Praguridae	<i>o wungama</i>	2.5
INSECTA		
'tiny insects or arachnids such as mites and chiggers which cause itchiness of the skin'	<i>o gumemene</i>	2.5
Odonata		
'Dragonfly'	<i>o gaawuhi</i>	2.5
Orthoptera		
Blattidae	<i>o goguhu</i>	2.5
'(some) grasshoppers'	<i>o kaahóho</i>	2.5
'large grasshopper'	<i>o longu-longu</i>	2.5
Mantidae	<i>o peo-peoto</i>	2.5
Phasmatidae	<i>o peo-peoto</i>	2.5
Undetermined Orthoptera	<i>o kaahóho</i>	2.5
Isopoda		
'termite'	<i>o butéteke</i>	2.5
Mallophaga		
	<i>o gani</i>	2.5
Anoplura		
	<i>o gani</i>	2.5
Hemiptera		
Corixidae	<i>o fee-feene</i>	2.5
Nepidae	<i>o gogomoma</i>	2.5
Undetermined Hemiptera	<i>o busu-busu</i>	2.5
	<i>o dangánga</i>	2.5
Homoptera		
Cicadidae	<i>o gorehe</i>	2.5
Coleoptera		
'Weevil'	<i>o habeta ma ayo</i>	2.5
weevil larvae	<i>o habeta</i>	2.5
Curculionidae	<i>o habeta ma ayo</i>	2.5
Elateridae	<i>o dobi-dobiki</i>	2.5
Undetermined Coleoptera	<i>o guru</i>	2.5
	<i>o kabi-kabingi</i>	2.5
	<i>o muru-murutu</i>	2.5
	<i>o tii-tiihi</i>	2.5
Lepidoptera		
'larvae and similar larval forms'	<i>o pipiti</i>	2.5
'Adult butterfly or moth'	<i>o lulule</i>	2.5
Diptera		
Diptera larvae	<i>o gaili</i>	2.5
Sarcophagidae	<i>o gilidanga</i>	2.5
Muscidae	<i>o guhuru</i>	2.5
Ceratopogonidae (esp. <i>Culicoides</i> spp.)	<i>o lefaiiti</i>	2.5
Culicidae	<i>o gomoma</i>	2.5
Hymenoptera		
Formicidae	<i>o iuru</i>	2.5
<i>Oecophylla smaragdina</i>	<i>o kane-kane</i>	2.5
Vespidae		
spp. undetermined	<i>o nipa-nipa</i>	2.5

Taxon	Tobelo B ⁰ term	Appendix no.
Undetermined Hymenoptera	<i>o ofungu</i>	2.5
Siphonaptera	<i>o bum-búm</i>	2.5
Uncollected—Insecta?	<i>o gani</i>	2.5
	<i>o aoro</i>	2.5
	<i>o gogoapa</i>	2.5
	<i>o kote-kote</i>	2.5
	<i>o loliowaha</i>	2.5
	<i>o moloiru</i>	2.5
	<i>o ngami-ngamiri</i>	2.5
	<i>o totófo</i>	2.5
DIPLOPODA		
	<i>o lefere</i>	2.5
	<i>o mímiri</i>	2.5
CHILOPODA		
	<i>o aili</i>	2.5
	<i>o biláma</i>	2.5
BRYOZOA		
	<i>o lulumiti</i>	3.2
ASTEROIDEA (part)		
	<i>o hilo ma totodenge</i>	2.5
	<i>o mumuru</i>	2.5
'crown of thorns starfish'	<i>o tali-tali</i>	2.5
OPHIUROIDEA		
	<i>o hilo ma totodenge</i>	2.5
ECHINOIDEA		
	<i>o mumuru</i>	2.5
HOLOTHUROIDEA		
	<i>o taripanga</i>	2.5
	<i>o tauja</i>	2.5
PISCES		
'ray fish' ? (uncollected; ?Dasyatidae)	<i>o golemaka</i>	2.3
'ray fish' ? (uncollected; ?Dasyatidae)	<i>o paapaáka</i>	2.3
Rhincodontidae		
<i>Rhincodon typus</i>	<i>o garangoto</i>	2.3
Orectolobidae		
sp. undet.	<i>o garangoto</i>	2.3
Carcharhinidae		
spp. undet.	<i>o garangoto</i>	2.3
Sphyrnidae		
spp. undet.	<i>o garangoto</i>	2.3
Pristiophoridae		
'sawfish'? (uncollected)	<i>o garangoto</i>	2.3

