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PROTO-MINAHASAN:  
PHONOLOGY, MORPHOLOGY AND WORDLIST

by

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TO SUSAN





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## PREFACE

This study was undertaken during the tenure of a post-doctoral research fellowship in the Department of Indonesian and Malayan Studies, the University of Sydney from November, 1973 to December, 1975. Field-work in Indonesia was carried out from July, 1974 to March, 1975.

It is true to say that this project would never have been possible but for the vigorous support it received from Professor Peter Worsley both before and during the time I was in his department. To him I offer sincere thanks.

Thanks are also due to many people in Indonesia. In particular I mention Drs William Pakasi, Mr Christian Lewan and Rev Geoff Bennet, who in their different ways contributed greatly to the success of my field study. Lembaga Ilmu Pengetahuan Indonesia sponsored my study in Indonesia and I am most grateful to officials of that body, who provided valuable advice and assistance while I was there.

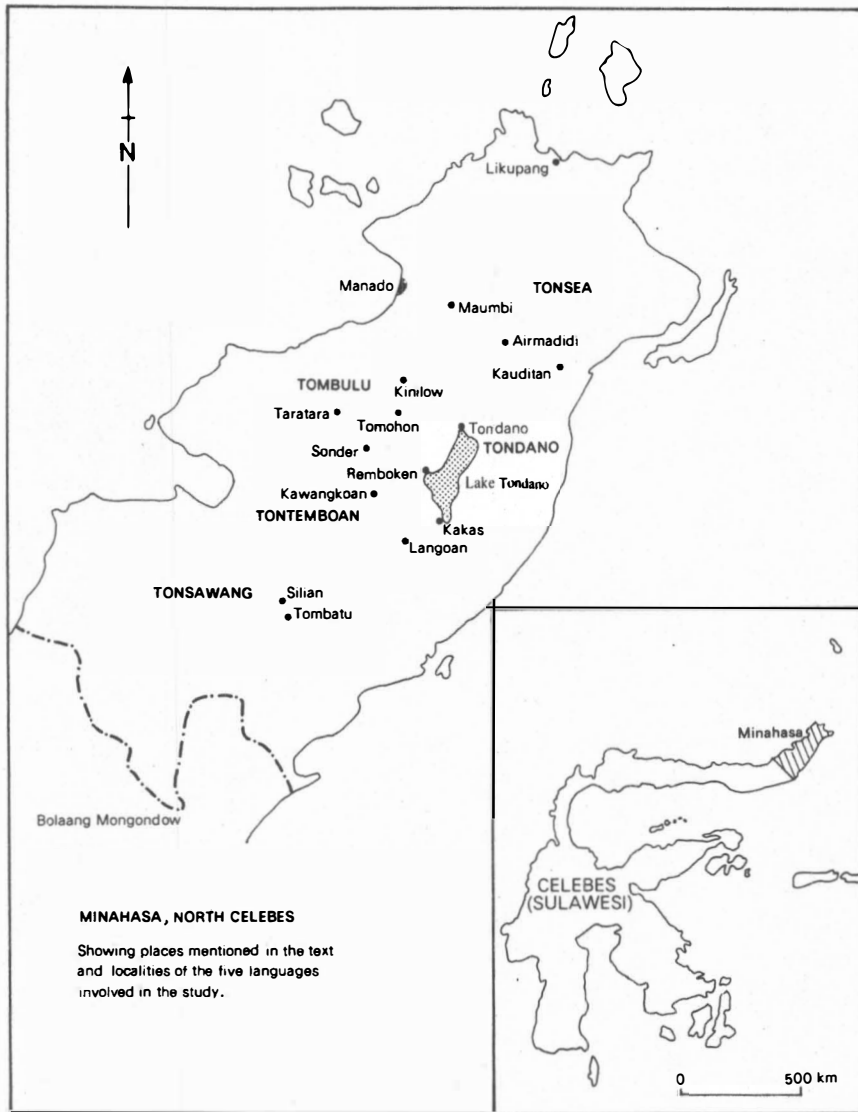
Dr Jack Prentice spent much time in discussions and in reading drafts and his advice has been of great benefit.

My wife Susan once again had to endure long separation and to her I lovingly dedicate this work.

## ABBREVIATIONS AND SYMBOLS

Ban	Bantik
C	any consonant
Jav	Javanese
Mal	Malay
MdMal	Manado Malay
Mdw	Mongondow
Mkl	Makelai
Mtn	Matanai
PAN	Proto-Austronesian
PFm	Proto-Formosan
PMb	Proto-Manobo
PMIn	Proto-Minahasan
PNE	Proto-North-East-Minahasan
PNM	Proto-North-Minahasan
Pon	Ponosakan
PPh	Proto-Philippine
PPn	Proto-Polynesian
PSl	Proto-Sulic
RM	repeated monosyllable
Rth	Ratahan
San	Sangir
Tbl	Tombulu
Tdn	Tondano
Tse	Tonsea
Tsw	Tonsawang
Ttb	Tontemboan
V	any vowel
WBM	Western Bukidnon Manobo
<x>	x is an orthographic device

$x \rightarrow y$	x becomes y (synchronic change)
$x > y$	x becomes y (diachronic change)
$x < y$	x derives from y (diachronic change)
$x \sim y$	x and y alternate freely
$x:[y \sim z]$	x is a phoneme with allophones y and z
$[x]$	x is a phone
$\{x\}$	x is a morpheme representation
$*x$	x is a reconstruction
$**x$	x does not occur
$(x)$	occurrence of segment x is uncertain
$x/y$	a segment occurs but no decision can be made as to whether it is x or y
$(x/y)$	occurrence of a segment is uncertain and if one occurs no decision can be made as to whether it is x or y



## PART ONE

### INTRODUCTION

#### 1.1. AIMS OF THE STUDY

The aim of the present study is to carry out a detailed comparative analysis of a small group of Austronesian languages with the intention of reconstructing as much as possible of their exclusively shared parent language. The five languages involved in the study are spoken in the Minahasa region of North Celebes, Indonesia. The reconstructed parent language is called Proto-Minahasan.

One of the major purposes of the study is to provide the material for a later systematic comparison of the Minahasan languages with other groups of Austronesian languages. The next step should be a comparative study involving the Minahasan languages and their closest relatives, which appear to be the Sangirese group of languages (see 1.5.).

The study is based on the belief that such small-scale surveys will prove to be of considerable value to comparativists attempting to determine the structure of the Austronesian language family and to reconstruct its parent language, Proto-Austronesian.

Wide-scale studies, those that attempt to cast light on Proto-Austronesian directly by means of a comparative study of present-day Austronesian languages, suffer from a number of disadvantages.

First, owing to the large number of languages in the Austronesian family, amounting to several hundreds, and the lack of detailed synchronic information available on most of these, such studies must be based on data from a limited number of languages, mainly those for which published material is available.

Uhlenbeck (1956:318) has commented that such wide-scale studies often suffer from dependence on published works of unknown reliability. Yet the Austronesianist who attempts such wide-scale study is compelled

to rely to a large extent on such literature because of the impracticability of personally obtaining data on a large number of languages before beginning his comparative work.

Further, the structure of the Austronesian language family is not clearly understood and consequently such attempts to reconstruct the family's ultimate parent language proceed without a clear idea of the interrelationships of the languages on which the reconstruction is based.

Anceaux (1965:311) has criticised studies 'in which data, often picked out at random, from languages scattered far and wide, are compared and connected.' He remarks: 'In such studies there is the danger that premature conclusions will be reached owing to the lack of an adequate knowledge of the languages used for the comparison, or of special developments in the groupings to which they belong.' He points out the value of small-scale studies, in which the comparison is restricted to a small group of closely related languages.

By restricting himself to the study of a small number of closely related languages the comparativist is better able to (i) personally study each language involved and check the reliability of any published material, (ii) establish a precise picture of the interrelationships of the languages and (iii) reconstruct the parent language both accurately and in detail.

It is believed that such intensive studies will provide valuable information which will contribute to the depth and accuracy of broader investigations. On the other hand, wide-scale studies also provide important material for small-scale studies, sometimes enabling the reconstruction of aspects of a subgroup's immediate parent language when evidence from the languages of the subgroup themselves is inadequate (as is further discussed in section 1.6.). The two approaches are therefore of mutual benefit and must be employed in unison in the task of reconstructing Proto-Austronesian and in determining the pattern of relationships among the Austronesian languages.

In the reconstruction of Proto-Minahasan limited use has been made of information on a number of languages outside the Minahasan group and of the results of wide-scale comparative studies. In particular Zorc's Proto-Philippine Finder List (1971) has been of value (see 1.6.).

## 1.2. THE MINAHASAN LANGUAGES

1.2.0. There are eight indigenous languages spoken in Minahasa, the eastern-most region of the North Celebes Peninsula (see map).



Three of the languages have their closest links with languages spoken outside Minahasa. Ratahan, often referred to as Benteenan in earlier literature, and Bantik have their closest links with Sangir, spoken on the islands of the Sangir Archipelago to the north. Ponosakan is closely related to Mongondow, spoken in Bolaang-Mongondow region to the south of Minahasa. Adriani (1925:135) calls Ponosakan an 'archaic dialect' of Mongondow and the two languages appear to be very close.

The other five languages are Tondano, Tonsea, Tombulu, Tontemboan and Tonsawang. These five form a genetic group, being more closely related to one another than to any other languages. It is thus reasonable to suppose that they all derive from a common parent language which was itself spoken in Minahasa.

In this section the five languages are discussed individually. Following the discussion of each language published sources which were available for the study are listed. It should be pointed out that most such sources are unreliable in one way or another. The wordlists by Jansen (1855), Niemann (1869-70) and Hove (1904) suffer from inaccurate and inconsistent spelling and the former two from inaccurate translations. Lengkong and Wantalangi's Tondano wordlist (1953) has all the same faults as well as containing many non-Tondano (mainly Tonsea) words. Such works could only be used as a preliminary guide for comparative purposes and any material they contained which appeared potentially useful was, as far as time permitted, personally checked with informants.

#### 1.2.1. TONDANO

Tondano (Tdn) is spoken around the perimeter of Lake Tondano and eastward to the coast. The boundaries of the Toulour administrative district follow closely the limits of the Tdn-speaking area and the name Toulour (sometimes Tolour) is frequently used in Minahasa to designate the Tondano people and language.

There are three dialects of Tdn. The largest, both in area and number of speakers, occurs in and around the town of Tondano (population about 40,000) in the north, along the north-east shore of the lake and eastward to the coast. The other dialects centre around Remboken in the west and Kakas in the south. Adriani refers to a Kakas-Remboken dialect but Tondanese, including Watuseke (1956a:3, 1956b:4), recognise these as separate dialects. This distinction is supported by Jansen's wordlist which shows numerous differences between the speech forms of Remboken and Kakas. A lexicostatistical comparison of the Tondano and Kakas dialects gives a cognate percentage of 83.

In some ways the name Toulour would be more suitable for this language than Tondano. Being the name of a town the latter is also the name of the dialect of that town. To speak of the Tondano dialect of the Toulour language would appear preferable to using the same name for both the language and one of its dialects. Nevertheless, the name Tondano has been consistently used in the literature for too long to justify any change at this stage. For the purposes of this work Tondano will refer to the northern dialect and the town on which that dialect centres and the abbreviation Tdn will denote the language.

The only source material for Remboken is Jansen's list of 150 words. For Kakas, in addition to the Jansen list a limited amount of material has been obtained by the writer including a lexicostatistical wordlist.

The Tondano dialect is by far the best known. In addition to the lists of Jansen and Niemann there is a more detailed wordlist by Lengkong and Wantalangi (see comments in section 1.2.0.). Watuseke has published a number of texts and short articles. A considerable amount of material has been collected by the writer and a statement of Tondano phonology and grammar is given in an earlier work (Sneddon 1975).

#### 1.2.2. TONSEA

Tonsea (Tse) is spoken in the extreme north and has the largest area of any of the Minahasan languages. The name is sometimes written Tonsea', the final apostrophe representing a glottal stop in the indigenous pronunciation (tounsea').

Little is known of the dialect situation but there is a western dialect centering on Maumbi and another spoken in Airmadidi and the villages east of it to the coast.

Jansen gives wordlists from both dialects and also a list from Likupang in the far north which shows some differences from both. There is also a wordlist of about 4,000 items by Hove for the Maumbi dialect. Some material was collected from an Airmadidi informant but more extensive elicitation was carried out with informants from Kauditan, a village further east, whose speech differs in a number of minor ways from that of Airmadidi.

#### 1.2.3. TOMBULU

The indigenous name is toumbulu' and accordingly the name is sometimes written Tombulu', with a final apostrophe. Tombulu (Tb1) stretches from east of the town of Tomohon (population about 35,000) to the west

coast and north to the Bantik-speaking area just south of the provincial capital, Manado.

Adriani refers to two dialects, Tara-tara in the west and Tomohon. Nothing is known about the western dialect but the speech of Kinilow is dialectally distinct from that of Tomohon. There are probably numerous minor regional variations and Jansen provides wordlists from five places in the Tbl area. Niemann also gives a Tbl wordlist. More recently Wouw has produced an extensive wordlist (1971) and a grammatical outline (1973). Unfortunately Wouw's works were obtained too late to be methodically used for the present study. A very brief personal study, including the collection of a lexicostatistical wordlist, was made of the Tomohon dialect and more extensive data were collected from Kinilow informants.

#### 1.2.4. TONTEMBOAN

Tontemboan (Ttb), also referred to in earlier literature as Tompakewa, stretches from the east coast to the west coast south of Tdn and Tbl. Ttb has the largest number of speakers of any Minahasan language, about 150,000. Adriani and Schwarz identify two major dialect groups which they call Matanai (Mtn) and Makelai (Mkl). Mtn occurs in the west and includes Sonder and Kawangkoan among its sub-dialects. The Mkl dialect is spoken in the east with Langoan as its major population centre. Lexicostatistical wordlists taken from the Sonder and Langoan dialects show a cognate percentage of 84.

This is by far the best recorded of the Minahasan languages. Adriani has provided a grammar (1908) and Schwarz texts (1907) and a detailed dictionary (1908). Supplementary elicitation was carried out by the author with informants from Sonder and Langoan.

#### 1.2.5. TONSAWANG

This language is spoken in about a dozen villages in southern Minahasa. It is by far the smallest of the languages involved in this study.

The principal village in the area is Tombatu. In a previous publication (Sneddon 1970) the name Tombatu was chosen for the language because this is the common name for the language in Minahasa. That choice is now regretted. Although the language has received very little attention it has always been called Tonsawang in the literature. As the name of a former district the term Tonsawang also avoids identification with one particular place (cf. the discussion on the names

Tondano and Toulour in section 1.2.1.). Henceforth only the name Tonsawang (Tsw) will be used.

No information is available on any dialect variation within Tsw. The only published sources are the wordlists by Jansen and Niemann. All other data are from personal field notes. Informants were from Tombatu and the nearby village of Silian.

### 1.3. PREVIOUS COMPARATIVE STUDIES

Until the present very little linguistic work of a comparative nature has been carried out in Minahasa.

Jansen provides wordlists of 150 items from 20 localities within the area of the five languages under study. Despite its brevity his work is of value as the only source of information on such a wide range of dialects.

Of far more direct use for the present study has been the much more extensive wordlist by Niemann. He provides a list for each of the five languages as well as Ratahan (Rth), Ponosakan (Pon) and Mongondow (Mdw). The list contains more than a thousand entries but there is a great deal of repetition of items as it is essentially a translation of an original Dutch list which included many synonyms. Nevertheless, it has been a valuable source for locating cognates among the languages.

Brandes produced a language map of Minahasa (1894).

Adriani's Ttb grammar contains some discussion of the other languages but the first publication directly concerned with the comparative study of these languages is Adriani 1925. In this work Adriani deals almost exclusively with the five languages involved in the present study. He calls these the 'real Minahasan languages'. Why he regards Rth, Bantik (Ban) and Pon as not being real Minahasan languages, despite the fact that they are spoken only in Minahasa, except that Ban is spoken also in one area in Bolaang-Mongondow, is not stated but it is probably because they have close links with other languages and are therefore assumed to be comparatively recent arrivals in Minahasa.

It is convenient for the purposes of the present work to follow Adriani's usage and confine the term Minahasan to the five languages under study.

Adriani classifies the five languages into two groups. Group one comprises Tdn, Tse and Tbl while group two comprises Ttb and Tsw. He classifies the languages thus on the basis of vocabulary and a few features of morphology and phonology. Unfortunately most of his criteria for grouping are defective.

He writes that a distinctive difference between the two groups occurs in past tense markers; infix *-in-* occurring in group one and prefix *ni-* (reducing to *i-* in Tsw) occurring in group two when prefix *ma-* is also present. Thus:

Tdn    *minaturu?*    '*used to show*'  
 Ttb    *nimaturu?*    '*used to show*'

He points out, however, that Tara-tara, the western dialect of Tbl, uses *ni-*. 'Thus, in this respect, half the Tbl language area belongs to group two' (1925:139). Although Adriani shows the Tomohon dialect as having *-in-* it too has *ni-* although in Kinilow, further north, *-in-* is used. Furthermore, the Kakas dialect of Tdn has *ni-*. Thus the distribution of *-in-* and *ni-* does not coincide with genetic divisions. Areal influences are obviously at work as the southern dialects of Tdn and Tbl have *ni-* as does Ttb, on which they border, while the northern dialects have *-in-*.<sup>1</sup> Variation between *-in-* and *ni-* is widespread among languages of northern Borneo and the Philippines, even within small subgroups. The distribution of these forms is thus a most unreliable criterion for classification.

Adriani also uses differences in repeated monosyllables (hereafter RMs - following Charles 1974) as evidence for his grouping.<sup>2</sup> Where an RM originally contained a medial consonant cluster it has remained unchanged in group one, according to Adriani. But if the cluster was a nasal followed by a stop the nasal has assimilated to the point of articulation of the following stop in group two and if the first member of the cluster was not a nasal it has been replaced by glottal stop. Thus:

Tbl    *tuntun,*    Ttb    *tuintun*    '*forehead*'  
 Tbl    *kaskas,*    Ttb    *ka?kas*    '*scratch*'

In this case Adriani does not take into consideration all the evidence. His statement of what occurs in group one is based only on evidence from Tbl and Tse. But Tdn has undergone the same changes as Ttb, assimilating nasals to following stops and replacing other consonants in that position with glottal stop. The change is obviously an areal phenomenon, having spread from one language to the other. Medial clusters have usually been lost in Tsw but the changes are different

<sup>1</sup>If *ni-* is spreading from the south at the expense of *-in-* it is possible that replacement in Tomohon and Kakas occurred subsequent to Adriani's study.

<sup>2</sup>An RM may be simple, consisting solely of a repeated base, e.g., *səpsəp* '*suck*', or contain a fossilised affix, e.g., *kalebkeb* '*wing*'.

from those in Ttb and give no reason to assume a period of exclusively shared ancestry for the two languages.

Adriani also bases his grouping on shared vocabulary, saying that a language has far more words in common with the other language or languages of its own group than with languages of the other group. In this respect Tdn, Tse and Tbl certainly form one group but lexicostatistical evidence strongly disputes his grouping of Ttb and Tsw. Ttb shares far more basic vocabulary with the languages of Adriani's group one than it does with Tsw. Furthermore, its cognate percentage with Tsw is no higher than that of Tbl and only marginally higher than that of the other two languages with Tsw.

Following Adriani, Esser grouped Ttb and Tsw together as dialects of one language in his linguistic classification (1938). Later, after briefly studying Tsw, he wrote that the two languages were not nearly as closely related as had previously been supposed (Noorduyn 1963:869).

#### 1.4. THE BASIS FOR THE RECONSTRUCTION

Greenberg has pointed out that 'the establishment of valid hypotheses concerning genetic relationships among languages is a necessary preliminary to the systematic reconstruction of their historical development' (1957:35).

The initial hypothesis concerning the interrelationships of the Minahasan languages is based on the lexicostatistical comparison reported in Sneddon 1970. The estimated percentages of shared basic vocabulary for the five languages are as follows:<sup>1</sup>

	Tdn	Tse	Tbl	Ttb
Tsw	41	43	44	44
Ttb	58	57	61	
Tbl	69	72		
Tse	73			

The wordlists used for the lexicostatistical comparison were from the following dialects: Tdn (Tondano), Tse (Airmadidi), Tbl (Tomohon), Ttb (Sonder). Lists from other dialects would produce slightly different results for some language pairs. For instance, the Kakas dialect of Tdn shares 63% with Ttb, on which it borders. The Mkl dialect of Ttb, unexpectedly, shows only 43% cognates with Tsw when a

<sup>1</sup>Wordlists, a discussion of the methods of scoring and a table showing how each item was scored for each pair of languages are given in the work referred to. Some decisions on cognation have subsequently been found to be incorrect. However, these were very few and correction of them would have only a very minor effect on the percentages. Consequently the percentages are left as they originally appeared.

figure higher than the Mtn-Tsw score could be expected because of the proximity of Mkl and Tsw and their sharing of a considerable number of non-basic vocabulary items not occurring in Mtn.

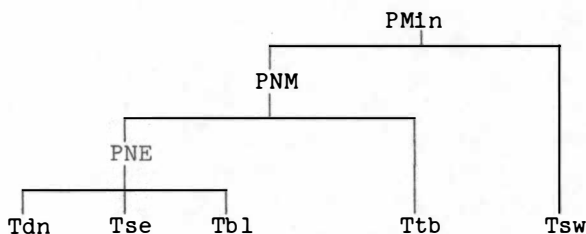
Even allowing for a considerable margin of error the lexicostatistical figures show a clear splitting of the Minahasan languages into subgroups.

Tdn, Tse and Tbl, sharing percentages of between 69 and 73, form a group of closely related speech forms. These derive from a parent language which is referred to here as Proto-North-East-Minahasan (PNE). Together these three are called the North-East Minahasan languages.

There is a clear gap between the percentages among these languages and their percentages with Ttb, which range from the high 50s to the low 60s. On these figures PNE and Ttb must be recognised as splitting from a common parent language. This parent language is called Proto-North-Minahasan (PNM) and the four languages collectively are called the North Minahasan languages.

The four descendants of PNM each share with Tsw a cognate percentage in the low 40s. PNM and Tsw thus clearly split from one parent language, Proto-Minahasan (PMin).

The genetic relationships between the Minahasan languages can thus be represented as in the following diagram:



The lexicostatistical evidence gives a solid basis for the subgrouping hypothesis on which the reconstructive work is based. All the other evidence considered strongly supports the findings of the lexicostatistical study.

Although only those aspects of morphology which can be reconstructed for PMin are described here the study involved the recording of as much information about bound morphemes as time permitted. Tdn, Tse and Tbl differ morphologically only in minor ways and also share a high proportion of bound morphemes with Ttb. But the bound morphemes of Tsw include a large number which appear to have no cognates in the northern languages. Morphology, especially the complex system of verbal affixes, strongly supports the lexicostatistical evidence that Tsw and the North Minahasan languages have undergone a long period of separate development.

In overall vocabulary (as distinct from the basic lexicostatistical vocabulary) Tsw appears to share a higher proportion of items with Ttb, especially Mkl, than with the other languages. However, the tendency for Tsw to borrow from neighbouring languages can be seen in the large Mdw-Pon element in its lexicon and many of the items it shares with Ttb also appear to be borrowings. Tdn, Tse and Tbl have a large common word stock and somewhat less with Ttb, as the basic vocabulary suggests. There is also some degree of mutual intelligibility between the north-eastern languages but they are not mutually intelligible with Ttb.

On the surface phonology presents some problems for subclassifying. Tdn shares exclusively with Ttb a number of innovations, but these must be ascribed to geographical spread. Likewise Tsw and the Mkl dialect of Ttb have a number of similarities. For instance, they frequently both have l where the other languages, including Mtn, have r. However, these shared features also appear to be areal. The large accumulation of unique innovations in Tsw phonology mark it off from the other languages and suggest that any exclusively shared features with Mkl result from diffusion rather than common ancestry.

There can therefore be no reasonable doubt that the diagram above is an accurate representation of the historical splits within the Minahasan language group and the systematic reconstruction of the parent language can confidently rest on this assumption.

#### 1.5. FURTHER LINKS

No attempt is made here to determine the place of the Minahasan languages within the Austronesian language family. Indeed, it is a major objective of the present study to provide data on which such an investigation can be based.

The lexicostatistical study (Sneddon 1970) shows the five languages sharing cognate percentages with Rth and Ban in the 30s, except that the Tbl-Ban figure is somewhat higher (42%), probably as a result of borrowing, the two languages being adjacent. Tdn has 35% cognates with Sangir (San), very similar to its percentages with Rth and Ban. It appears highly likely that the Minahasan languages will prove to have their closest links with the Sangirese languages (San, Rth, Ban, Talaud), these being co-ordinate branches of a larger group.

Adriani and Esser place the Minahasan and Sangirese languages, along with Mdw and Pon, in the Philippine language group but do not suggest which Philippine languages they most closely tie in with.

In his lexicostatistical investigation Dyen (1965) finds Ttb, the only Minahasan language used in his classification, to be directly



subordinate to his Malayopolynesian Linkage, having no especially close link with San or the Philippine languages (its highest cognate percentage being 21.6 with the Batak Subfamily). In view of the unknown reliability of his data, including a subadequate San list, his findings need not cast doubt on those of the present study.

Charles (1974) places Mdw with the Philippine languages but, on lexical evidence, believes San and Ttb to lie outside the Philippine group. If Charles is correct then the Minahasan-Sangiirese languages do not descend from Proto-Philippine (PPh). Nevertheless, he treats Ttb and San phonemes and words as if they were reflexes of PPh forms and the same procedure is adopted here.

#### 1.6. THE RECONSTRUCTION: PROCEDURE AND PROBLEMS

In order to reconstruct an item for a proto-language one of two conditions must obtain. Either a reflex occurs in two first-order subgroups, i.e., subgroups branching directly from the language being reconstructed, or else a reflex occurs within one subgroup and a related form occurs in at least one language outside the group, i.e., a language related at a higher level than the proto-language being reconstructed. Further, the item in each case must be directly inherited and not borrowed.

Consequently, for an item to be reconstructed for PMin it must be reflected within Tsw and at least one language of the North Minahasan group or else it must occur in either Tsw or a North Minahasan language and at least one Austronesian language outside the Minahasan group.

One of the most important problems to be faced in any reconstructive work is that of borrowing. Borrowing can take place within the group under investigation itself or between members of the group and outside languages. Borrowing is likely to be especially prevalent where the languages are geographically close and their speakers have similar cultures and a high degree of social intercourse. It is this situation which has long prevailed in Minahasa, resulting in a considerable amount of intragroup borrowing.

Failure to identify a borrowing among the languages of the group can lead to error in two different ways. It can result in reconstruction of an item for the parent language which was in fact an innovation within one branch or it could result in the incorrect reconstruction of an item which did occur in the proto-language.

The first problem does not arise with unidentified borrowings among the languages of the North Minahasan group. Since these all belong to one branch any item must also occur outside the group in order for it

to be reconstructed for PMin. Hence an innovation in one northern language borrowed into the others would not qualify to be reconstructed for PMin even if borrowing were not detected.

The problem arises with borrowings between Tsw and North Minahasan languages. Fortunately the problem is even further restricted. Since Tsw does not share a common border with North-East Minahasan languages the chances of direct borrowing between Tsw and those languages is slight. Therefore, if related items occur in Tsw and one of the north-eastern languages the probability of its having been borrowed is low enough to justify setting up a PMin form.

On the other hand borrowing between Tsw and Ttb appears to be fairly common, especially from Ttb to Tsw. Therefore, if an item appears to be uniquely shared by Ttb and Tsw the chances of its having been borrowed are regarded as sufficiently high to make premature any reconstruction for PMin at this stage. Thus the following rule is applied: if an item is not known to occur outside the Minahasan group then it is reconstructed for PMin only if it occurs within Tsw and at least one North-East Minahasan language and cannot be identified as being a borrowing from one branch to the other.

Of course it is possible that even this restriction will allow some innovations within one branch to slip into the PMin wordlist. But unless this position is taken no item could be reconstructed for PMin unless cognates outside Minahasa were known.

If an item is also known to occur outside Minahasa and there is no reason to suppose the Minahasan languages have borrowed from that source then an etymon can be reconstructed for PMin even if borrowing among the Minahasan languages is known or suspected; it is sufficient that the item be directly inherited in one Minahasan language to justify such reconstruction.

Besides borrowing among themselves the Minahasan languages have built up a considerable stock of loanwords from other languages. One important source for loans has been Malay (Mal). Mal influence in Minahasa has been strong for several centuries and a separate dialect has long been the first language of Manado, the principal town of the region. Manado Malay (MdMal) is today spoken as a first language throughout Minahasa and is almost exclusively the means of communication between any two Minahasans with different regional languages (although Dutch for some time also served such a purpose among educated people). Niemann's wordlist of 1869-70 shows the languages had already borrowed heavily from Mal at that time. Borrowings in Tdn include such common words as arap '*hope*', sapi '*ox*', kərəwow '*water buffalo*' sərəmɨŋ '*mirror*' and hundreds of others.

Borrowings have come from a number of sources outside Indonesia including Sanskrit, e.g., Tdn lansuna 'onion', laka 'red'; Arabic, e.g., Tdn saboŋ 'soap', eman 'believe'; Portuguese, e.g., Tdn lenso 'handkerchief', kadera 'chair'; Spanish, e.g., Tdn oras 'season', kantar 'sing'. Most words from such sources, along with a great number of Dutch words, have entered the Minahasan languages via MdMal.

Of the above sources of borrowing it is only indigenous Mal words which are likely to escape detection. Presenting a more acute problem are borrowings from nearby languages. Since contact with such languages has continued over a great length of time considerable borrowing has occurred but many loans could well be hidden by the fact that these nearby languages are among the most closely related to the Minahasan languages and hence a considerable number of shared vocabulary items are in fact true cognates. The problem is in determining which items of the large stock of common vocabulary are cognates and which are borrowings.

The heaviest influence has been that of Mdw and Pon on Tsw. Niemann's list provides scores of examples of items shared by Tsw with those languages which do not occur in any North Minahasan languages. Frequently such borrowings can be identified because they do not contain expected reflexes of PPh phonemes. For instance, PPh \*R is reflected in Tsw as h or r but not g. Where Tsw agrees with Mdw or Pon in having g the item must be treated as a borrowing. Thus, aog 'bamboo' from Mdw aog (PPh \*qa'uR); ibog 'slaver, saliva' from Mdw ibog (PPh \*ibeR). PPh \*e is reflected in Mdw and Pon as o and occurrence in Tsw of o instead of expected ə also indicates a borrowing from one of those languages. Thus, obol 'smoke' from Pon (modern Pon owol, where \*b > w, a regular sound change, occurred presumably after the item was borrowed by Tsw) (PPh \*qebel); kolob 'close' from Mdw kolob (cf. Ttb, Tdn kələw). Sometimes Tsw contains both inherited and borrowed forms, e.g., tis 'drip' from PMin \*tihil and tigis 'pour' from Pon tigis (PPh \*tiRis); ohac 'vein' from PMin \*ohat and ugac 'strength' from Mdw or Pon ugat 'vein' (with change of meaning) (PPh \*7uR<sub>2</sub>aC[ ]).

Often Mdw and Pon and the Minahasan languages have identical reflexes of PPh sounds in which case phonology alone gives no indication of borrowing. But because Tsw is known to have been heavily influenced by Mdw and Pon any item shared by Tsw with one of those two languages must be viewed with suspicion. Therefore, the following rule is applied: no item occurring in Tsw and either Mdw or Pon is reconstructed for PMin unless it occurs also in one of the North Minahasan languages or if the phonology of the Tsw word clearly precludes its having been borrowed from Mdw or Pon.

There are a few known cases of loans from Mdw in the northern languages. Thus, Tdn, Tbl *ronit* 'mosquito' is from Mdw (with modern Mdw *ronit* resulting from a regular sound change) because the direct reflex in these languages of PPh \**reŋit* would be \*\**reŋit*. But such borrowings appear to be very rare. So unless there is cause for suspicion related items in Mdw and Pon and North Minahasan languages are regarded as cognates and the setting up of a PMin form is thus justified.

The Minahasan languages share a large common vocabulary with the Sangirese languages. Since these are probably the closest relatives of the Minahasan languages many such words are obviously cognates but there has been considerable borrowing as well.

Tsw has borrowed numerous items from Rth, e.g., *ahē* 'water' from Rth *ake* (cf. PMin \**dano*); *ucah* 'hair' from Rth *utak* (cf. PMin \**buʔuk*). Because of this the same restriction on the reconstruction of PMin forms must apply as that where Tsw items resemble those of Mdw and Pon: no item occurring in both Tsw and Rth is reconstructed for PMin unless it also occurs in one of the North Minahasan languages or if the phonology of the Tsw word clearly precludes its having been borrowed from Rth.

Interaction between Ban and the adjacent northern languages Tbl and Tse is shown by the inflated percentages of shared basic vocabulary between them. Although much of this probably results from Ban borrowing from Tbl and Tse there are instances where borrowing from Ban is quite certain, e.g., Tbl *uleʔ*, Tse *udeʔ* 'snake' from Ban *uleʔ* (cf. PMin \**ulah*); Tdn, Tse, Tbl *kiki* 'bite' from Ban or San *kiki* (cf. PMin \**kiʔkiʔ*).

San is spoken in the islands of the Sangir Archipelago to the immediate north of Minahasa and many San-speaking immigrants have settled in Minahasa, especially in the Tse speech area.<sup>1</sup> Sometimes borrowings from San can be identified by phonological features, e.g., the occurrence of a final glottal stop instead of some other consonant. Thus, Tse *ensoʔ* 'move, push along slightly' is identified as deriving from San *ensoʔ* because it does not correctly reflect the final consonant of PPh \**I(N)suD* 'move over slightly'. Because of the possibility of unidentified borrowing from San and Ban into the north-eastern languages the following rule is applied: no item occurring in Tdn, Tse or Tbl and in either Ban or San is reconstructed for PMin unless it occurs also in one of the other Minahasan languages or if phonological or other evidence clearly indicates that borrowing is not involved.

As mentioned in section 1.1., small-scale studies such as this can benefit from information on other languages and from broader comparative

<sup>1</sup> Watuseke 1956b has a linguistic map of Minahasa showing widespread San settlements in coastal areas of northern Minahasa.

studies. The location of related items outside the Minahasan languages has often allowed the reconstruction of PMin forms where reflexes are known for only one of the two branches of Minahasan languages. The use of such sources has been especially helpful because of the lack of detailed information on Tsw. Apart from Niemann's list all information on Tsw was collected personally during fieldwork. Since time did not permit the compilation of a thorough Tsw lexicon for comparative purposes the identification of related items outside Minahasa, both cognates and etyma, has enabled the reconstruction of many PMin forms which would not have been possible had such a procedure been excluded.<sup>1</sup>

The only source inspected in detail in Zorc's Proto-Philippine Finder List (1971). This enabled the location of many related forms outside the Minahasan group without the need for detailed inspection of a large number of dictionaries which, for one thing, time did not permit. As indicated in section 1.5. the Minahasan languages possibly lie outside the Philippine group and if so are not descendants of PPh. However, because of the considerable number of regular sound correspondences and the great use to which Zorc's list has been put for the present study it has been found convenient to refer to PMin forms as reflecting PPh forms rather than merely corresponding to them. It must be understood however, that direct descent of PMin from PPh has not been established. PPh items taken from Charles (1973, 1974) are identified as such. All others are from Zorc's list.<sup>2</sup>

All reconstructions prior to Dempwolff (1938) have been taken from the PAN finderlist by Wurm and Wilson (1975). However, this work became available too late to be systematically employed in this study.