Taxon	Tobelo B ⁰ term	Appendix no.
Dasyatidae		
<i>Dasyatis kuhlii</i>	<i>o noara</i>	2.3
<i>Himantura uarnak</i>	<i>o noara</i>	2.3
<i>Taeniura lymma</i>	<i>o noara</i>	2.3
sp. undet.	<i>o noara</i>	2.3
Mobulidae		
<i>Manta birostris</i>	<i>o noara</i>	2.3
Anguillidae		
sp. undet.	<i>o boboro ma diaoto</i>	2.3
spp. undet.	<i>o goyoko</i>	2.3
Moringuidae		
sp. undet.	<i>o bai-baiti</i>	2.3
spp. undet.	<i>o boboro ma diaoto</i>	2.3
Muraenidae		
spp. undet.	<i>o ado</i>	2.3
Ophichthidae		
spp. undet.	<i>o boboro ma diato</i>	2.3
Clupeidae		
sp. undet.	<i>o haradina</i>	2.3
spp. undet.	<i>o makehe</i>	2.3
spp. undet.	<i>o ngafi</i>	2.3
<i>Anodontostoma chacunda</i>	<i>o sumasi</i>	2.3
<i>Anodontostoma chacunda</i>	<i>o tuta</i>	2.3
<i>Nematalosa come</i>	<i>o tuta</i>	2.3
Chirocentridae		
spp. undet.	<i>o mei</i>	2.3
Engraulidae		
<i>Thryssa baelama</i>	<i>o hakaru ma timi</i>	2.3
sp. undet.	<i>o laaba</i>	2.3
Plotosidae		
sp. undet.	<i>o kaibo</i>	2.3
Synodontidae		
sp. undet.	<i>o bai-baiti</i>	2.3
spp. undet.	<i>o ragu-ragumu</i>	2.3
Antennariidae		
sp. undet.	<i>o capadéke</i>	2.3
Exocoetidae		
sp. undet.	<i>o toni</i>	2.3
Hemirhamphidae		
<i>Hemirhamphus far</i>	<i>o gogóbo</i>	2.3
<i>Hemirhamphus lutkei</i>	<i>o ngowaro</i>	2.3
<i>Hyporhamphus quoyi</i>	<i>o duimi</i>	2.3
<i>Zenarhopterus gilli</i>	<i>o dobibono</i>	2.3
Belonidae		
<i>Strongylura incisa</i>	<i>o hilowana</i>	2.3
<i>Tylosurus acus melanotus</i>	<i>o hilowana</i>	2.3
<i>Tylosurus crocodilus crocodilus</i>	<i>o hilowana</i>	2.3
spp. undet.	<i>o hilowana</i>	2.3
Atherinidae		
<i>Atherinomorus cylindricus</i>	<i>o koouno</i>	2.3
<i>Atherinomorus duodecimalis</i>	<i>o koouno</i>	2.3
<i>Atherinomorus endrachtensis</i>	<i>o koouno</i>	2.3

Taxon	Tobelo B ⁰ term	Appendix no.
<i>Atherinomorus lacunosus</i>	<i>o gumi-gumi</i>	2.3
<i>Atherion elymus</i>	<i>o koouno</i>	2.3
Holocentridae		
spp. undet.	<i>o kuluri</i>	2.3
spp. undet.	<i>o kuluri</i>	2.3
Fistulariidae		
sp. undet.	<i>o tambúru</i>	2.3
Centriscidae		
sp. undet.	<i>o gaka-gakana</i>	2.3
spp. undet.	<i>o ogama ma nawoko</i>	2.3
Sygnathidae		
<i>Choeroichthys brachysoma</i>	<i>o gohomanga ma hilawoto ma hahakara</i>	2.3
<i>Choeroichthys haematopterus</i>	<i>o gohomanga ma hilawoto ma hahakara</i>	2.3
<i>Sygnathoides biaculeatus</i>	<i>o gohomanga ma hilawoto ma hahakara</i>	2.3
<i>Sygnathoides biaculeatus</i>	<i>o hohodono</i>	2.3
spp. undet.	<i>o gohomanga ma hilawoto ma hahakara</i>	2.3
Scorpaenidae		
spp. undet.	<i>o noofu</i>	2.3
Synancejidae		
sp. undet.	<i>o noofu</i>	2.3
Platycephalidae		
<i>Platycephalus indicus</i>	<i>o hama-hama</i>	2.3
Echeneididae		
<i>Echeneis naucrates</i>	<i>o gigo</i>	2.3
<i>Remora remora</i>	<i>o gigo</i>	2.3
Ambassidae		
<i>Ambassis</i> sp.	<i>o gutu-gete</i>	2.3
spp. undet.	<i>o gutu-gete</i>	2.3
Teraponidae		
<i>Mesopristes cancellatus</i>	<i>o gorogoto</i>	2.3
<i>Terapon</i> spp.	<i>o ogama ma nawoko</i>	2.3
spp. undet.	<i>o golila</i>	2.3
Serranidae		
sp. undet.	<i>o babanga ma kai</i>	2.3
sp. undet.	<i>o beene</i>	2.3
spp. undet.	<i>o hamu</i>	2.3
sp. undet.	<i>o lodi</i>	2.3
sp. undet.	<i>o roi</i>	2.3
Apogonidae		
sp. undet.	<i>o gutu-gete</i>	2.3
spp. undet.	<i>o mumuru ma nawoko</i>	2.3
spp. undet.	<i>o telembaca</i>	2.3
Sillaginidae		
<i>Sillago sihama</i>	<i>o babooyo</i>	2.3
Lactariidae		
sp. undet.	<i>o liguha</i>	2.3
Rachycentridae		
sp. undet.	<i>o gao</i>	2.3
Carangidae		
<i>Alepes vari</i>	<i>o cioongo</i>	2.3
<i>Caranx sexfasciatus</i>	<i>o hohomare</i>	2.3
<i>Elagatis bipinnulata</i>	<i>o suru</i>	2.3