A systematic study of Minahasan correspondences to phonemes of other languages lies outside the scope of this work. There is thus a risk in using evidence from other languages in the reconstruction of PMin because sometimes correspondences and reflexes have to be based on less than solid evidence. For instance, PMin \*h is the usual reflex of PPh and PAN \*R but some forms are reconstructed for PMin which contain \*r. Thus from Tdn, Ttb wəru, Tse, Tbl bəru 'new' the PNM form \*bəru is reconstructed. From this, together with PAN \*beRu, the PMin form \*bəru

<sup>1</sup>Hockett (1958:513) describes the advantages of using evidence from a higher-level proto-language to reconstruct the parent language of a subgroup, a procedure he calls 'inverted reconstruction'.

<sup>2</sup>Zorc (personal communication) points out that his PPh reconstructions derive from a number of independent sources. Where a reconstruction is attributed to Zorc this is to be taken as meaning only that the reconstruction occurs in his wordlist although the item may actually have been reconstructed by another person.

is reconstructed (no cognate occurs in Tsw). Such a reconstruction can only be made on the assumption that PMin \*r is a valid reflex of PAN and PPh \*R, although \*h is the more common form. The correctness of this assumption will finally be determined only when the ancestry of PMin has been traced back step by step until its reflexes of PPh and PAN phonemes can be systematically established.

Caution must be exercised when an item occurs in one branch only of the Minahasan group and there is outside evidence to suggest that this is inherited from PMin but where regular correspondence between the form in the Minahasan languages and the outside language has not been established. Where it seems justified a PMin etymon is reconstructed according to the regular rules of sound change. It is felt that some slight risk should be taken when reconstructing items in this way as their exclusion might in cases deprive Austronesianists of useful information. Inclusion of such items allows them to be tested against further evidence as it becomes available and modified or eliminated if need be.

The evidence on which each PMin reconstruction is based is set out in the wordlist in Part IV. Where there is a slight doubt in any way about a reconstruction this is discussed in a footnote. In cases where more than a slight doubt exists as to the nature of the PMin etymon of a cognate set the item has not been placed on the list but will be the object of further investigation. Hence the list presented here is by no means exhaustive. Further study of the data and the collection of more material on both Minahasan and other languages will enable expansion of the wordlist in future. Further details on the reconstruction of PMin lexical items are given in section 4.1.

It must be stressed that the doubtful cases referred to comprise only a small proportion of the reconstructions in Part IV. The reconstruction of PMin phonology is based only on the more substantial evidence of those forms about which there cannot be reasonable doubt.

In Part II the phonology of PMin is reconstructed. The belief is expressed in section 1.1. that reconstructional work should proceed in stages. Thus, PMin phonology is not directly reconstructed from a comparison of all present-day Minahasan languages together but is arrived at in stages. First, the members of the smallest subgroup, the North-East Minahasan languages, are compared and their immediate parent language, PNE, is reconstructed. This is then compared with its nearest relative, Ttb, and their immediate parent language, PNM, is reconstructed. PNM and Tsw are then compared so that their immediate parent language, PMin, can finally be reconstructed. Since the phonological systems

of PNE and PNM differ from each other and from PMin only in minor ways much that could be called repetitious occurs in Part II. But the claim is made that reconstruction of PNE and PNM is justified since an attempt to reconstruct PMin directly would leave out a number of steps in the history of the Minahasan languages. Such an attempt would be different only in degree from efforts to reconstruct PAN directly and would be a contradiction of a basic tenet of the study. Accordingly each successive parent language in the Minahasan group is in turn reconstructed and the evidence from it is used in the reconstruction of the next stage.

In Part III are presented all the bound morphemes which it has so far been possible to reconstruct. Time did not permit the comparative study of syntax to proceed further than a consideration of the voice system of verbal constructions; the reconstruction of other aspects of PMin grammar must await future opportunity. Because of the limited number of items involved and the small amount of variation among the languages it has been found unnecessary to present the evidence of intermediate stages (PNE and PNM) for these reconstructions.

Finally a comment should be made on the term 'reconstruction'. A number of Austronesianists (e.g., Anceaux (1965), Dahl (1973)) reject the use of the term 'reconstruction' and prefer to speak instead of 'construction'. This seems to imply the attitude that what the comparativist is engaged in is the setting up, or construction, of a model which will best account for regular correspondences among languages. Such a position, it seems, can justify the incorporation of known borrowings into the list of constructions if they exhibit regular correspondences between the languages. Dempwolff incorporates borrowed forms as does Blust (1970), who even includes Arabic words which were borrowed into Austronesian languages no earlier than the 14th century A.D.

The position taken here is that comparative work can allow more than mere construction; it can in fact allow the linguist to make claims about aspects of a particular language spoken at some time in the past. This can be called reconstruction. Thus, it is claimed, PMin was an actual language, ancestral to the present-day Minahasan languages. By a comparison of the modern languages we can reconstruct forms as they were, or appear to have been, in PMin. For this reason any item in the Minahasan languages which can reasonably be suspected of being borrowed subsequent to the dissolution of PMin must be eliminated from consideration as the basis for the reconstruction of an item in PMin.





## PART TWO

### PHONOLOGY

2.0. The reconstruction of PMin phonology is carried out in three stages. In the first stage the phonological systems of Tbl, Tse and Tdn are described and from a comparison of these the phonology of PNE is reconstructed. In the second stage Ttb phonology is described and from a comparison of this with PNE the phonology of PNM is reconstructed. In the final stage Tsw phonology is described and compared with that of PNM to enable the reconstruction of PMin phonology.

The phonological descriptions of the languages are brief; only those features relevant to the present comparative work being mentioned. The description of each language is purely synchronic and with as little reference to the other languages as possible. Diachronic changes and phonological features which can only be described clearly with reference to other languages are discussed in the section dealing with the relevant proto-language. A number of minor problems are left until the final section, particularly ones where a consideration of all five languages together is beneficial.

The phonological descriptions do not take account of borrowings which do not conform to the inherited patterns. All languages have borrowed heavily from Malay and from European languages via Malay, such borrowings often introducing new sounds and sound clusters to the languages. New phonological patterns have also been introduced. For instance, in native Tbl [d] and [ʒ] are in complementary distribution and so are [g] and [ɟ]. But Tbl speakers are aware of the differences since there are many Mal borrowings in which [d] and [g] occur in environments in which only [ʒ] and [ɟ] are possible in native words.

## 2.1. THE RECONSTRUCTION OF PROTO-NORTH-EAST-MINAHASAN PHONOLOGY

2.1.0. PNE phonology is reconstructed from a comparison of the phonologies of Tbl, Tse and Tdn. The phonologies of these three languages are first briefly described.

### 2.1.1. TOMBULU PHONOLOGY

#### 2.1.1.1. Segmental Phonemes

Tbl has the following segmental phonemes:

p	t	k	ʔ
b	d	g	
m	n	ŋ	
	s		h
	r		
	l		
	y		
i		u	
e	ə	o	
	a		

Phonemes b, d and g have the following distribution of allophones:

b is realised as a voiced bilabial stop [b] after a nasal and as a labial continuant [v ~ b ~ w] elsewhere. The latter set of allophones will henceforth be represented as [b]: mbale [mbate], bale [bate] 'house', boŋboŋ [boŋboŋ] 'build', leboʔ [teboʔ] 'bad', kələb [kətəb] 'close'.

d is realised as a voiced alveolar stop [d] after a nasal and as a voiced retroflexed fricative [ʒ] elsewhere:<sup>1</sup> ndano [ndano], dano [ʒano] 'water', dəmdəm [ʒəmdəm] 'black', sədaʔ [səʒaʔ] 'fish', bələd [bətəʒ] 'dry'.

g is realised as voiced velar stop [g] after a nasal and as a voiced velar fricative [ɣ] elsewhere:<sup>2</sup> ŋgio [ŋgio], gio [ɣio] 'face', tangeruŋan [tangeruŋan] 'lizard sp.', səga [səga] 'swell', kuntag [kuntag] 'blunt'.

l is a voiced alveolar fricative lateral [+].

The phoneme h does not occur in the Tomohon dialect which has ʔ corresponding to h in the other dialects.

<sup>1</sup>This sound appears to be phonetically similar to the sound in Western Bukidnon Manobo which Elkins (1968) writes <z> and describes as a retroflexed voiced alveolar fricative.

<sup>2</sup>In some areas [ɣ] has been replaced by [g] in all environments due to pressure from Malay. Informants from Tomohon consistently used [g] in all environments but informants from Kinilow used [ɣ] as described in the text.

### 2.1.1.2. Distribution of Phonemes

All vowels occur word-initially, medially and finally except that ə does not occur finally or preceding ʔ or h. The vowel o has not been observed before final h. Within the morpheme two vowels can occur in sequence except that ə does not occur adjacent to another vowel and sequences of identical vowels do not occur.

All consonants except y, h and ʔ occur word-initially. All consonants occur intervocally and word-finally.

Word-initially clusters of nasal plus homorganic obstruent occur. The clusters are mb, mp, nd, nt, ns, ŋg, ŋk. The nasal is the inanimate noun class marker and thus belongs to a separate morpheme from the following obstruent. Under certain grammatical conditions it is optionally or obligatorily absent, e.g., ndano, sometimes dano 'water'.

There are three types of consonant clusters morpheme-medially: (i) Clusters of nasal plus homorganic obstruent. These are the same clusters as occur word-initially, e.g., lambot 'long', əndo 'day'. (ii) Clusters in RMs. The only known restrictions on a sequence of consonants in an RM are that the second member cannot be ʔ, h or y and following a nasal it cannot be r or l and sequences of identical consonants do not occur: səpsəp 'suck', boŋboŋ 'build'. (iii) Clusters consisting of ʔ or h followed by another consonant: tuʔmid 'heel', ahmut 'root'.

Clusters occur within the word at a morpheme boundary, including clusters of identical consonants: bulbulna 'its feathers', buʔukku 'my hair'.

Consonant clusters do not occur morpheme-finally.

### 2.1.2. TONSEA PHONOLOGY

#### 2.1.2.1. Segmental Phonemes

Tse has the following segmental phonemes:

p	t	k	ʔ
b	d	g	
m	n	ŋ	
	s		
	r		
	l		
	y		
i		u	
e	ə	o	
	a		

b, d and g have the following distribution of allophones:

b is realised as voiced stop [b] after a nasal and as voiced continuant [ɸ] elsewhere: mbale [mbale], bale [ɸale] 'house', dambot [dambot] 'long', mbudbud [mbudɸud] 'feathers', lebo? [leboʔ] 'bad'.

d is realised as voiced alveolar stop [d] in all environments: ndua [ndua], dua [dua] 'two', doud [doud] 'water'.

g is realised as voiced velar stop [g] after nasals and as voiced velar fricative [ɣ] elsewhere: ngio [ngio], gio [ɣio] 'face', tangeygey [tangeyɣey] 'hang down', sagsag [sagsaɣ] 'clear ground'.

#### 2.1.2.2. Distribution of Phonemes

All vowels occur word-initially, medially and finally with the restriction that ə does not occur finally or preceding ʔ. Within the morpheme two vowels may occur in sequence except that ə does not occur adjacent to another vowel. When two identical vowels occur in sequence they are realised phonetically as one long vocoid: biid [bi:d] 'rice', bee [be:] 'give'.

All consonants except ɣ and ʔ occur in word-initial position. All consonants occur intervocalically and word-finally.

Word-initially clusters of nasal plus homorganic obstruent (stops and s) occur. The nasal is a noun class marker and occurs only with inanimate nouns. It is sometimes absent, for instance, when the noun is in attributive position, e.g., mbale, sometimes bale 'house'.

There are three types of consonant clusters morpheme medially:

- (i) Clusters of nasal plus homorganic obstruent. These are the same clusters as occur word-initially, e.g., dambot 'long', dansuna 'onion'.
- (ii) Clusters in RMs. The only known restrictions on a sequence of consonants in an RM are that the second member cannot be ʔ or ɣ and following a nasal it cannot be r or l and sequences of identical consonants do not occur: səpsəp 'suck', tɪŋtɪŋ 'ring'.
- (iii) Clusters of ʔ plus any other consonant: diʔdis 'hate', paʔyaŋ 'work'.

Consonant clusters also occur at morpheme boundaries within the word. In this position clusters of identical consonants can occur: budbudna 'its feathers', buʔukku 'my hair'.

No consonant clusters occur word-finally.

#### 2.1.3. TONDANO PHONOLOGY

##### 2.1.3.1. Segmental Phonemes

Tdn has the following segmental phonemes:

p	t	k	ʔ
b	d	g	
m	n	ŋ	
w		ɣ	
	s		
	r		
	l		
	y		
i		u	
e	ə	o	
	a		

Phoneme *w* has a number of variants, the main ones being [v], [b] and [w].

In the Kakas dialect an additional phoneme *h* occurs.

#### 2.1.3.2. Distribution of Phonemes

All vowels occur initially, medially and finally with the restriction that *ə* does not occur finally or preceding ʔ (but see 2.1.4.3.(a)). Within the morpheme any two vowels can occur in sequence except that *ə* does not occur adjacent to another vowel. In the eastern part of the Tondano dialect *a* does not occur before *i* and *u*, having been replaced by *e*. This and other changes affecting *a* before high vowels are described in section 2.1.4.3.(a). When two identical vowels occur in sequence they are realised phonetically as a long vocoid: *wee* [be:] 'give', *kuun* [ku:n] 'grass sp.'. In the Kakas dialect sequences of identical vowels do not occur. Where Tondano has a long vocoid Kakas has intervocalic *h*: *wehe* 'give', *kuhun* 'grass sp.'.

All consonants except *y* and ʔ occur word-initially. *b*, *d* and *g* occur initially only under certain grammatical conditions discussed below. All consonants occur intervocalically. All consonants occur word-finally except *b*, *d* and *g*. Phoneme *h* occurs only intervocalically in Kakas.

Word-initially clusters of nasal plus homorganic obstruent occur. The nasal is the noun class marker *N-*, occurring only with inanimate nouns and nominalised words replacing such nouns. Following this marker *w* is replaced by *b* and *ɣ* is replaced by *g*. *N-* then assimilates to the following stop. The sequence *N-* plus *r* (trilled or flapped vibrant) is realised as either *nd* or *ɽr* depending on the particular root (the reasons for this are historical and the choice is not predictable on synchronic evidence):

N- + wale 'house' → mbale  
 N- + gio 'face' → ŋgio  
 N- + rano 'water' → ndano  
 N- + rina? 'honey' → rina?

In most contexts N- can be deleted. When N- is deleted the sound changes noted above remain, resulting in word-initial b, d and g. It is necessary to make a distinction between the non-occurrence of N- and its occurrence and subsequent deletion to account for the distribution of initial b, d and g. These occur initially only in environments in which they can also occur pre-nasalised, i.e., where N- can occur. Initial voiced stops thus result from the loss of the nasal from the clusters mb, nd and ŋg.

On the other hand, initial w, r and ɟ occur whenever N- does not occur, i.e., when it is obligatorily or optionally absent, but not when it has been deleted since this deletion occurs after the replacement of w, r and ɟ by their corresponding stops. Thus, in environments in which N- cannot occur w, r and ɟ, but not voiced stops, can occur word-initially, e.g., following an animate noun class marker: si we?wek 'duck', si ɟəɟori 'borer', si reŋa? 'snail'.

When N- can occur and then be deleted, which is possible in most grammatical contexts, all three forms can occur:

wale ~ mbale ~ bale 'house'  
 rano ~ ndano ~ dano 'water'  
 ɟio ~ ŋgio ~ gio 'face'

Two types of consonant clusters occur morpheme-medially: (i) Clusters of nasal plus homorganic voiceless obstruent. The clusters are mp, nt, ns, ŋk. Voiced stops b, d and g do not occur prenasalised word-medially, nasals having recently been lost from this position (see 2.1.4.3.(d)). The loss has resulted in contrast between voiced stops and corresponding continuants as shown by the following pairs:

b and w: tibo 'sell' and siwo 'make'  
 d and r: todo 'push' and toro 'approach'  
 g and ɟ: logas 'bald' and poɟar 'shallow'

(ii) Clusters of glottal stop plus any other consonant: pa?yaŋ 'work', tu?mir 'heel'.

Where the juxtaposition of two consonants at a morpheme boundary within the word would result in a cluster of a type other than those occurring morpheme-medially an epenthetic schwa usually occurs between the consonants:

kaʔampit 'friend' + -ku 'my' → kaʔampitəku 'my friend'

lawas 'hand' + -ku 'my' → lawasəku 'my hand'

Epenthetic schwa is not obligatory and is occasionally absent:<sup>1</sup>

kaʔampitku 'my friend', lawasku 'my hand'

No consonant clusters occur word-finally.

#### 2.1.4. PROTO-NORTH-EAST-MINAHASAN PHONOLOGY

##### 2.1.4.1. Segmental Phonemes

The following are the segmental phonemes reconstructed for PNE:

p	t	k	ʔ
b	d	g	
m	n	ŋ	
	s		h
	r		
	l		
	y		
i		u	
e	ə	o	
	a		

##### 2.1.4.2. Reflexes of PNE Phonemes

The following chart gives the regular reflexes in Tbl, Tse and Tdn of PNE phonemes. Where all languages have identical reflexes in all environments no further discussion of the phonemes is necessary. The dialects represented are Kinilow for Tbl, Kauditan for Tse and Tondano for Tdn. Reflexes which occur only in other dialects are placed in parentheses.

<sup>1</sup>Epenthetic schwa in this position appears to have been entirely lost in the speech of younger Tondanese with consonant clusters regularly occurring at the morpheme boundary.

PNE	Tbl	Tse	Tdn
a	a	a	a (e, o, ə)
e	e	e	e
ə	ə	ə	ə
i	i	i	i
o	o	o	o
u	u	u	u
p	p	p	p
b	b	b	b, w
t	t	t	t
d	d	d (l)	d, r
k	k	k	k
g	g	g	g, ʒ
m	m	m	m, ʃ
n	n, ʃ	n	n, ʃ
ŋ	ŋ	ŋ	ŋ, ʃ
s	s	s	s
h	h (?)	ʃ	ʃ (h)
r	r, d	r	r
l	l	l, d	l
y	y	y	y
?	?	?	?

#### 2.1.4.3. Diachronic Changes

##### (a) Reflexes of \*a in Tdn

In present-day Tdn a process is in operation whereby a is merging with mid vowels in certain environments. In the speech of informants for this study a has a raised slightly fronted allophone [a<sup>h</sup>] before (?)i, i.e., before i with or without an intervening glottal stop, and a raised slightly backed variant [a<sup>l</sup>] before (?)u, i.e., before u with or without an intervening glottal stop. In casual speech these allophones fluctuate with mid vowels, [a<sup>h</sup>] with e and [a<sup>l</sup>] with o, e.g., maide? [m<sup>h</sup>aide?] ~ meide? 'afraid', maupi? [ma<sup>h</sup>upi?] ~ moupi? 'angry'. Since the process is only incipient in the speech of informants it is not recognised here and the reflex of PNE \*a is always represented as a. However, for some speakers the process is more advanced. In villages to the east of the town of Tondano the process of split and merger is complete, a having been replaced by mid vowels before high vowels, so that only forms such as meide? 'afraid' and moupi? 'angry' occur. In these areas a has merged with ə if the following high vowel is separated by ?. Thus, pə?it 'bitter' < \*pa?it, sə?ut 'banana' < \*sa?ut.



The sound change is also complete in the speech of younger people in Tondano town. West of Tondano the process is not as far advanced and in the Kakas region it has not occurred at all.

(b) Centering of first-syllable vowels in Tse and Tdn

A prefix CV- can be reconstructed for PNE in which V assimilates to the following vowel, e.g.: CV- + \*nisnis 'brush teeth' → \*nininis 'toothbrush'. In Tse and Tdn the vowel of CV- has become ə: Tse nənisanis, Tdn nənɪ'nɪs 'toothbrush'. This process has also occurred in three syllable root morphemes where the third last and second last syllables have identical vowels in PNE:

PNE	Tbl	Tse	Tdn	
*bebene	bebene	bəbene	wəwene	'woman'
*raraha	raraha	rərəaa	rərəaa	'girl'

This change is recent, having occurred after the time of Niemann who lists, e.g., Tse, Tdn <raraha> 'girl', Tse <awahat> 'storm' (modern Tse əbaat).

(c) Loss of nasals from clusters

In Tdn nasals have been lost before voiced stops medially leaving voiced stops intervocalically, where they did not previously occur:

PNE	Tdn	
*lambot	labot	'long'
*əndo	ədo	'day'

Nasal loss in Tdn is recent. The loss had not begun a century ago when Niemann compiled his wordlist. In villages to the east of Lake Tondano the loss is complete. In Tondano town the loss is complete except that the cluster nd persists in the careful speech of older people, in fluctuation with d, e.g., əndo ~ ədo 'day'. In villages to the west of Tondano both mb and nd still occur in the speech of elderly people, but the cluster ng does not. The nasal loss has not occurred in the Kakas dialect.

Although Tbl and Tse both have medial cluster ng and Tdn had the cluster until recently it is not certain that the cluster occurred in PNE. The cluster occurs extremely rarely in Tbl and Tse and no cognates among the three languages have been discovered. Hove has only half a dozen entries for Tse, none of which correspond to the equally limited number which Wouw lists for Tbl.

Niemann lists a few Tdn words with medial ng, e.g., <longgo> 'sweat' (modern logo) and <anggor> 'clothing'. The latter word does not occur

in modern Tdn but Watuseke (1959:note 25) gives <anggor> 'clothing' which, he says, 'was still used about fifty years ago by old people, according to my father.'

It is possible that Tdn ŋg developed from other than PNE \*ŋg. In the few cognates located it corresponds to ŋk, ŋ or g ([ŋ]) in Tse, Tbl and other languages. For instance, Tdn sogit ([sogit]), Tbl sogit ([sogit]) 'quickly'; Tdn əgər 'thunder' (Lengkong and Wantalangi also list this as <engger>, i.e., əŋgər), Tbl əŋkər 'thunder, howling', Tse əŋkər 'snoring'; Tdn rəgok 'snore', Tbl rəŋkok 'noise of angry pig'; Tdn səgər, Tbl, Tse səŋər 'steam'. Cognate with Tondano əŋgər, which he writes <nangor> (where initial n- is the inanimate noun marker), Jansen lists Tse <nagur> and Kakas <nangkor>.

Since all three languages have medial ŋg (with recent loss of ŋ in Tdn) it is likely that PNE did also although no reconstructions can be made. However, the fact that Tbl has no cluster ŋg raises the possibility that it did not occur morpheme-medially in PNE either but was a later development in the three daughter languages.

Wouw writes that not all Tbl speakers employ n before s word-initially but he gives no details. In a paper on Tbl morphology Wajong (1970) makes no reference to absence of n in this position. Medially n has been lost before s in some Tbl words, e.g., lasuna 'onion', cf. Tdn lansuna, Tse dansuna; lasot 'fruit sp.', cf. Tdn lansot, Tse dansot.

(d) The phonemes \*b, \*d and \*g

In Tbl and Tse b and g have variants [b] and [g] following nasals and [b̥] and [g̥] elsewhere. In Tbl d has variant [d] following a nasal and [d̥] elsewhere; in Tse [d] occurs in all environments.

Formerly in Tdn b and g had the same variants as they do in Tse and Tbl and d had variant [d] after n and [d̥] (trilled or flapped vibrant) elsewhere. However, loss of nasals before medial b, d and g has resulted in contrast between b and w, d and r, g and ɣ (see examples in 2.1.3.2.). Word-initially N- may be deleted (see 2.1.3.2.). When it is deleted the stops occur in free variation with the continuants but since the variation occurs only under this grammatical condition it involves deliberate choice on the part of the speaker and thus is phonemic here also.

In the Maumbi dialect of Tse \*d has assimilated to a preceding l if there is no intervening consonant. This change has not occurred in the Kauditan dialect:

PNE	Maumbi	Kauditan	
*laləd	laləl	laləd	'fly'
*paləd	paləl	paləd	'palm'

The following variants are reconstructed for PNE \*b, \*d and \*g:

- b : [b] following a nasal  
 [b̥] elsewhere
- d : [d] following a nasal  
 [ʒ] elsewhere
- g : [g] following a nasal  
 [g̥] elsewhere

PNE items can be reconstructed in which \*b and \*d occur after non-homorganic nasals, e.g., \*boŋboŋ > Tbl, Tse boŋboŋ 'shake'; \*dəmɔm > Tbl dəmɔm 'black' (with the further evidence of Ttb rəindəm 'black, dark', PPh (Charles) \*demdem 'overcase, dark'). However, g has not been recorded after a non-homorganic nasal in either Tbl or Tse and possibly occurred after ŋ in PNE only word-initially (see (c) above).

The only doubt in the above reconstructions is the manifestation of \*d in positions other than after a nasal, although good reasons can be given that it was [ʒ].

The possibility that PNE had \*d : [d ~ ʒ], as suggested by Tdn, is rejected. At some time prior to PNE there were separate phonemes \*d and \*r. If by the time of PNE the continuant allophone of \*d, which occurred in positions other than after a nasal, had merged with phoneme \*r then the phonemic distinction between the two former phonemes would have ceased as they would have come into complementary distribution; \*d after a nasal and \*r elsewhere. But in Tse the former continuant allophone of d has merged with the stop allophone in just those cases where it was an allophone of \*d in pre-PNE. But the reflex of pre-PNE \*r has not merged with d and therefore the two sounds must always have been separate.

The situation in Tbl likewise argues again PNE \*d : [d ~ ʒ]. Since Tbl has d : [d ~ ʒ] the assumption would require that [ʒ] became Tbl [ʒ] only where it had originated from \*d but never where it had originated from \*r.

If [d] and [ʒ] were allophones in PNE then the following unacceptable changes would have occurred (where pre-PNE \*d intervocalically was probably a continuant):

pre-PNE	PNE	Tse	Tbl	
*[sədaʔ]	*[səʒaʔ]	[sədaʔ]	[səʒaʔ]	'fish'
*[pəʒa]	*[pəʒa]	[pəʒa]	[pəʒa]	'dry'

Since such changes would have been impossible the allophone of \*d must have been phonetically different from [ʃ] (which was thus a separate phoneme) in PNE.

Thus the merger of \*d and \*r, through change to [ʃ] of the allophone of \*d when not following a nasal, must have occurred in Tdn after its separation from Tbl and Tse.

It is possible that PNE, like Tse, had [d] in all environments and that later variation occurred in Tbl and Tdn. But this is unlikely because not only the evidence from Tbl and Tdn but also that from Ttb suggests a continuant, i.e., PNE \*d was manifested as a continuant in the same environments as were \*b and \*g.

It is most likely that PNE had \*d : [d ~ ʒ] as does modern Tbl and that [ʒ] became [ʃ] in Tdn and [d] in Tse, i.e., in each language merging with another sound. There is some evidence from the records for this. In Jansen's wordlist (1855) Tse is shown as having <r> as a reflex of PNE \*d in all but word-initial and post-n positions where it has <d>, e.g., <uran> 'rain' (modern Tse udan). Since Jansen uses letter <r> to represent Tbl [ʒ] (as do Niemann, Adriani and other early writers) it is possible that he is doing so for Tse also and that Tse thus had d : [d ~ ʒ], the change [ʒ] > [d] occurring after 1855.

Jansen also uses letter <r> to represent [ʃ], e.g., <pera> 'dry' (modern Tse pera), but the sound represented by <r> in other words, e.g., <uran> (modern udan), must have been different for reasons given above. He is clearly not using <r> to represent [d] intervocally since he uses letter <d> where Tse d is a reflex of PNE \*l, e.g., <tadun> for tadun 'forest' (< PNE \*talun). Thus the medial consonant sounds in <tadun> (modern tadun) and <uran> (modern udan) must have been phonetically distinct at the time of his writing.

Yet Niemann (1869-70) always uses letter <d> where modern Tse has [d], for instance, recording <udan> 'rain' and <tadun> 'forest'.

Unlikely as it may seem, the evidence from Jansen and Niemann suggests that two sounds merged within the short space of time between the recording of their respective lists. Collection of lists from different dialect areas is not a likely explanation since Jansen provides lists from three Tse dialects, using <r> for all three where [d] occurs in present-day Tse. One of the dialects he includes is that of Maumbi (called Klabat-atas by Jansen) which is the dialect on which Niemann's and Hove's lists are based.

The likely explanation is that Jansen's <r> represents [ʒ] where modern Tse has [d] and represents [ʃ] where modern Tse has [ʃ].

Further evidence supports the occurrence of [ʒ] as an allophone of \*d in PNE. Adriani (1925:141) states that both Tbl and Tdn have two separate <r> sounds. By two <r> sounds in Tbl he is referring to [ʃ] and [ʒ] and it is thus possible that until recently Tdn also had two sounds which have since merged. Adriani's statement cannot be taken as authoritative, however, since his knowledge of Tdn was limited and he makes a number of minor errors when discussing the phonology of the Minahasan languages.

(e) Reflexes of \*h and development of long vocoids

PNE \*h has been lost in Tse and Tdn in all positions except in the Kakas dialect where it remains intervocally. Loss of intervocalic \*h in Tse and Tdn has resulted in vowel sequences. If the contiguous vowels are identical the phonetic manifestation is a single long vocoid:

PNE	Tbl	Tse	Tdn	
*duhi	duhi	dui	ru	'bone'
*nihu	nihu	niu	niu	'winnow'
*kuhun	kuhun	kuun	kuun	'grass sp.'
*lehe?	lehe?	dee?	lee?	'neck'

Loss of word-final \*h in Tdn has left no effect but in Tse the vowel before a previous \*h has been lengthened:

PNE	Tbl	Tse	Tdn	
*səlah	səlah	səlaa	səla	'big'
*timuh	timuh	timuu	timu	'south'

Loss of \*h in Tse and Tdn is recent. Niemann's list shows the sound still remained a century ago in many words although it had been lost from others, e.g.:

Tse	Tdn	
<mee>	<mee>	'give'
<mehe>	<mee>	'put'
<doho>	<loho>	'envy'
<doho>	<loo>	'slander'
<tiis>	<tils>	'drip'
<kawihi>	<kawihi>	'left'

The above examples from Niemann show that h loss was in progress a hundred years ago. The words translated 'give' and 'put' are the one morpheme as are those translated 'envy' and 'slander', indicating that at that time h was optional within the one word.

It is probable that in the development of final long vowels in Tse the first step in the process was the occurrence of a vowel after the final h of the same quality as the preceding vowel. Loss of intervocalic h then left a sequence of two vowels (one long vocoid). The sequence of steps would thus have been:

$$V_1h\# > V_1hV_1\# > V_1V_1\#$$

One piece of evidence for this is that Niemann gives Tse <ruruhu> 'side' for modern Tse ruruu (cf. Tbl ruruh). He shows final h still remaining in some words and for other words his spelling indicates h had already been lost. If the series of steps suggested above took place then apparently Niemann recorded the language at the transition stage when fluctuation between the forms was still occurring.

PNE \*h is reflected in all dialects of Tbl as h except in Tomohon where it is reflected as ʔ. Merger of the two sounds in Tomohon has removed a phonemic distinction which is retained in other dialects such as Kinilow:

PNE	Kinilow	Tomohon	
*paha	paha	paʔa	'rafters'
*paʔa	paʔa	paʔa	'thigh'
*kahat	kahat	kaʔat	'observe'
*kaʔat	kaʔat	kaʔat	'seize'

Word-medially PNE \*h is reflected in Tomohon by Ø rather than ʔ if ʔ also occurs in the following syllable:

PNE	Kinilow	Tomohon	
*bahuʔ	bahuʔ	bauʔ	'wet'
*bahiʔ	bahiʔ	baiʔ	'hard wood'

(f) Reflexes of \*l

Tbl l is phonetically different from that in Tdn and Tse. Since Ttb has the same sound as Tdn and Tse it can be assumed that the fricative sound of Tbl is an innovation and that PNE \*l was a frictionless 'clear' lateral.

PNE \*l always occurs as l in Tbl and Tdn but is often reflected in Tse as d:

PNE	Tbl	Tse	Tdn	
*lima	lima	dima	lima	'five'
*tali	tali	tadi	tali	'rope'
*buʔul	buʔul	buʔud	wuʔul	'rotten'

However, it also frequently occurs in Tse as l:

PNE	Tbl	Tse	Tdn	
*lalan	lalan	lalan	lalan	'road'
*səlah	səlah	səlaa	səla	'big'
*akəl	akəl	akəl	akəl	'palm sp.'

The Tse reflexes of PNE \*l show no environmental distribution and (on available evidence) are unpredictable. No reason can as yet be given to account for this and both d and l are treated as valid reflexes of \*l. There are some dialectal differences, d being more prevalent as a reflex in the east than in the west. Hove gives a number of doublets for Maumbi of which only the forms with d occur in the eastern dialect, e.g.: dida?, lila? 'tongue'; dəpət, ləpət 'fold'; dambot, lambot 'long'.

The sporadic change PNE \*l > Tse d must have preceded the change whereby \*d assimilated to a preceding l in Maumbi (see (d) above). In those words where \*l did not change assimilation of \*d then occurred in Maumbi. The two possible reflexes in Maumbi of PNE \*lVd sequences can be seen in the following words:

PNE	Tbl	Maumbi	Kauditan	
*kəlud	kəlud	kədud	kədud	'catch in throat'
*palad	palad	palal	palad	'palm'

(g) Dissimilation of \*r in Tbl

In Tbl a process of dissimilation has occurred whereby word-final \*r has changed to d if there is another r in the word:

PNE	Tbl	Tse	
*rondor	rondod	rondor	'straight'
*kurambər	kurambəd	kurambər	'thick'
*ŋərər	ŋərəd	ŋərər	'slow'

(h) Reflexes of medial consonant clusters in RMs

Clusters in RMs remain unchanged in Tbl and Tse. A number of changes have occurred in Tdn. If the first member of the cluster in PNE is an oral consonant it has been replaced by glottal stop unless it is \*y in which case it has been lost. If the cluster in PNE consists of a heterorganic nasal-obstruent sequence then the nasal has assimilated to the place of articulation of the following obstruent:

PNE	Tbl/Tse	Tdn	
*səpsəp	səpsəp	səʔsəp	'suck'
*korkor	korkor	koʔkor	'scratch'
*geygey	geygey	gegey	'carry'
*tiŋtiŋ	tiŋtiŋ	tintiŋ	'ring'

#### 2.1.4.4. Distribution of Phonemes in PNE

All vowels occur in initial position:

PNE	Tbl	Tse	Tdn	
*ate	ate	ate	ate	'liver'
*era	era	era	era	'move'
*əpat	əpat	əpat	əpat	'four'
*ipus	ipus	ipus	ipus	'tail'
*ohat	ohat	oat	oat	'vein'
*umaʔ	umaʔ	umaʔ	umaʔ	'sheathe'

All vowels occur in medial position. The only known restriction is that \*ə does not occur before \*h or \*ʔ. No words have been reconstructed where \*o precedes word final \*h:

PNE	Tbl	Tse	Tdn	
*pate	pate	pate	pate	'die'
*kentoʔ	kentoʔ	kentoʔ	kentoʔ	'lame'
*pəra	pəra	pəra	pəra	'dry'
*bisa	bisa	bisa	wisa	'where'
*korkor	korkor	korkor	koʔkor	'scratch'
*kutu	kutu	kutu	kutu	'louse'

All vowels except \*ə occur word-finally:

PNE	Tbl	Tse	Tdn	
*lima	lima	dima	lima	'five'
*pate	pate	pate	pate	'die'
*tali	tali	tadi	tali	'rope'
*əndo	əndo	əndo	ədo	'day'
*asu	asu	asu	asu	'dog'

The only known restrictions on the sequence of two vowels within a word are that (i) \*ə never occurs adjacent to another vowel and (ii) sequences of identical vowels do not occur. Examples of vowel sequences:



PNE	Tbl	Tse	Tdn	
*tiev	tiev	tiev	tiev	'call pigs'
*gio	gio	gio	gio	'face'
*meoŋ	meoŋ	meoŋ	meoŋ	'cat'
*dua	dua	dua	rua	'two'
*lueʔ	lueʔ	dueʔ	lueʔ	'tears'
*taraukaʔ	taraukaʔ	-	taraukaʔ	'skull'

All consonants except \*y, \*h and \*ʔ occur word-initially:

PNE	Tbl	Tse	Tdn	
*pitu	pitu	pitu	pitu	'seven'
*baie	baie	bale	wale	'house'
*təlu	təlu	tədu	təlu	'three'
*dua	dua	dua	rua	'two'
*kita	kita	kita	kita	'we'
*gio	gio	gio	gio	'face'
*meoŋ	meoŋ	meoŋ	meoŋ	'cat'
*nihu	nihu	niu	niu	'winnow'
*ŋaŋa	ŋaŋa	ŋaŋa	ŋaŋa	'gape'
*suŋe	suŋe	suŋe	suŋe	'horn'
*rəgəs	rəgəs	rəgəs	rəgəs	'wind'
*lima	lima	dima	lima	'five'

All consonants occur intervocalically:

PNE	Tbl	Tse	Tdn	
*əpat	əpat	əpat	əpat	'four'
*leboʔ	leboʔ	leboʔ	lewoʔ	'bad'
*kutu	kutu	kutu	kutu	'louse'
*udan	udan	udan	uran	'rain'
*kakaʔ	kakaʔ	kakaʔ	kakaʔ	'older sibling'
*rəgəs	rəgəs	rəgəs	rəgəs	'wind'
*lima	lima	dima	lima	'five'
*ənəm	ənəm	ənəm	ənəm	'six'
*bəŋi	bəŋi	bəŋi	wəŋi	'night'
*əsa	əsa	əsa	əsa	'one'
*ŋaran	ŋaran	ŋaran	ŋaran	'name'
*təlu	təlu	tədu	təlu	'three'
*ayah	ayah	ayaa	-	'light'
*ohat	ohat	oat	oat	'vein'
*paʔan	paʔan	paʔan	paʔan	'bait'

All consonants occur word-finally:

PNE	Tbl	Tse	Tdn	
*atəp	atəp	atəp	atəp	'roof'
*kələb	kələb	kələb	kələw	'close'
*əpat	əpat	əpat	əpat	'four'
*bəlad	bəlad	bəlad	wəlar	'dry'
*buʔuk	buʔuk	buʔuk	wuʔuk	'hair'
*ipag	ipag	ipag	ipag	'brother-in-law'
*ənəm	ənəm	ənəm	ənəm	'six'
*ŋaran	ŋaran	ŋaran	ŋaran	'name'
*baʔaŋ	baʔaŋ	baʔaŋ	waʔaŋ	'tooth'
*ipus	ipus	ipus	ipus	'tail'
*pagər	pagər	pagər	pagər	'fence'
*akəl	akəl	akəl	akəl	'palm sp.'
*tɪey	tɪey	tɪey	tɪey	'call pigs'
*sələh	sələh	sələa	sələ	'big'
*umaʔ	umaʔ	umaʔ	umaʔ	'sheathe'

Word-initially clusters of nasal plus homorganic obstruent occur.