Taxon	Tobelo B ⁰ term	Appendix no.
<i>Megalaspis cordyla</i>	<i>o torouro</i>	2.3
<i>Scomberoides commersonianus</i>	<i>o pegé</i>	2.3
<i>Selar boops</i>	<i>o oci</i>	2.3
<i>Selaroides leptolepis</i>	<i>o noru</i>	2.3
<i>Ulua mentalis</i>	<i>o nunukono</i>	2.3
<i>Ulua</i> sp.	<i>o nunukono</i>	2.3
spp. undet.	<i>o bobára</i>	2.3
spp. undet.	<i>o cioongo</i>	2.3
spp. undet.	<i>o gogolebo</i>	2.3
sp. undet.	<i>o hibiháwa</i>	2.3
sp. undet.	<i>o hohomare</i>	2.3
spp. undet.	<i>o lakofúku</i>	2.3
sp. undet.	<i>o lalanga</i>	2.3
spp. undet.	<i>o mofi</i>	2.3
sp. undet.	<i>o oci</i>	2.3
sp. undet.	<i>o pegé</i>	2.3
spp. undet.	<i>o tataulu ma nawoko</i>	2.3
sp. undet.	<i>o torouro</i>	2.3
spp. undet.	<i>o tudele</i>	2.3
Leiognathidae		
spp. undet.	<i>o tatameri</i>	2.3
Lutjanidae		
sp. undet.	<i>o bonata</i>	2.3
spp. undet.	<i>o cooro</i>	2.3
spp. undet.	<i>o dolohi</i>	2.3
sp. undet.	<i>o gaca</i>	2.3
sp. undet.	<i>o gega</i>	2.3
sp. undet.	<i>o goga</i>	2.3
spp. undet.	<i>o litaimi</i>	2.3
sp. undet.	<i>o litau-dolosi</i>	2.3
spp. undet.	<i>o lou-lou</i>	2.3
Lobotidae		
sp. undet.	<i>o hanogaya</i>	2.3
Gerreidae		
sp. undet.	<i>o gutu-gete</i>	2.3
sp. undet.	<i>o janga-janga</i>	2.3
Haemulidae		
<i>Diagramma pictum</i>	<i>o rajabau</i>	2.3
<i>Plectorhynchus indicus</i>	<i>o hakaru ma timi</i>	2.3
<i>Pomadasys argenteus</i>	<i>o roi</i>	2.3
sp. undet.	<i>o fajabau</i>	2.3
spp. undet.	<i>o hakaru ma timi</i>	2.3
spp. undet.	<i>o roi</i>	2.3
Lethrinidae		
sp. undet.	<i>o botila</i>	2.3
sp. undet.	<i>o hikuda</i>	2.3
Nemipteridae		
<i>Nemipterus hexodon</i>	<i>o lakoria</i>	2.3
<i>Pentapodus trivittatus</i>	<i>o maa-maana</i>	2.3
<i>Scolopsis ciliatus</i>	<i>o gehedemo</i>	2.3
<i>Scolopsis margaritifera</i>	<i>o lakopeda</i>	2.3
<i>Scolopsis temporalis</i>	<i>o kulála</i>	2.3

Taxon	Tobelo B ⁰ term	Appendix no.
sp. undet.	<i>o lakopeda</i>	2.3
spp. undet.	<i>o lakoria</i>	2.3
sp. undet.	<i>o gehedemo</i>	2.3
Mullidae		
<i>Pseudopeneus</i> sp.	<i>o gumi-gumi</i>	2.3
<i>Upeneus</i> sp.	<i>o gumi-gumi</i>	2.3
spp. undet.	<i>o gumi-gumi</i>	2.3
Monodactylidae		
sp. undet.	<i>o harimi ma beleti</i>	2.3
Pempheridae		
<i>Pempheris vanicolensis</i>	<i>o harimi ma beleti</i>	2.3
sp. undet.	<i>o harimi ma beleti</i>	2.3
Toxotidae		
<i>Toxotes chatareus</i>	<i>o dadaboa</i>	2.3
Kyphosidae		
spp. undet.	<i>o ila</i>	2.3
Ephippidae		
spp. undet.	<i>o mudao</i>	2.3
Drepanidae		
sp. undet.	<i>o balawai</i>	2.3
Scatophagidae		
<i>Scatophagus argus</i>	<i>o baru ma hoka</i>	2.3
sp. undet.	<i>o wawaru</i>	2.3
Chaetodontidae		
sp. undet.	<i>o gogotána</i>	2.3
sp. undet.	<i>o kolibóbo</i>	2.3
spp. undet.	<i>o lulule</i>	2.3
spp. undet.	<i>o totabako</i>	2.3
Pomacentridae		
<i>Abudefduf lorentzi</i>	<i>o makehe</i>	2.3
<i>Abudefduf saxatilis</i>	<i>o dadiaanga</i>	2.3
<i>Abudefduf</i> sp.	<i>o dadiaanga</i>	2.3
<i>Abudefduf</i> spp.	<i>o wogo-wogono</i>	2.3
<i>Amphiprion ocellaris</i>	<i>o gaeru ma nawoko</i>	2.3
<i>Amphiprion polymnus</i>	<i>o gaeru ma nawoko</i>	2.3
<i>Amphiprion</i> sp.	<i>o gaeru ma nawoko</i>	2.3
<i>Amphiprion</i> sp.	<i>o melumu</i>	2.3
<i>Dascyllus aruanus</i>	<i>o dadiaanga</i>	2.3
<i>Dascyllus trimaculatus</i>	<i>o kolibóbo</i>	2.3
<i>Dischistodus</i> spp.	<i>o wogo-wogono</i>	2.3
<i>Eupomacentrus</i> spp.	<i>o wogo-wogono</i>	2.3
<i>Glyphidodontops</i> sp.	<i>o kuluri</i>	2.3
<i>Neopomacentrus</i> sp.	<i>o ado</i>	2.3
<i>Neopomacentrus</i> sp.	<i>o kuluri</i>	2.3
<i>Neopomacentrus</i> sp.	<i>o ngomu</i>	2.3
<i>Neopomacentrus</i> spp.	<i>o wogo-wogono</i>	2.3
<i>Paraglyphidodon</i> spp.	<i>o wogo-wogono</i>	2.3
<i>Pomacentrus</i> sp.	<i>o kokucubili</i>	2.3
<i>Pomacentrus</i> sp.	<i>o ngomu</i>	2.3
<i>Pomacentrus</i> spp.	<i>o wogo-wogono</i>	2.3
spp. undet.	<i>o gumúru</i>	2.3

Taxon	Tobelo B ⁰ term	Appendix no.
Mugilidae		
spp. undet.	<i>o goruo</i>	2.3
Sphyraenidae		
<i>Sphyraena forsteri</i>	<i>o suo</i>	2.3
spp. undet.	<i>o suo</i>	2.3
sp. undet.	<i>o tuta</i>	2.3
Labridae		
spp. undet.	<i>o bole-bole</i>	2.3
sp. undet.	<i>o kokucubili</i>	2.3
sp. undet.	<i>o mako-makoro</i>	2.3
sp. undet.	<i>o mamini</i>	2.3
spp. undet.	<i>o melumu</i>	2.3
sp. undet.	<i>o melumu ma dofa</i>	2.3
sp. undet.	<i>o telembaca</i>	2.3
Scaridae		
sp. undet.	<i>o ado</i>	2.3
sp. undet.	<i>o melumu</i>	2.3
Blenniidae		
<i>Istiblennius</i> sp.	<i>o kulála</i>	2.3
<i>Istiblennius</i> spp.	<i>o totaope</i>	2.3
sp. undet.	<i>o totaope</i>	2.3
Rhyacichthyidae		
sp. undet.	<i>o abáa</i>	2.3
Eleotrididae		
<i>Belobranchus belobranca</i>	<i>o bai-baiti</i>	2.3
<i>Belobranchus belebranca</i>	<i>o bega</i>	2.3
<i>Bostrychus sinensis</i>	<i>o dungiri</i>	2.3
	<i>o hohodono</i>	2.3
<i>Butis amboinensis</i>	<i>o bega</i>	2.3
<i>Butis butis</i>	<i>o bega</i>	2.3
<i>Butis</i> sp.	<i>o dungiri</i>	2.3
<i>Eleotris</i> cf. <i>melanosoma</i>	<i>o bega</i>	2.3
	<i>o dungiri</i>	2.3
<i>Hypseleotris</i> sp.	<i>o dungiri</i>	2.3
<i>Ophiocara aporos</i>	<i>o dungiri</i>	2.3
<i>Ophiocara porocephala</i>	<i>o bega</i>	2.3
	<i>o dungiri</i>	2.3
sp. undet.	<i>o bai-baiti</i>	2.3
sp. undet.	<i>o beene</i>	2.3
Periophthalmidae		
<i>Periophthalmodon schlosseri</i>	<i>o popayaama</i>	2.3
<i>Periophthalmodon</i> sp.	<i>o popayaama</i>	2.3
spp. undet.	<i>o popayaama</i>	2.3
Gobiidae		
<i>Bathygobius</i> sp.	<i>o bega</i>	2.3
<i>Callogobius maculipinnis</i>	<i>o kuluri</i>	2.3
<i>Callogobius</i> cf. <i>okinawae</i>	<i>o totaope</i>	2.3
<i>Callogobius producta</i>	<i>o bega</i>	2.3
<i>Cryptocentrus</i> cf. <i>strigilliceps</i>	<i>o totaope</i>	2.3
<i>Cryptocentrus</i> sp.	<i>o kulála</i>	2.3
<i>Exyrias</i> sp.	<i>o bai-baiti</i>	2.3
<i>Globiibius giurus</i>	<i>o hohodono</i>	2.3

Taxon	Tobelo B ⁰ term	Appendix no.
<i>Glossogobius giurius</i>	<i>o dungiri</i>	2.3
<i>Istigobius ornatus</i>	<i>o bai-baiti</i>	2.3
<i>Istigobius ornatus</i>	<i>o totaope</i>	2.3
<i>Stigmatobius</i> sp.	<i>o bega</i>	2.3
<i>Stomatogobius</i> sp.	<i>o dungiri</i>	2.3
<i>Valenciennea</i> cf. <i>v. longipinnis</i>	<i>o bai-baiti</i>	2.3
<i>Zonogobius oliatus</i>	<i>o kuluri</i>	2.3
sp. undet.	<i>o bai-baiti</i>	2.3
sp. undet.	<i>o beene</i>	2.3
sp. undet.	<i>o biwo ma ayo</i>	2.3
sp. undet.	<i>o hohodono</i>	2.3
sp. undet.	<i>o nikere</i>	2.3
spp. undet.	<i>o totaope</i>	2.3
Acanthuridae		
sp. undet.	<i>o bobára</i>	2.3
sp. undet.	<i>o gopunu</i>	2.3
Siganidae		
sp. undet.	<i>o biha-biha</i>	2.3
Trichiuridae		
<i>Trichiurus lepturus</i>	<i>o ugaka ma hoka</i>	2.3
Scombridae		
<i>Rastrellinger kanagurta</i>	<i>o huaono</i>	2.3
<i>Scombermorus commerson</i>	<i>o turuhi</i>	2.3
sp. undet.	<i>o deo</i>	2.3
sp. undet.	<i>o huaono</i>	2.3
Xiphiidae		
'very large swordfish' (observed)	<i>o yaru</i>	2.3
Istiophoridae		
'very large sailfish' (observed)	<i>o yaru</i>	2.3
'very large marlins' (observed)	<i>o yaru</i>	2.3
Stromateidae		
sp. undet.	<i>o bobára</i>	2.3
Psettodidae		
spp. undet.	<i>o nawoko ma hononga</i>	2.3
Bothidae		
spp. undet.	<i>o nawoko ma hononga</i>	2.3
Pleuronectidae		
spp. undet.	<i>o nawoko ma hononga</i>	2.3
Cynoglossidae		
sp. undet.	<i>o hohononga</i>	2.3
spp. undet.	<i>o nawoko ma hononga</i>	2.3
Soleidae		
sp. undet.	<i>o hohononga</i>	2.3
Tetraodontidae		
<i>Arothron aerostaticus</i>	<i>o dudéke</i>	2.3
spp. undet. ('puffer fish')	<i>o dudéke</i>	2.3
spp. undet.	<i>o nogi-nogi</i>	2.3
Diodontidae		
<i>Diodon liturosus</i>	<i>o hunána</i>	2.3
<i>Diodon</i> sp.	<i>o gaca</i>	2.3
sp. undet. ('porcupine fish')	<i>o hunána</i>	2.3