The nasal signals inanimate noun class:<sup>1</sup>

PNE	Tbl	Tse	Tdn	
*mpelaʔ	mpelaʔ	mpelaʔ	mpelaʔ	'wound'
*mbale	mbale	mbale	mbale	'house'
*ntali	ntali	ntadi	ntali	'rope'
*nduhi	nduhi	ndui	ndui	'bone'
*nsuŋe	nsuŋe	nsuŋe	nsuŋe	'horn'
*ŋkaso	ŋkaso	ŋkaso	ŋkaso	'rafters'
*ŋgio	ŋgio	ŋgio	ŋgio	'face'

Within morphemes three consonant cluster types occur: (i) Nasal plus homorganic obstruent. All stops and \*s can be preceded by a homorganic nasal morpheme-medially except that there is doubt about the occurrence of medial \*ŋg (see 2.1.4.3.(c)):

<sup>1</sup>It is probable that in PNE a particle always preceded nouns and that consequently nasal-obstruent clusters did not occur utterance-initially. In Tbl when not preceded by a locative or instrumental preposition inanimate nouns appear to always require a preceding particle, u indicating singularity and a indicating plurality: u mbale 'a house', a mbale 'houses'. A somewhat similar situation occurs in the Kauditan dialect of Tse but there is no indicator of plurality for inanimate nouns. However, in Kauditan the particle u may be omitted, even utterance-initially, and if it is absent the nasal is also optional, e.g., u mbudbud ~ mbudbud ~ budbud 'feather(s)'. No study has been made of these particles or of the rules for their deletion in Tse and Tbl. The particles have disappeared in Tdn and nasal-obstruent clusters may occur utterance-initially, although sometimes ə precedes (see Sneddon 1975:28).

PNE	Tbl	Tse	Tdn	
*təmpok	təmpok	təmpok	təmpok	'tip'
*tambəlaŋ	tambəlaŋ	tambəlaŋ	tabəlaŋ	'bamboo sp.'
*ənteʔ	ənteʔ	ənteʔ	ənteʔ	'strong'
*əndo	əndo	əndo	ədo	'day'
*lansot	lasot	dansot	iansot	'fruit sp.'
*baŋkoʔ	baŋkoʔ	baŋkoʔ	waŋkoʔ	'big'

(ii) Clusters of two consonants in RMs. The only known restrictions on sequences are that the second member cannot be \*h or \*ʔ and following a nasal it cannot be \*r or \*l (these being replaced by \*d - see also 2.3.2.4.):

PNE	Tbl	Tse	Tdn	
*karətkət	karətkət	karətkət	karəʔkət	'grind teeth'
*poʔpoʔ	poʔpoʔ	poʔpoʔ	poʔpoʔ	'coconut'
*tiŋtiŋ	tiŋtiŋ	tiŋtiŋ	tintiŋ	'ring'
*nəŋnəŋ	nəŋnəŋ	nəŋnəŋ	-	'buzz'

(iii) \*ʔ and \*h followed by another consonant. All consonants other than \*ʔ and \*h can follow \*ʔ (often in an RM - see (ii) above) but owing to the lack of clear evidence from Tse and Tdn the number of clusters which can be reconstructed in which \*h is the first member are limited (see also 2.3.2.3.(f)). Examples of clusters where \*ʔ is the first member:

PNE	Tbl	Tse	Tdn	
*tuʔmid	tuʔmid	tuʔmid	tuʔmir	'heel'
*baʔkəs	baʔkəs	baʔkəs	waʔkəs	'tie'
*paʔyaŋ	paʔyaŋ	paʔyaŋ	paʔyaŋ	'work'

Examples of clusters where \*h is the first member. The only evidence is from Tbl:

PNE	Tbl	
*ahbun	ahbun	'smoke'
*tahlous	tahlous	'excessive'
*ahmut	ahmut	'root'

No consonant clusters occur word-finally. Clusters between morphemes within the word are discussed in section 2.3.2.3.(j).

## 2.2. THE RECONSTRUCTION OF PROTO-NORTH-MINAHASAN PHONOLOGY

2.2.0. PNM phonology is reconstructed from a comparison of the phonologies of Ttb and PNE. Ttb phonology is first briefly described.

## 2.2.1. TONTEMBOAN PHONOLOGY

## 2.2.1.1. Segmental Phonemes

There are a number of differences in the phonologies of Mtn and Mkl dialects. Mtn has the following segmental phonemes:

p	t	k	ʔ
b	d		
m	n	ŋ	
w	r	g	
	s		
	l		
	y		
i		u	
e	ə	o	
	a		

k is realised as a voiceless alveopalatal affricate [c] following i with or without an intervening ŋ or ʔ. ŋ after i is usually realised as alveopalatal nasal [ñ] but sometimes as [ŋ] (see Adriani 1908:40 for a fuller statement): *likur* [licuʔ] 'back', *tiŋkas* [tiŋcas] 'run', *wuliŋaʔ* [buliŋaʔ] ~ [buliñãʔ] 'egg'.

g is a voiced velar fricative [g].<sup>1</sup>

The phonemic situation in relation to voiced stops is unclear and the phonetic details are therefore presented in full.

b and d do not occur word-initially. Both follow an initial homorganic nasal but in the absence of the nasal b is replaced by w [v ~ b ~ w] and d by r (trilled or flapped vibrant), e.g.:

*wale* 'house', *a mbale* 'to the house'  
*rano* 'water', *a ndano* 'to the water'

Medially and finally the situation is not so clear. Adriani (1908: 19) writes that b always follows glottal stop (ʔb), homorganic nasal (mb) or glottal stop plus nasal (ʔmb), except that in Mkl it can also occur directly following a vowel.

He writes that where Mkl has b Mtn has ʔb except for the Sonder subdialect which has ʔmb:

<sup>1</sup>Adriani (1908:25) points out that due to school education in Malay younger Tontemboans pronounce stop [g] instead of fricative [g]. The fricative is not prenasalised word-initially, e.g., *a gareya* [a gaʔeya] 'in church', but people who have the stop prenasalise this in situations where the other stops are also prenasalised, thus *a ŋgareya* [a ŋgaʔeya] 'in church'. Informants from Sonder consistently used [g] but informants from Langoan always used [g]. Since [g] is a recent innovation under influence from Malay it is not further recognised in this diachronic study.

Mkl	Mtn	Sonder	
loboy	loʔboy	loʔmboy	'plump'
kilaub	kilauʔb	kilauʔmb	'dig'

If Mkl has ʔb then Mtn has either w or ʔmb:

Mkl	Mtn	
ləʔbuʔ	ləwu	'demarcated land'
kaʔbiri	kaʔmbiri	'left'

Schwarz's dictionary is very often at variance with Adriani's statement on these correspondences. For instance, for the correspondence set Mkl b, Mtn ʔb, Sonder ʔmb Adriani (1908:19) gives five examples; Schwarz is discrepant in every case. Thus Adriani lists Mkl kilaub, Mtn kilauʔb, Sonder kilauʔmb 'dig' but Schwarz lists kilaub and kilauʔb (as well as kilaʔub and kilaʔumb) without noting any dialectal distribution of the variants. Adriani has Mkl loboy, Mtn loʔboy, Sonder loʔmboy 'plump' but Schwarz gives Mkl loboy, Mtn loʔmboy but no form loʔboy. Adriani gives Mkl kəboʔ, Mtn kəʔboʔ, Sonder kəʔmboʔ 'play' while Schwarz lists only kəʔmboʔ for all dialects, and so on.

Work with informants shows that Schwarz is usually reliable where he specifically identifies a form as Mkl but, as the above examples show, he is not a reliable guide to all dialect variation. Sometimes he omits dialect forms, especially for Mkl, and at other times lists dialect variants as if they were free variants within the one dialect.

While Adriani is apparently more reliable he only gives a limited number of examples of each category and his information is also at times at variance with that of informants. For instance, Sonder subdialect sometimes has ʔb where Adriani gives only ʔmb for the whole Mtn dialect (corresponding to Mkl ʔb):

Mtn	Sonder	
kuraʔmber	kuraʔber	'thick'
waʔmbaʔ	waʔbaʔ	'mouth'

According to Adriani d is always preceded by glottal stop (ʔd), homorganic nasal (nd) or both (ʔnd) except that in Mkl it sometimes occurs also directly following a vowel, a pattern paralleling that of b. However, there are differences in sound correspondences among the dialects, for instance, Mkl d implying Mtn r whereas Mkl b usually corresponds to Mtn ʔb rather than w. There is considerable disagreement between Adriani and Schwarz of the type discussed for b and both conflict at times with information from informants.

The disagreements between Adriani and Schwarz and Schwarz's failure to consistently note dialect variation raise difficulties for interpreting the phonemic situation in relation to these sounds. A thorough study of the dialect situation would be required for this. It is probable that borrowing between the dialects or dialect mixing has obscured the regular sound correspondences between the dialects.

In Mkl *b* and *d* contrast with *w* and *r* respectively as both the stops and continuants can occur following a vowel. In Mtn *b* and *d* occur only after a nasal or *ʔ* whereas *w* and *r* do not occur in those environments; the stops thus being in complementary distribution with the continuants. (Adriani and Schwarz give one irregularity for each set: *riʔrip* 'slice' (Mkl only) and *siaʔw* 'man's name'.)

However, treating the stops and their corresponding continuants as allophones of one phoneme in Mtn would involve recognising *ʔb* and *ʔd* as sequences of two phonemes and *ʔmb* and *ʔnd* as sequences of three phonemes. Since sequences of two phonemes do not otherwise occur word-finally and sequences of three phonemes do not otherwise occur at all it is probable that an interpretation allowing for phonetically complex phonemes is more suitable. This would not be the case in Mkl, however, because segments *b* and *d* contrast with *ʔb* and *ʔd* on the one hand and with *w* and *r* on the other. Also *ʔb* and *ʔd* must in Mkl be treated as sequences of two phonemes since the segments sometimes occur in separate morphemes, e.g., *maʔdua* 'become two' + *maʔ-* + *rua* 'two'. Owing to the uncertainty of the phonemic situation in Ttb the sounds and sound sequences involving voiced stops will henceforth be written phonetically. This will also be of advantage in the discussion of diachronic changes in section 2.2.2.3.(b).<sup>1</sup>

<sup>1</sup>Although the situation is not clearly stated by Adriani it is probable that clusters *ʔmb* and *ʔnd* occur word-finally only in the Sonder subdialect. If so the following is probably the best interpretation for the rest of the Mtn dialect (although it is unsuitable for Mkl where there is contrast between *b* and *ʔb* and between *d* and *ʔd*). Clusters *ʔb* and *ʔd* occur word-finally where no other consonant sequences occur. They are therefore interpreted as phonetically complex phonemes *b* and *d*. Thus word-final clusters are avoided and the phonetic nature of the phonemes (medially and finally) is predictable: *labit* [laʔbit], *əlab* [əlaʔb], *radap* [raʔdap], *lisid* [lisiʔd].

In the sequences *ʔmb* and *ʔnd* the glottal stop cannot likewise be treated as part of a complex phoneme because its presence is not predictable, the clusters *mb* and *nd* also occurring: *tambəlan* 'bamboo sp.' vs. *kuraʔmər* 'thick', *rondor* 'straight' vs. *roʔndok* 'woods'. The solution proposed here is that [*ʔmb*] and [*ʔnd*] be interpreted as sequences *ʔb* and *ʔd* respectively. These clusters occur only medially (if the assumption made in the first sentence of this note is correct) and this interpretation enables them to fit the pattern of glottal stop plus consonant, one of the two allowable medial cluster types in the language. Thus *b* and *d*, like other consonants, would occur finally only following a vowel and medially either following a vowel or glottal stop. *mb* and *nd*, either initially or following a vowel, would be interpreted as sequences of two consonants.

### 2.2.1.2. Distribution of Phonemes

All vowels occur initially, medially and finally with the restriction that ə does not occur finally or preceding ʔ. Within the word any two vowels can occur in sequence except that sequences of identical vowels do not occur and ə occurs only before i.

All consonants except b, d, ɣ and ʔ occur word-initially. All consonants occur intervocally and word-finally.

Word-initially clusters of nasal plus homorganic obstruent occur. The clusters are mp, mb, nt, nd, ns, ŋk. The sequence ŋg does not occur. The nasal is the indefinite noun marker and follows one of a number of prepositions. Initial w and r are replaced by b and d respectively following the nasal which then assimilates to the following stop. Initial r is consistently replaced by d in this environment (unlike Tdn where replacement depends on the particular root):

N- + wale → mbale 'a house'

N- + rano → ndano 'water'

Word-medially there are two consonant cluster types: (i) Clusters of nasal plus homorganic obstruent (except ŋg), e.g.: tambəlaŋ 'bamboo sp.', lansuna 'onion'. (ii) Glottal stop followed by another consonant. Apparently any other consonant except r and w can follow ʔ, e.g.: roʔkos 'head', gəʔgər 'tremble', laʔŋəs 'bald'.

Where the juxtaposition of two consonants at a morpheme boundary within the word would result in a cluster of a type other than those occurring morpheme-medially, an epenthetic schwa occurs between the consonants:

likur 'back' + -ku 'my' → likurəku 'my back'

amaŋ 'father' + -mu 'your' → amaŋəmu 'your father'

There are no consonant clusters word-finally.

The above statement on consonant clusters does not take account of ʔmb, ʔnd etc. which are discussed in section 2.2.1.1.

## 2.2.2. PROTO-NORTH-MINAHASAN PHONOLOGY

### 2.2.2.1. Segmental Phonemes

The following are the segmental phonemes reconstructed for PNM:

p	t	k	?
b	d	g	
m	n	ŋ	
	s		h
	r		
	l		
w	y		
i		u	
e	ə	o	
	a		

#### 2.2.2.2. Reflexes of PNM Phonemes

The following chart gives the reflexes in PNE and in Ttb of PNM phonemes. Where the languages have identical reflexes the phonemes need no further discussion. In the list of Ttb reflexes 'etc.' refers to the various combinations with preglottal and prenasal. Reflexes occurring only in Mkl are placed in parentheses.

PNM	PNE	Ttb
a	a	a, o
e	e	e
ə	ə	ə
i	i	i
o	o	o
u	u	u
p	p	p
b	b	w, b etc.
t	t	t (s)
d	d	r, d etc.
k	k	k
g	g	g [g]
m	m	m
n	n	n (ŋ)
s	s	s
r	r	r, d
l	l	l
w	b, u	w
y	y	y
h	h	?, Ø
?	?	?



## 2.2.2.3. Diachronic Changes

## (a) Reflexes of \*a in Ttb

PNM \*a has been replaced by o in Ttb preceding the sequence wa where w reflects PNM \*w. This is further discussed under (h) below.

## (b) Reflexes of \*b, \*d and \*g

In PNE \*b, \*d and \*g have variants [b], [d] and [g] respectively following a nasal and continuant allophones elsewhere, these being [b̥], most probably [ʒ] (see 2.1.4.3.(d)) and [g̥].

The Mtn and Mkl dialects of Ttb differ from each other in a number of ways in their reflexes of PNM \*b and \*d (see 2.2.1.1.). It is not always possible to predict the Ttb reflexes of these phonemes but it is possible in the following environments:

Initial \*b and \*d are reflected as w and r respectively:

PNM	Ttb	
*bəŋi	wəŋi	'night'
*bale	wale	'house'
*dua	rua	'two'
*dano	rano	'water'

Following a homorganic nasal the reflexes are b and d:

PNM	Ttb	
*tambəlaŋ	tambəlaŋ	'bamboo sp.'
*lambot	lambot	'long'
*əndo	əndo	'day'
*undam	undam	'medicine'

With the exception of the above environments no firm rules of derivation have yet been established. The problems in relying on Adriani and Schwarz for data are pointed out in section 2.2.1.1. Some common reflexes are listed below but there are numerous exceptions to all these statements. Some information, especially for Mkl, is from informants and does not appear in Schwarz.

Following a vowel PNM \*b often becomes Mtn w and Mkl ʔb:

PNM	Mtn	Mkl	
*təbik	təwik	təʔbik	'stick in'
*ləbuh	ləwu	ləʔbuʔ	'demarcated land'
*teleb	telew	teleʔb	'fly'

Sometimes both dialects have w reflecting PNM \*b:

PNM	Ttb	
*tabaʔ	tawaʔ	'fat'
*bebene	wewene	'woman'
*leboʔ	lewoʔ	'bad'

Mtn often has ʔb corresponding to Mkl b both medially and finally (see 2.2.1.1. for examples).

Where PNM has the medial cluster ʔb in RMs the reflexes are Mtn ʔmb, Mkl ʔb:

PNM	Mtn	Mkl	
*baʔbaʔ	waʔmbaʔ	waʔbaʔ	'mouth'
*biʔbiʔ	wiʔmbiʔ	wiʔbiʔ	'shard'

Where PNM \*b follows any other non-nasal consonant in an RM Schwarz shows Ttb as having reflex ʔmb. It is possible that Mkl has ʔb here also but the evidence is not available:

PNM	Ttb	
*buddud	wuʔmbur	'strew'
*bækbæk	wəʔmbæk	'pound'

PNM \*d intervocalically is usually reflected as Mtn r, Mkl d:

PNM	Mtn	Mkl	
*apədu	apəru	apədu	'gall'
*sədaʔ	səraʔ	sədaʔ	'fish'

Final \*d becomes Mtn r, Mkl d or ʔd:

PNM	Mtn	Mkl	
*likud	likur	likud	'back'
*unəd	unər	unəd	'centre'
*səmuḍ	səmur	səmuʔd	'snout'
*pusəd	pusər	pusəʔd	'navel'

Where PNM \*d follows another consonant in an RM Schwarz shows Ttb as having either ʔnd or free variation between ʔnd and ʔd:

PNM	Ttb	
*dapdap	raʔdap ~ raʔndap	'tree sp.'
*dupdup	ruʔndup	'sharpen'

Adriani (1908:36) suggests there is a regular correspondence between Mtn ʔnd and Mkl ʔd. Bearing this in mind, together with Schwarz's inconsistency in distinguishing dialectal forms, it is possible that PNM \*cd in RMs (where c is any other consonant) is always reflected as

Mtn ʔnd and Mkl ʔd. For only one item does Schwarz indicate this dialect distinction: Mtn riʔndir, Mkl riʔdir 'partition', while in another word the ʔnd form is noted as exclusively Mtn: riʔndip 'slice', with irregular Mkl riʔrip (perhaps borrowed from Tdn). Further, Adriani distinguishes Mtn ruʔnduʔ, Mkl ruʔduʔ 'send out', which Schwarz gives as free variants.

Various other sets of reflexes occur. For instance, PNM \*d is sometimes reflected as r in both dialects:

PNM	Ttb	
*udan	uran	'rain'
*loʔod	loʔor	'praise'

It is possible that with these items Mkl has borrowed from Mtn. Borrowing can be established in some cases, e.g., Mkl talikur 'turn one's back' (PNM \*talikud) is identified as a borrowing by contrast with likud 'back'.

Other irregularities are dealt with under the individual items in the wordlist.

PNM \*g is reflected in PNE as [g] after a nasal and as [ɣ] elsewhere while in Ttb (both dialects) it is always [ɣ], the cluster ɳg not occurring. The word-initial cluster \*ɳg occurs in PNE and also in Tsw. Therefore its occurrence in PNM is likely (and regular) with later loss of the cluster in Ttb. But since the sequence \*ɳg cannot be reconstructed with certainty morpheme-medially for PNE and as it does not occur in Ttb it is likely that it did not occur in this position in PNM either. The items Tbl gongulaŋ 'hut in fields' and Ttb gogulan 'kind of hut' are obviously cognates, unless borrowing is involved, but this one correspondence does not give sufficient evidence to reconstruct medial \*ɳg for PNM and no other cognates are known. As shown in section 2.1.4.3.(c) several Tdn words with medial ɳg (with recent loss of the nasal) have cognates in other languages but none of these cognates have medial ɳg. The ɳg in Tbl gongulaŋ may well be an innovation.

The phonetic nature of \*b, \*d and \*g in PNM cannot as yet be fully determined. The allophones can only be positively identified in two environments. First, both PNE and Ttb reflect \*b, \*d and \*g as continuants word-initially and it can therefore be stated that PNM also had continuant allophones in that position. Second, all daughter languages have voiced stops following nasals and this must also have been the case in PNM.

Word-initial \*b is reflected in all languages as [b] and \*g is reflected as [ɣ]. The only question then concerns the nature of the

continuant variant of \*d word-initially in PNM. The most likely possibility is that this was [ʒ], as in Tbl. If so it is probable that this merged with r in Ttb and that this innovation spread to Tdn. As mentioned in section 2.1.4.3.(d) there is evidence that in Tdn d had allophone [ʒ] until comparatively recently. The possibility of the continuant variant of \*d being [ʔ] is rejected for the same reason that its occurrence in PNE is rejected (see 2.1.4.3.(d)).

As to the phonetic nature of PNM \*b and \*d in environments other than word-initially and following a nasal nothing can be stated. The Mtn dialect of Ttb agrees in most cases with PNE in having continuants following a vowel. On the other hand Mkl does not usually have continuants, generally resembling Tsw in having stops (often preglottalised). Either dialect of Ttb could directly reflect the situation in PNM with the other having been heavily influenced from its neighbouring language(s).

Since all daughter languages of PNM have [ɣ] following a vowel it must be assumed that in PNM \*g also was manifested as [ɣ] in this environment. This increases the possibility that PNM \*b and \*d were also continuants following a vowel.

(c) Reflexes of \*h

PNM \*h is reflected in PNE as \*h (see 2.1.4.3.(e)). In Ttb \*h intervocalically is reflected as ʔ:

PNM	PNE	Ttb	
*duhi	*duhi	ruʔi	'bone'
*ohat	*ohat	oʔat	'vein'

PNM \*h is reflected in Ttb by Ø rather than ʔ if ʔ also occurs in the following syllable:

PNM	Ttb	
*baheʔ	waeʔ	'swelling'
*bahiʔ	waiʔ	'hard wood'

Word-final \*h is reflected as ʔ in Mkl but is usually lost in Mtn. However, there are a number of Mtn words which contain ʔ. These may be borrowings from Mkl but in the absence of other evidence both ʔ and Ø are treated as valid reflexes in Mtn of PNM word-final \*h:

PNM	PNE	Mtn	Mkl	
*bibih	*blbih	wlwl	wiwiʔ	'lip'
*səlah	*səlah	səla	səlaʔ	'big'
*baŋeh	*baŋeh	wəŋeʔ	wəŋeʔ	'bad smell'
*saleh	-	saleʔ	saleʔ	'floor'

For some words where final ? would be expected in Mkl corresponding to final Ø in Mtn Schwarz does not give a separate Mkl form. For some items checked with informants a Mkl form does exist although omitted by Schwarz. Thus Schwarz's ewe '*spittle*' is Mtn only, having the Mkl cognate ewe?. It is supposed that there are many other such cases which have not been detected. For other items no Mkl form exists and Schwarz has not identified his entry as occurring only in Mtn. For instance, his timu '*south*' (< PNM \*timuh) is an Mtn form only with no cognate in Mkl.

Prefix-final \*h remains in Mkl as ? but has been lost from Mtn (see 3.1.3.(b)).

Preceding a consonant within the morpheme \*h has usually been lost in Ttb but there are some irregularities in reflexes of \*h in this position. This is further discussed in section 2.3.2.3.(f).

(d) Reflexes of PNM \*r in Ttb

PNM \*r has become Ttb r except in the following environments: (i) Word-initial r is replaced by d following N-:

N- + rages '*wind*' → ndages

N- + rua '*two*' → ndua

This process differs from that in PNE (as reflected in Tbl, Tse and Tdn) where \*N- + \*r → \*Ør. In Tdn N + r → nd only where r is a reflex of PNE \*d. It is probable that PNE reflects the situation in PNM and that the process N- + r → nd developed in Ttb only after the continuant variant of \*d merged with r. (ii) In Mkl r is replaced by d after ?. The only examples are following prefix-final ?. As there is no prefix-final ? in Mtn the change does not occur in that dialect:

Mtn ma- + rentek → marentek '*forge, work iron*'

Mkl ma?- + rentek → ma?dentek '*forge, work iron*'

Mkl sometimes has l corresponding to Mtn r. This is further discussed in section 2.3.2.3.(e).

(e) Reflexes of PNM \*t in Mkl

PNM \*t remains unchanged in PNE and in Mtn but frequently is reflected in Mkl as s preceding i:

PNM	Mtn	Mkl	
*tina?i	tina?i	sina?i	'belly'
*tia?	tia?	sia?	'throw away'
*bati?	wati?	wəsi?	'burst'

The change has not consistently occurred and there are many Mkl words with the sequence *ti*. Until more evidence is available both *t* and *s* are regarded as valid reflexes in Mkl of PNM \**t* preceding *i*.

(f) Reflexes of PNM \**n* in Mkl

Word-final \**n* is sometimes reflected in Mkl as *ŋ* although it usually occurs as *n*. No predictive statement can at present be made:

PNM	Mtn	Mkl	
* <i>baŋun</i>	<i>waŋun</i>	<i>waŋun</i>	' <i>beautiful</i> '
* <i>baʔan</i>	<i>baʔan</i>	<i>baʔan</i>	' <i>sneeze</i> '
* <i>balun</i>	<i>walun</i>	<i>walun</i>	' <i>provisions</i> '
* <i>lalan</i>	<i>lalan</i>	<i>lalaŋ</i>	' <i>road</i> '

(g) Loss of final vowels in Mkl

Where in PNM a word-final vowel follows \**h* or \**ʔ* and that consonant is preceded by a vowel identical to the final vowel then the final vowel is lost in Mkl. Such loss presumably occurred after \**h* merged with \**ʔ*:

PNM	Mtn	Mkl	
* <i>behe</i>	<i>weʔe</i>	<i>weʔ</i>	' <i>give</i> '
* <i>kahabiʔi</i>	<i>kaʔawiʔi</i>	<i>kaʔawiʔ</i>	' <i>evening</i> '

(h) Phoneme \**w*

The existence of a PNM phoneme \**w*, distinct from \**b*, is established by the fact that reflexes of PNM \**a* in Ttb vary according to whether a following *w* reflects PPh \**b* or \**w*. Where PPh \**a* is followed by \**b* and the following vowel is also \**a* then the reflex in Ttb is *a*. But where PPh \**a* is followed by the sequence \**wa* then the Ttb reflex is *o*:

PPh \**tabaʔ* > Ttb *tawaʔ* '*fat*'

PPh \**tawaR* > Ttb (Mtn) *towa*, (Mkl) *towaʔ* '*call*'

There is a very limited number of irregularities in Ttb, these being discussed under the individual items in the wordlist.

The fact that PNE reflects PNM \**a* as \**a* in both environments shows that the split in Ttb occurred after its separation from the north-eastern languages and therefore after the time of PNM. Consequently the environment for the split must have still existed in PNM and therefore there must have been distinct phonemes \**b* and \**w*. These have since merged in all languages.

There is no reason to suppose that the phonemic distinction was retained in PNE. PNE \**b* had variant [b] except after a nasal (see 2.1.4.3.(d)) and PNM \**w* had probably already merged with this, whatever

its previous phonetic nature. If so it had become an allophone of \*b, a status retained in Tbl and Tse. Thus:

PPh \*tabaʔ > Tbl, Tse tabaʔ [tabaʔ] 'fat'

PPh \*tawar > Tbl tabah [tabah], Tse tabaa [taba:] 'call'

following the separation of Tdn from Tbl and Tse \*b underwent phonemic split in Tdn (see 2.1.3.2.) becoming two phonemes: w (incorporating the pre-PNE phoneme \*w) and b. Thus Tdn w reflects both PPh \*w and, in some environments, e.g., intervocalically, \*b. Thus:

PPh \*tabaʔ > Tdn tawaʔ [tabaʔ] 'fat'

PPh \*sawa > Tdn sawa [saba] 'snake sp.'

It is unlikely that \*w occurred word-initially in PNM. Word-final \*w is reflected in PNE as \*u. These matters are discussed in section 2.3.2.3.(b).

(i) Reflexes of medial consonant clusters in RMs

Clusters in RMs remain unchanged in PNE.

A number of changes have occurred in Ttb. If the first member of the cluster in PNM is an oral consonant it has been replaced by glottal stop unless it is \*y in which case it has been lost:

PNM	Ttb	
*ŋəŋət	ŋəʔŋət	'sharp (of pain)'
*kaskas	kaʔkas	'scratch'
*geygey	gegey	'hang down'

Reflexes in Ttb of clusters in which the second of two oral consonants is \*b or \*d are described in section 2.2.2.3.(b).

In clusters where the first member is a nasal it has assimilated to a following obstruent. If the vowel preceding the cluster in PNM is other than \*i then i has been inserted between that vowel and the cluster. This has resulted in the innovation of the sequence əi, whereas schwa cannot occur before another vowel in any other present-day or reconstructed Minahasan language:

PNM	Ttb	
*tiŋtiŋ	tintiŋ	'ring'
*kəmkəm	kəiŋkəm	'cover over'
*soŋsoŋ	soiŋsoŋ	'groove'
*bənən	wəiŋbən	'shut in'

In the one known Ttb reflex of an RM in which the nasal-obstruent cluster was already homorganic in PNM insertion of i has not occurred:

PNM	Ttb	
*tonton	tonton	'let down'

In some words in Mkl where the sequence of glottal stop plus consonant would be expected glottal stop is absent, i has been inserted and there have sometimes been other changes:

PNM	Mtn	Mkl	
*loklok	loʔlok	loilok	'slide down'
*səpsəp	səʔsəp	seisəp	'suck'
*tuktuk	tuʔtuk	tuituk	'bow head'

No rules have yet been found for predicting such changes in Mkl and they are treated as unexplained irregularities.

#### 2.2.2.4. Distribution of Phonemes in PNM

In all Ttb lists in this section both Mtn and Mkl forms are given if they are known to differ. The forms are separated by a stroke with the Mkl form to the right of the stroke.

All vowels occur in word-initial position:

PNM	PNE	Ttb	
*ate	*ate	ate	'liver'
*ebeh	*ebeh	ewe/eweʔ	'desire'
*əpat	*əpat	əpat	'four'
*ipus	*ipus	ipus	'tail'
*ohat	*ohat	oʔat	'vein'
*umaʔ	*umaʔ	umaʔ	'sheathe'

All vowels occur in medial position. The only known restriction is that \*ə never precedes \*h or \*ʔ. No examples have been reconstructed where \*o occurs before final \*h but this is probably due to a gap in the data rather than a structural restriction:

PNM	PNE	Ttb	
*pate	*pate	pate	'die'
*kentoʔ	*kentoʔ	kentoʔ	'lame'
*kələb	*kələb	kələw	'close'
*bisa	*bisa	wisa	'where'
*kolombiʔ	*kolombiʔ	kolombiʔ	'mollusc sp.'
*kutu	*kutu	kutu	'louse'

All vowels except \*ə occur word-finally:

PNM	PNE	Ttb	
*lima	*lima	lima	'five'
*pate	*pate	pate	'die'
*tali	*tali	tali	'rope'
*əndo	*əndo	əndo	'day'
*asu	*asu	asu	'dog'



The only known restrictions on a sequence of two vowels within a morpheme are that (i) \*ə never occurs adjacent to another vowel and (ii) sequences of identical vowels do not occur. Examples of vowel sequences:

PNM	PNE	Ttb	
*tieu	*tieu	tieu	'call pigs'
*gio	*gio	gio	'face'
*dua	*dua	rua	'two'
*lue?	*lue?	lue?	'tears'
*meoŋ	*meoŋ	meoŋ	'cat'
*mainde?	*mainde?	mainde?	'afraid'

Consonants \*h and \*ʔ do not occur word-initially. The question of the occurrence of \*y and \*w in this position is discussed in section 2.3.2.3.(b). All other consonants occur word-initially:

PNM	PNE	Ttb	
*pitu	*pitu	pitu	'seven'
*bale	*bale	wale	'house'
*təlu	*təlu	təlu	'three'
*dua	*dua	rua	'two'
*kita	*kita	kita	'we'
*gio	*gio	gio	'face'
*meoŋ	*meoŋ	meoŋ	'cat'
*nihu	*nihu	niʔu	'window'
*ŋaran	*ŋaran	ŋaran	'name'
*sɤŋe	*sɤŋe	sɤŋe	'horn'
*rəgəs	*rəgəs	rəgəs	'wind'
*lima	*lima	lima	'five'

All consonants occur intervocalically:

PNM	PNE	Ttb	
*əpat	*əpat	əpat	'four'
*tabaʔ	*tabaʔ	tawaʔ	'fat'
*kutu	*kutu	kutu	'louse'
*udan	*udan	uran	'rain'
*kakaʔ	*kakaʔ	kakaʔ	'older sibling'
*rəgəs	*rəgəs	rəgəs	'wind'
*lima	*lima	lima	'five'
*ənəm	*ənəm	ənəm	'six'
*bəŋi	*bəŋi	wəŋi	'night'
*əsa	*əsa	əsa	'one'
*ŋaran	*ŋaran	ŋaran	'name'

*təlu	*təlu	təlu	'three'
*ayah	*ayah	aya	'light'
*tawah	*tabah	towa/towaʔ	'call'
*ohat	*ohat	oʔat	'vein'
*paʔan	*paʔan	paʔan	'bait'

All consonants occur word-finally:

PNM	PNE	Ttb	
*atəp	*atəp	atəp	'roof'
*kələb	*kələb	kələw	'close'
*əpat	*əpat	əpat	'four'
*bəlad	*bəlad	wəlar/wəlaʔd	'dry'
*buʔuk	*buʔuk	wuʔuk	'hair'
*ipag	*ipag	ipag	'brother-in-law'
*ənəm	*ənəm	ənəm	'six'
*ŋaran	*ŋaran	ŋaran	'name'
*baʔaŋ	*baʔaŋ	waʔaŋ	'tooth'
*ipus	*ipus	ipus	'tail'
*pagər	*pagər	pagər	'fence'
*keʔol	*keʔol	keʔol	'lame'
*tieg	*tieg	tieg	'call pigs'
*tow	*tou	tow	'person'
*səlah	*səlah	səla/səlaʔ	'big'
*umaʔ	*umaʔ	umaʔ	'sheathe'

Word-initially clusters of nasal plus homorganic obstruent occur. The nasal has somewhat different functions in PNE and Ttb and as yet its precise function in PNM has not been determined. It is, however, a separate morpheme from the following obstruent:<sup>1</sup>

PNM	PNE	Ttb	
*mpelaʔ	*mpelaʔ	mpelaʔ	'wound'
*mbale	*mbale	mbale	'house'
*ntali	*ntali	ntali	'rope'
*nduhi	*nduhi	nduʔi	'bone'
*nsuŋe	*nsuŋe	nsuŋe	'horn'
*ŋkaso	*ŋkaso	ŋkaso	'rafters'
*ŋgio	*ŋgio	gio	'face'

<sup>1</sup>It is probable that in PNM the prenasalised form of the word never began an utterance but that it always followed a particle. This is the case in Ttb and probable also in PNE (see note on p.36 above).