Taxon	Tobelo B ⁰ term	Appendix no.
Balistidae		
<i>Abalistes stellatus</i>	<i>o tato</i>	2.3
spp. undet.	<i>o tato</i>	2.3
Ostraciontidae		
<i>Ostracion tuberculatus</i>	<i>o tupa-tupa</i>	2.3
spp. undet.	<i>o tupa-tupa</i>	2.3
Monacanthidae		
<i>Cantherhines</i> sp.	<i>o memehanga</i>	2.3
sp. undet.	<i>o tato</i>	2.3
Undetermined species		
	<i>o bai-baiti</i>	2.3
	<i>o noara</i>	2.3
	<i>o pulo-pulono</i>	2.3
	<i>o puuhu</i>	2.3
	<i>o sorihi</i>	2.3
	<i>o hilowana</i>	2.3
Uncollected		
	<i>o beletomo</i>	2.3
	<i>o bobára</i>	2.3
	<i>o butuimi</i>	2.3
	<i>o bubuguraci</i>	2.3
	<i>o cara</i>	2.3
	<i>o cooro</i>	2.3
	<i>o garangoto</i>	2.3
	<i>o gorara-jáwa</i>	2.3
	<i>o gosao</i>	2.3
	<i>o gumi-gumi</i>	2.3
	<i>o hahuru ma tatádaka</i>	2.3
	<i>o hangu-hangu</i>	2.3
	<i>o hore</i>	2.3
	<i>o hulutana</i>	2.3
	<i>o huma</i>	2.3
	<i>o ido</i>	2.3
	<i>o iye</i>	2.3
	<i>o kabi-kabingi</i>	2.3
	<i>o kobo</i>	2.3
	<i>o ngulungana</i>	2.3
	<i>o nguti-nguti</i>	2.3
	<i>o noara</i>	2.3
	<i>o ponihí</i>	2.3
	<i>o suo</i>	2.3
	<i>o tatameri</i>	2.3
	<i>o tato</i>	2.3
	<i>o uili</i>	2.3
	<i>o wanga ma gurati</i>	2.3
	<i>o yaro</i>	2.3

Taxon	Tobelo B ⁰ term	Appendix no.
AMPHIBIA		
Ranidae		
<i>Rana papua</i>	<i>o kaateko</i>	2.5
<i>Rana arfarki</i>	<i>o kaateko</i>	2.5
Hylidae		
<i>Litoria infrafrenata</i>	<i>o ngotara</i>	2.5
<i>Litoria</i> spp.	<i>o teteté</i>	2.5
Rhacophoridae		
<i>Oreophryne moluccensis</i>	<i>o teteté</i>	2.5
REPTILIA		
Cheloniidae		
<i>Cuora amboinensis</i>	<i>o bengi-bengi</i>	2.5
Dermochelyidae		
<i>Dermochelys coriacea</i>	<i>o feene</i>	2.5
<i>Eretmochelys imbricata</i>	<i>o feene</i>	2.5
sp. undet.	<i>o feene</i>	2.5
Crocodilidae		
<i>Crocodylus porosus</i>	<i>o gohomanga</i>	2.5
Varanidae		
<i>Varanus indicus</i>	<i>o karianga</i>	2.5
<i>Hydrosaurus weberi</i>	<i>o karianga</i>	2.5
<i>Hydrosaurus amboinensis</i>	<i>o karianga</i>	2.5
Gekkidae		
<i>Gehyra marginata</i>	<i>o hohipohuku</i>	2.5
<i>Gehyra mutilata</i>	<i>o hohagaleke</i>	2.5
<i>Gekko vittatus</i>	<i>o hohipohuku</i>	2.5
<i>Hemidactylus frenatus</i>	<i>o hohagaleke</i>	2.5
<i>Lepidodactylus lugubris</i>	<i>o hohipohuku</i>	2.5
Lacertidae		
<i>Eugongylus mentovarius</i>	<i>o au</i>	2.5
<i>Tiligua gigas</i>	<i>o au</i>	2.5
<i>Emoia atrocostrata</i>	<i>o ragumu</i>	2.5
<i>Emoia keukenthali</i>	<i>o ragumu</i>	2.5
<i>Emoia sorex</i>	<i>o ragumu</i>	2.5
<i>Emoia submetallica</i>	<i>o ragumu</i>	2.5
<i>Lampropelis smaragdina</i>	<i>o ragumu</i>	2.5
<i>Lipinia noctua</i>	<i>o ragumu</i>	2.5
<i>Mabuya multifasciata</i>	<i>o ragumu</i>	2.5
Serpentes ('snakes')		
	<i>o dodiha</i>	
Boidae		
<i>Candoia aspera</i>	<i>o biha</i>	2.2
<i>Candoia carinata</i>	<i>o pakaka</i>	2.2
<i>Python reticulatus</i>	<i>o gumulamo</i>	2.2
Acrochordidae		
<i>Acrochordus granulatus</i>	<i>o boboro ma diaoto</i>	2.2
Colubridae		
<i>Brachyorrhus albus</i>	<i>o lakoiwa</i>	2.2
<i>Boiga irregularis</i>	<i>o ngohokumu</i>	2.2
<i>Cerberus rhyncops</i>	<i>o pocoglli</i>	2.2
<i>Dendrelaphis caudolineatus modestus</i>	<i>o populegana</i>	2.2