The initial cluster \*ŋg can be reconstructed for PNM on the basis of its occurrence in PNE and in Tsw, so its loss must have been an innovation in Ttb (see 2.2.2.3.(b)).

Within the morpheme three consonant cluster types occur: (1) Nasal plus homorganic obstruent. All stops and \*s occur prenasalised except that the cluster \*ŋg cannot be reconstructed morpheme-medially (see 2.2.2.3.(b)):

PNM	PNE	Ttb	
*təmpok	*təmpok	təmpok	'tip'
*tambəlaŋ	*tambəlaŋ	tambəlaŋ	'bamboo sp.'
*untəp	*untəp	untəp	'enter'
*əndo	*əndo	əndo	'day'
*lansot	*lansot	lansot	'fruit sp.'
*baŋkoʔ	*baŋkoʔ	waŋkoʔ	'big'

(ii) Sequences of two consonants in RMs. The only known restrictions on sequences are that the consonants cannot be identical, the second member cannot be \*h or \*ʔ and following a nasal it cannot be \*r or \*l (the last two being replaced by \*d - see 2.3.2.4.):

PNM	PNE	Ttb	
*koʔkoʔ	*koʔkoʔ	koʔkoʔ	'fowl'
*mekmek	*mekmek	meʔmek	'squeeze'
*kotkot	*kotkot	koʔkot	'scratch'
*tiŋtiŋ	*tiŋtiŋ	tintiŋ	'ring'

(iii) \*h and \*ʔ followed by another consonant. All consonants other than \*h and \*ʔ can follow \*ʔ but owing to the lack of clear evidence the number of clusters which can be reconstructed in which \*h is the first member are limited. This is dealt with in section 2.3.2.3.(f). Examples of clusters where \*ʔ is the first member:

PNM	PNE	Ttb	
*roʔməs	*roʔməs	roʔməs	'grip'
*baʔkəs	*baʔkəs	waʔkəs	'tie'

No consonant clusters occur word-finally. Clusters ʔb, ʔd, ʔmb and ʔnd in Ttb are discussed in section 2.2.2.3.(b). They must be treated as reflexes of \*b and \*d although the steps in their development cannot be explained.

Clusters between morphemes within the word are discussed in section 2.3.2.3.(j).

## 2.3. THE RECONSTRUCTION OF PROTO-MINAHASAN PHONOLOGY

2.3.0. PMin phonology is reconstructed from a comparison of the phonologies of Tsw and PNM. Tsw phonology is first briefly described.

### 2.3.1. TONSAWANG PHONOLOGY

#### 2.3.1.1. Segmental Phonemes

Tsw has the following segmental phonemes:

p	t	k	ʔ
b	d	g	
m	n	ŋ	
w	c	h	
	s		
	r		
	l		
	y		
i		u	
e	ə	o	
	a		

Consonants b, d and g are manifested word-initially and following a nasal as voiced bilabial, alveolar and velar stops respectively. Following a vowel they are preglottalised. Word-finally they are devoiced:

bələn [bələn] 'eye', tambal [tamba!] 'carry', bubu [buʔbu] 'hole', luab [lʌaʔp] 'bark'.

dahaʔ [daxaʔ] 'blood', əndo [əndo] 'day', kədul [kəʔdu!] 'choke', kətəd [kətəʔt] 'meat'.

guʔun [guʔun] 'sell', təngengeʔ [təngengeʔ] 'swing', digu [diʔgu] 'winnow', aog [aoʔk] 'bamboo'.

c is a voiceless dental affricate.<sup>1</sup>

h varies from voiceless glottal fricative [h] to voiceless velar fricative [x].

l has two variants. 'Clear' alveolar lateral [l] occurs after front vowels and retroflexed lateral flap [ɭ] occurs elsewhere.

<sup>1</sup>The exact phonetic nature of this sound has not been determined. Its place in the system is that of a fricative but it is more like dental [t] than it is like English fricative [θ], its fricative component being almost imperceptible. The difference between t and c was not detected for some time during fieldwork and in an earlier brief study of the language (Sneddon 1970) the difference was not noticed, both sounds being written <t>. None of the sources except Esser distinguish t and c, writing both <t>. Esser (see Noorduyin 1967:368) noted that in certain words t changed to another sound, which he represented <ɭ>. He wrote that he was uncertain of the (phonetic) nature of <ɭ>.

Phonemic contrast between stops and their corresponding continuants is established by the following pairs:

- p and w: *lopoy* 'hang' and *iowoy* 'cast spell'
- b and w: *iabah* 'across' and *iawah* 'oppose'
- t and c: *titiŋ* 'ring' and *ticih* 'spot'
- d and r: *dadah* 'hit' and *daraŋ* 'forbid'
- k and h: *lakad* 'step' and *lahad* 'itch'
- g and h: *iagad* 'boar' and *iahad* 'itch'

### 2.3.1.2. Distribution of Phonemes

All vowels occur initially, medially and finally with the restriction that ə does not occur finally. Within the morpheme two vowels can occur in sequence except that ə does not occur adjacent to another vowel and sequences of identical vowels do not occur.

All consonants occur word-initially except ʔ. The continuants c, r, w and h occur initially only under certain conditions which are discussed in section 2.3.1.3. All consonants occur intervocalically. All consonants occur word-finally except p, t and k.

Word-initially clusters of nasal plus homorganic voiced stop occur. The nasal N- is a separate morpheme from the following stop. It does not occur before voiceless stops.<sup>1</sup>

Word-medially there are two consonant cluster types: (i) Clusters of nasal plus homorganic voiced stop, e.g., *tambuʔ* 'tip out', *əndo* 'day', *sangaʔ* 'open legs'. Voiceless stops do not occur prenasalised. (ii) Glottal stop plus another consonant. The only phonemes recorded following ʔ are voiceless stops, s and nasals, e.g., *taʔkoyan* 'bald', *siʔsi* 'clean out', *ŋaʔŋa* 'chew betel'. Medially voiced stops are always preglottalised; hence clusters of glottal stop plus voiced stop are interpreted as phonetically complex phonemes.

No consonant clusters occur word-finally.

### 2.3.1.3. Tonsawang Morphophonemics

Where the juxtaposition of two morphemes within the word would result in a consonant cluster other than those occurring morpheme-medially the cluster is lost in one of a number of ways.

When an agentive/possessive pronoun is suffixed to a word ending in an obstruent (b, d, g, w, c, h, s), the obstruent is replaced by ʔ:

<sup>1</sup>The function of N- has not been fully determined. Historically it is related to the N- of the North Minahasan languages but it does not function similarly.

baled 'dog' + -ku 'my' → baleʔku 'my dog'  
 puhəc 'net' + -nu 'your' → puhəʔnu 'your net'

Other consonants (nasals, r and l) are lost before the k of enclitic pronoun -ku. When a pronoun beginning with n follows the n is lost:

doʔoŋ 'village' + -ku 'my' → doʔoku 'my village'  
 doʔoŋ 'village' + -na 'his' → doʔoŋa 'his village'  
 sewəl 'dam' + -ku 'my' → sewəku 'my dam'  
 sewəl 'dam' + -na 'his' → sewəla 'his dam'

Prefix-final h is lost before a stem beginning with a consonant:

mah- + siluh 'scoop' → masiluh  
 mah- + lomboʔ 'jump' → malomboʔ

Morpheme-initial stops are replaced by continuants when they are preceded by a vowel within the word. The changes are:

p, b → w  
 t → c  
 d → r  
 k, g → h

The changes are illustrated by the following examples:

ka- + picu 'seven' → kawicu 'seventh'  
 i- + baleŋ 'return' → iwaleŋ 'returned'  
 ka- + təlu 'three' → kacəlu 'third'  
 ka- + dua 'two' → karua 'second'  
 bale 'house' + -ku → balehu 'my house'  
 i- + -um- + guʔun 'sell' → ihumuʔun 'sold'

Voiceless stops remain unaltered when following a vowel after h-deletion, e.g.:

mah- + tawoy 'work' → matawoy  
 mah- + kose 'pull' → makose

However, voiced stops become continuants here also:

mah- + bakəs 'tie' → mawakəs  
 mah- + guʔun 'sell' → mahuʔun

The last two morphophonemic changes described above can only be satisfactorily accounted for by means of ordered rules. Thus the rule replacing a voiceless stop by a continuant following a vowel must be applied before h-deletion. The occurrence of h blocks the rule since no vowel occurs before the stop. h-deletion then applies. On the other hand h-deletion precedes the rule converting a voiced stop to a

continuant. With the loss of h the stop follows a vowel and the rule operates.

The rules converting stops to continuants also operate across word boundaries under some conditions, resulting in word-initial continuants. These conditions have not been properly determined but the change appears to operate only within a phrase, e.g.: bale i hamo cəlu 'the house of you three' (+ bale + i + kamo + təlu).

Initial voiceless stops do not become continuants in phrases where historically the morpheme N- previously occurred. Loss of N- is best treated as a synchronic rule to account for the retention of stops here, e.g.:

a + N- + bale → a mbale 'to the house'  
 a + N- + kedon → a kedon 'to the child'

Retention of k in the latter example indicates that a consonant (N-) has been deleted, this rule applying after the rule whereby stops are replaced by continuants following a vowel. The juxtaposition of a + kedon would result in \*\*a hedon.

Apart from the abovementioned cases there are a few other known instances of word-initial continuants. Initial \*r<sub>1</sub> in PMin is reflected as d in Tsw. However, one word has been recorded where, apparently, initial r always occurs. This is raran 'heat', where initial r contrasts with d in daran 'forbid'. Initial w has been recorded in one word, walu 'eight' (see 2.3.2.3.(b)), as well as in a few borrowings.

## 2.3.2. PROTO-MINAHASAN PHONOLOGY

### 2.3.2.1. Segmental Phonemes

The following are the segmental phonemes reconstructed for PMin:

p	t	k	ʔ
b	d	g	
m	n	ŋ	
	s		h
	r <sub>1</sub>		
	r <sub>2</sub>		
	l		
w	y		
i		u	
e	ə	o	
	a		

### 2.3.2.2. Reflexes of PMin Phonemes

The following chart gives the reflexes of PMin phonemes in Tsw and PNM. Where the languages have identical reflexes the phonemes need no further discussion.

PMin	PNM	Tsw
a	a	a
e	e	e
ə	ə	ə
i	i	i
o	o	o
u	u	u
p	p	p, w
b	b	b, w
t	t	t, c
d	d, l	d, r
k	k	k, h
g	g	g, h
m	m	m
n	n	n
ŋ	ŋ	ŋ
s	s	s
r <sub>1</sub>	r	r, d
r <sub>2</sub>	r	l
l	l	l
w	w	w
y	y	y
h	h	h
?	?	?

In all Minahasan languages t is dental and d is alveolar. The same points of articulation are therefore postulated for PMin.<sup>1</sup>

### 2.3.2.3. Diachronic Changes

#### (a) Reflexes of PMin vowels

Both PNM and Tsw reflect a six vowel system in PMin. There are some irregularities in reflexes of both front vowels and back vowels.

<sup>1</sup>The existence of dental t and alveolar d is common in Indonesian languages occurring, for instance, in Sangir (DjaJengwasito 1967), Sundanese (Syok 1959), Kelabit (Blust 1974a), Malay and probably also in many other Indonesian languages although it is rarely noted in phonological studies.



In some lexical items some languages have e corresponding to i in other languages:

Tbl	Tse	Tdn	Ttb	Tsw	
endo	endo	edo	indo	indo	'fetch'
tia?	tea?	tea?	tia?	tia?	'throw away'
tina?i	tina?i	tina?i	tina?i	tina?e	'intestines'
kese?	kisi?	kisi?	kese?	kisi?	'tear'

As these examples show there is no consistency as to which languages have e and which have i. When such i : e correspondences occur \*i is always reconstructed for PMin as the segment always reflects PPh \*i where a PPh etymon is known, e.g., PPh \*kisiq 'tear, rend', PPh \*tinaqi 'intestines' (cf. also Tsw ta?i 'faeces', not \*\*ta?e). The number of items exhibiting i : e correspondences is very small and usually \*i or \*e can be positively reconstructed for PMin.

Likewise, some irregular u : o correspondences occur. In such cases \*u is reconstructed for the same reasons that \*i is reconstructed:

Tbl	Tse	Tdn	Ttb	Tsw	
kolintaŋ	kolintaŋ	kolintaŋ	kulintaŋ	kulitaŋ	'musical instrument'
pasu?	pasu?	pasu?	paso?	paso?	'hot'
puikan	poikan	poikan	poikan	-	'turtle'
kamu	kamu	kow	kamu/kamo	kamo	'you'

Such correspondences are rare; usually when a word in one Minahasan language contains a mid vowel cognates in the other languages do also so that a mid vowel can also be reconstructed for PMin. Consequently, when a PPh or PAN item with a high vowel is reflected in only some Minahasan languages and these contain a mid vowel then a mid vowel can be reconstructed for PMin with reasonable certainty.

#### (b) Semi-vowels

It is uncertain if phonemes \*y and \*w occurred word-initially in PMin.

Word-initially high front non-syllabic vocoid [y] (i.e., [i]) is rare in all languages. For Ttb Schwarz has nine entries (words beginning with <j>), seven being exclamations or interjections and two being borrowings from Malay. Wouw lists five words for Tbl, <ja'i> 'this', the exclamation <ja>, two other exclamations formed with initial <ja> and one borrowing from Malay. Hove gives no entries for Tse. Only one word has been recorded for Tsw: [ya?i] 'this'.

The word [ya?i] 'this', which occurs in all languages except Ttb, is the only word with initial [y] which can be reconstructed for PMin.

In all four languages [y] alternates freely with syllabic vocoid [i] in this item: [yaʔi ~ iaʔi]. When the word is prenasalised the form is always [niaʔi].

Wherever [y] occurs word-initially in Tdn it is in free variation with syllabic [i]. Apart from the abovementioned word there is also [io:n ~ yo:n] 'yes'. With vowel-initial stems the prefix i- is realised as [i] or [y], e.g., [ienson ~ yenson] 'slide along'. Thus in Tdn initial [y] can best be treated as a variant of phoneme i. Whenever i occurs word-initially before another vowel it is manifested freely as either [i] or [y]. On the available evidence the same appears to be true of all the languages.

There is therefore no evidence for reconstructing \*y word-initially in PMin. The word for 'this' is reconstructed \*iaʔi, the initial segment probably manifested freely as either [i] or [y].

The word-initial sequence \*ia is only reconstructable in one other item: \*iap 'count'. The word is not reflected in Tdn and the phonetic realisation of the initial i in those languages in which it occurs is not known. It is highly likely that its realisation fluctuates between [iap] and [yap].

It also appears unnecessary to reconstruct phoneme \*w word-initially. The high back non-syllabic vocoid [w] (i.e., [ʷ]) probably occurred in this position but as a variant of vowel \*u.

Initially [b] is rare in the present-day languages except where it is a reflex of \*b. Only one item occurs in all languages where [b] initially is definitely not a reflex of \*b, namely, the word for 'eight'. In Tdn, Tse and Tbl [b] alternates freely with syllabic [u] in this word, e.g., Tdn [ualu ~ balu]. Wouw's dictionary gives only <ualu> for Tbl while Hove omits the item. For Ttb Schwarz gives <uwalu> (? = ualu) but informants for both dialects gave only [balu] and Adriani consistently writes <walu>. Only [ba|u] occurs in Tsw.

Since this alternation does not occur with other words, cf. Tdn watu [batu] 'stone', never \*\*[uatu], phonemic variation must be recognised. Thus Tdn walu ~ ualu 'eight'.

Whenever the word takes a prefix in Tdn only the form with u occurs, e.g., ka- + ualu ~ walu → kaualu 'eighth'. When the word is nominalised in Tdn the preceding nasal is n-, which occurs with vowel-initial nouns, not m-, which occurs with all other words with initial w. Thus N- + ualu ~ walu → nualu, not \*\*mbalu, cf. N- + watu → mbatu 'stone'. With prefix ka- both forms apparently occur in Ttb, Adriani giving <kauwalu ~ kawalu> 'eighth'. For the other languages informants gave only forms with [b] with this prefix, e.g., Tse [kəbadu], Tsw [kaba|u] 'eighth'.

It is probable that in PMin the word had free variants [ualu ~ walu], the non-syllabic vocoid [w] later merging with [b], the continuant variant of \*b.

A number of other items have been reconstructed with initial sequence \*ua but in none of these does the initial u ever appear to become non-syllabic in the present-day languages. The fact that this happens with the word for 'eight' might suggest that in PMin its initial sound was different from that in the other items. It is hardly likely, however, that there would be a phonemic distinction between initial [ua] and [wa]. The peculiarities of the word for 'eight' may well have to do with the far greater frequency of this word than other items with initial [ua].

This one item is not regarded as sufficient evidence for reconstructing initial \*w in PMin and accordingly the word is reconstructed \*ualu. Evidence from closely related languages supports this, e.g., San ua!u, Mdw ualu 'eight'. Dahl (1973) also reconstructs PAN \*ualu.

The only other area of difficulty concerns the non-syllabic high back vocoid [w] word-finally. This sound only occurs after the vowel o. It is in complementary distribution with the other allophones of b in Tbl and Tse. Other than after o the non-stop allophone of b is a fricative, e.g., Tbl, Tse kibkib [kibkib] 'chicken lice'. On the available evidence the allophone [b] word-finally is always a reflex of PMin \*b whereas the non-syllabic vocoid [w] never reflects a previous \*b, e.g., Tbl, Tse [tow] 'person' reflects PPh \*tawu. In PNM \*b and \*w were still separate phonemes but later merged (see 2.2.2.3.(h)). This final [w] should strictly be treated as an allophone of b and if the word [tow] were, in Tbl and Tse, written <tob> its phonetics would be entirely predictable. There are difficulties, however, in grouping vocoid [w] in the same phoneme with the stop [b] and for the present it is treated as vowel u in Tbl and Tse, thus tou 'person' etc. No such difficulty occurs in the other languages where phoneme w exists, thus Tdn, Ttb, Tsw [tow] is phonemically tow. The same situation as in Tbl and Tse is recognised for PNE which also had no phoneme w.

(c) Reflexes of voiceless stops

PMin \*p, \*t and \*k remain unchanged in PNM. In Tsw the following reflexes occur:

The voiceless stops remain unchanged word-initially:

PMin	Tsw	
*palad	palad	'palm'
*ta?un	ta?un	'year'
*kita	kica	'we'

Following a vowel other than ə they are reflected as continuants medially and finally, \*p becoming w, \*t becoming c and \*k becoming h:

PMin	Tsw	
*upuʔ	uwuʔ	'harvest'
*ate	ace	'liver'
*aku	ahu	'I'
*sahap	sahaw	'scoop out'
*əpat	əpac	'four'
*samək	saməh	'dirty'

Following ə voiceless stops have undergone no change medially:

PMin	Tsw	
*səpeʔ	səpeʔ	'slap'
*kətəh	kətəh	'hard'
*pəkuʔ	pəkuʔ	'broken'

However, following ə word-finally they have become continuants:

PMin	Tsw	
*ləkəp	ləkəw	'complete'
*əmbət	əmbəc	'gird'
*utək	ucəh	'brain'

Where in PMin a cluster consists of a nasal plus homorganic voiceless stop or glottal stop plus voiceless stop the first component has been lost in Tsw but the voiceless stops have undergone no change (see 2.3.2.3.(g) and (i)).

In a few words final \*t and \*k are unexpectedly reflected by ʔ in one or more languages, e.g., Tdn kuliʔ 'skin', Ttb kuliʔ-na 'bark', cf. Tse kudit, Tbl, Ttb kulit, Tsw kulic (PPh \*kulit 'skin, bark'); Tdn, Tse, Tbl potot, pototʔ 'short', cf. Ttb potot (PPh \*putut 'short'); Tbl, Ttb iŋkoʔ 'riddle', cf. Tdn, Tse iŋkot 'riddle', Tsw ikoc 'quarrel'.

(d) Reflexes of \*b, \*d and \*g

These remain \*b, \*d and \*g in PNM, where the allophones are continuants word-initially and stops after a nasal. Following a vowel \*g probably was manifested as [g] but the manifestations of \*b and \*d in that environment have not been established for PNM (see 2.2.2.3.(b)).

PMin \*b, \*d and \*g are reflected in Tsw as voiced stops word-initially and after a homorganic nasal, as preglottalised stops morpheme-medially and as preglottalised devoiced stops word-finally. In some words continuants occur instead of expected preglottalised stops but such words appear to be borrowings, usually from Ttb or Pon.

According to a synchronic rule in Tsw morpheme-initial voiced stops are replaced by continuants when a preceding morpheme ends in a vowel, b becoming w, d becoming r and g becoming h (see 2.3.1.3.).

Clusters of nasal plus voiced stop occur word-initially in Tsw and PNM and can be reconstructed for PMin. The cluster ng does not occur in Ttb but since it occurs in PNE and in Tsw it can be reconstructed for PMin.

As mentioned in section 2.2.2.3.(b), it is doubtful if the cluster \*ng occurred medially in PNM. It does occur in the three north-eastern languages (with recent loss of the nasal in Tdn) and in Tsw but no cognates are known for any two of these languages. Some Tsw words with medial ng are certain borrowings, e.g., manggu 'cup' from MdMal maŋku, nanga 'jackfruit' from Mal or Rth naŋka (with change of k to g, the cluster ŋk not occurring in Tsw). This raises the possibility of all Tsw words with medial ng (only a very few others have been recorded) being borrowings. There is thus a possibility that medial \*ng did not occur in PMin.

PMin \*d word-initially becomes \*l in PNM if the following consonant is also \*l. This situation is clearly reflected in all the northern languages except where, by a later change, \*l has become d in Tse. The change has not occurred in Tsw:

PMin	PNM	Tsw	
*dalan	*lalan	dalan	'road'
*daləm	*laləm	daləm	'inside'
*dilaʔ	*lilaʔ	dilaʔ	'tongue'

PMin word-initial \*b is sometimes lost in Tsw. This loss is not regular, occurring in only a minority of words; in most words PMin word-initial \*b is retained in Tsw. As yet no statement can be made to account for this change but Tsw words both with and without initial b are regarded as valid reflexes of PMin:

PMin	PNM	Tsw	
*behe	*behe	ehe	'give'
*butbut	*butbut	ubuc	'pull out'

In a few cases doublets have been recorded for Tsw, one word with b and one without:

PMin	Tsw
*bow 'to smell'	bow 'to smell (transitive)'
	ow 'to smell (intransitive)'
*buka(?) 'to open'	buha 'to open'
	uha 'to force open'

Very little can be said about the allophones of PMin \*b, \*d and \*g. The only certainty is that they were voiced stops after a nasal. They may have been continuants when in morpheme initial position they followed another morpheme. Continuants occur in this environment in all languages except that in Mkl b and d occur following glottal stop, e.g., maʔ- + rua 'two' + maʔdua 'become two'. In San, where the voiced stops and their corresponding continuants have split phonemically, continuants occur morpheme-initially following another morpheme, thus increasing the likelihood of this having occurred in PMin also, e.g., San ka- + dua 'two' + -ne + karuane 'second'.

Variants word-initially cannot be determined since Tsw has stops while the northern languages have continuants. San agrees with Tsw in having stops initially but the similarity between the two may well be the result of parallel rather than common development.

There is a tendency in northern Indonesian and Philippine languages for voiced stops to develop continuant allophones which in some languages, such as Tdn, Ttb, Tsw and San, have become separate phonemes while remaining allophones in other languages, such as Tse and Tbl. This situation can only be regarded as a result of parallel development within different subgroups. The distribution of stops and continuants often differs from language to language within the one subgroup (as it does among the Minahasan languages). Variation is just as great within the Sangirese and Mongondow groups as within the Minahasan group and similar situations can be found among other groups of closely related languages in Borneo and the Philippines.<sup>1</sup>

The possibility that PMin had preglottalised stops as unit phonemes as is the case in Tsw can be discounted. The evidence comes from Tsw itself. Word-final glottal stop is retained in Tsw except when it is the final consonant of an RM. Thus:

PMin	Tsw	
*kakaʔ	kahaʔ	'older sibling'
*koʔkoʔ	koʔko	'fowl'

<sup>1</sup>San has word-initial stops which change to continuants following another morpheme, Ban has stops both word-initially and following another morpheme while Rth has only continuants in both positions. San and Rth reflect previous \*b, \*d and \*g by continuants morpheme-medially while Ban has stops, e.g., San, Rth iruŋ, Ban iduŋ 'nose'; San, Rth nawo, Ban nabo 'fall'. A somewhat similar situation occurs with Mdw and Pon, continuants in Pon frequently corresponding to stops in Mdw, e.g., Pon <mawuro>, Mdw mobudoʔ 'white'; Pon <bulur>, Mdw bulud 'mountain'; Pon <tuwig> (where <g> probably represents [g]), Mdw tubig 'water'. (The Pon examples are from Niemann.)

A medial sequence of glottal stop plus voiced stop must be treated as a single phoneme in Tsw (see 2.3.1.1.). The fact that in PMin a sequence of glottal stop plus voiced stop was a sequence of two phonemes, with voiced stops occurring also after a vowel, can be shown by the Tsw reflexes of the following items:

PMin	Tsw	
*boboʔ	boboʔ [boʔboʔ]	'dumb'
*baʔbaʔ	baba [baʔba]	'mouth'

Loss of final \*ʔ from the latter item in Tsw shows it was an RM with medial \*ʔb cluster in PMin. But retention of the final \*ʔ in the preceding word conforms to the regular retention of final \*ʔ in Tsw in words other than RMs. The item in PMin therefore was not an RM and consequently \*b was not preglottalised.

It is possible that \*g did not occur finally in PMin. The only complete cognate set known with final g in the Minahasan languages reflects PMin \*ipag 'brother/sister-in-law'. This word is certainly a borrowing as the PMin reflex of PPh \*hipaR would be \*\*ipah or \*\*ipar. But it is possible that the item was borrowed before the time of PMin. This is further discussed in the note to the item in the wordlist.

(e) PMin \*r<sub>1</sub>, \*r<sub>2</sub> and \*l

Every present-day language has one phoneme r and one phoneme l but the pattern of correspondences appears to demand the recognition of three PMin phonemes: \*r<sub>1</sub>, \*r<sub>2</sub> and \*l.

Word-initial \*r<sub>1</sub> is reflected as r (voiced alveolar trilled or flapped vibrant) in all northern languages and as d in Tsw:

PMin	PNM	Tsw	
*r <sub>1</sub> imat	*rimat	dimac	'close'
*r <sub>1</sub> əpət	*rəpət	dəpəc	'severe, intense'

Elsewhere it is reflected as r in all languages:

PMin	PNM	Tsw	
*kar <sub>1</sub> is	*karis	karis	'stripe'
*kur <sub>1</sub> eʔ	*kureʔ	kureʔ	'cooking pot'

\*r<sub>2</sub> is reflected as r in the northern languages (with exceptions in Mkl mentioned below) and as l in Tsw:

PMin	PNM	Tsw	
*ŋar <sub>2</sub> an	*ŋaran	ŋalan	'name'
*r <sub>2</sub> ondor <sub>2</sub>	*rondor	londol	'straight'

\*l is reflected as \*l in PNM and as l in Tsw. In the northern languages l is a 'clear' alveolar lateral (which is strongly fricative in Tbl). In Tsw there are two variants, 'clear' alveolar [l] and retroflexed lateral [l̥], this latter having the widest distribution (see 2.3.1.1.). The distribution of allophones in Tsw is the same as in Mdw (Dunnebie 1929-30:317) and it is possible, in view of the considerable Mdw influence on Tsw, that this feature is a borrowing from that source.

The Mkl dialect of Ttb often agrees with Tsw in having l as a reflex of \*r<sub>2</sub>, e.g.:

Mtn	Mkl	Tsw	
pəra	pəla	pəla	'dry'
ŋiruŋ	ŋiluŋ	ŋiluŋ	'nose'

The reason for this is not clear but Mkl does share with Tsw a number of other phonological features, e.g., often having voiced stops where Mtn and the other northern languages have continuants. It is unlikely that Mkl has borrowed the words from Tsw in all cases since usually the word already occurs in Ttb, i.e., where Mkl has l reflecting PMin \*r<sub>2</sub> Mtn has a word with r. It is possible in such cases that phoneme replacement has occurred under influence from Tsw (i.e., replacement of an original \*r with l). In a few items, however, there seems to be clear evidence of lexical borrowing. Thus, corresponding to Mtn, Tse rintək 'fine' is Mkl litək. No Tsw cognate now exists but evidence that the Mkl word is a loan from an earlier Tsw word is the fact that medial t is the regular correspondent in Tsw, but not in Mkl, of medial nt in the other languages.<sup>1</sup>

When Mkl has l corresponding to r in Mtn and the other northern languages this is regarded as sufficient evidence to reconstruct a PMin word with \*r<sub>2</sub> even if no Tsw cognate is known. For example, from Tse, Tbl rəbuŋ, Mtn rəwuŋ, Mkl ləʔbuŋ 'edible bamboo shoots' is reconstructed PMin \*r<sub>2</sub>əbuŋ (cf. PPN \*rebuŋ, \*Debuŋ). Where external cognates are not known the reconstruction rests, of course, on the assumption that whenever Mkl has l corresponding to r in the other northern languages this results from influence on Mkl from Tsw and is thus evidence for the

<sup>1</sup>One difficulty in assuming that the Mkl form is influenced by the Tsw word is that where the Tsw word has a different meaning from the Mtn word Mkl agrees in meaning with Mtn rather than with Tsw in cases which have been noted, e.g., Mtn reʔom, Mkl leʔom 'thirsty', Tsw leʔo 'hungry'; Mtn rəkət, Mkl ləkət 'fallow land', Tsw ləkac 'rice stubble'. If the occurrence of l in Mkl in such words is indeed under influence from Tsw then apparently semantic change has subsequently occurred in one or other of the languages.



earlier occurrence of the word in Tsw, even if it no longer exists in that language (or if it exists but has not been recorded). However, if Mkl has *r* then the Tsw form must be known in order to decide  $*r_1$  and  $*r_2$  in the reconstruction.

Recognition of  $*r_1$  and  $*r_2$  adds one more liquid consonant to PMin than exists in any present-day daughter language. This seems necessary in view of the three correspondence sets:

PNM	Tsw
$*r$	<i>r</i>
$*r$	l
$*l$	l

As yet no phonetic environment can be stated to account for any phonetic split (such as PMin  $*r >$  Tsw *r* and l or PMin  $*l >$  PNM  $*r$  and  $*l$ ). The data suggest that PMin had three liquid phonemes and that one merged with  $*r$  in PNM and with l in Tsw.<sup>1</sup> The following mergers are posited:



Rather than use three different symbols for the three reconstructed liquids it is thought better to employ the letter <*r*> with subscript numbers to represent two of the phonemes for the following reasons: (1) Where the Tsw form is lacking or not known and Mkl has *r* the evidence is not sufficient to decide whether  $*r_1$  or  $*r_2$  should be

<sup>1</sup>Support for the occurrence of three liquid phonemes comes from San which has three liquids, two laterals (retroflexed and non-retroflexed) and one trill. A study of the relationship of these three sounds in the Minahasan languages has not been carried out. If PMin had three liquids then it is possible that they were the same as occur in modern San.

The retroflexed lateral resembles both l and r. For San Maryott (1961) writes it with a digraph <rl> while Adriani (1893) uses the same two letters but with the <l> above the <r>. It is easy to accept that such a sound could merge with l on the one hand and with r on the other (in fact in Tsw both sounds still occur, but as positional variants).

Positing more phonemes for the parent language than occur in any of the daughter languages is not unusual. Haas (1969) describes a similar situation among the Muskogean languages of North America. All four daughter languages have nasal n and voiceless lateral ɺ but there are three cognate sets, n:n:n and n:ɺ:ɺ, requiring the recognition of three proto-phonemes: \*n, \*ɺ and \*N.

King (1969:178) writes: '... if we cannot state the phonetic environment in which split occurs we must posit additional phonemes. Strict application of the comparative method requires this, and one uses the comparative method strictly or not at all.'

reconstructed. In such cases the letter <r> without subscript number can be used. Thus PMin \*r really expresses  $*r_1/*r_2$ , i.e., 'either  $*r_1$  or  $*r_2$ '. (ii) If subsequent study reveals that the correspondence sets PNM \*r : Tsw r and PNM \*r : Tsw l can be accounted for in terms of one PMin phoneme then the subscript numbers can be dropped without any need for replacing one letter by another. On the other hand the letter <r> in a reconstruction can have the appropriate subscript number added later if further information makes such assignment possible.<sup>1</sup>

(f) PMin \*h

PMin \*h remains unchanged in PNM. It remains in Tsw except that it is lost immediately before another consonant. In Tsw h is often realised as velar fricative [x], which fluctuates freely in most environments with glottal fricative [h]. It is likely that in PMin \*h was always realised as [h], as it is in Tbl and the Kakas dialect of Tdn, the only other present-day languages in which h occurs. Tsw h represents a merger of a previous phoneme \*h and velar fricative reflexes of \*k and \*g. Its phonetic realisation is thus a result of this merger and cannot be attributed to PMin.

Loss of \*h before a consonant within the morpheme may be recent in Tsw. Niemann records <limuchmuch>, i.e., limuhmuh, for modern limumuh 'rinse out mouth' and <lochloch>, i.e., lohloh, for modern loloh 'pull down, break off'.

Where a PMin word has the form  $*CV_1hV_1C$ , i.e., with \*h between identical vowels, the Tsw reflex is sometimes a one-syllable word with loss of \*h and one vowel:

PMin	PNM	Tsw	
*tihil	*tihil	tis	'drip, leak'
*tehep	*tehep	tew	'tree sp.'

Usually, however, h remains in Tsw:

PMin	PNM	Tsw	
*sahap	*sahap	sahaw	'scoop out'
*lehe?	*lehe?	lehe?	'neck'

Both forms in Tsw are regarded as valid reflexes of PMin. For a few items both forms have been recorded for Tsw but from different sources. These are mentioned for the individual items in the wordlist.

Prefix-final \*h before a consonant remains, as ʔ, in the Mkl dialect of Ttb and in Tbl, as ʔ in Tomohon and h elsewhere. In Tsw it is

<sup>1</sup>Dahl (1973:60) uses this argument for employing  $t_1$  and  $t_2$  for Dyen's t and C.

sometimes lost from this position by a synchronic rule (see 2.3.1.3.) and there is evidence in the Maumbi dialect of Tse of its occurrence until recently in that language (see 3.1.3.(b)). But preconsonantal \*h within a morpheme has not been regularly retained in any language except Tbl, where words such as ahmut 'root' and ahbun 'smoke' occur. Such forms in Tbl would not be sufficient evidence to justify reconstructing \*hC clusters morpheme-medially in PMin were it not for the fact that many of these words are related to PPh reconstructions with \*R, of which PMin \*h is the regular reflex. But where such a relationship has been noted the PPh word usually has \*R initially. Thus PPh \*Ramut 'root', Tbl ahmut 'root'; PPh \*Rabun 'rain cloud', Tbl ahbun 'smoke'; PPh \*Rumun 'wild; lair; wallow', Tbl uhmun 'sit on ground'.

Since PMin did not have word-initial \*h the metathesis must have occurred prior to PMin and hence forms \*ahmut, \*ahbun etc. can be assigned to PMin.

Not all PPh words with initial \*R are reflected in Tbl by words with medial h. Thus PPh \*Ratus 'hundred', Tbl atus 'hundred'; PPh \*Rumaq 'house', Tbl uma? 'sheathe'. Further, not all Tbl words with morpheme-medial h preceding a consonant can be derived from PPh words with initial \*R as many of these Tbl words have an initial consonant, e.g., lohpek 'flat', pohpo 'split'. Such words may reflect PPh words with medial \*RC clusters. Only two Tbl words with medial hC clusters have known PPh etyma with medial \*RC clusters: Tbl ahdan 'stairs, ladder' from PPh (Charles) \*haRdan, Tbl limuhmuh 'rinse out mouth' from PPh (Charles) \*limuRmuR.

There are numerous difficulties yet to be overcome in explaining reflexes of PPh \*R in the Minahasan languages. This is especially true where the form of the Tbl word appears to make reconstruction of a PMin medial \*hC cluster necessary because there are a number of unexplained irregularities in some of the other languages. Thus cognate with Tbl ahdan 'stairs, ladder' are Tse a'dan (with completely irregular ?) and Kakas ahadan (with unexplained sequence -har-, cf. the regular reflex aran in Tondano). A study of the development of PMin from PPh will hopefully resolve most of these difficulties. For the present irregularities are pointed out for individual items in the wordlist.

(g) PMin \*ʔ

PMin \*ʔ remains unchanged in PNM. It has been lost in Tsw immediately preceding another consonant:

PMin	Tsw	
*baʔkəs	bakəs	'tie'
*kalimpoʔpoʔan	kalipopoʔan	'butterfly'

The exception to this loss in Tsw is where \*ʔ occurs in a PMin RM of the structure \*CVʔCVʔ. In this case the medial glottal stop remains in Tsw but the final one has been lost:

PMin	Tsw	
*keʔkeʔ	keʔke	'laugh'
*ŋaʔŋaʔ	ŋaʔŋa	'chew'
*palaʔpaʔ	palaʔpa	'palm branch'

Phonetically the same situation applies when the C of \*CVʔCVʔ is a voiced stop. But since medial voiced stops in Tsw are predictably preglottalised the medial \*ʔ phoneme of PMin must be interpreted as being lost:

PMin	Tsw	
*baʔbaʔ	baba [baʔba]	'mouth'
*buʔbuʔ	bubu [buʔbu]	'hole'

Final ʔ has not otherwise been lost in Tsw except that in some words it has been replaced by d. The sources disagree for a few words, some giving final ʔ and some giving final d. Where there is such disagreement a note is made for the item in the wordlist. In the following examples a stroke separates forms from different sources. The one in wedges is from Niemann:

PMin	Tsw	
*leheʔ	leheʔ/lehed	'neck'
*lekaʔ	lehaʔ/<lechad>	'bed bug'

In two known cases this replacement has occurred in an original RM. Following this the word has lost its status as an RM and, by the regular rule described above, the medial glottal stop has been lost:

PMin	Tsw	
*piʔpiʔ	pidid (for expected **piʔpi)	'wet'
*kar <sub>2</sub> aʔkaʔ	kalakad (for expected **kalaʔka)	'boil'

Loss of medial \*ʔ in the above words shows that the diachronic loss of pre-consonantal \*ʔ in Tsw occurred subsequent to replacement of final \*ʔ by d. On available evidence this replacement appears irregular but it occurs sufficiently frequently to justify treating both ʔ and d as regular reflexes in Tsw of PMin final \*ʔ.

Where a PMin word has the structure  $*CV_1?V_1d$  (where the subscript number indicates identical vowels) the final vowel has been lost in the Mkl dialect of Ttb and in Tsw. In Tsw the resulting sequence [ $?d$ ] is a single phoneme:

PMin	Mkl	Tsw	
*to $'$ od	to $'$ d	tod	'stand up'
*tu $'$ ud	tu $'$ d	-	'base'

Presumably the same reflexes would occur for PMin words of similar structure ending in  $*b$  but no examples have been recorded.

In Tsw a similar reduction occurs in other words ending in  $*V_1?V_1C$  where the final consonant is not a voiced stop. But in this case the change does not always occur:

PMin	PNM	Tsw	
*bi $'$ is	*bi $'$ is	bis	'tick'
*ta $'$ ap	*ta $'$ ap	taw	'winnow'

Usually no reduction occurs:

PMin	PNM	Tsw	
*pa $'$ an	*pa $'$ an	pa $'$ an	'bait'
*po $'$ ot	*po $'$ ot	po $'$ oc	'belly'

Both Tsw forms are treated as valid reflexes of PMin (a similar situation occurs when the medial consonant is  $*h$  - see 2.3.2.3.(f)).

It sometimes happens that one language has  $?$  morpheme-medially where the other languages and outside cognates do not. Such a glottal stop cannot be accounted for except as a spontaneous development, e.g., Tdn we $'$ wek 'duck', cf. Tse, Tbl, Jav bebek, Ttb wewek; Tse ro $'$ nit 'mosquito', cf. Tdn, Tbl ro $'$ nit, Mdw yo $'$ nit; Ttb ta $'$ sik 'sea', cf. Tdn, Tse tasik (< PPh \*tasik). Glottal stop sometimes appears in this position in Mtn where the word has a final continuant corresponding to a preglottalised stop in Mkl and it may, in these cases, represent a kind of metathesis, e.g., Mtn pə $'$ nar, Mkl pəna $'$ d 'buttocks', cf. Tdn pənar, Tse, Tbl pənad; Mtn tu $'$ mir, Mkl tumi $'$ d 'heel' (< PPh \*tumid). In the latter item the glottal stop also occurs in the north-eastern languages: Tdn tu $'$ mir, Tse, Tbl tu $'$ mid. Spontaneous glottal stop sometimes occurs word-finally also, e.g., Tdn təna $'$  'hit', cf. Tse, Ttb, Tsw təna; Ttb supi $'$  'rheumatism', cf. Tdn, Tse supi, Tsw suwi.

#### (h) Nasal-voiced stop clusters in Tsw

Nasals preceding homorganic voiced stops have remained unchanged in Tsw (no reconstructions with medial  $*ŋg$  can be made for PMin - see 2.3.2.3.(d)):

PMin	Tsw	
*tambəlaŋ	tambəlaŋ	'bamboo sp.'
*əndo	əndo	'day'

Such clusters are also retained word-initially.

If a PMin cluster in an RM is a heterorganic nasal-voiced stop sequence then the nasal has assimilated to the following stop. Only one example has been recorded but since only homorganic clusters occur in Tsw it is assumed the process was regular:

PMin	Tsw	
*dəmɔm	dəndəm	'dark'

(i) Consonant loss in Tsw

All consonants undergo loss in certain environments in Tsw. This often occurs as a synchronic process (see 2.3.1.3.). There has also been regular diachronic loss in Tsw of most first members in PMin consonant clusters. The only consonants not lost from this position are ʔ in RMs (see 2.3.2.3.(g)) and nasals preceding voiced stops (see 2.3.2.3.(h)). Loss of the phonemes \*h and \*ʔ from clusters is dealt with separately (see 2.3.2.3.(f) and (g)). Other clusters in PMin either occur in RMs or are homorganic nasal-voiceless obstruent sequences. The following examples illustrate the loss of the first member in medial clusters in RMs:

PMin	Tsw	
*səpsəp	səsəw	'suck'
*kələbkeb	kələkeb	'wing'
*tɪŋtɪŋ	tɪtɪŋ	'ring'

Nasals have been lost before homorganic voiceless obstruents p, t, s and k morpheme-medially:

PMin	Tsw	
*təmpok	təpoh	'edge, tip'
*lɪntaʔ	lɪtaʔ	'leech'
*lansat	lasac	'fruit sp.'
*toŋkoʔ	tokoʔ	'peck'

The same loss has occurred word-initially. In PMin morpheme \*N- assimilates to a following obstruent. This nasal has been lost before voiceless obstruents but here the loss can best be treated by a synchronic rule in Tsw grammar (see 2.3.1.3.).

The rule deleting the first member of a consonant cluster must have occurred after the rule converting PMin voiceless stops to continuants

following a vowel (see 2.3.2.3.(c)) since stops are retained in Tsw following a deleted consonant. The difference can be seen in the following pair:

PMin	Tsw	
*kakaʔ	kahaʔ	'older sibling'
*kaskas	kakas	'scratch'

(j) Clusters between morphemes

When a suffix beginning with a consonant is attached to a stem ending in a consonant a potential consonant cluster results. Such clusters are avoided in Tdn, Ttb and Tsw if they do not conform to one of the morpheme-medial cluster types occurring in those languages.

In Tdn and Ttb epenthetic schwa is inserted between the two consonants:

Tdn, Ttb rukut + -na → rukutəna

Tdn, Ttb wuʔuk + -ku → wuʔukəku

Epenthetic schwa appears to be in the process of loss in present-day Tdn (see 2.1.3.2.).

The process of consonant loss at a morpheme boundary in Tsw is described in section 2.3.1.3.

Such clusters are retained in Tbl and Tse:

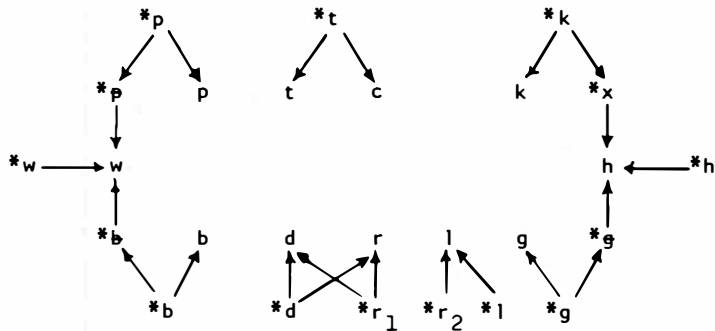
Tbl, Tse dukut + -na → dukutna

Tbl, Tse buʔuk + -ku → buʔukku

Since all PMin morpheme-medial consonant cluster types have been retained without change in Tbl and Tse while many have been lost or altered in the other three languages it is probable that Tbl and Tse have also retained PMin clusters at the morpheme boundary and that Tdn, Ttb and Tsw have lost them. There is no reason to suppose that such clusters were lost at a morpheme boundary in PMin while at the same time occurring morpheme-medially.

(k) Split and merger in Tsw

A number of phonemes in present-day Tsw result from splits and mergers in the development from PMin. These changes are illustrated in the following diagram:



Starred forms at the beginning of arrows represent PMin phonemes. Starred forms mid-way along arrows represent intermediate changes. Voiceless stops first developed fricative variants after vowels and these later became separate phonemes when the loss of nasals before voiceless stops left them in contrast. Fricatives \**p̥* and \**x* later merged with other sounds. The continuant variants of \**b*, \**d* and \**g* probably already existed in PMin, these also later merging with other sounds.

#### (1) Doublets containing *d*, *l* and *r*

It sometimes happens that where a word occurs in one or more Minahasan languages reflecting a PMin word with consonants \**d* and \**l* a doublet occurs in the same or in different languages containing two *r* sounds. Thus: Tse, Tbl *laləm* 'inside', Tsw *daləm* 'below' from PMin \**daləm* but also Tdn, Tse, Tbl, Ttb *rarəm* 'under'; Tse *dagad*, Ttb *lagar*, Tsw *lagad* 'boar' from PMin \**lagad* but also Tdn *ragar*; Tse *dede*, Ttb (Mkl) *lele*, Tsw *dele* 'palm leaf rib' from PMin \**dele* but also Tdn, Ttb (Mtn) *rere*.

Where one of the *r* sounds would occur word-finally in Tbl it has changed to *d* in accordance with the dissimilation rule given in section 2.1.4.3.(g). Thus Tbl *ragad* 'boar', *kərad* 'phlegm' (Tdn, Tse *kərar*, Ttb *kəlar*, Tsw *kəlad*).

The forms with two *r* sounds only occur in North Minahasan languages. No explanation can be offered as yet for these forms. Where such doublets occur as reflexes of PMin words the forms with two *r* sounds are mentioned in a note to the item in the wordlist.

#### 2.3.2.4. Distribution of Phonemes in PMin

From a comparison of the Minahasan languages the word structure of PMin can be reconstructed as follows.



All vowels occur in initial position. No words have been reconstructed with initial \*e on Minahasan evidence alone. The item given is known only for PNM but outside cognates confirm its occurrence in PMin:

PMin	PNM	Tsw	
*ate	*ate	ace	'liver'
*ebeh	*ebeh	-	'desire'
*əsa	*əsa	əsa	'one'
*ina?	*ina?	ina?	'decrease'
*ohat	*ohat	ohac	'vein'
*uma?	*uma?	uma?	'sheathe'

All vowels occur in medial position. The only known restriction is that \*ə does not occur before \*h or \*ʔ in any position. Further, no words can be reconstructed with \*o before final \*h but this is presumed to be a result of a gap in the data rather than a structural restriction:

PMin	PNM	Tsw	
*pate	*pate	pace	'die'
*kento?	*kento?	keto?	'lame'
*pər <sub>2</sub> <sup>a</sup>	*pəra	pəla	'dry'
*bisa	*bisa	bisa	'where'
*kolombi?	*kolombi?	kolombi?	'mollusc sp.'
*kutu	*kutu	kucu	'louse'

All vowels except \*ə occur word-finally:

PMin	PNM	Tsw	
*lima	*lima	lima	'five'
*pate	*pate	pace	'die'
*tali	*tali	tali	'rope'
*əndo	*əndo	əndo	'day'
*təlu	*təlu	təlu	'three'

The only known restriction on the sequence of two vowels within a morpheme are that (i) \*ə does not occur adjacent to another vowel and (ii) a sequence of two identical vowels cannot occur. Examples of vowel sequences:

PMin	PNM	Tsw	
*tian	*tian	tian	'belly'
*dua	*dua	dua	'two'
*lue?	*lue?	lue?	'tears'
*meoŋ	*meoŋ	meoŋ	'cat'
*loaŋ	*loaŋ	loaŋ	'wide'

Consonants \*h and \*ʔ do not occur word-initially. The question of the occurrence of \*w and \*y in this position is discussed in section 2.3.2.3.(b). All other consonants occur word-initially:

PMin	PNM	Tsw	
*pitu	*pitu	picu	'seven'
*bale	*bale	bale	'house'
*təlu	*təlu	təlu	'three'
*dua	*dua	dua	'two'
*kita	*kita	kica	'we'
*gio	*gio	gio	'face'
*meoŋ	*meoŋ	meoŋ	'cat'
*nanaʔ	*nanaʔ	nanaʔ	'pus'
*ŋar <sub>2</sub> an	*ŋaran	ŋalan	'name'
*siku	*siku	sihu	'elbow'
*r <sub>1</sub> anton	*ranton	daton	'hang'
*r <sub>2</sub> ondor <sub>2</sub>	*rondor	londol	'straight'
*lima	*lima	lima	'five'

All consonants occur intervocalically:

PMin	PNM	Tsw	
*əpat	*əpat	əpac	'four'
*təbəl	*təbəl	təbəl	'sharp'
*ate	*ate	ace	'liver'
*apədu	*apədu	awədu	'bile'
*aku	*aku	ahu	'I'
*lagad	*lagad	lagad	'boar'
*lima	*lima	lima	'five'
*ənəm	*ənəm	ənəm	'six'
*bəŋi	*bəŋi	bəŋi	'night'
*əsa	*əsa	əsa	'one'
*kur <sub>1</sub> eʔ	*kureʔ	kureʔ	'cooking pot'
*pər <sub>2</sub> a	*pəra	pəla	'dry'
*təlu	*təlu	təlu	'three'
*towo	*towo	towo	'liar'
*kayoŋ	*kayoŋ	kayoŋ	'crab'
*ohat	*ohat	ohac	'vein'
*paʔan	*paʔan	paʔan	'bait'

All consonants occur word-finally except that \*g has been recorded in one word only, \*ipag, which may be a borrowing (see 2.3.2.3.(d)):

PMin	PNM	Tsw	
*səpsəp	*səpsəp	səsəw	'suck'
*kələbkeb	*kələbkeb	kələkeb	'wing'
*laŋit	*laŋit	laŋic	'sky'
*pusəd	*pusəd	pusəd	'navel'
*təktək	*təktək	tətəh	'stake'
*ipag	*ipag	iwag	'brother-in-law'
*ənəm	*ənəm	ənəm	'six'
*ŋar <sub>2</sub> an	*ŋaran	ŋalan	'name'
*ŋir <sub>2</sub> uŋ	*ŋiruŋ	ŋlluŋ	'nose'
*ipus	*ipus	iwus	'tail'
*paŋkur <sub>1</sub>	*paŋkur	paŋkur	'beat'
*r <sub>2</sub> ondor <sub>2</sub>	*rondor	londol	'straight'
*təbəl	*təbəl	təbəl	'sharp'
*siow	*siow	siow	'nine'
*sakey	*sakey	sahey	'guest'
*sələh	*sələh	sələh	'big'
*ina?	*ina?	ina?	'decrease'

Word-initially homorganic nasal-obstruent clusters occur. The nasal is morpheme \*N- which assimilates to the following obstruent. PMin \*N- has been lost in Tsw before voiceless obstruents. Examples of all initial clusters are given in section 2.2.2.4. for PNM; these serve as examples of PMin initial clusters also.<sup>1</sup>

Morpheme-medially the following cluster types occur: (i) Nasal plus homorganic obstruent. All stops and \*s occur prenasalised within the morpheme except that no items with medial \*ŋg can be reconstructed (see 2.3.2.3.(d)):

PMin	PNM	Tsw	
*təmpok	*təmpok	təpoh	'tip'
*təmbələŋ	*təmbələŋ	təmbələŋ	'bamboo sp.'
*untəp	*untəp	utəw	'enter'
*əndo	*əndo	əndo	'day'
*linsən	*linsən	lisən	'fold'
*baŋko?	*baŋko?	bako?	'big'

(ii) Clusters of two consonants in RMs. The only known restrictions on the sequence of consonants are that the consonants cannot be

<sup>1</sup>\*N- was a noun marker of some sort but its function is not clear. Further study of its function in Tsw will be necessary before this can be determined.

identical, the second member cannot be \*h or \*ʔ and following a nasal it cannot be \*r<sub>1</sub>, \*r<sub>2</sub> or \*l.<sup>1</sup> Examples of clusters in RMs:

PMin	PNM	Tsw	
*səpsəp	*səpsəp	səsəw	'suck'
*tiŋtiŋ	*tiŋtiŋ	titiŋ	'ring'
*koʔkoʔ	*koʔkoʔ	koʔko	'hen'
*limuhmuh	*limuhmuh	limumuh	'rinse out mouth'

(iii) Clusters in which the first member is \*h or \*ʔ. Such clusters also occur in RMs, as illustrated by the last two examples in (ii) above. One reason for distinguishing between these clusters in RMs and elsewhere is the different reflexes which occur in Tsw when the first member is \*ʔ, this being retained in RMs but lost elsewhere. All consonants except \*h and \*ʔ can follow \*ʔ in PNM and the same is probably true of PMin although not all can be reconstructed because of lack of evidence from Tsw. Examples:

PMin	PNM	Tsw	
*baʔkəs	*baʔkəs	bakəs	'tie'
*kalimpoʔpoʔan	*kalimpoʔpoʔan	kalipopoʔan	'butterfly'

The only clear evidence of medial \*hC clusters in PMin comes from Tbl. Examples are given in section 2.3.2.3.(f).

Word-final clusters do not occur.

It is probable that consonant clusters, including sequences of identical consonants, occur at morpheme boundaries within the word as they do in Tbl and Tse. This is discussed in section 2.3.2.3.(j).

<sup>1</sup>It is likely that \*r and \*l could occur after a nasal in RMs in pre-PMin but had become \*d in this position in PMin. PMin \*raŋdaŋ 'red' is probably from a pre-PMin \*raŋraŋ, cf. Mal raŋraŋ 'red ant'. No other items can yet be reconstructed but possibilities include the etymon for Tbl laŋdaŋ, Ttb laŋdaŋ 'chicken coop'. Ttb laindəm/leiləm 'dive, go under water', with derivative laləindəmən 'a shade of skin colour, slightly dark', may reflect PPh \*ləmlem 'dark'.

## PART THREE

### MORPHOLOGY

3.0. The Minahasan languages are rich in bound morphemes but only a limited number can be reconstructed for the proto-language on the available evidence. This is mainly because of the considerable differences in morphology between Tsw and the North Minahasan languages. Often morphemes which resemble each other have different functions in the two branches. Many of these are probably related and it is expected that further study of Tsw and a systematic comparison with closely related languages will enable the reconstruction of PMin etyma for some of these.

There are two basic types of bound morphemes in Minahasan languages: affixes and clitics. Affixes function on the word level while clitics function on the clause or phrase level.<sup>1</sup> Affixes in turn can be grouped into inflectional and derivational types. Clitics are either pronouns or modals. Inflectional affixes, derivational affixes, bound pronouns and modals are each described in a separate section below.

Each bound morpheme dealt with is treated separately, in the following way. The morpheme is provided with a representation in braces and its allomorphs are described for each language if they are not phonologically predictable. Following the description of the morpheme in the present-day languages a PMin etymon is reconstructed. A representation of the PMin morpheme is given in braces, its meaning stated and, as far as possible, its various allomorphs reconstructed. Where a

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<sup>1</sup>Clitics are usually enclitics, i.e., they follow the root to which they are bound. In Tdn, and possibly also in the other languages, these forms become, under some circumstances, proclitics, occurring before the root. For this reason the neutral term clitic is employed although only enclitic occurrence is dealt with here.

PPh form has been reconstructed this is also given, otherwise examples of non-Minahasan cognates are given if any are known. If the PMin form can be reconstructed on the evidence of the Minahasan languages alone mention of other related forms is provided after the PMin reconstruction but if evidence from other sources is important or necessary to the reconstruction then it is given before the PMin reconstruction.

Certain morphophonemic rules which are regular in one or more languages are stated here. These rules are to be understood as applying to each morpheme in the relevant language or languages unless otherwise stated. This avoids the necessity of repeated reference to these changes in the description of each morpheme.

Examples of words containing allomorphs of the bound morphemes under discussion are taken mainly from Tdn, representing the North Minahasan languages, and Tsw. Such examples have the following format: a root is given, accompanied by the representations (in 'braces') of the morpheme being illustrated and of all other morphemes overtly present, each representation being separated by a plus sign. Prefixes precede the root and suffixes follow. If two or more prefixes co-occur their relative ordering reflects their order within the word. Infixes immediately precede the morpheme within which they are inserted. A re-write arrow follows and to the right of this the phonemic manifestation of the word is given. Modifications to allomorphs resulting from the general morphophonemic rules given below are not described for each morpheme but may be included in examples.

(a) In all languages agent voice marker {-um-} precedes the first vowel of the word in which it occurs. When the word begins with a labial consonant or a vowel the first syllable, i.e., (ɕ)u, is then deleted. Thus if a prefix beginning with p co-occurs with {-um-} initial pu is deleted, leaving a word beginning with m:

Tdn {-um-} + ali → mali  
 {-um-} + wewe → mewe  
 {-um-} + {pa-} + wewe → mawewe  
 Tsw {-um-} + pace → mace  
 {-um-} + {pawa-} + talo → mawacalo

(b) When identical vowels meet at a morpheme boundary glottal stop is inserted between them:

Tdn {ni-} + impit → niʔimpit  
 {ika-} + anu → ikaʔanu  
 Tsw pəla + {-an} → pəlaʔan

One exception to this rule occurs in Tdn and Tse with prefixes which previously ended in \*h. In this case a vowel sequence occurs in the two languages (phonetically one long vocoid):

Tdn {pa-} + ali + {-ən} → paalin

Another exception occurs in Tsw under conditions described in (e) below.

(c) In Tdn a prefix-final a is replaced by ə if the immediately following stem begins with a consonant followed by a:

{-um-} + {pa-} + kaan → məkaan  
 {i-} + {ka-} + raʔraə → ikəraʔraə  
 {ta-} + waŋkoʔ → təwaŋkoʔ

If the prefix is of two syllables, each containing a, or if there is a sequence of two prefixes, each containing a, then both vowels change:

{papa-} + wareŋan → pəpəwareŋan  
 {sa-} + {ŋa-} + maŋku → səŋəmaŋku

The change does not occur in morphemes other than prefixes:

paʔyaŋ + {-an} + {-na} + {-la} → paʔyaŋanala

(d) In Tsw morpheme-initial stops are replaced by continuants when they are preceded by a vowel (see also 2.3.1.3.). Of particular relevance to this section are the changes p → w and k → h:

{i-} + {pah-} + usəb → iwahusəb  
 {i-} + {ka-} + porog → ihaworog

(e) In Tsw a root-initial a or ə is lost following a prefix ending in a:

{ma-} + acus → macus  
 {ka-} + əpac → kapac

(f) When two consonants come together at a morpheme boundary in Tsw the cluster is lost in one of the various ways described in section 2.3.1.3.

### 3.1. INFLECTIONAL AFFIXES

3.1.0. Three categories of inflectional affixes can be distinguished for all languages: voice, tense and aspect. There are four voice affixes, all of which can be reconstructed for PMin both in form and function. There are two tenses, of which only one, past tense, is overtly marked. There is some doubt about the form of this morpheme in PMin. Each language has a large stock of other verbal affixes, which

can be conveniently grouped into the category of aspect. Only a limited number of aspect morphemes can be reconstructed for PMin because of the considerable differences between Tsw and the northern languages.

### 3.1.1. VOICE AFFIXES

3.1.1.0. There are four voice-marking morphemes in the Minahasan languages. Their form in PMin is reconstructed in section 3.1.1.1. and their function is described in section 3.1.1.2.

#### 3.1.1.1. The Form of Voice Affixes

##### (a) Agent voice

All languages have an infix {-um-}, except for the Mkl dialect of Ttb which has {-əm-}. This morpheme precedes the first vowel of the word, whether in the root or in a prefix. Conditions under which the first syllable of the word is lost are described in section 3.0.(a). Elsewhere no loss occurs:

Tdn {-um-} + *tiŋkas* → *tumiŋkas*  
 {-um-} + *gegey* → *gumegey*  
 Tsw {-um-} + *lapan* → *lumapan*

The combination of {-um-} with the past tense marker is described in section 3.1.2.(b).

Mkl has {-əm-} instead of {-um-}:

{-əm-} + *topok* → *təpəpək*

Adriani does not mention this in his grammar of Ttb and the change may be recent.

##### *PMin reconstruction:*

\*{-um-} 'agent voice'

-um- precedes the first vowel of the word. If the word begins with a vowel or a bilabial consonant the initial syllable of the word is lost.

Zorc reconstructs \*-um- as the active marker (i.e., agent voice) for PPh and the morpheme is widespread throughout the northern Indonesian languages. Dahl reconstructs \*-um- as agent voice marker in PAN. Loss of the first syllable of the word, as described in section 3.0.(a), is widespread in Philippine and North Borneo languages.

##### (b) Object voice

In all languages object voice is marked by {-ən}, which has several variants.



-ən follows a root-final consonant other than glottal stop:

Tdn səʔsəp + {-ən} → səʔsəpən

Tsw kakas + {-ən} → kakasən

Following a root-final vowel -n occurs:

Tdn edo + {-ən} → edon

Tsw pəla + {-ən} → pəlan

Following a root-final glottal stop ə assimilates to the preceding vowel in all languages except Tbl and Tse:

Tdn lewoʔ + {-ən} → lewoʔən

Tsw təbiʔ + {-ən} → təbiʔin

In Tbl assimilation does not occur in this environment:

Tbl lutuʔ + {-ən} → lutuʔən

According to Rumbayan (1964) assimilation does not occur in Tse:

Tse dabaʔ + {-ən} → dabaʔən

In the Kauditan dialect of Tse assimilation is optional but usually occurs:

Tse iŋkaʔ + {-ən} → iŋkaʔən ~ iŋkaʔən

In all languages object voice morpheme has no overt manifestation in the presence of the past tense marker {-in-}:

Tdn, Tsw {-in-} + tələs + {-ən} → tinələs

The only difference among the languages is on the assimilation of ə to a preceding vowel when the root ends in ʔ. On the evidence available it is not possible to say whether an assimilation rule occurred in PMin and was later lost in Tbl and Tse or whether these reflect the original situation with assimilation later occurring in the other languages. The latter appears very likely because assimilation is a common process in Tdn, Ttb and Tsw while Tbl and Tse tend to retain PMin sequences intact.

*PMin reconstruction:*

\*{-ən} 'object voice'

The distribution of allomorphs is described by the following set of rules:

{-ən} →    i    ∅ in the presence of \*{-in-}  
          ii    -n after V  
          (iii -V<sub>1</sub>n after V<sub>1</sub>ʔ)  
          iv    -ən after C

Rule iii specifies that the vowel of the suffix has the same quality as the preceding vowel when the verb root ends in  $\eta$ . Since the occurrence of this rule in PMin is only a possibility it is placed in parentheses. If rule iii occurs then the C of rule iv covers all consonants except  $\eta$ , if iii does not occur then C covers all consonants.

Zorc reconstructs \*-en as the passive marker (i.e., object voice) for PPh and the suffix is widespread throughout Philippine and Formosan languages with this function. Loss of the suffix in the presence of the past tense morpheme appears to be universal throughout the Philippines and was obviously a feature of PPh. Dahl reconstructs \*-ən as the goal focus affix in PAN.

(c) Referent voice

In all languages {-an-} marks referent voice:

Tdn, Tsw  $t\acute{e}l\acute{e}s + \{-an\} \rightarrow t\acute{e}l\acute{e}san$

Tdn  $sapu + \{-an\} \rightarrow sapuan$

Tsw  $sawu + \{-an\} \rightarrow sawuan$

*PMin reconstruction:*

\*{-an} 'referent voice'

\*-an occurs in all environments.

Dahl reconstructs \*-an as the referent focus marker for PAN. Zorc reconstructs \*-an 'local focus' for PPh.

(d) Instrument voice

{i-} marks instrument voice in all languages:

Tdn  $\{i-\} + enso\eta \rightarrow ienso\eta$

$\{i-\} + wee \rightarrow iwee$

Tsw  $\{i-\} + tulud \rightarrow itulud$

$\{i-\} + ehe \rightarrow iehe$

In Tdn and Tse i- is optionally deleted word-initially. In Tdn it has almost entirely disappeared from this position in the speech of younger people:

Tdn, Tse  $\{i-\} + tea? \rightarrow tea? \sim itea?$

In Tsw morpheme {i-} is not overtly manifested in the presence of the past tense marker:

$\{-in-\} + \{i-\} + us\acute{e}b \rightarrow beus\acute{e}b$

Loss of *i-* in initial position in Tdn is a diachronic change now in progress and this appears to be the case also in Tse. Since the past tense marker *be-* in Tsw is an innovation loss of *i-* in combination with it need not be traced back to PMin.

*PMin reconstruction:*

\*{*i-*} 'instrument voice'

\**i-* occurs in all environments.

Like the other voice affixes this morpheme is widespread among the northern Indonesian languages. Zorc reconstructs PPh \**hi-/i-* 'instrumental'.

### 3.1.1.2. The Voice System

The phenomena of topic and focus and the mechanics of topicalisation have been described for a large number of Philippine and related languages and need not be described in detail here.<sup>1</sup> It can just be pointed out that in any verbal construction in the Minahasan languages, as in other Philippine-type languages, one nominal occurs as topic, a function somewhat similar to that of subject in European languages. The verb is obligatorily inflected with one of the four voice affixes to specify the relationship of the topic to the verb. The voice affix {-*um-*} (Mkl {-*əm-*}) signals that the topic noun is the agent (i.e., the actor), affix {-*ən*} signals that the topic noun is the object, affix {-*an*} signals that the topic noun is referent (i.e., the location of the action or the person or place to or from which the action is directed), the affix {*i-*} signals that the topic noun is the instrument. The beneficiary (the one for whose benefit the action is performed) is also focused by {*i-*}. The two functions of {*i-*}, to focus instrument and beneficiary, must be distinguished since they are semantically unrelated and nouns in these relationships are clearly distinguished out of focus (i.e., when not acting as topic). The morpheme is labelled after its instrument-marking function because this is clearly its primary and original function. While occurrence of *i-* as instrument marker is widespread and can be traced back to PPh its function as marker of beneficiary is an innovation in the Minahasan group (although the same innovation has occurred in some other groups of Philippine-type languages).

<sup>1</sup>Among the earliest of the modern treatments of these phenomena are McKaughan (1958), Dean (1958), Healey (1960), Pike (1964) and Miller (1964). A description for Tdn has been given (Sneddon 1975). Some recent works have studied the relationship of context to the process of topic selection, e.g., Naylor (1975) and Miller (1973).

The functions of the four voice affixes described above can be called their standard functions. The following examples illustrate these functions of the voice affixes for Tdn and Tsw.

1. Agent as topic, voice affix {-um-}:

Tdn ku tumələs sərə?  
 Tsw tumələs ahu da?  
*'I will buy fish.'*

2. Object as topic, voice affix {-ən}:

Tdn sərə? tələsən ni tuama  
 Tsw da? tələsən i cuama  
*'The fish will be bought by the man.'*

3. Referent as topic, voice affix {-an}:

Tdn ləpo ia?i tanəman ni tuama kaan  
 Tsw poman ia?i usəban i cuama im bekow  
*'This field will be planted with rice by the man.'*

4. Instrument as topic, voice affix {i-}:

Tdn paagi? ia?i ikətorəku ntali  
 Tsw powahi? ia?i iworə'ku i tali  
*'I'll cut the rope with this knife.'*

5. Beneficiary as topic, voice affix {i-}:

Tdn nisia itələs ni wəwene sərə?  
 Tsw isia icələs i wene da?  
*'The woman will buy fish for him.'*

On the above evidence the following statement can be made about the standard functions of the voice affixes in PMin.