Taxon	Tobelo B ⁰ term	Appendix no.
<i>Macrophis halmaherica</i>	<i>o gatu</i>	2.2
<i>Stegonotus batianensis</i>	<i>o ngohabeloro</i>	2.2
Elapidae		
<i>Laticauda colubrina</i>	<i>o kaingóo</i>	2.2
<i>Laticauda</i> sp.	<i>o kaingóo</i>	2.2
AVES		
Podicipedidae		
<i>Tachybaptus ruficollis</i>	<i>o ori-ori</i>	2.1
Procellariidae		
<i>Puffinus leucomelas</i> = <i>Calonectris leucomelas</i>	<i>o duma-duma</i>	2.1
Hydrobatidae = Oceanitidae		
<i>Oceanodroma matsudairae</i>	<i>o butuimi</i>	2.1
Fregatidae		
<i>Fregata ariel</i>	<i>o madaama</i>	2.1
<i>Fregata minor</i>	<i>o madaama</i>	2.1
Pelecanidae		
<i>Pelecanus conspicillatus</i>	<i>o bebe</i>	2.1
Sulidae		
<i>Sula leucogaster</i>	<i>o duma-duma</i>	2.1
Ardeidae		
<i>Ixobrychus flavicollis</i>	<i>o takúru</i>	2.1
<i>Nycticorax caledonicus hilli</i>	<i>o tumara</i>	2.1
<i>Ardea alba</i>	<i>o tumara</i>	2.1
<i>Ardea sumatrana</i>	<i>o tumara</i>	2.1
<i>Egretta sacra</i>	<i>o tumara</i>	2.1
	<i>o lungunu ma babaiti</i>	2.1
Anatidae		
<i>Anser</i> spp.	<i>o bebe</i>	2.1
<i>Tadorna radjah</i>	<i>o ori-ori</i>	2.1
<i>Anas</i> spp.	<i>o bebe</i>	2.1
Pandionidae		
<i>Pandion haliaetus</i>	<i>o koyoba</i>	2.1
Accipitridae		
<i>Aviceda subcristata</i>	<i>o kawihi</i>	2.1
<i>Haliastur indus</i>	<i>o pole-pole</i>	2.1
<i>Haliaeetus leucogaster</i>	<i>o koyoba</i>	2.1
<i>Accipiter</i> spp.	<i>o kawihi</i>	2.1
<i>Aquila gurneyi</i>	<i>o koyoba</i>	2.1
Falconidae		
<i>Falco moluccensis</i>	<i>o age-meleko</i>	2.1
Megapodiidae		
<i>Megapodius freycinet</i>	<i>o meleu</i>	2.1
<i>Megapodius wallacei</i>	<i>o habiana</i>	2.1
Phasianidae		
<i>Meleagris gallopavo</i>	<i>o ayam-balánda</i>	2.1
<i>Gallus gallus</i>	<i>o totaleo</i>	2.1
Rallidae		
<i>Rallus philippensis</i> (= <i>Gallirallus philippensis</i>)	<i>o toge</i>	2.1
<i>Rallina fasciata</i>	<i>o hetaka ma gilaongo</i>	2.1
<i>Gymnocrex plumbeiventris</i>	<i>o hetaka</i>	2.1
<i>Habroptila wallacii</i>	<i>o hetaka</i>	2.1

Taxon	Tobelo B ⁰ term	Appendix no.
<i>Amaurornis olivaceus</i>	<i>o toge</i>	2.1
Charadriidae		
<i>Charadrius leschenaultii</i>	<i>o pupu</i>	2.1
Scolopacidae		
<i>Actitis hypoleucos</i>	<i>o pupu</i>	2.1
<i>Heteroscelus brevipes</i>	<i>o goguhumutu</i>	2.1
<i>Numenius phaeopus</i>	<i>o goguhumutu</i>	2.1
<i>Xenus cinereus</i>	<i>o goguhumutu</i>	2.1
<i>Calidris ruficollis</i>	<i>o pupu</i>	2.1
Laridae		
Sterninae		
<i>Sterna hirundo longipennis</i>	<i>o ula-ula</i>	2.1
Columbidae		
<i>Caloenas nicobarica</i>	<i>o hiringiti</i>	2.1
<i>Chalcophaps indica</i>	<i>o humu ma doporono</i>	2.1
<i>Columba livia</i>	<i>o pombo</i>	2.1
<i>Columba vitiensis</i>	<i>o gumúru</i>	2.1
<i>Ducula basilica</i>	<i>o gumúru</i>	2.1
<i>Ducula bicolor</i>	<i>o ngoku</i>	2.1
<i>Ducula concinna</i>	<i>o gumúru</i>	2.1
<i>Ducula perspicillata</i>	<i>o gumúru</i>	2.1
<i>Macropygia amboinensis</i>	<i>o luluga</i>	2.1
<i>Ptilinopus</i> spp.	<i>o mogoyuku</i>	2.1
<i>Reinwardtoena reinwardtii</i>	<i>o kukuhúu</i>	2.1
<i>Streptopelia chinensis</i>	<i>o pombofúru</i>	2.1
Loriidae		
<i>Charmosyna placentis</i>	<i>o ngidili</i>	2.1
<i>Eos squamata</i>	<i>o cicoro</i>	2.1
<i>Lorius garrulus garrulus</i>	<i>o busu</i>	2.1
<i>Lorius roratus vosmaeri</i> (Male)	<i>o gofótoro</i>	2.1
<i>Lorius roratus vosmaeri</i> (Female)	<i>o uboro</i>	2.1
Cacatuidae		
<i>Cacatua alba</i>	<i>o gotoaka</i>	2.1
Psittacidae		
<i>Alisterus amboinensis hypophoniuss</i>	<i>o muoto</i>	2.1
<i>Geoffroyus geoffroyi cyanicollis</i>	<i>o hiba</i>	2.1
<i>Loriculus amabilis</i>	<i>o gofotodano</i>	2.1
<i>Tanygnathus megalorhynchos</i>	<i>o gulelanga</i>	2.1
Cuculidae		
<i>Cacomantis variolosus</i>	<i>o pipitodéhe</i>	2.1
<i>Cuculus saturatus</i>	<i>o age-meleko</i>	2.1
<i>Eudynamys scolopacea</i>	<i>o age-meleko</i>	2.1
	<i>o luo-luo</i>	2.1
<i>Centropus bengalensis</i>	<i>o culuku</i>	2.1
<i>Centropus goliath</i>	<i>o ciungu</i>	2.1
Strigidae		
<i>Ninox connivens</i>	<i>o wuku</i>	2.1
<i>Ninox scutulata</i>	<i>o wuku</i>	2.1
<i>Ninox squamipila</i> (? uncoll.)	<i>o wuku ?</i>	2.1
<i>Ninox squamipila</i> (? uncoll.)	<i>o ginene ?</i>	2.1
<i>Otus magicus leucospilus</i>	<i>o goroko</i>	2.1