*PMin reconstructions:*

- \*{-um-} focuses agent
- \*{-ən} focuses object
- \*{-an} focuses referent
- \*{i-} focuses instrument and beneficiary

One characteristic of the Minahasan languages which they share with other Philippine-type languages is the phenomenon which has been called 'shift in function'. This term refers to the fact that voice affixes, under certain conditions, operate in a different way from the standard functions described above.<sup>1</sup>

<sup>1</sup>The terms 'standard function' and 'shift in function' come from Kerr (1965), who describes the process for Cotabato Manobo. Function shift in Tdn has been described according to Kerr's model (Sneddon 1975). Somewhat different descriptions of this process have been given for other languages including Ivatan (Reid 1966), Maranao (Ward and Forster 1967) and Dibabawon (Forster and Barnard 1968).

A systematic study of function shifts has not yet been undertaken for the Minahasan languages other than Tdn so the following description is necessarily limited. For instance, numerous shifts occur in causative constructions (those in which the verb is inflected with {papa-} or {paki-} - see 3.1.3.(c) and (d)) but it is not known if the shifts in the other languages are the same as in Tdn. A shift in function in the Minahasan languages described elsewhere is that of {-ən} to focus the object with verbs derived from numeral roots by prefix {paka-} (see 3.2.(h)).

One shift which occurs in all five languages is that of {i-} to focus object with certain verbs. A semantic feature characteristic of these verbs is that the object is moved in a direction away from the agent. Apparently any verb specifying such activity focuses its object with {i-} instead of {-ən}. Verbs include those meaning 'give', 'throw', 'sell', 'push', 'drop' and 'plant':

Tdn kaan itanəm witu ləpə iaʔi

Tsw bekow iusəb a poman iaʔi

*'The rice will be planted in this field.'*

Because of agreement among the five languages the following statement can be made for PMin:

*PMin reconstruction:*

\*{i-} focuses the object with verbs which indicate an action directed away from the agent.

This shift in function is not a Minahasan innovation but is widespread in Philippine languages. According to Zorc (1974) the shift occurs throughout the Philippines except in Mindoro where the object voice marker also occurs with this class of verbs.

Non-volitional aspect and object voice markers do not co-occur in the Minahasan languages. When the object nominal is topic in a transitive non-volitional clause a shift in function occurs, {-ən} taking the place of {-ən} to focus the object.

This shift in function is illustrated in the following example from Tdn. In both constructions the object is topic. The verb in clause (a) is not inflected for non-volition and the object is focused by {-ən} (which is manifested as zero in the presence of past tense marker {-in}). In clause (b) the same verb occurs but here it has non-volitional aspect marker {ka-} and {-ən} is replaced by {-ən}:

(a) wuʔuk əsa sinawutow

*'One hair has been (deliberately) plucked out.'*

- (b) wu?uk əsa kinasawutanow

*'One hair has been (accidentally) plucked out.'*

The equivalent of clause (b) in Tsw is:

əsa ənucah kinaubucan

*'One hair has been (accidentally) plucked out.'*

With non-volitional verbs the agent is focused by {i-} where {-um-} would otherwise occur (but see also 3.1.3.(f) concerning maka-). In the following example from Tdn the agent is focused by {-um-} (which combines with {-in-} in the portmanteau form -im-) in (a) but the construction in (b) is non-volitional and {i-} focuses the agent:

- (a) si oki? rima?raḡ witu ḡkayu

*'The child jumped (dropped deliberately) from the tree.'*

- (b) si oki? naikəra?raḡ witu ḡkayu

*'The child fell (dropped accidentally) from the tree.'*

The equivalent of (b) in Tsw is:

kedoḡ behacia? a kayu

*'The child fell from the tree.'*

The following statement can be made for PMin:

*PMin reconstruction:*

In the presence of non-volitional aspect \*{ka-} a number of shifts occur in the function of voice affixes.

Object voice marker \*{-ən} does not co-occur with \*{ka-}.

\*{-ən} shifts in function to focus the object in transitive constructions.

\*{i-} shifts in function to focus the agent.

The shifts in function of voice affixes in the presence of non-volitional aspect may be a Minahasan innovation as these shifts do not occur in at least some Philippine languages, e.g., Ata (Morey 1964) and Ilianen Manobo (Shand 1964).

### 3.1.2. TENSE AFFIXES

In all five languages there are two tenses: past and non-past.

#### (a) Non-past tense

This is the unmarked tense. It is best defined negatively: a verbal form without the past tense morpheme does not indicate past tense. Since this is the case in all languages the same can be reconstructed for PMin.

*PMin reconstruction:*

'non-past tense'

The absence of an overt tense marker specifies non-past tense.

**(b) Past tense**

All languages have a morpheme {-in-}.

The allomorphs of this vary considerably among the five languages and it has not yet been possible to fully determine the manifestations of this morpheme in PMin.

The following distribution of allomorphs occurs in Tdn and Tse (all examples are from Tdn):

na- precedes instrument voice marker {i-}:

{-in-} + {i-} + wəŋker → naiwəŋker

{-in-} + {i-} + tanəm → naitanəm

ni- precedes a root initial vowel if there are no other prefixes or infixes:

{-in-} + edo → niedo

{-in-} + ali + {-an} → nialian

When {-in-} co-occurs with agent voice marker {-um-} in words in which the first syllable is lost (see 3.0.(a)) {-in-} occurs immediately after {-um-} (which reduces to m-):

{-um-} + {-in-} + ali → minali

{-um-} + {-in-} + wareŋ → minareŋ

{-um-} + {-in-} + {pa-} + tələs → minatələs

Where the first syllable is not dropped {-um-} and {-in-} combine in the portmanteau form -im-:

{-um-} + {-in-} + tiŋkas → timiŋkas

Elsewhere -in- occurs immediately following the first consonant of the word:

{-in-} + gorəm + {-an} → ginorəman

{-in-} + {pa-} + tələs → pinatələs

In the Kakas dialect there is one difference. Where Tondano has the form mina- Kakas has nima-, i.e., Kakas employs prefix ni- with agent voice ma- ( {-um-} + {pa-} ) where Tondano employs -in-:

Tondano {-um-} + {-in-} + {pa-} + tiŋkas → minatiŋkas

Kakas {-um-} + {-in-} + {pa-} + tiŋkas → nimatiŋkas

Tbl has the same distribution of allomorphs as Tdn and Tse except as follows:

me- occurs with instrument voice:

{-in-} + {i-} + biŋkot → meibiŋkot

ni- occurs with agent voice in cases where the first syllable is lost except in Kinilow where -in- occurs:

Tomohon {-um-} + {-in-} + ali → nimali

{-um-} + {-in-} + {pah-} + ali → nimahali

Kinilow {-um-} + {-in-} + {pah-} + ali → minahali

In Ttb a- occurs preceding the instrument voice affix:

{-in-} + {i-} + taʔar → aitaʔar

{-in-} + {i-} + {pa-} + taʔar → aipataʔar

ni- co-occurs with agent voice marker {-um-} in Mtn:

{-in-} + {-um-} + lələʔ → nilumələʔ

{-in-} + {-um-} + {pa-} + poʔow → nimapoʔow

{-in-} + {-um-} + ələp → nimələp

The same occurs in Mkl except that {-in-} is realised as ai- with words in which the first syllable is not lost:

{-in-} + {-um-} + rano → airumano

ni- also occurs in both dialects with object and referent voice verbs beginning with a vowel:

{-in-} + andet → niandet

{-in-} + indo + {-an} → niʔindoan

If the root begins with l, r or w the allomorphs ni- and -in- are in free variation:

{-in-} + laʔuŋ → nilaʔuŋ ~ linaʔuŋ

Otherwise -in- occurs with object and referent voice verbs which have a root or prefix beginning with a consonant:

{-in-} + karet → kinaret

{-in-} + {pa-} + siwo → pinasiwo

In Tsw {-in-} is manifested as i- with all agent voice forms:

{-in-} + {-um-} + lapaŋ → ilumapaŋ

{-in-} + {-um-} + pamel → imamel

{-in-} + {-um-} + iwi → imiwi

{-in-} + {-um-} + {pah-} + siwo → imasiwo

When {-in-} co-occurs with instrument voice marker {i-} it is realised as be- and {i-} is lost:



{-in-} + {i-} + usəb → beusəb  
 {-in-} + {i-} + {pah-} + baləŋ → bewawaləŋ

be- also occurs with object and referent voice verbs beginning with a vowel:

{-in-} + iwic → beiwic  
 {-in-} + ubad + {-an} → beubadan

Elsewhere -in- occurs:

{-in-} + səsəw → sinəsəw  
 {-in-} + puwuh → pinuwuh  
 {-in-} + {pah-} + siwo + {-an} → pinasiwoan

Cognates of {-in-} are widespread in northern Indonesian languages but it is not possible, until closely related languages are systematically compared, to determine the distribution of allomorphs of this morpheme in PMin.

All past tense forms with instrument voice appear to be recent innovations in the Minahasan languages and these shed no light on the PMin situation.

Most other variants are also widely distributed in Philippine and Celebes languages, often, as in the Minahasan languages, a number of them occurring in the one language.

The difficulty in determining the situation in PMin can be seen, for instance, in the variety of forms occurring when {-in-} combines with {-um-}. As well as the Minahasan forms ni-...-um- and -im- other languages contain such combinations as -umin-, -inum- and -inm-.

It is obvious that a number of positional variants occurred in PMin, possibly with free variation between allomorphs occurring in some environments.<sup>1</sup> For the present the distribution of allomorphs in PMin must be left undecided.

*PMin reconstruction:*

\*{-in-} 'past tense'

There are apparently a number of allomorphs but the distribution of these has not been determined.

<sup>1</sup>Gonda (1952:27) points out that the formal development of -in- ~ ni- ~ in- has not been satisfactorily elucidated. Adriani (1908:182) discusses forms in a number of Celebes languages.

### 3.1.3. ASPECT AFFIXES

Under the general term 'aspect' are grouped all inflectional morphemes not associated with voice and tense. The term covers a range of inflectional types rather than a specific category of semantically related morphemes as do the other two terms. However, recognition of a number of categories instead of one would result in unnecessary complexity of description (discussed in Sneddon 1975). Furthermore, the inflectional system in Tsw is not understood sufficiently well to allow a detailed analysis for that language. As mentioned in section 3.1.0., it has only been possible on the available evidence to reconstruct a limited number of aspect morphemes although each language has a considerably larger stock. In a number of cases an aspect morpheme has a range of functions and it has not been possible to choose a label for it which adequately covers that range. Such is the case, for instance, with the term punctiliar.

#### (a) Punctiliar aspect

This aspect has no overt marker. It generally has an aoristic function, i.e., it simply denotes the occurrence of an action, in contrast with aspects which specify the progress or completion etc. of an action. Punctiliar could also be regarded as the neutral or unmarked aspect, occurring whenever one of the more specific aspects is not required.

In all languages the combination of punctiliar aspect and non-past tense in a simple statement indicates future action. The only overt affix is the voice marker:

Tdn ku lumutu? sɛrɔ?  
 Tsw sumiwo ahu dɔ?  
*'I'll cook some fish.'*

The same combination occurs in imperative constructions:

Tdn rumubɛr  
 Tsw dumacuh  
*'Sit down!'*

Tdn tɛlɛsɛn wiir ia?i  
 Tsw tɛlɛsɛn ɛmbas ia?i  
*'Buy this rice!'*

The combination of punctiliar aspect and past tense indicates a simple past action, i.e., one which occurred or has/had occurred (but not one which was in progress):

Tdn məmo'odo ku limutu? sərə?  
 Tsw kambo'ondo ahu isumiwo da?  
*'This morning I cooked some fish.'*

Tdn ku limutu'mow sərə?  
 Tsw isumiwom ahu da?  
*'I've already cooked some fish.'*

*PMin reconstruction:*

'punctiliar aspect'

The absence of an overt aspect marker specifies punctiliar aspect. This aspect indicates the simple occurrence of an action. The combination of punctiliar aspect and non-past tense indicates future action or a command. The combination of punctiliar and past tense indicates a simple past action.

(b) Durative aspect

Tdn has morpheme {pa-}, which occurs as pa- in all environments, modified by the rule in section 3.0.(c) but not by the rule in 3.0.(b) (i.e., glottal insertion does not occur after {pa-}):

{pa-} + tələs + {-ən} → patələsən  
 {-um-} + {pa-} + wəŋker → məwəŋker  
 {pa-} + ali + {-ən} → paalin

The Maumbi dialect of Tse has morpheme {paa-}. This is manifested as paa- except when a vowel follows in which case it is manifested as pa-:

{-um-} + {paa-} + pitik → maapitik  
 {paa-} + endo + {-ən} → paendon

Niemann gives variously <pa->, <paa-> and <paha-> before consonants (never <pah->) and either <pa-> or <pah-> before vowels.

In the Kauditan dialect morpheme {pa-} occurs, always manifested as pa:

{-um-} + {pa-} + pitik → mapitik

In the Kinilow dialect of Tbl {pah-} occurs, manifested as pah- in all environments:

{pah-} + tələs + {-ən} → pahtələsən

The Tomohon dialect has {paʔ-}:

{paʔ-} + tələs + {-ən} → paʔtələsən

Wouw and Niemann both give <paha-> before stems beginning with a consonant and <pah-> before vowel-initial stems. However, no informants used the form paha-. This is further discussed below.

In Ttb {pa-} occurs in Mtn and {paʔ-} occurs in Mkl, each with one allomorph:

Mtn {-um-} + {pa-} + waʔkəs → mawaʔkəs

Mkl {-um-} + {paʔ-} + waʔkəs → maʔbaʔkəs

Tsw has morpheme {pah-}. This is manifested as pa- before consonants and pah- before vowels, with other modifications as described in section 3.0.:

{i-} + {pah-} + usəb → iwahusəb

{-um-} + {pah-} + kokod → makokod

In all languages this aspect, in combination with non-past tense, indicates an action in progress or an action which usually or regularly occurs:

Tdn tarekan si makiar

Tsw iaʔi taleweʔ sia makokod

*'He is digging now.'*

Tdn susur ənədo si makiar

Tsw susud inəndo sia makokod

*'He digs every day.'*

In combination with past tense this aspect indicates an action which used to be performed or an action which was once, i.e., at some time in the past, performed:

Tdn ləpo iaʔi pinətanəmanʔku kaan

Tsw poman iaʔi pinahusəbaku imbekow

*'I used to plant these fields with rice.'*

The Tsw form pah- suggests that PMin had \*pah- in all environments. Loss of h before root-initial consonants in Tsw conforms with the diachronic rule by which a consonant has been lost immediately preceding another consonant (see 2.3.2.3.(1)).

Ttb also reflects PMin \*pah-. Mkl paʔ- by itself could be a reflex of either \*paʔ- or \*pah- and Mtn pa- could reflect either \*pa- or \*pah-. But the morpheme-final correspondence Mtn ∅ : Mkl ʔ is a regular reflex of \*h (see 2.2.2.3.(c)).

The Tdn form pa- could reflect \*pa- or \*pah- since morpheme-final \*h has been lost in Tdn without trace (see 2.1.4.3.(e)).

The Kauditan dialect of Tse has pa-. In Kauditan, as in the other Tse dialects, the previous existence of \*h morpheme-finally is indicated by lengthening of the preceding vowel (see 2.1.4.3.(e)). One would thus expect a previous \*pah- to be reflected by \*\*paa- (in which case pa- would reflect \*pa-). However, all other evidence is from root morphemes, which are two or more syllables long and capable of occurring utterance-finally. On the other hand the morpheme in question is a prefix and could well have undergone a change different from that experienced by the other morphemes. There is thus no good reason to reject Kauditan pa- as reflecting a previous \*pah-.

The Maumbi dialect has pa- before vowels, which could reflect \*pa- or \*pah-. Niemann gives both forms. It is probable that the form was previously \*pah- and that h was disappearing at the time of Niemann's recording, resulting in free variation (see 2.1.4.3.(e)). Maumbi paa- before consonants could reflect either \*pah- or \*paha-. Niemann suggests it was previously \*paha- with h in the process of disappearing. He sometimes gives <pa->, which is possibly an error for \*paa-.

The Tbl forms, Kinilow pah- and Tomohon pa?- both support a reconstructed \*pah-. However, according to Wouw and Niemann pah- occurs only before vowels while the form before consonants is paha-.

Thus there is some evidence from Tse and Tbl that the form \*paha- may have occurred with consonant-initial roots. On the other hand the evidence of the other languages argues against this. An original \*paha- would have the regular reflexes: Tdn \*\*paa-, Ttb \*\*paʔa-, Tsw \*\*paha-. Moreover, the Tse and Tbl evidence for \*paha- is weak. The Kauditan dialect of Tse does not reflect this form and although both Niemann and Wouw give <paha-> for Tbl it was not used by any informants from either Tomohon or Kinilow, all of whom used pah-. The reason for this discrepancy is not understood.

It is very likely that if \*paha- previously occurred in the Maumbi dialect of Tse and in Tbl it was an innovation. It is suggested in section 2.1.4.3.(e) that the loss of word-final h in Tse was preceded by the development of a following vowel of the same quality as the vowel preceding h. Loss of h then resulted in a long vowel. This vowel lengthening did not occur where h was already followed by a vowel. If there were a prefix \*pah- the same process could have operated as did word-finally, with first the development of \*paha- when there was no vowel following and later loss of h. Niemann's recording of both <paha-> and <paa-> (usually incorporated in the agent voice forms <maha-> and <maa->) suggests that by that time a following vowel had already developed (since he never gives <pah-> with consonant-initial roots) and that h was already in the process of being lost.

Considering the strong, independent evidence from Tdn, Ttb and Tsw for \*pah- in all environments and the weak evidence against it from Tse and Tbl, the PMin form must be regarded as \*pah- in all environments. Any occurrence of \*paha- in Tbl and Tse must be treated as an innovation.

*PMin reconstruction:*

\*{pah-} 'durative aspect'

\*pah- occurs in all environments, modified by the morpho-phonemic rules given in section 3.0.

(c) Causative aspect

This aspect indicates that one participant causes, or with past tense, caused another to perform the action.

The morpheme is {papa-} in the northern languages, with only one allomorph papa-:

Tdn {-um-} + {papa-} + kəməs → məpakəməs  
 {-in-} + {i-} + {papa-} + loo? → naipapaloo?

In Tsw {pawa-} occurs:

{i-} + {pawa-} + talo → iwawacalo  
 {-um-} + {pawa-} + ilah → mawailah

The form in all languages reflects \*{papa-}. Intervocalic \*p has become w in Tsw by regular sound change (see 2.3.2.3.(c)).

*PMin reconstruction:*

\*{papa-} 'causative aspect'

\*papa- occurs in all environments. This aspect indicates that one participant causes another to perform the action.

Zorc reconstructs \*pa- 'causative' for PPh and Dahl reconstructs the same for PAN. But in the Minahasan languages the syllables are not individually meaningful. \*{papa-} may originally have been two morphemes but before the time of PMin the two parts had become one morpheme, losing what separate function they might previously have had.

(d) Requestive aspect

This aspect indicates that one participant requests or tells another to perform the action.

Tdn and Tse have {paki-}, with one allomorph paki-:

Tdn {-um-} + {paki-} + kəməs → makikəməs  
 {paki-} + kəməs + {-an} → pakikəməsan

Tb1 and Ttb have {pəki-}, with one allomorph pəki-:

Ttb {-in-} + {pəki-} + semboŋ → pinəkisemboŋ

Tsw has {pahi-}:

{-in-} + {i-} + {pahi-} + kapec → bewahihapec

{pahi-} + dano + {-an} → pahiranoan

On the evidence of Tdn, Tse and Tsw \*{paki-} can be reconstructed. This is supported by the evidence of other languages and Zorc reconstructs \*paki- 'causative, requestive' for PPh. The form in Tb1 and Ttb has unexplained ə in the first syllable and is an innovation.

*PMin reconstruction:*

\*{paki-} 'requestive aspect'

\*paki- occurs in all environments. This aspect indicates that one participant requests, tells or orders another to perform the action.

(e) Completive aspect

In the northern languages {paka-} occurs, with one allomorph paka-:

Tdn {paka-} + siwo + {-ən} → pakasiwon

{-um-} + {paka-} + kooʔ → makakooʔ

Tsw has {paha-}:

{-um-} + {-in-} + {paha-} + useb → imahauseb

{i-} + {paha-} + useb → iwahauseb

This aspect indicates that an action is on the point of completion. In combination with past tense it indicates that an action has already been entirely performed:

Tdn ku makaupuʔmow kaan

Tsw si ahu mahauwuʔum imbekow

*'I'm finishing off harvesting the rice.'*

Tdn ku minakaupuʔmow kaan

Tsw si ahu imahauwuʔum imbekow

*'I've finished harvesting the rice.'*

In Tdn and Ttb {paka-} in fact has a wider range of functions than indicated here, such as perfective and augmentative, but evidence from the other languages is lacking for these functions.

*PMin reconstruction:*

\*{paka-} 'completive aspect'

\*paka- occurs in all environments. This aspect indicates

that an action is on the point of completion or, with past tense, that it has been entirely performed.

(f) Non-volitional/abilitive aspect

Prefix {ka-} occurs in all languages, always manifested as ka- except when co-occurring with the agent voice marker (see below):

Tdn {i-} + {ka-} + kətor → ikakətor  
 {-in-} + {ka-} + kətor + {-an} → kinakətoran  
 Tsw {-in-} + {ka-} + porog + {-an} → kinaworogan  
 {-in-} + {i-} + {ka-} + porog → behaworog

This aspect specifies that the action is performed accidentally or unintentionally or that it is beyond the control of the agent (of any):

Tdn lawas kinakətoranɡu  
 Tsw kama kinaworogaku  
*'I've (accidentally) cut my hand.'*

This aspect does not co-occur with object voice and there are some shifts in the function of other voice affixes in co-occurrence with it (see 3.1.1.2.).

Although {ka-} and agent voice marker {-um-} do not combine in an affix complex \*\*kuma- there is an agent voice prefix maka- in the northern languages, maha- in Tsw, which could be regarded as the agent voice form containing {ka-}.

In some contexts {ka-} indicates ability, i.e., the agent succeeds, often unexpectedly, to perform the action. Although this meaning is only made clear by context for referent and instrument voices, it is the only meaning for the agent voice form. Thus, for instance, in Tdn the instrument voice in: ku naikakətor əntabəlaŋ can mean *'I accidentally cut down the bamboo'* or *'I managed to cut down the bamboo'* depending on context. However, the agent voice form ku minakətor əntabəlaŋ means only *'I managed to cut down / succeeded in cutting down the bamboo.'*

Thus maka- can be regarded as the affix complex containing agent voice marker {-um-} and non-volitional/abilitive marker {ka-}, although it is semantically more restricted than the affix complexes containing other voices. This maka- cannot be regarded as consisting of agent voice marker {-um-} plus aspect marker {paka-} (see (e) above) since when {-um-} is replaced by some other voice affix the remaining prefix is {ka-}, not {paka-}. It is, however, homophonous with the form maka- which results from the combination of {-um-} and {paka-}.



Since this situation occurs in all five languages it can be reconstructed for PMin. Zorc reconstructs a PPh form \*maka- 'ability, can'. In San maka- (with passive form ika-) indicates ability.

It is possible that in pre-PMin \*maka- indicated ability while \*ka- indicated non-volition. However, the evidence of the modern languages is that by the time of PMin the function of morpheme \*{ka-} had expanded to include ability and that with this meaning the agent voice form was \*maka-.

*PMin reconstruction:*

\*{ka-} 'non-volitional/abilitive aspect'

Realised as \*ka- in all environments except that the combination of \*{ka-} and agent voice marker \*{-um-} is realised as \*maka-, which expresses only ability.

(g) Repetitive aspect

In all languages reduplication of the verb root occurs, represented by {R-}. The process of root reduplication is identical in all languages: the first two syllables of the root are reduplicated less the final consonant of the second syllable:

Tdn {-um-} + {pa-} + {R-} + tiŋkas → matiŋkatiŋkas

{-um-} + {pa-} + {R-} + ali → maaliali

{-um-} + {pa-} + {R-} + piara → mapiapiara

Tsw {-um-} + {pah-} + {R-} + siluh → masilusiluh

{-um-} + {pah-} + {R-} + lombo? → malombolombo?

Infixes occur in the reduplicated portion of the root:

Tdn {-um-} + {R-} + kelaŋ → kumelakelaŋ

In Tsw if the initial consonant of the root is a stop it becomes a continuant following {R-}. Thus the rule deleting the final consonant of {R-} must apply before the rule converting stops to continuants after a vowel. Usually the rules apply in the reverse order (see 2.3.1.3.):

{-um-} + {pah-} + {R-} + pamel → mapamewamel

{-um-} + {pah-} + {R-} + tawoy → matawocawoy

In all languages {R-} indicates a continuous state or an action which is repeatedly or continually performed:

Tdn si matakatəkəlite

*'He's just sleeping on and on.'*

ku tumegategam witu ləpo

*'I'll keep guarding the ricefields.'*

Tsw si sia mapamewamel imbaca'na  
*'She's always hitting her child.'*

Since all languages agree as to the form and function of {R-} it can be reconstructed for PMin.

*PMin reconstruction:*

\*{R-} 'repetitive aspect'

This morpheme is realised as the reduplication of the first two syllables of the verb root with the exception of the final consonant of the second syllable. It indicates a continued state or a repeated or continuous action.

(h) Reciprocal aspect

In all languages except Ttb this aspect is marked by suffix {-an} which has one allomorph -an:

Tdn {-um-} + {pa-} + to'or + {-an} → mato'oran  
 {-um-} + {pa-} + reten + {-an} → maretenan  
 Tsw {-um-} + {pah-} + sondaŋ + {-an} → masondaŋan

This aspect has not been recorded for Ttb and it is not mentioned in Adriani's grammar. In the other four languages it indicates that a reciprocal relationship holds between two participants in the action. Reciprocal aspect always occurs with agent voice and it also co-occurs with some other aspect. In all languages it can co-occur with durative aspect but there are differences among the languages as to which other aspect morphemes it can co-occur with. The following examples illustrate its use in sentences:

Tdn kita mawewean  
 Tsw kica ndua mapakuran  
*'We are hitting each other.'*

*PMin reconstruction:*

\*{-an} 'reciprocal aspect'

\*-an occurs in all environments. This aspect indicates a reciprocal relationship between two participants in the action. It only occurs with agent voice. At least one other aspect morpheme must be present.

### 3.2. DERIVATIONAL AFFIXES

As with inflectional affixes all the Minahasan languages have a rich stock of derivational morphemes of which only a limited number have been reconstructed for PMin. Since no allomorphic variation is known

for any reconstructed derivational affixes all PMin forms in braces are to be understood as having identical manifestations in all environments.

(a) In all languages there is a prefix which is attached to noun roots to form measure nouns.

Tdn, Ttb and Tsw have {ŋa-}:

Tdn {ŋa-} + rəpa 'fathom' → ŋarəpa 'fathoms'  
 e.g.: rua ŋarəpa 'two fathoms'  
 {ŋa-} + loʔloʔ 'basket' → ŋaloʔloʔ 'basketfuls'  
 e.g.: rua ŋaloʔloʔ 'two basketfuls'  
 Tsw {ŋa-} + sowiʔ 'bunch' → ŋasowiʔ 'bunches'

Tse and Tbl have {na-}:

Tse {na-} + bəŋi 'night' → nabəŋi 'nights'  
 e.g.: dua ŋabəŋi '(for) two nights'

Multiples of ten, one hundred and one thousand are formed in the same way in all languages:

Tdn rua ŋapuluʔ, Tsw dua ŋawuluʔ 'twenty'  
 Tse dua naribu 'two thousand'

When this prefix is attached to the root atus glottal insertion does not occur in Tdn and Tse and the morpheme has the variant nah- in Tbl:

Tdn ŋaatus, Tse naatus, Tbl nahatus 'hundreds'

In all languages {ŋa-}/{na-} is preceded by sa- (see (b) below) to indicate one measurement:

Tdn saŋaloʔloʔ 'one basketful'  
 Tsw saŋasowiʔ 'one bunch'  
 Tse sanabəŋi 'one night (in duration)'

However, there are differences among the languages as to the forms for 'ten', 'one hundred' and 'one thousand'.

In Tdn, Tse and Tbl {ma-} occurs. This is always realised as ma- except that in Tbl mah- occurs with root atus. With this root glottal insertion does not occur in Tdn and Tse:

Tdn, Tbl mapuluʔ, Tse mapuduʔ 'ten'  
 Tdn, Tse maatus, Tbl mahatus 'one hundred'  
 Tdn mariwu, Tse, Tbl maribu 'one thousand'

Ttb and Tsw use the prefix complex saŋa- to form the word for 'ten':

Ttb saŋapuluʔ, Tsw saŋawuluʔ 'ten'

They use {ma-}, realised as ma-, in the word for 'one hundred':

Ttb maʔatus, Tsw macus 'one hundred'

In the formation of words meaning 'one thousand' {ma-} is realised as ma- in Ttb but as mo- in Tsw:

Ttb mariwu, Tsw moribu 'one thousand'

The form mo- in Tsw is irregular and appears to be a borrowing from Mdw.<sup>1</sup>

Tse, Tbl {na-} is similar to forms in nearby languages, e.g., San n- and is probably a borrowing. Tdn, Ttb and Tsw all have {ŋa-}, reflecting a PMin morpheme \*{ŋa-}.

There is doubt as to whether \*{ŋa-} occurred in the formation of all or only some numbers, although it certainly occurred in the formation of numbers without prefix \*sa-. The alternative is that \*{ma-} occurred, in place of \*saŋa-, with one or all of these numbers. Tdn, Tse and Tbl employ {ma-} to form words for 'ten', 'one hundred' and 'one thousand' so \*{ma-} can be reconstructed for PNE. Ttb uses the same morpheme to form words for 'one hundred' and 'one thousand' and so \*{ma-} can be reconstructed for PNM in the formation of those two numbers. Tsw uses {ma-} in the word for 'one hundred'. Since all languages are in agreement the prefix \*{ma-} can be reconstructed for PMin in the formation of the word for 'one hundred'.

It is not known how the word for 'ten' was formed in PMin. Either Ttb, Tsw saŋa- or Tdn, Tse, Tbl ma- could be an innovation based on analogy with other forms.

Blust (1974b) reconstructs PAN \*esa ŋ(a) Ratus 'one hundred' but also tentatively sets up \*ma-Ratus on the evidence of various Philippine and Borneo languages. He says the relationship between the \*ma- and \*esa ŋ(a) forms is not yet well understood. It is unclear whether he recognises \*ma- only with \*Ratus or with the other numbers also. It is with atus (from PAN \*Ratus) that all Minahasan languages are agreed in reflecting PMin \*ma-. The four northern languages also use ma- in the formation of the word for 'one thousand' but the Tsw evidence is lacking for reconstructing a PMin etymon, mo- being a borrowing.

The Tbl forms mahatus 'one hundred' and nahatus 'hundreds' are irregular in that the prefix ends in unexpected h. The irregularity

<sup>1</sup>Mdw in fact does not form the word for 'one thousand' with mo- but has toŋoribu (toŋo- being cognate with saŋa-). However, it employs mo- in mopulu? 'ten' and mogatut 'one hundred' and these provide the model for the Tsw form.

is not confined to Tbl since Tdn, Tse *maat* reflects a previous form \**mahatus* and Tdn *ḡaat*, Tse *naat* also reflect a prefix ending in \**h*. Since Tse, Tbl *na-* is an innovation it is probable that the PNE word was \**ḡahatus*.

Ttb *maʔatus* 'one hundred' and *ḡaʔatus* 'hundreds' do not provide the evidence to decide whether PNM had \**mah-* and \**ḡah-* or \**ma-* and \**ḡa-* as the Ttb forms could derive from either.

Tsw *macus* and *ḡacus* reflect PMin prefixes \**ma-* and \**ḡa-*; forms with final \**h* would give \*\**mahacus* and \*\**ḡahacus*.

Since the forms with final *h* occur, or are reflected, in only North-East Minahasan languages and only with one root and since cognates in other languages never show *h* it can be stated that PMin \*{*ma-*} and \*{*ḡa-*} each had one variant, \**ma-* and \**ḡa-* respectively.

Rather than assume that a prefix-final *h* was an innovation in the North-East Minahasan languages it appears more likely the forms in these languages reflect PMin \**mahatus* and \**ḡahatus*, in which the root was \**-hatus* 'hundred'. Although word-initial \**h* had been lost prior to PMin the root in question would have only very rarely occurred word-initially (in a few verbal forms). Thus the \**h* would have been retained root-initially since this was almost always word-medial. Later, after the split with Tsw, the \**h* was transferred by metanalysis to the prefix. This would have occurred under pressure from the occasional occurrence of the root, presumably as \**atus*, in word-initial position. The same pressure would have led to loss of \**h* from the word in Tsw.

*PMin reconstruction:*

\*{*ḡa-*}

Used in the formation of measure nouns and multiplicative numbers.

\*{*ma-*}

Used with root \**-hatus* in the formation of the word \**mahatus* 'one hundred' and possibly also in the formation of numbers for 'ten' and 'one thousand'.

(b) In all languages morpheme {*esa*} 'one' has a bound variant *sa-* which is used when {*ḡa-*}/{*na-*} follows, in the formation of measure nouns (see (a) above for examples). In Ttb and Tsw it is also used in the formation of the word for 'ten' and may have had this function in PMin.

*PMin reconstruction:*

\*{*esa*} 'one' has variant \**sa-* which occurs preceding \*{*ḡa-*} in the formation of measure nouns, the combination \**saḡa-* meaning 'one unit or measure (of that which is expressed by the root)'.

(c) In all languages ordinal numbers are formed by attaching {ka-} to the numeral root:

Tdn {ka-} + rua 'two' + karua 'second'  
 {ka-} + təlu 'three' + katəlu 'third'  
 Tsw {ka-} + dua 'two' + karua 'second'  
 {ka-} + əpac 'four' + kapac 'fourth'

In all languages {ka-} is realised as ka-, except that in Tbl it is kah- with root atus 'hundred' and with this root glottal insertion does not occur in Tdn and Tse. The reason for this is explained under (a) above:

Tdn, Tse kaatus, Tbl kahatus 'hundredth'

The word for 'first' is not formed from root əsa 'one' but with Tdn, Tbl, Tse, Ttb tare, Tsw tale:

Tdn, Tse kətare, Tbl, Ttb katare, Tsw kacale 'first'

*PMin reconstruction:*

\*{ka-}

This affix forms ordinal numbers when attached to numeral roots. An exception is \*katar<sub>2</sub>e 'first', formed from root \*tar<sub>2</sub>e.

Cognates are widespread throughout Indonesian languages, e.g., Timugon Murut ka-, Mdw ko-, Mal kə-.

(d) Ttb and Tsw have a prefix {maŋa-} which occurs with nouns to indicate plurality:

Ttb {maŋa-} + tuama 'man' + maŋatuama 'men'  
 Tsw {maŋa-} + bene 'woman' + maŋawene 'women'  
 {maŋa-} + tow 'person' + maŋacow 'people'

This affix is not known to occur in Tdn, Tse or Tbl other than in the Tdn word minaŋapo? 'the ancestors', where it is fossilised and incorporates past tense marker -in-.

On the basis of Ttb, Tsw and outside evidence the prefix can be reconstructed for PMin.

*PMin reconstruction:*

\*{maŋa-}

Occurs with nouns to indicate plurality.

Zorc reconstructs \*maŋa 'plural, variety' for PPh. Cognates are widespread throughout Austronesian languages, occurring in Mdw, Toraja and other languages in Celebes and in Oceanic languages such as Maori and Samoan.

(e) In all languages there is a prefix which expresses excessive degree when attached to adjective and adverb roots. Tdn and Tse have {ta-}, Tbl and Tsw have {tah-} and Ttb has {ta-} in Mtn and {taʔ-} in Mkl. Glottal insertion does not occur with this prefix in Tdn and Tse and therefore all languages reflect a proto-form \*{tah-}. The Tse form is that of Kauditan; Maumbi would be expected to have taa- but this has not been recorded.

In Tbl, Tsw and Mkl the modal clitic reflecting PMin \*{-mo} obligatorily co-occurs with this prefix and this may also have been the case in PMin.

Tdn {ta-} + waŋkoʔ 'big' → təwaŋkoʔ 'too big'  
 {ta-} + ŋərər 'slow' → taŋərər 'too slow'  
 Tsw {tah-} + ətoʔ 'long' + {-əm} → tahətoʔom 'too long'  
 {tah-} + kisic 'small' + {-əm} → takisicəm 'too small'

In Ttb {ta-}/{taʔ-} has an extended function of indicating excessive degree with verbs:

Mtn {ta-} + wayaʔ 'walk' → tawayaʔ 'walk too fast'  
 {ta-} + ai 'come' → taʔai 'come too often'

However, this function has not been recorded for other languages and so cannot be reconstructed for PMin.

*PMin reconstruction:*

\*{tah-}

Attached to adjectives and adverbs this prefix indicates an excessive degree of that which is expressed by the root.

Cognates of \*{tah-} occur in other languages, e.g., Mal tər-.

(f) In all languages there is a prefix which, attached to nouns, indicates owner of the thing expressed by the root. This is {maka-} in the northern languages and {maha-} in Tsw:

Tdn {maka-} + wale 'house' → məkəwale 'owner of the house'  
 {maka-} + tiey 'pig' → makatiey 'owner of the pigs'  
 Tsw {maha-} + bale 'house' → mahawale 'owner of the house'  
 {maha-} + poman 'field' → mahawoman 'owner of the field'

*PMin reconstruction:*

\*{maka-}

Attached to noun roots it indicates the owner of the thing expressed by the root.

In Timugon Murut an apparent cognate occurs in verbal expressions, e.g., makabaloy aku 'I have a house.'

(g) In all languages there is a prefix {ka-} which, when attached to nouns, derives nouns indicating a person who shares with another the thing expressed by the root:

Tdn {ka-} + ŋaran 'name' → kəŋaran 'one with the same name'  
 {ka-} + awu 'kitchen' → kaʔawu 'spouse'  
 Tsw {ka-} + doʔoŋ 'village' → karoʔoŋ 'fellow villager, someone  
 from the same place'  
 {ka-} + ŋalan 'name' → kaŋalan 'one with the same name'

These nouns are almost always followed by a possessive noun or pronoun, e.g.:

Tdn si kəŋaraŋku 'the person with the same name as me.'

*PMin reconstruction:*

\*{ka-}

Attached to nouns this derives nouns indicating a person who shares with another (expressed by a possessive phrase) the thing indicated by the root.

(h) All languages have a prefix which, added to numeral roots, derives adverbs meaning 'X number of times' where X is the meaning of the root. In the northern languages this is {maka-}, in Tsw {maha-}:

Tdn {maka-} + təlu 'three' → makatəlu 'three times'  
 {maka-} + puluʔ 'ten' → makapuluʔ 'ten times'  
 Tsw {maha-} + dua 'two' → maharua 'two times'

In all languages the word for 'once' involves loss of the initial vowel of the root əsa 'one': Tdn, Tse məkasa, Tbl, Ttb makasa, Tsw mahasa. These reflect a PMin form \*makasa 'once'.

In Tdn and Tsw words formed with {maka-} are non-verbal and cannot be inflected for tense. They occur only in clauses with an agent voice verb:

Tdn ku minewe nisia makarua  
 Tsw si ahu irumadah isia maharua  
 'I hit him twice.'

Such clauses can be transformed into constructions in which the object is in focus but there are a number of peculiarities. Instead of the verb of the agent voice construction being transformed to object voice a verb is formed from the numeral root with prefix Tdn {paka-}, Tsw {paha-} and with obligatory referent voice suffix {-an}. Being verbal this is inflected for tense. The construction can be translated 'X is acted on Y number of times' where X is the topic and Y is the



numeral root. The verb of the agent voice construction can occur as an auxiliary in the referent voice construction to specify the type of action but it is not obligatory. The above agent voice clauses have the transformations:

Tdn si pinaparuaʔaŋku winewe  
 Tsw si sia pinaharuaʔaku dinadah  
 'I hit him twice' (literally: 'He was acted on by me  
 twice - hit.')

Information on the other languages is incomplete. For Ttb Adriani mentions that *maka-* has a referent voice equivalent *paka-...-an* but his description does not make it clear whether the relationship between the two is the same as in Tdn and Tsw. The position in Tse and Tbl is not known. Nevertheless, the situation in Tdn and Tsw is identical and since this is too complex to be the result of parallel development the same can be reconstructed for PMin.

Because of the difference in meaning and the fact that they are not in direct transformational relationship *\*{maka-}* and *\*{paka-}* must be recognised as separate morphemes in PMin, as in Tdn and Tsw, the former deriving adverbs and the latter verbs. Obviously *\*{maka-}* had formerly been a prefix complex comprising *\*{-um-}* and *\*{paka-}* but the evidence of Tdn and Tsw indicates that by the time of PMin it had become a unit morpheme and had lost its verbal function.

*PMin reconstruction:*

*\*{maka-}*

Attached to numeral roots this derives adverbs meaning '*X number of times*' where X is the meaning of the root. With root *\*{asa}* '*one*' the first vowel is lost resulting in *\*makasa* '*once*'.

*\*{paka-}*

Attached to numeral roots this derives verbs meaning '*act on the object X number of times*' where X is the meaning of the root. The object must occur as topic and the verb must be inflected with referent voice marker *\*{-an}* (which thereby undergoes a shift in function).

(i) In Tdn, Tse and Tsw there is a prefix which, attached to verb roots, derives forms meaning '*the manner of doing X*' where X is the meaning of the root.

Tdn and the Kauditan dialect of Tse have *{kapa-}*. Glottal insertion does not occur after this prefix:

Tdn {kapa-} + lutu? 'cook' → kapalutu? 'manner of cooking'  
 {kapa-} + ali 'carry' → kapaali 'manner of carrying'

Tsw has {kawah-}:

{kawah-} + siwo 'cook' → kawasiwo 'manner of cooking'  
 {kawah-} + usəb 'plant' → kawahusəb 'manner of planting'

The lack of glottal insertion in Tdn and Kauditan reflects a previous \*kapah- (see 3.0.(b)). The Maumbi form is not known but presumably would be kapaa-. Tsw kawah- confirms that the PMin form had final \*h.

In the three languages verbs formed with this affix are always nominalised:

Tdn kapalutu?na le?os  
 Tsw kawasiwona mauleŋ  
 'She cooks well.' (literally: 'Her way of cooking is good.')

In Tdn and Tse past tense marker {-in-} can occur:

Tdn {-in-} + {kapa-} + lutu? → kinapalutu? 'former way of cooking'

But in Tsw the tense marker cannot occur.

Possibly the prefix \*{kapah-} at one time was a voice inflection focussing the manner of the action, functioning in the same way as the voice affixes described in section 3.1.1.<sup>1</sup> But on the evidence of Tdn, Tse and Tsw by the time of PMin verbs inflected with this affix were always nominalised. It is probable that inflection for tense could still occur in PMin but was later lost in Tsw.

Tbl and Ttb have a prefix {ipaka-} with the same meaning but because of its restricted distribution and lack of known cognates it cannot be reconstructed for PMin.

*PMin reconstruction:*

\*{kapah-}

Attached to verb roots this morpheme derives forms indicating 'the manner/way of doing X' where X is the meaning of the root. Verbs with this affix never occur as the predicate but are always nominalised.

(j) All languages have a suffix {-an} which is attached to nouns to derive adjectives indicating possession of the thing expressed by the root. The root noun indicates a part of the body or a physical characteristic:

<sup>1</sup>No cognates for this morpheme are known outside Minahasa. In this respect it differs from the four voice affixes which are very common in Philippine-type languages.



## (b) Second person singular

Tdn {-mu}: -u occurs after a consonant other than ʔ, -mu occurs elsewhere. In some regions -mu occurs in all environments.

Tse, Tbl {-mu}: -u occurs after n, -mu occurs elsewhere.

Ttb (Mtn) {-mu}: -u is the usual allomorph after nasals, though -mu sometimes occurs. -mu occurs elsewhere.

(Mk1) {-nu}: -u and -nu are in free variation after nasals. Elsewhere only -nu occurs.

Tsw {-nu}: -u occurs after nasals, l and r, -ŋu occurs after labial and velar stops and continuants, -nu occurs elsewhere. (Changes undergone by consonants preceding {-nu} are described in section 2.3.1.3.).

Thus the north-eastern languages and Mtn have {-mu} while Mk1 and Tsw have {-nu} (the Tsw variant -ŋu being an innovation). Rules for the deletion of the first consonant vary from language to language and even between dialects of the same language.

Zorc reconstructs both \*-mu and \*-nu for PPh and reflexes of both are widespread in Philippine languages. It is not likely therefore that either form is an innovation in the Minahasan languages. Either one form is a borrowing or both forms existed in PMin.

There is no evidence of borrowing from adjacent languages as Mdw in the south agrees with the northern languages in having {-mu} while San in the north agrees with the southern languages in having {-nu}.

It is possible therefore that both forms occurred in PMin, perhaps as positional variants. For the present the initial segment is reconstructed as either \*m or \*n. Variant -u also occurs in all languages but because of differences in its distribution it is not possible to state its distribution in PMin.

*PMin reconstruction:*

\*{-m/nu} 'second person singular agentive/possessive pronoun'

## (c) Third person singular

Tdn, Tse, Tbl {-na}: -na occurs in all environments.

Ttb {-na}: -a is the usual variant after nasals although -na sometimes occurs. -na occurs elsewhere.

Tsw {-na}: -a occurs after nasals, l and r, -ŋa occurs after labial and velar stops and continuants, -na occurs elsewhere.

All languages have {-na}. The only disagreement is that Ttb usually has -a instead of -na after nasals and Tsw has variants -a and -ŋa in some environments. The form -ŋa in Tsw is an innovation (cf. variant -ŋu of second singular {-nu} in the same environments). Loss

of initial *n* after some consonants is probably an innovation in Ttb and Tsw. As mentioned in section 2.3.2.3.(j) Tse and Tbl tend to retain PMin clusters and it is more likely that Ttb and Tsw have lost a cluster than that the other languages have added one.

*PMin reconstruction:*

\*{-na} 'third person singular agentive/possessive pronoun'

It is probable that \*-na occurred in all environments.

(d) First person plural inclusive

Tsw has no suffixed form. The North Minahasan languages have {ta-}, manifested as -ta in all environments.

Zorc reconstructs PPh \*-ta and it is widespread in northern Indonesian languages. The form can therefore be confidently reconstructed for PMin.

*PMin reconstruction:*

\*{-ta} 'first person plural inclusive agentive/possessive pronoun'

(e) First person plural exclusive

Tsw has no bound form. The form in the other languages is as follows:

Tdn {-mey}: -ey occurs after consonants other than *ʔ*, -mey occurs elsewhere.

Tse {-ami}: -ami occurs in all environments.

Tbl {-may}: -ay occurs after consonants other than *ʔ*, -may occurs elsewhere. In the Kinilow dialect the morpheme has initial *n* instead of *m*.

Ttb (Mtn) {-ami}: -ami occurs in all environments.

(Mkl) {-aʔi}: -aʔi occurs in all environments.

The Tdn and Tbl forms result from loss of medial *m* and, in Tdn, subsequent vowel assimilation. The same consonant loss occurs in Tdn key (< \*kami), the corresponding free form of the pronoun. Medial *ʔ* instead of *m* in Mkl is unexplained. Apart from Mkl all the other forms reflect a previous \*{- ( )ami}, i.e., some suggest a consonant before the sequence *ami* while others do not.<sup>1</sup>

Tdn and Tbl suggest a former \*{-mami}. The only known cognate of this is Wolio -mami. Tse and Ttb suggest a former \*{-ami} but there are no known cognates of this form. The Kinilow dialect of Tbl suggests former \*{-nami}. This form is widespread, occurring in Mdw and numerous

<sup>1</sup>It is possible that Tdn -mey and Tbl -may result from metathesis of the *a* and *m* of -ami. But this would not explain Tdn key (< \*kami) and kow (< \*kamu). Nor would it explain Kinilow -nay.

Philippine languages. It is possible that Kinilow reflects the original form but the evidence of one dialect alone is not sufficient to enable a firm reconstruction. Therefore it cannot yet be determined whether the PMin form began with \*m, \*n or no consonant at all.

*PMin reconstruction:*

\*{(m/n)ami} 'first person plural exclusive agentive/possessive pronoun'

(f) Second person plural

Tdn {-miow ~ -miu}: -iow ~ -lu occurs after a consonant other than ʔ, -miow ~ -miu occurs elsewhere.

Tse {-mio}: -io occurs after n, -mio occurs elsewhere.

Tbl {-mio}: -io occurs after consonants other than ʔ, -mio occurs elsewhere. In Kinilow {-niou} occurs.

Ttb {-miow}: -iow occurs after consonants other than ʔ, -miow occurs elsewhere.

All languages are agreed on initial m except for the Kinilow dialect of Tbl which has n. Related forms with initial n appear to be more common in Philippine languages than forms with initial m. On the other hand, Adriani (1908:248) lists a number of Celebes languages with -miu and derives the forms in the Minahasan languages from a previous \*-miu. However, his argument for initial m is not strong and until the Minahasan forms can be systematically compared with other languages it is preferable to leave undecided the question of which nasal occurred. Both may have occurred and Zorc reconstructs both \*Ø|nyu and \*Ø|myu for PPh. Since Tdn has the vowel sequence iu this is chosen over Tse, Tbl io (see 2.3.2.3.(a)). It is also supported by Zorc's reconstructions. The final ow in Tdn and Ttb must be an innovation (Adriani also gives evidence to support this).

*PMin reconstruction:*

\*{-m/niu} 'second person plural agentive/possessive pronoun'

(g) Third person plural

Tdn {-nea}: In some areas -nea occurs in all environments but elsewhere -ea occurs after consonants other than ʔ.

Tse {-nera}: -nera occurs in all environments.

Tbl {-nera}: -era occurs after consonants other than ʔ. -nera occurs elsewhere.

Ttb (Mtn) {-era}: -era occurs in all environments.

(Mkl) {-ila ~ -eila}: -ila ~ -eila occurs in all environments.

The form in each language corresponds to the free form of the third person plural pronoun (see \*sir<sub>2</sub>a in the wordlist). Loss of medial r in Tdn is an innovation. The only question is whether the form in PMin was \*-nir<sub>2</sub>a or \*-ir<sub>2</sub>a.

Zorc reconstructs \*ØiDa. Reid (1971) lists a number of Philippine languages in which the form begins with n, including Tagbanwa nira, but no languages with forms like ira. (Numerous languages have forms like -da but this gives no clue as these forms could result from loss of either \*ni or \*i.) Because of the number of related languages with initial n it is probable that \*nir<sub>2</sub>a occurred in PMin either as the only form or in variation (either free or positional) with \*-ir<sub>2</sub>a. But systematic comparison with other languages must be undertaken before this can become clear.

*PMin reconstruction:*

\*{-(n)ir<sub>2</sub>a} 'third person plural agentive/possessive pronoun'

### 3.4. MODALS

Modals, while functioning as clause constituents, occur as enclitics within the predicate phrase. Tdn has nine modals and the other languages appear to have about the same number. Most modals have a broad function, often operating stylistically or having a subtle effect on the meaning of the clause which it has not always been possible to determine.

In all languages enclitic modals follow the enclitic pronouns described in section 3.3.

Only two modals can be reconstructed for PMin. Both can occur with any kind of predicate phrase.

(a) All languages have a modal which usually indicates that an action has occurred or a state is in being and can be translated '*already*'. With durative aspect it indicates that the action has already commenced. With future action it indicates that the action is certain or imminent. With imperatives it indicates a firm command.

Tdn (Tondano) has morpheme {-mow}. The final w is lost if another clitic follows and the m is lost following a consonant other than ?:

limaa 'gone' + {-mow} + {-la} + limaa-mola 'already gone'  
 tinulis 'written' + {-mow} + tinulisow 'already written'  
 tu?a 'old' + {-mow} + tu?amow 'already old'

Tdn (Kakas), Tse and Tbl have morpheme {-mo}. The initial m is lost following consonants other than ?.

Ttb (Mtn) has morpheme {-o} which occurs as -o in all environments. Mkl and Tsw have {-əm}. The distribution of allomorphs is the same as for the object voice marker {-ən} (see 3.1.1.1.(b)):

Tsw siniwo 'cooked' + {-əm} → siniwom 'already cooked'  
 linucam 'shot' + {-əm} → linucaməm 'already shot'

It would not be possible to reconstruct a form for PMin except for the evidence from other languages. Since the form -mo in Kakas, Tse and Tbl is identical to that found in other languages it can be reconstructed for PMin. The final w in Tondano is an innovation as is the loss of m in Mtn. The modal {-əm} in Mkl and Tsw may not be related but possibly it derives from \*{-mo} through loss of final o and addition of a preceding ə.

Sa'dan has -mo 'already'. Wolio also has -mo which apparently has the same range of functions as in the Minahasan languages, making it possible to establish the function as well as the form of the item in PMin. Anceaux (1952:47) writes of -mo in Wolio: '-mo ... often denotes sure, ascertained facts and accordingly it often has the meaning 'already', ... an imperative with -mo denotes a stringent command.'

*PMin reconstruction:*

\*{-mo}

This modal usually indicates that an action has occurred or that a state is in being and is translatable 'already'. With durative aspect it indicates that the action has already commenced. With future action it indicates that the action is certain or imminent. With imperatives it indicates a firm command.

(b) All languages except Ttb have a modal which is usually translatable 'still, yet', indicating that an action is still in progress or that a quality or characteristic still remains. With future action it generally indicates that an action will occur before another and is translatable 'first'. With imperatives it acts as a softener.

Tdn has morpheme {-peʔ}, which occurs as -eʔ after consonants other than ʔ and as -peʔ elsewhere:

məkaan 'eating' + {-peʔ} → mekaaneʔ 'still eating'  
 luməleʔ 'will bath' + {-peʔ} → luməleʔpeʔ 'will bath first (before doing something else)' or, as an imperative 'please bath!'

Tse has morpheme {-pe}, which is manifested as -pe in all environments.



Tbl and Tsw have morpheme *-peʔ*, which is manifested as *-peʔ* in all environments:

Tsw *bakoʔ* 'big' + {-peʔ} → *bakoʔpeʔ* 'still big'  
*kuman* 'will eat' + {-peʔ} → *kumapeʔ* 'will eat first'

No cognate is known for Ttb. Since Tdn, Tbl and Tsw have identical forms the loss of final ʔ in Tse must be an innovation. Loss of initial *p* following another consonant occurs only in Tdn and must be an innovation in that language.

*PMin reconstruction:*

\*{-peʔ}

This modal indicates that an action is still in progress or that a quality or characteristic still remains and is translatable 'still, yet'. With future action it indicates that an action will occur before another and is translatable 'first'. With imperatives it acts as a softener.

Cognates outside Minahasa have not been positively identified. Sa'dan has *-pa* ~ *-po* 'still, yet' while Wolio has enclitic *-po* which is very similar in function to \*{-peʔ}. Anceaux describes this: '*-po* usually denotes uncertain, future things. An imperative with *-po* means a request.' The combination of *inda* 'not' and *-po* gives *indapo* 'not yet', cf. Tdn *ndaʔipeʔ* 'not yet', but Anceaux does not mention if *-po* elsewhere means 'still, yet'. Dempwolff reconstructs PAN \**pa* 'still, yet' but this seems not to be the direct etymon of *PMin* \*{-peʔ}.



## PART FOUR

### LEXICAL RECONSTRUCTIONS

#### 4.1. INTRODUCTION

In this part are listed the PMin lexical items which have so far been reconstructed. It is expected that further study of field data and source works will allow additional reconstructions to be made so the present list cannot be regarded as exhaustive.

Reconstructed items are listed alphabetically in section 4.2. The alphabetical order adopted here is as follows: a, e, ə, i, o, u, b, d, g, h, k, l, m, n, ŋ, p, r, s, t, w, y, ?. In the list no alphabetical distinction is made between r, r<sub>1</sub>, and r<sub>2</sub>. Where two symbols are separated by a slash (i.e., when a decision cannot be made between the two in the reconstruction) the symbol with the lowest position in the alphabet occurs before the slash and the word is placed according to the alphabetical position of that symbol. This rule is not followed in cases where there is strong (but not conclusive) evidence that the other symbol represents the correct reconstruction. In these cases a comment is always made in a note to the item. A symbol in parentheses is taken into account for the purposes of alphabetisation. Homophonous words are listed consecutively and marked (1) and (2).

Each reconstruction is starred and, where possible, given an English gloss. In a few instances the available evidence is not sufficient to determine the meaning of a reconstruction with any confidence, in which case the item is not provided with a gloss. This happens, for instance, when a PPh word is reflected in only one branch of Minahasan languages and the Minahasan words have a different meaning from the PPh etymon. In this case it is not possible to tell whether the change in meaning occurred before or after PMin. Sometimes the gloss for a reconstruction is less precise than the meanings of the reflexes in present-day

languages. This happens, for instance, when the meanings of the words in the present-day languages differ from each other but contain a common semantic element. This element can be assigned to the PMin etymon. Thus PMin \*kusu is glossed 'rub' although this is only one aspect of the meaning in the Minahasan languages.

Following the reconstruction and its gloss all known reflexes are given. Further investigation will probably reveal the existence of other reflexes for some reconstructions, especially in Tsw.

Except for Ttb, dialect differences are not indicated in the list unless there is some special reason for doing so. Where dialect correspondences are regular only the form for the best known dialect is given (e.g., Tondano for Tdn). If a form occurs only in some other dialect then this is identified. Thus Tdn (Kakas) uran 'rain' indicates that only the Kakas dialect of Tdn has the form uran. For Ttb both Mtn and Mkl forms are given if known. These are separated by a stroke with the Mtn form to the left of the stroke. Thus Ttb unər/unəd 'middle, centre' indicates that Mtn has the form unər while Mkl has the form unəd. If a form is known to exist in only one Ttb dialect this is specified. However, absence of such specification does not mean that the form necessarily occurs in both dialects. Most information on Ttb is from Schwarz and, as mentioned in sections 2.2.1.1. and 2.2.2.3.(c), his dictionary is not an entirely reliable guide to dialect variations. Thus in the list aya 'to break (of day)' is given as the Ttb reflex of PMin \*ayah. The expected Mkl reflex would be ayaʔ and it is possible that this form exists although not recorded by Schwarz. On the other hand it cannot be stated (on the information available) that the form aya does not occur in Mkl as well as in Mtn.

If two phonologically similar forms have been recorded for a language these are both cited, e.g., Ttb owak, owaʔ 'body'.

When a word occurs only in a derived form, i.e., the original root is no longer free, the morphemes are separated by hyphens in order to highlight the morpheme under consideration. Thus Tsw ləpən 'drinking vessel' is one morpheme in the present-day language but is represented ləp-an as it derives historically from two morphemes of which only the first is relevant to the reconstruction of the PMin form \*ələp.

The question of doublets is not looked at but in the wordlist cross reference is made between items which are similar in form and meaning. Where an item containing l and d or two l sounds has a doublet with two r sounds this is mentioned in a note.

Where the evidence of the Minahasan languages alone is not sufficient to establish firmly either the form or meaning of the PMin etymon the

necessary further evidence from external sources is given in square brackets following the list of known Minahasan reflexes. If a PPh etymon is known this is always chosen, accompanied by evidence from one or more other languages, either related present-day languages or other reconstructed proto-languages, if this is needed to strengthen the case for the reconstruction. In the absence of a known PPh etymon the other evidence alone is given. PAN reconstructions are from Dempwolff unless otherwise indicated. PPh reconstructions by Charles are identified as such, all others being from Zorc. Other proto-languages referred to and their sources are Proto-Polynesian (PPn) - Walsh and Biggs (1966), Proto-Manobo (Pmb) - Elkins (1974), Proto-Formosan (PFm) - Dahl (1973) and Proto-Sulic (PSl) - Charles (1974).

Even where the PMin etymon can be reconstructed confidently from the evidence of the Minahasan languages alone a related form, PPh if possible, is given in square brackets. Since the evidence in these cases is not crucial items are merely given for comparison and are not necessarily directly related. Where it is doubtful if there is any relationship at all the item is preceded by a question mark. The absence of reference to other languages means that no related forms outside Minahasa have so far been noted.

In citing reconstructed forms the orthography of the source work has been retained even where it differs from that employed for the Minahasan languages. Thus in many works the letter <e> represents [ə] rather than [e] as it does in the Minahasan languages. A few changes have been made to Zorc's conventions to bring them into line with those for the PMin reconstructions. Where Zorc places one letter above another the two are here placed in sequence separated by a slash. Thus Zorc's \*ma<sup>r</sup>i becomes \*mar/Ri'. A possible segment is indicated by parentheses rather than by reduced spacing. Thus Zorc's \*iNp*t* becomes \*i(N)p*t*.

If an item in a Minahasan language shows an inexplicable segment or some other irregularity this is discussed in a note. However, sporadic correspondences and other apparently unpredictable phonological features which, because of their frequency, are discussed in Part Two are not noted for each individual item in the list.

Further discussion of the reconstructions can be found in section 1.6.

## 4.2. PROTO-MINAHASAN WORDLIST\*

\*abahat 'storm from the west':

Tse abaat, Tbl abahat, Ttb awa?at 'storm from the west (November to January monsoon)' [San bahe? 'west wind'; PPh \*habaRat 'monsoon - NW'].<sup>1</sup>

\*abu 'ash, dust':

Tdn awu, Tse, Tbl abu 'ash, dust'; Ttb awu 'dust, powder' [PPh \*qabuS 'ash(es)'].<sup>2</sup>

\*abut 'pull out':

Ttb awut 'pull out, extract' [PPh \*R<sub>1</sub>abut 'rip loose/out'; Mdw yabut, rabut 'pull out']. cf. \*sabut.

\*ade 'jaw':

Tdn are, Tse, Tbl ade 'jaw' [PPh \*azey 'jaw'].

\*aga 'tree sp.':

Tdn aga, Tse, Tbl aga 'tree sp.'; Ttb aga 'tree sp. (Pterocarpus indicus)' [San aha 'kind of wild ficus tree'; Mdw aga 'kind of tree'].<sup>3</sup>

\*ahi 'come':

Tdn, Tse ay, Tbl ey, eye, Ttb ay/a?i, Tsw ahi 'come' [PPh \*mar/Ri ' (come) here!'].<sup>4</sup>

\*ahbun

Tdn awun, Tsw abun, Tbl ahbun 'smoke' [PPh \*Rabun 'rain-cloud']. cf. \*rambun.

\*ahdan 'ladder, stairs':

Tdn (Tondano) aran, (Kakas) aharan, Tse a?dan, Tbl ahdan, Ttb raran/ra?dan 'ladder, stairs' [PPh (Charles) \*haRdan 'ladder'].<sup>5</sup>

\*ahmut 'root':

Tdn, Tse amut, Tbl ahmut, Ttb a?mut, Tsw amuc 'root' [PPh \*Ramut 'root'].

\*akad 'until, to the extent that':

Tdn akar, Tse, Tbl akad, Ttb akar/akad, Tsw ahad 'until, to the extent that'.

\*Footnotes to the Proto-Minahasan wordlist are given at the end of the wordlist.

- \*akəl 'sugar palm (*Arenga saccharifera*)':  
 Tdn, Tse, Tbl akəl, Ttb a'kəl 'sugar palm (*Arenga saccharifera*)'  
 [San akelə? 'Arenga saccharifera'].
- \*akid 'scoop out rice from pot':  
 Tdn, Ttb akir, Tse, Tbl akid, Tsw ahid 'scoop out rice from pot'.
- \*aku 'I':  
 Tdn, Tse, Tbl, Ttb aku, Tsw ahu 'I' [PPh \*x<sub>3</sub>aku 'I'].
- \*alabat 'fence':  
 Tdn alawat, ulawat, Tse alabat, Tbl alabat, ulabat 'obstruction  
 (especially on road)'; Ttb kalawat 'fence around house' [PPh  
 \*qa-labat 'fence; railing on stairway'].<sup>6</sup>
- \*alad:  
 Ttb alar/ala'd 'enclosure for animals' [PPh \*alad 'fence, wall'].
- \*aləd 'support, prop up':  
 Tse, Tsw aləd, Ttb alər/aləd 'support, prop up' [San alədə? 'house  
 post'].<sup>7</sup>
- \*ali? 'sheet or mat on which to sit or lie':  
 Tse adi?, Tbl, Tsw ali?, Ttb a'li?/adi? 'sheet or mat on which to  
 sit or lie' [Bare'e ali 'small woven mat'].<sup>8</sup>
- \*amaŋ 'father':  
 Ttb, Tsw amaŋ 'father' [San amaŋ 'father']. cf. \*ama?<sup>9</sup>
- \*ama? 'father':  
 Tdn, Tse, Tbl ama? 'father'; Ttb ama?, mama? 'father (vocative)'  
 [PPh \*'ama? 'father']. cf. \*amaŋ.<sup>9,10</sup>
- \*amian:  
 Tdn, Tse, Tbl, Ttb amian 'north; north wind' [PPh \*amih-an 'wind';  
 San mian 'wind between N and NNW'].
- \*ampit:  
 Tdn ampit 'together with, in company with'; Tse, Tbl ampit 'take  
 with one' [PPh \*q/ha(N)pit 'stop; hold together'].
- \*anak 'offspring, child (of someone)':  
 Tse, Tbl anak, Ttb anak, ana? 'child of someone, offspring' [San  
 ana? 'child, offspring'; PPh \*'anak 'child'].

## \*anu 'someone/something or other':

Tdn, Tse, Tbl, Ttb anu 'someone/something or other' [PPh \*anu 'something; what?'].

## \*antaŋ 'rise; lift up':

Tdn, Tse antaŋ 'rise (of sun)'; Tbl antaŋ 'rise (of sun); lift up; noble, honoured'; Ttb antaŋ 'rise, emerge; lift up'; Tsw ataŋ 'lift, raise'. cf. \*kantaŋ.

## \*aŋe 'go':

Tdn ae, Tse, Tbl aŋe 'go'; Ttb aŋe 'go up(wards)'; Tsw -aŋe 'direction away (enclitic)' [Cotabato Manobo aŋay 'go': PPh \*aŋAy 'come/go; take/bring'].<sup>11</sup>

## \*apadu 'bile, gall':

Tdn pəru, Tse, Tbl apədu, Ttb apəru/apədu, Tsw awədu 'bile, gall' [PPh \*qa(N)pejuSu 'gall, bile'].<sup>12</sup>

## \*api 'fire':

Tdn, Tse, Tbl, Ttb api 'fire' [PPh \*x<sub>1</sub>apuy 'fire'].

## \*apoʔ 'grandparent, ancestor, lord':

Tdn, Tse, Tbl opoʔ, Ttb apoʔ, opoʔ, Tsw awoʔ 'grandparent, ancestor, lord (title)' [WBM apuq 'grandparent; grandchild'; Maguindano apu 'grandparent'].<sup>13</sup>

## \*apu 'finished, used up; to finish off, use up':

Tdn, Tse, Tbl apu, Ttb kaʔ-apu, Tsw k-awu 'finished, used up; to finish off, use up' [PPh \*hapuq 'exhausted; tired'].<sup>14</sup>

## \*apuh 'lime':

Tdn, Ttb apu, Tse apuu, Tbl apuh, Tsw awuh 'lime' [PPh \*qapuR 'lime'].

\*ar<sub>2</sub>aŋ:

Tdn, Tse, Tbl arəŋ, Ttb arəŋ/aləŋ 'soot, black stain from smoke' [PPh \*ajaŋ 'charcoal'].

\*ar<sub>2</sub>ihi 'post, pillar':

Tdn, Tse aril, Tbl arihi, Ttb ariʔi/allʔi 'house post' [PPh \*ha-DiRi 'pillar, pile'].

## \*asaŋ 'gills':

Tdn, Tse, Tbl asaŋ, Ttb asaŋ, aʔsaŋ 'gills (of fish)' [PPh \*ha(N)saŋ 'gill(s)'].



\*asa? 'to whet, grind sharp':

Tse, Tbl asa? 'to whet, grind sharp' [PPh \*hasaq 'whet; grind'].

\*asəŋ 'breath; to breathe':

Tdn, Tse, Tbl, Ttb, Tsw asəŋ 'breath; to breathe' [PPh \*hAsəŋ 'breathe loud'].

\*asin 'salt':

Tse, Tbl, Ttb, Tsw asin 'salt' [PPh \*asin 'salt'].

\*asu 'dog':

Tdn, Tse, Tbl, Ttb asu 'dog' [PPh \*Wasu[ ] 'dog'].

\*asu(h) 'draw water, scoop up water':

Tdn asu, Tse asuu, Tbl asu, Ttb asu/asu? 'draw water, scoop up water' [PPh \*aNsu 'draw water'; PPh \*asu 'ladle, scoop out'].<sup>15</sup>

\*ata 'slave':

Tdn, Tse, Tbl, Ttb ata 'slave' [Mdw, Samal, Buginese ata 'slave'].<sup>16</sup>

\*atas 'above, on (top)':

Tdn, Tse, Tbl atas 'above, on (top)' [PPh \*atas 'high, above'].<sup>17</sup>

\*ate 'liver':

Tdn, Tse, Tbl, Ttb ate, Tsw ace 'liver' [PPh \*qaCey 'liver'].

\*atəd:

Tdn atər, Tse, Tbl atəd 'to transport, convey' [PPh \*ha(N)ted 'deliver; escort'].

\*atəluh 'egg':

Tdn (Kakas) atəlu, Tse atədu, atəduu, Tbl atəluh, Tsw acəluh 'egg' [Tigwa Manobo atəlug, PPh \*+teluR 'egg'].<sup>18</sup>

\*atəp 'roof, thatch':

Tdn, Tse, Tbl, Ttb atəp 'roof, roofing (thatch)' [PPh \*qatep 'roof - thatch'].

\*atus 'hundred':

Tdn, Tse, Tbl, Ttb atus, Tsw acus 'hundred' [PPh \*R<sub>2</sub>atus 'hundred'].<sup>19</sup>

\*awak 'body':

Tse, Tbl abak, Ttb owak, owa? 'body' [PPh \*hawak 'body'].<sup>20</sup>

\*awəs:

Tdn, Tse, Tbl, Ttb awəs 'enough; to increase, add to' [PPh \*qawes 'deduct; take away'].<sup>21</sup>

\*ayah 'bright, (morning) light':

Tse ayaa, Tbl ayah 'bright, morning light'; Ttb aya 'to break (of day)' [PPh \*hayaG 'light; reveal, show'].

\*ayam 'plait, weave':

Tdn, Tse, Tbl, Ttb, Tsw ayam 'plait, weave' [PPh \*añam 'braid; weave'].<sup>22</sup>

\*a'e 'foot, leg':

Tdn, Tbl, Tsw a'e 'foot, leg' [Wolio ae, Palawan Batak, Aborlan Tagbanwa qaqay 'foot and leg'].

\*ebeh 'desire, crave; saliva; slaver, salivate':

Tdn ewe, Tse ebee, Tbl ebeh, Ttb ewe/ewe? 'desire, crave; saliva; slaver, salivate' [PPh \*'ibeR 'desire; like, love'; Mdw ibog 'desire; salivate'].

\*ehəŋ:

Tsw ehəŋ 'snore' [PPh \*eRəŋ 'sound: groan/drone'].

\*ehdo? 'earthquake':

Tdn pəŋ-ero?, Tse edo?, Tbl ehdo?, Ttb ero?/edo? 'earthquake' [Bontok gi'do 'earthquake'].<sup>23</sup>

\*eret 'gird, tie round':

Tdn eret 'gird, tie round waist'; Tse eret 'bind up' [San ehe? 'gird, wrap round'; Kelabit eret 'belt'].

\*ədam:

Tdn, Ttb əram, Tse, Tbl ədam 'lease (land), rent' [San ədaŋ, PPh \*he(N)zam 'borrow/lend'].