Taxon	Tobelo B ⁰ term	Appendix no.
Aegothelidae		
<i>Aegotheles crinifrons</i>	<i>o hohonotoko</i>	2.1
Caprimulgidae		
<i>Caprimulgus macrurus</i>	<i>o hohonotoko</i>	2.1
Apodidae		
<i>Collocalia esculenta</i>	<i>o awana ma gagawi</i>	2.1
<i>Collocalia vanikorensis</i>	<i>o awana ma gagawi</i>	2.1
Hemiprocnidae		
<i>Hemiprocne mystacea</i>	<i>o gie-giete</i>	2.1
Alcedinidae		
<i>Alcedo atthis</i>	<i>o ilu-ilumu</i>	2.1
<i>Ceyx lepidus</i>	<i>o ilu-ilumu</i>	2.1
<i>Halcyon</i> spp.	<i>o ilu-ilumu</i>	2.1
<i>Tanysiptera galatea browningi</i>	<i>o gogotengaka</i>	2.1
<i>Merops ornatus</i>	<i>o turi-turi</i>	2.1
Coraciidae		
<i>Eurystomus azureus</i>	<i>o boke-bokeke</i>	2.1
<i>Eurystomus orientalis</i>	<i>o boke-bokeke</i>	2.1
Bucerotidae		
<i>Aceros plicatus ruficollis</i>	<i>o kohe</i>	2.1
Pittidae		
<i>Pitta erythrogaster</i>	<i>o foo-fóo</i>	2.1
<i>Pitta maxima</i>	<i>o foo-fóo</i>	2.1
Hirundinidae		
<i>Hirundo rustica gutturalis</i>	<i>o awana ma gagawi</i>	2.1
<i>Hirundo tahitica javanica</i>	<i>o awana ma gagawi</i>	2.1
Campephagidae		
<i>Coracina atriceps</i>	<i>o tagahehaka</i>	2.1
<i>Coracina papuensis melanolora</i>	<i>o tagahehaka</i>	2.1
<i>Coracina parvula</i> (uncoll.)	<i>o tagahehaka ?</i>	2.1
<i>Lalage aurea</i>	<i>o horoga ma totoku</i>	2.1
Pycnonotidae		
<i>Hypsipetes affinis</i>	<i>o gacuaka</i>	2.1
Muscicapidae		
<i>Locustella fasciolata</i>	<i>o tee-teeke</i>	2.1
<i>Monarcha alecto</i> (= <i>Piezorhynchus alecto</i>)	<i>o biáwa ma totaleo</i>	2.1
	<i>o gumi-gumi</i>	2.1
	<i>o motiwówo</i>	2.1
<i>Monarcha pileatus</i>	<i>o gumi-gumi</i>	2.1
<i>Monarcha trivirgatus</i>	<i>o biáwa ma totaleo</i>	2.1
	<i>o gumi-gumi</i>	2.1
<i>Myiagra galeata</i>	<i>o biáwa ma totaleo</i>	2.1
	<i>o gumi-gumi</i>	2.1
<i>Pachycephala pectoralis</i>	<i>o pipo</i>	2.1
<i>Rhipidura leucophrys</i>	<i>o cucupaanga</i>	2.1
Dicaeidae		
<i>Dicaeum erythrothorax schistaceiceps</i>	<i>o ciciulu ma dofa</i>	2.1
Nectariniidae		
<i>Nectarinia jugularis frenata</i>	<i>o ciciulu</i>	2.1
<i>Nectarinia sericea auriceps</i>	<i>o ciciulu</i>	2.1

Taxon	Tobelo B ⁰ term	Appendix no.
Zosteropidae		
<i>Zosterops atriceps</i>	<i>o biáwa ma totaleo</i>	2.1
	<i>o ciciulu</i>	2.1
Meliphagidae		
<i>Myzomela obscura</i>	<i>o cao-caongo ma ngofaka</i>	2.1
	<i>o ciciulu</i>	2.1
<i>Myzomela obscura rubroincta</i>	<i>o cao-caongo ma ngofaka</i>	2.1
<i>Melitograis gilolensis</i> (= <i>Philemon gilolensis</i>)	<i>o caongo</i>	2.1
Estrildidae		
<i>Lonchura molucca</i>	<i>o totoai</i>	2.1
Sturnidae		
<i>Aplonis metallica</i>	<i>o idihi</i>	2.1
<i>Aplonis mysolensis</i>	<i>o idihi</i>	2.1
Oriolidae		
<i>Oriolus phaeochromus</i>	<i>o botikouku</i>	2.1
Dicruridae		
<i>Dicrurus hottentottus</i>	<i>o boa</i>	2.1
	<i>o hilidoro</i>	2.1
Artamidae		
<i>Artamus leucorhynchus leucopygialis</i>	<i>o huma-huma</i>	2.1
	<i>o kapa-kapa</i>	2.1
Paradisaeidae		
<i>Lycocorax pyrrhopterus obiensis</i>	<i>o tutubuuku</i>	2.1
<i>Lycocorax pyrrhopterus pyrrhopterus</i>	<i>o hayaniti</i>	2.1
<i>Semioptera wallacei</i>	<i>o weka-weka</i>	2.1
Corvidae		
<i>Corvus orru</i>	<i>o wogono</i>	2.1
<i>Corvus validus</i>	<i>o wogono</i>	2.1
Uncollected birds		
	<i>o helewopoga</i>	2.1
	<i>o kigi-kigini</i>	2.1
	<i>o kou-kou (bird?)</i>	2.1
	<i>o loliowaha</i>	2.1
	<i>o weu</i>	2.1
	<i>o wewoho</i>	2.1
MAMMALIA		
Phalangeridae		
<i>Petaurus breviceps</i>	<i>o gito</i>	2.5
<i>Phalanger orientalis</i>	<i>o kuho</i>	2.5
Soricidae		
<i>Suncus murinus</i>	<i>o karafe</i>	2.5
Muridae		
<i>Murid sp.</i>	<i>o karafe</i>	2.5
<i>Rattus rattus</i>	<i>o karafe</i>	2.5
<i>Rattus exulans</i>	<i>o karafe</i>	2.5
Delphinidae		
<i>Tursiops sp.</i>	<i>o iafa</i>	2.3
'Whales'		
	<i>o hore</i>	2.3
Canidae		
<i>Canis familiaris</i>	<i>o kaho</i>	2.5

Taxon	Tobelo B ⁰ term	Appendix no.
Felidae		
<i>Felis catus</i>	<i>o boki</i>	2.5
Dugongidae		
<i>Dugong dugon</i>	<i>o kobo</i>	2.3
Equidae		
<i>Equus</i> spp.	<i>o kuda</i>	2.5
Suidae		
<i>Sus scrofa</i>	<i>o ode</i>	2.5
Cervidae		
<i>Cervus timorensis</i>	<i>o mainjanga</i>	2.5
Bovidae		
<i>Bos taurus</i>	<i>o hapi</i>	2.5
<i>Capra hircus</i>	<i>o kabingi</i>	2.5
<i>Ovis</i> sp.	<i>o domba</i>	2.5

Notes

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 that 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. Voorhoeve has explored these borrowings for clues to the migrations of early AN-language speakers (see Voorhoeve, 1982).

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 The Tugutil of upriver Dodaga use the (*ma*) *ayo* ‘(its) mother’ relation among plants, rather than just among FAUNAL FORMS (see 5.2.3.2). Coastal Tobelo even at Dodaga were surprised when I told them this. Tugutil dialect, however, is nowhere considered here.

Chapter 4

- ¹ This chapter is slightly revised from the author’s article (Taylor, 1984b) “‘Covert Categories’ Reconsidered: Identifying Unlabeled Classes in Tobelo Folk Biological Classification,” *Journal of Ethnobiology*, 4(2):105–122 (by permission).
- ² Posited covert classes are here distinguished by being written

in upper case letters (e.g., BAMBOO, BIOTIC FORM).

- ³ Hunn’s argument against the use of distinctive features in this way is surprising (Hunn, 1977:42, and footnote):

... 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 a set of features (*a, b, c, d*). Thus *t-1* cannot be a subset of *t*.

This argument seems to confuse 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.

- ⁴ Elsewhere Hunn (1976) has argued that such “chains” more accurately reflect perceived differences among organisms than can be reflected in the taxonomic model, and that taxonomic models do not distinguish between what he calls “deductively” and “inductively” defined categories (the former based on a small number of abstract features, the latter based on large numbers of naturally occurring shared characteristics). The aim of the semantic description of a domain is to describe the meaning of each linguistic form occurring in the domain and to describe the sense relationships of those forms to each other. Taxonomic principles are valuable insofar as they can be used to structure class-inclusion and contrast relations among linguistic forms, though they admittedly will not fully describe perceptions about the objects denoted by those forms. As for the numbers of features defining “categories,” his interesting distinction between “inductively” and “deductively” defined categories does not make it less necessary to assert that the description of any semantic class should include at least one defining feature to distinguish that class from others in the domain.

Chapter 5

- ¹ The frequently used terms “generic” (basic or B⁰) 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 term at a higher level 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 It may be because, as the Tobelo name implies, this spider catches flies (Muscidae); though other spiders also catch them. Paul Weatherly (pers. comm.) 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.

³ 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 (4.4), 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 B⁰.

⁴ 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 B⁰ 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).

⁵ 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), Tobelo themselves seem to be positing new esoteric structural relationships for familiar classes, rather than positing new classes.

⁶ 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. Huetting’s (1908c) data indicate that *ayo* is used for ‘progenitrix,’ but are insufficient on *yeha* or on the other sense of the ‘mother’ term in the H dialect he spoke and studied.

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