\*əlap 'to drink':

Tse, Tbl, Ttb əlap 'to drink'; Tsw lap-an 'drinking vessel' [? San əlu? 'swallow'].<sup>24</sup>

\*ələt:

Tdn, Ttb ələt 'intervene, be between; put between'; Tse ələt 'partition'; Tbl ələt 'rarely; be between; put between' [PPh \*elet 'interval; space']. cf. \*sələt, \*sələt.

\*əmis 'sweet':

Tdn əmis 'sweet' [WBM emis, PMb \*?emis 'sweet'].

\*əmbəl 'rattan sp.':

Tse, Ttb, Tsw əmbəl 'rattan sp.' [Mdw ombol 'kind of rattan'].<sup>25</sup>

\*əmbət 'gird, wrap round belly':

Tdn əbət, Tse, Tbl, Ttb əmbət, Tsw əmbəc 'gird, wrap round belly'.<sup>26</sup>

\*ənəm 'six':

Tdn, Tse, Tbl, Ttb, Tsw ənəm 'six' [PPh \*x<sub>3</sub>enem 'six'].

\*əndo 'day; sun':

Tdn ədo 'day', edo 'sun'; Tse, Tbl, Ttb, Tsw əndo 'day; sun' [PPh \*qaN/Ljaw 'day; sun'].<sup>27</sup>

\*ənte? 'strong; forceful':

Tdn, Tse, Tbl, Ttb ənte?, Tsw əte? 'strong; forceful'.

\*ənto?:

Tse, Tbl ənto? 'stop; wait; live (in a place)'; Ttb ənto? 'long (of time); wait, rest; live (in a place)'; Tsw əto? 'long (of time)' [Bare'e onto? 'stop, rest'].

\*ə(n)tut 'fart; to fart':

Tdn, Tse, Tbl ətut, Ttb əntut, Tsw ətuc 'fart; to fart' [PPh \*e(N)tut 'flatulence'].<sup>28</sup>

\*əṅah 'cough; to cough':

Tdn əṅa 'clear the throat'; Tse əṅaa, Tbl, Tsw əṅah 'cough; to cough' [San əṅa 'asthma'; Mal əṅah 'to pant'].

\*əpat 'four':

Tdn, Tse, Tbl, Ttb əpat, Tsw əpac 'four' [PPh \*x<sub>2</sub>epat[ ] 'four'].

\*əpe? 'to taste':

Tdn, Tbl pe?-an 'to taste'; Tse əpe?, pe? 'eat meat or fish', pe?-en 'fish', pe?-an 'to taste, feel, experience'; Ttb, Tsw əpe? 'to taste, try, test, sample' [Bare'e epe 'taste, smell'].<sup>29</sup>

\*ər<sub>2</sub>is 'sand':

Tdn, Tse, Tbl əris, Tsw əlis 'sand' [Timugon Murut agis, Tagbanwa qigis 'sand'].

\*ərut:

Tdn, Tse ərut 'roar, rumble'; Tbl, Ttb ərut 'thunder; rumble (of thunder)' [Mdw oyut 'noise, reverberation, growl'].

## \*əsa 'one':

Tdn, Tse, Tbl, Ttb, Tsw əsa 'one' [PPh \*'esa 'one'].

## \*əsəm 'sour':

Tdn, Tse, Tbl, Ttb, Tsw əsəm 'sour' [PPh \*'asəm 'sour'].

## \*əta 'bran, chaff':

Tdn, Tse, Tbl, Ttb, Tsw əta 'bran, chaff' [Bare'e ota 'chaff'].

## \*əti 'dry up':

Tdn, Tse, Tbl əti, Ttb əti/əsi 'dry up (of river or pond); dry, waterless' [Bare'e oti 'recede (of water), ebb'; WBM eti 'evaporate'].

## \*ətuŋ:

Tdn, Tse, Tbl ətuŋ 'tilt (in order to pour out contents), lean over'; Ttb ətuŋ 'lose balance, lean over, tilt'; Tsw ətuŋ 'slope, rising ground'.

## \*iap 'to count':

Tse, Tbl iap 'to count' [Mdw iap, PPh \*heyap 'count'].<sup>30</sup>

## \*iaʔi 'this':

Tdn, Tse, Tbl, Tsw iaʔi, Ttb aʔi 'this'.<sup>31</sup> cf. \*biaʔi.

## \*ikət:

Tdn, Tse, Tbl ikət 'hang up on rope' [PPh \*iket 'turn, tie'].<sup>32</sup>

## \*ila 'mole (on body)':

Tdn, Tbl ila, Tse idaa, Tsw lila 'mole (on body)' [WBM ila 'mole'].<sup>33</sup>

## \*impit:

Tdn, Tse impit 'carry under arm'; Tbl impit 'carry under armpit; squeeze with hand'; Ttb impit 'narrow' [PPh \*i(N)pit 'press, squeeze together'].

## \*inaʔ (1) 'mother':

Tdn, Tse, Tbl, Ttb inaʔ 'mother' [Mdw inaʔ, PPh \*[ ]ina[ ] 'mother'].  
cf. \*inaŋ.<sup>9,34</sup>

## \*inaʔ (2) 'reduce, decrease':

Tdn, Tse, Tbl, Ttb, Tsw inaʔ 'reduce, decrease, make less'.

## \*inaŋ 'mother':

Ttb, Tsw inaŋ 'mother' [San inaŋ, PPh \*inaŋ 'mother']. cf. \*inaʔ.<sup>9</sup>

\*indo 'take, get, fetch':

Tdn (Tondano) edo, (Kakas) indo, Tse, Tbl endo, Ttb, Tsw indo 'take, get, fetch'.

\*iŋkot:

Tdn, Tse iŋkot, Tbl, Ttb iŋko? 'riddle'; Tsw ikoc 'quarrel'.<sup>35</sup>

\*ipag 'brother/sister-in-law':

Tdn ipag, Tse, Tbl, Ttb ipag, Tsw iwag 'brother/sister-in-law' [PPh \*hipaR '[in-law] brother/sister'].<sup>36</sup>

\*ipən 'tooth':

Tdn ipən (Tondano) 'molar', (Kakas) 'tooth'; Tbl ipən 'gum(s)'; Ttb (Mkl) ipən, (Langoan) ipən 'tooth' [PPh \*-ipən 'tooth'].<sup>37</sup>

\*ipes 'cockroach':

Tdn, Tse, Tbl, Ttb ipəs 'kind of small cockroach'; Tsw iwəs 'cockroach' [PPh \*ipes 'cockroach'].

\*ipi 'dream':

Tdn, Tse, Tbl, Ttb ipi, Tsw iwi 'dream' [PPh \*Xi(N)pi[ ] 'dream'].

\*ipus 'tail':

Tdn, Tse, Tbl, Ttb ipus 'tail'; Tsw iwus 'upper end, top (e.g. of tree)' [PPh \*ipus 'tail'].

\*itəm 'black':

Tdn itəm 'black' [PPh \*qitem 'black'].

\*ito? 'uncle':

Tdn, Tse, Tbl, Ttb ito?, Tsw ico? 'uncle'.

\*ohat 'vein':

Tdn, Tse oat, Tbl ohat, Ttb o?at, Tsw ohac 'vein' [PPh \*7uR<sub>2</sub>aC[ ] 'vein; sinew'].

\*ombal 'shout, call out to':

Tse, Tbl ombal 'call out to (from afar)'; Ttb, Tsw ombal 'shout, call out to' [Mdw ombal 'howl, cry'].<sup>38</sup>

\*uala 'tusk; canine tooth':

Tdn, Tse, Tbl uala, Tsw ual 'tusk; canine tooth' [San uala 'tusk'; Mdw uala 'canine tooth'].<sup>39</sup>

## \*ualu 'eight':

Tdn, Ttb ualu, walu, Tbl ualu, Tse uadu, Tsw walu 'eight' [PPh \*w<sub>2</sub>alu', PAN (Dahl) \*ualu 'eight'].<sup>40</sup>

## \*uaŋ 'howl, yelp (of dog)':

Tdn, Tse, Ttb, Tsw uaŋ 'howl, yelp (of dog)'; Tbl uaŋ 'bark (of dog)' [San huaŋ, Mdw uaŋ 'howl, yelp'].

## \*uasey 'iron':

Tdn, Tse, Tbl, Ttb uasey, Tsw oasey 'iron' [San uase, Mdw uatoi].<sup>41</sup>

## \*ua? 'slice open; disembowel':

Tbl, Ttb ua? 'slice open; disembowel' [San ua 'cut, disembowel'; Mdw ua? 'to wound'].

## \*ue 'rattan':

Tse, Tbl ue 'rattan (generic term)'; Ttb ue 'large rattan sort'; Tsw ue 'kind of thick rattan' [PPh \*qu'ey 'rattan; reed'].

## \*ubad/r 'untie, unravel':

Tdn, Ttb owar, Tse ubar, Tbl ubar, obar, Tsw ubad 'untie, unravel' [PPh \*hubad 'untie, unravel'].<sup>42</sup>

## \*uban 'grey hair':

Tdn uwan, Tse, Tbl uban, Ttb uwan/uaŋ, waŋ, Tsw uan 'grey hair' [Mdw uban, PPh \*quban 'grey hair'].<sup>43</sup>

## \*ubi 'edible tuber':

Tse, Tbl ubi, Ttb uwi 'edible tuber' [Mdw ubi 'edible tuber'; PPh \*qubi(h) 'yam'].

## \*ubur 'edible palm pith':

Tdn uwur, Tse, Tbl ubur 'edible pith of palm trees' [PPh \*ubu(d) 'palm-heart'; PAN \*u(m)bud/j 'heart of palm'].

## \*udan 'rain':

Tdn (Kakas), Ttb uran, Tse, Tbl udan 'rain' [Mdw uyan, PPh \*quZaN[ ] 'rain'].

## \*uhmun:

Tbl uhmun 'sit on ground (not on perch, of hen); gather chickens under wings (of hen)' [PPh \*Rumun 'wind; lair; wallow']. cf.

\*dumun.

## \*uka? 'half coconut shell':

Tdn, Tse, Tbl uka? 'half coconut shell (used as cup etc.)' [Mdw uka? 'coconut shell, half coconut shell'].

## \*ukur 'fate, destiny':

Tbl ukur 'preordained time to die'; Ttb ukur 'preordained time to die; luck, fate, destiny' [PPh \*ukur 'luck, fortune'].

## \*ulah 'snake':

Ttb (Mtn) ula?, Tsw ulah 'snake' [PPh \*ulaR 'snake'].

## \*uləd 'worm, grub, caterpillar':

Ttb (Mtn) ulər 'worm, grub, caterpillar'; (Mkl) uləd 'snake' [San ulida? 'worm, grub, caterpillar'; PPh \*qulej 'worm'].

## \*ulit 'true, correct, real':

Tdn, Tse, Tbl, Ttb ulit, Tsw ulic 'true, correct, real'.

## \*ulu 'head':

Tdn ulu-na 'source (of river); leader (of a group); first (of litter)'; Tse udu, Tbl ulu 'head' [PPh \*qulu[ ] 'head'].

## \*ulud 'resemble; imitate':

Tdn ulur 'resemble'; Tse udud, Tsw ulud 'imitate, copy, follow'; Ttb ulur/ulud 'resemble; copy, imitate'.

## \*ulun 'rest the head':

Ttb, Tsw ulun 'rest the head (e.g. on pillow)' [PPh \*ulun 'rest the head']. cf. \*ulu.

## \*uma '(dry) cultivated field, gardens':

Tdn, Tse, Tbl, Ttb, Tsw uma '(dry) cultivated field, gardens' [PPh \*qumaH 'farmland'].

## \*uma? 'sheath; to sheathe':

Tdn, Tse, Tbl uma? 'to sheathe', u?-uma?-an 'sheath'; Tsw uma? 'sheath; to sheathe' [PPh \*R<sub>2</sub>umaq 'house'].

## \*unəd:

Tdn unər, Tse, Tbl unəd, Ttb unər/unəd 'middle, centre' [San unida? 'marrow; core'; Timugon Murut unod 'kernel'].

## \*undam 'medicine':

Tdn udam, Tse, Tbl, Ttb, Tsw undam 'medicine' [PPh \*uNdam 'medicine'].

\*untap 'blow with bellows':

Tdn, Tse, Tbl, Ttb untap 'blow with bellows'; Tsw utaw-an 'bellows'  
[PPh \*uNtapan 'bellows'; Mdw untap, San onta? 'blow with bellows'].

\*untəp 'inside, interior; to enter':

Tdn, Tse, Tbl, Ttb untəp, Tsw utəw 'inside, interior; to enter'.

\*upa(?) 'hen':

Tdn upa? 'hen' [Mdw opa 'young hen without chickens; female bird';  
PAN \*hupa 'hen'].

\*upu? 'pick (rice), reap, harvest':

Tdn, Tse, Tbl, Ttb upu?, Tsw uwu? 'pick (rice), reap, harvest'  
[? San upu 'root out, destroy'; ? Sa'dan upu? 'completed, done'].

\*usuy 'seek, look for':

Ttb usuy 'seek, look for' [PPh \*qusuy 'look for'].

\*utək 'brain':

Tdn, Tse, Tbl utək, Tsw ucəh 'brain' [PPh \*qu(N)tek 'brain'].

\*baer 'to pay':

Tdn, Ttb waer, Tse, Tbl, Tsw baer 'to pay' [San baehə?, PPh \*bayaD  
'pay'].

\*baba? 'below, under':

Tdn, Ttb wawa?, Tse, Tbl baba? 'below, under' [PPh \*babaq 'below'].<sup>44</sup>

\*babi 'pig':

Tse, Tbl babi, Ttb wawi 'pig' [PPh \*babuy 'pig'].

\*babo 'above, over':

Tse, Tbl babo, Ttb wawo 'above, over' [PPh \*babaw 'above; outside'].<sup>45</sup>

\*baha 'live coals, embers':

Tdn waa, Tse baa, Tbl baha, Ttb wa?a 'live coals, embers'; Tsw  
baha 'fire' [PPh \*baR<sub>1</sub>aH[ ] 'live coals'].

\*bahas 'husked rice':

Tse baas, Tsw bas 'husked rice' [PPh \*beR<sub>1</sub>as 'husked rice'].

\*bahat:

Ttb wa?at 'pregnant' [PPh \*beR<sub>2</sub>qat 'heavy'].<sup>46</sup>



\*bahe? 'swelling':

Ttb wae? 'glandular swelling on the neck, scrofula' [PPh (Charles)  
\*baReq 'abcess, swelling'].<sup>47</sup>

\*bahi? 'hard outer wood of palm trees':

Tdn wai?, Tse bai?, Tsw bahi? 'hard outer wood of palm trees'; Tbl  
bahi? 'hoe'; Ttb wai? 'hard outer wood of palm trees; digging  
implement made from this wood' [PPh \*bahiq 'tree; [wood]'].

\*bahu?:

Tdn wau?, Tse bau? 'gravy, sauce; moisten food with gravy'; Tbl  
bahu? 'wet'; Ttb wau?b, wau?mb, Tsw bahu? 'feed animals' [PPh  
\*bahuR 'mix up, mingle'; WBM bahug 'moisten food with broth, soup  
or water'].<sup>48</sup>

\*bakul 'basket':

Tdn wakul, Tse bakud, Tbl ba?kul 'bird snare'; Ttb wakul 'small  
shallow basket' [PPh \*bakul 'basket'].

\*balahan:

Tdn walaan, Tse balaan, Tbl balahan, Ttb wala'an 'cucumber' [PPh  
\*b-al-aGen '[vine]'].<sup>49</sup>

\*bale 'house':

Tdn, Ttb wale, Tse, Tbl, Tsw bale 'house' [PPh \*balay 'house'].

\*balelan 'sulphur':

Tdn, Ttb walelan, Tse, Tbl, Tsw balelan 'sulphur' [Mdw, San malelan,  
PPh \*baliran 'sulphur'].

\*bali 'accompany, escort, lead':

Tdn, Ttb wali, Tse badi, Tbl bali 'accompany, escort, lead' [PPh  
\*bali[ ] 'escort, accompany'].

\*balian '(pagan) priest, shaman':

Tdn walian, Tse badian, Tbl balian '(pagan) priest, shaman'; Ttb  
walian 'priestess' [PPh \*balian 'shaman'].

\*balina 'other':

Tdn, Ttb walina, Tse badina, Tbl, Tsw balina 'other' [San baline  
'other'].

\*balulan 'skin, hide':

Tdn walulan, Tse, Tbl balulan 'scar (of wound)'; Ttb walulan

'callus; thick hide of various animals'; Tsw bolulaŋ 'skin, hide'  
[PPh \*balulaŋ 'skin/hide'].<sup>50</sup>

\*balun 'provisions for journey':

Tdn walun, Tse, Tbl, Tsw balun, Ttb walun/waluŋ 'provisions for  
journey' [Mdw balun, San ba|uŋ 'provisions for journey'].

\*baluy 'transform, change':

Tdn, Ttb waluy, Tse baduy, Tbl, Tsw baluy 'transform, change (shape  
etc.)' [PPh \*baliw 'change'; San ba|ui 'change, alter'].

\*banua:

Tdn wanua, Tse, Tbl banua 'village' [PPh \*banu'a 'land/place'].

\*banut 'coconut husk':

Tse banut, Tsw banuc 'husk of coconut and other palm fruit' [PPh  
\*banut 'coconut fibres'].<sup>51</sup>

\*bantāŋ 'large basket for storing rice':

Tdn, Ttb wantāŋ, Tsw bātāŋ 'large basket for storing rice' [San  
bantāŋ 'box'].

\*banto? 'childless, infertile':

Tdn, Ttb wanto?, Tse, Tbl banto? 'childless, infertile' [Mdw banto?  
'infertile'; San banto? 'childless, infertile'].

\*baŋeh 'smell bad':

Tdn waŋe, Tse baŋee, Tbl baŋeh 'smell or taste bad (of food left  
too long)'; Ttb waŋe? 'soft, tender (from beating); faded, withered';  
(Langoan) 'smell bad (of food left too long)' [Mal baŋar 'foul  
smelling'].<sup>52</sup>

\*baŋun:

Tdn, Ttb waŋun, Tse, Tbl baŋun 'beautiful, excellent'; Tsw baŋun  
'strong, vigorous'.

\*baŋko? 'big':

Tdn, Ttb waŋko?, Tse, Tbl baŋko?, Tsw bako? 'big'.<sup>53</sup>

\*bar<sub>1</sub>at 'at an angle, slanting':

Tdn, Ttb warat, Tse, Tbl barat, Tsw barac 'at an angle, slanting'.

\*bar<sub>2</sub>eŋ 'return, go back':

Tdn, Ttb wareŋ, Tsw balen 'return, go back; take back'; Tse bareŋ

'curved, arched'; Tbl bareŋ 'change direction' [PPh \*baliŋ 'wind around, rotate'].

\*baruga 'stone house-shaped tomb':

Tdn waruga, Tse, Tbl baruga, Ttb waruga 'stone tomb in the shape of a house' [San bahugha 'small house on grave'; Buginese, Makassarese baruga 'bamboo construction for gatherings and to lodge strangers'].

\*bar<sub>1</sub>uk (1) 'tall, slender palm sp.':

Tse, Tbl baruk, Tsw baruh 'tall, slender palm sp. which yields sago' [San baru? 'type of sago palm'].

\*baruk (2) 'tinder':

Tdn waruk, Tse, Tbl baruk 'tinder, flammable powder obtained from palm branches' [Mdw bayuk, PPh \*baDuk 'tinder'].

\*bataŋ:

Ttb wa?taŋ 'log'; Tsw bacaŋ-an 'body (of person)' [PPh \*bataŋ 'stick; tree trunk'; Mdw bataŋ 'fallen tree'; WBM bataŋ 'fallen tree or log'].

\*bata? 'child; young':

Tdn wata? 'young tree'; Tse bata? 'young of tree, person'; Ttb wata? 'young, fresh, strong'; Tsw baca? 'child, offspring' [PPh \*bataq 'child; young'].

\*batu 'stone':

Tdn, Ttb watu, Tse, Tbl batu, Tsw bacu 'stone' [PPh \*batu[ ] 'stone'].

\*batuna 'seed, pit (of fruit)':

Tdn, Ttb watuna, Tse, Tbl batuna, Tsw bacuna 'seed, pit (of fruit)' [San batune 'pit of fruit']. cf. \*batu.

\*baya (1) 'permit, allow; release':

Tdn waya, Tse, Tbl baya, Tsw bayay 'permit, allow; release'; Ttb waya 'release, set free' [San bala 'release, permit'].<sup>54</sup>

\*baya (2) 'all':

Tdn, Ttb waya, Tse, Tsw baya 'all'.

\*bayaŋ 'to row':

Tse bayaŋ, Ttb wayaŋ 'row (with fixed oars)' [San balaŋ 'oar, row'].

\*bayoŋ 'to swing, dangle':

Tdn, Ttb wayoŋ, Tse bayoŋ 'swing, dangle' [San baloŋ 'swing'].

\*baʔan 'sneeze':

Tdn, Ttb waʔan, Tse, Tbl baʔan 'sneeze' [PPh \*baqaŋen 'sneeze'].

\*baʔaŋ 'tooth':

Tdn waʔaŋ, Tse, Tbl, Tsw baʔaŋ 'tooth'; Ttb waʔaŋ (Mtn) 'tooth';  
(Langoan) 'molar tooth' [PPh \*baR<sub>2</sub>qaŋ 'molar tooth'].

\*baʔu(?u) 'tortoise':

Tdn waʔu, Tse, Tbl (Tomohon) baʔu, (Kinilow) bauʔu 'tortoise'  
[PMB \*baʔu(?u) 'turtle'; Cebuano Bisayan baʔu 'tortoise'].<sup>55</sup>

\*baʔbaʔ 'mouth':

Ttb waʔmbaʔ/waʔbaʔ, Tsw baba 'mouth' [PPh \*baqbaq 'mouth, opening'].

\*baʔkəs 'tie up, bind':

Tdn, Ttb waʔkəs, Tse, Tbl baʔkəs, Tsw bakəs 'tie up, bind' [PPh  
(Charles) \*baRkəs 'to tie'].

\*bebene 'woman, female':

Tdn wəwene, Tse bəbene, Tbl bebene, Ttb wewene 'woman, female'  
[San bawine 'woman, female'; PAN \*babinay 'woman']. cf. \*bene.<sup>56</sup>

\*behe 'give':

Tdn wee, Tse bee, Tbl behe, Ttb weʔe/weʔ 'give, put, place'; Tsw  
ehe 'give' [PPh \*beRey 'give'].

\*bene 'woman, female':

Tsw bene 'woman, female' [PAN \*binay 'woman']. cf. \*bebene.<sup>56</sup>

\*beneʔ 'rice seed':

Tdn, Ttb weneʔ, Tse, Tbl beneʔ 'rice in husk (in field or har-  
vested)'; Tsw beneʔ 'rice seed (for planting)' [San bine 'rice seed';  
PPh \*beNhiq 'seed'].

\*beybey:

Tse beybey 'hang in tatters'; Tbl beybey 'hang down'; Ttb wewey,  
weywey 'carry by hand with the load hanging down' [San bæʔbeʔ  
'pull up, raise']. cf. \*geygey.

\*bədbəd 'to bind, tie around':

Ttb wəʔmber 'band, ribbon; to bind, entwine, tie around' [PPh  
(Charles) \*bedbed 'to tie around'].

\*bəkək 'to pound, crush':

Tbl bəkək, Ttb wəmbək 'to pound, crush' [WBM bəkək 'pulverise by pounding or stepping on'].

\*bəlad 'spread out (to dry)':

Tdn wəlar, Tse, Tbl, Tsw bəlad, Ttb wəlar/wəlaʔd 'spread out (to dry)' [PPh \*bəlaʃ 'spread out - in sunlight'].

\*bəlah 'floor':

Tdn wəla, Tse bəlaa, Tbl, Tsw bəlah 'floor'.

\*bənaŋ 'debt':

Tdn, Ttb wənaŋ, Tse, Tbl, Tsw bənaŋ 'debt'.

\*bəndu 'hard work, distress':

Tdn wədu, Tbl bəndu 'fatigue, exhaustion; hard work'; Tse bəndu, Ttb wəndu 'trouble, distress, worry; hard work' [San bəndu 'trouble, difficulty; sick from excessive labour'].

\*bəŋəl 'deaf':

Tdn wəŋəl, Tse bəŋəl, Tbl bəŋəl 'stupid'; Ttb wəŋəl, Tsw bəŋəl 'deaf' [PPh \*bəŋəl 'deaf'].

\*bəŋi 'night; dark':

Tdn, Ttb wəŋi, Tse, Tbl, Tsw bəŋi 'night; dark' [PPh \*bəŋi 'night'].

\*bəŋkəw 'spear, lance':

Tdn, Ttb wəŋkəw, Tse, Tbl bəŋkəw 'spear, lance' [San bəŋko 'spear'; PPh \*bəŋkəw 'spear/lance'].

\*bə<sub>2</sub>ən 'eye':

Tdn wəən, Tse, Tbl bəən, Ttb wəən/wələn, Tsw bəən 'eye'.

\*bə<sub>1</sub>əy:

Tdn wəəy 'hang down; to lower'; Tse bəəy 'hang down'; Tbl bəəy 'pour'; Ttb wəəy 'long (of garment)'; Tsw bəəy 'slip, slide'.

\*bəru 'new':

Tdn, Ttb wəru, Tse, Tbl bəru 'new' [PAN \*bəRu 'new'].

\*bəsaħ 'split, crack':

Tdn, Ttb wəsa, Tse bəsa, Tbl bəsaħ 'split, crack' [San bəsaħəʔ 'split, burst'].

**\*bəsuh** 'full, satisfied':

Tdn, Ttb wəsu, Tse bəsuu, Tbl, Tsw bəsuh 'satisfied, full (from eating)' [PPh \*besuR 'full, satisfied'].

**\*bətiʔ:**

Tdn wətiʔ, Tse, Tbl bətiʔ, Ttb wətiʔ/wəsiʔ 'burst (of roasting corn); to bake corn in ashes' [PPh \*be(R)tiq 'to pop open (from heat)'].

**\*bətiʔis** 'calf (of leg)':

Tdn wətiʔis, Tse, Tbl bətiʔis, Ttb tiʔis, Tsw bacis 'calf (of leg)' [PPh \*be(N)tiʔis 'calf - of leg, shank'].<sup>57</sup>

**\*biaʔi** 'here':

Tdn, Ttb wiaʔi, Tse biʔai, Tbl, Tsw biaʔi 'here'. cf. \*iaʔi.

**\*bibih** 'lip(s)':

Tdn wiwi, Tse bibii, Tbl bibih, Ttb wiwi/wiwiʔ 'lip(s)' [PPh \*bibihR 'lips'].

**\*bibit:**

Tdn wiʔwit 'tug on rope'; Tse, Tbl bibit 'lift/carry by rope'; Tsw bibic 'carry by handle'.

**\*bikoʔ** 'small prawn':

Tdn wikoʔ, Tsw bihoʔ 'small prawn'.

**\*bilin** 'turn over, turn around':

Tdn wilin, Tse bidin, Tbl bilin 'turn over, turn around'; Ttb wilin 'twist someone's words, distort' [San bilin 'turn over, turn around'; PPh \*bilin 'wind, turn'].

**\*bilit:**

Tdn, Ttb wilit, Tse, Tbl bilit 'to sew'; Tsw bilic 'pleat, fold' [PPh \*bilit 'coil; wrap around'].

**\*bintiʔ** 'kick person's calf with shin':

Tdn, Ttb wintiʔ, Tse, Tbl bintiʔ 'kick person's calf with shin (game)'; Tsw bitiʔ 'kick' [WBM binti 'kick against calf with shin (game)'; PPh \*biNtiq 'hit - with calf of leg (game)'].

**\*biŋi** 'sloping, slanting':

Tdn wiŋi, Tse, Tbl biŋi, Tsw beŋe 'slanting, sloping'.

\*biŋkuŋ 'mattock':

Tdn wiŋkuŋ, Tse biŋkuŋ 'mattock' [Buginese, WBM biŋkuŋ 'mattock'].<sup>58</sup>

\*bisa 'which?; where?':

Tdn, Tbl wisa, Tse, Tbl, Tsw bisa 'which?; where?'.  
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\*biʔis 'tick (insect)':

Tse, Tbl biʔis, Ttb wiʔis, Tsw bis 'tick (on cattle and other animals)'.  
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\*bo 'and; with; (and) then':

Tdn, Ttb wo, o, Tse, Tbl, Tsw bo 'and; with; (and) then' [Mdw bo 'and, and then'; PPh \*baw 'and'].

\*boboʔ 'dumb, mute':

Tdn, Ttb wowoʔ, Tse, Tbl, Tsw boboʔ 'dumb, mute' [Mdw boboʔ, Bare'e bobo 'dumb, mute'].

\*boho 'chase away, drive off':

Tse boo, Tbl boho 'chase away, drive off' [PPh \*buR<sub>3</sub>ew 'chase away'].

\*bokbok 'hole':

Tdn woʔwok, Tse, Tbl bokbok 'hole (e.g. in ground)' [Sa'dan boʔbok 'dig hole'].

\*bolo:

Tdn wolo, Tbl bolo 'albino'; Tse bolo 'reddish'; Ttb wolo 'light coloured, silvery-white' [PPh \*bulaw 'shine, be reddish'].

\*bow 'smell; to smell':

Tdn, Ttb wow, Tse, Tbl bou 'smell; to smell'; Tsw ow 'smell: to smell (intransitive)', bow 'rotten; to smell (transitive)' [PPh \*bahew 'stink, odor'].

\*buaʔ 'fruit; to bear fruit; areca nut':

Tdn wuaʔ 'to bear fruit', wuʔa-na 'fruit'; Tse buaʔ 'areca nut; fruit', buaʔ-na 'fruit'; Tbl buaʔ 'areca palm and nut', buaʔ-na 'fruit'; Ttb wuaʔ 'fruit; areca nut; to bear fruit'; Tsw buaʔ, buaʔ-na 'fruit' [San bua 'fruit, bear fruit'; PPh \*buʔaq 'fruit'].

\*bue:

Tdn wue-na 'rice grain'; Tse bue-na 'ear of rice'; Ttb wue 'rice in husk'; Tsw bue 'any ground fruit (peanut, tuber etc.); first root from rice seed' [Sa'dan bue 'bean'].

## \*bubu 'fish trap':

Tse, Tbl bubu, Ttb wuwu 'fish trap' [PPh \*bubu[ ] 'fish trap'].

## \*bubuŋ 'ridge of roof':

Tdn wuwuŋ, Tse bubuŋ-an, Tbl bubuŋ, Ttb wuwuŋ-an, Tsw buŋ 'ridge of roof' [PPh \*bubuŋ 'ridge (of roof)'].<sup>59</sup>

## \*budbud 'strew, scatter':

Tdn wu?wur, Ttb wu?mbur 'strew, scatter, sow'; Tse, Tbl budbud 'sprinkle with fingertips' [PPh \*budbud 'distribute, scatter'].

## \*buka(?) 'open; to open':

Tdn, Ttb wuka?, Tse, Tbl buka, Tsw buha 'open; to open'; Tsw uha 'force open' [San buka, Mdw buka?, PPh \*bukaq 'to open'].<sup>60</sup>

## \*buku 'knee, joint, knot':

Tdn wuku, Tse, Tbl buku 'joint, knuckle, knot'; Ttb wuku 'joint, knuckle, knot'; (Langoan) 'knee'; Tsw buhu 'knee; knuckle, joint' [San buku 'knee, joint, knot (in wood)'; PPh \*buku 'joint; knot'].

## \*bukbuk 'wood borer':

Tdn wuwuk, Tse, Tbl bukbuk 'wood borer' [PPh \*bukbuk 'wood borer'].<sup>61</sup>

## \*bulu? 'thin bamboo sp.':

Tdn wulu?, Tse budu?, Tbl, Tsw bulu?, Ttb wulu?d 'thin bamboo sp. with great distance between joints' [Mdw bulu? 'thin bamboo sp.']; PPh \*buluQ 'bamboo'].<sup>62</sup>

## \*bulbul 'feather, fur, body hair':

Tse budbud, Tbl bulbul, Tsw bul 'feather, fur, body hair'; Ttb wu?mbul 'pubic hair' [PPh \*bulbul 'pubescent hair'; Cotabato Manobo bulbul 'body hair'].<sup>63</sup>

## \*buni 'hide, conceal':

Tse, Tbl buni 'hide, conceal, put away'; Ttb wuni 'room (of house); hide, conceal' [PPh \*buni[ ] 'hide, conceal'].

## \*bunon 'pool, puddle':

Tdn, Ttb wunon, Tse, Tbl, Tsw bunon 'pool, puddle' [Mdw bunon 'pool, puddle'].

## \*bunu? 'kill':

Tdn wunu?, Tse, Tbl bunu? 'kill'; Ttb wunu? 'practice black magic with intention to kill' [PPh \*bunuq 'butcher, kill; fight'].



**\*buŋaŋ 'flower':**

Tdn wuŋaŋ, Tse, Tsw buŋaŋ, Tbl buŋa, buŋaŋ, Ttb wuŋa, wuŋaŋ 'flower'  
[San, Mdw buŋaŋ, PPh \*buŋa' 'flower'].<sup>64</sup>

**\*bur<sub>1</sub>i 'behind; go back, return':**

Tdn wuri-an 'buttocks, backside'; Tse, Tbl buri 'return, go back';  
Tsw uri 'tail' [PPh \*buri' 'rear, back'; Mdw bui 'repeat; return,  
go back']. cf. \*muri.<sup>65</sup>

**\*bur<sub>2</sub>iŋ 'charcoal':**

Tdn wuriŋ, Tse, Tbl buriŋ 'charcoal'; Ttb wuriŋ/wuliŋ, Tsw buliŋ  
'black' [PPh \*b-ujiŋ 'sooty; charcoal'].

**\*bur<sub>2</sub>iŋa 'egg':**

Tdn wureŋa, Ttb wuliŋa? 'egg'; Tse bureŋa 'almost fully-developed  
eggs in overies' [PPh (Charles) \*buliŋa 'egg'].<sup>66</sup>

**\*buruk 'bad, rotten':**

Tdn, Ttb wuruk, Tse, Tbl buruk 'bad, rotten' [PPh \*buDuk 'bad,  
rotten, ruined'; \*buruk 'no good; rotten'].

**\*busəŋ 'stopper, plug':**

Tdn, Ttb wusəŋ, Tsw busəŋ 'plug, stopper'. cf. \*səŋsəŋ.

**\*busbus 'pour out; empty out':**

Tdn wu?wus, Tse, Tbl busbus 'pour out, empty out (a container)'  
[WBM busbus 'pour out; empty out'].

**\*buta 'full':**

Tdn, Ttb wuta, Tbl buta 'full' [Kinaray-a butaq, Pandan bu:ta 'full'].

**\*butbut 'pull out, pluck out':**

Tse butbut, Tsw ubuc 'pull out, pluck out'; Tbl butbut 'to tug';  
Ttb wu?mbur 'draw (copper or iron) wire' [PPh \*butbut 'pull out,  
extract'].

**\*bu?uk 'hair':**

Tdn, Ttb wu?uk, Tse, Tbl bu?uk 'hair' [PPh \*buSek[ ] 'hair'].

**\*bu?bu? 'hole':**

Tdn wu?wu?, Ttb wu?mbu?/wu?bu?, Tsw bubu 'hole'; Tbl bu?bu? 'the  
hollow in a mortar' [Mdw bubu? 'hole'].

## \*dahami 'dry rice stalks, straw':

Tdn raami, Tbl dahami, Ttb ra'ami 'dry rice stalks, straw' [PPh \*ZeRami[ ] 'rice stalk'].

## \*dahas 'secondary pounding of rice':

Tse daas, Tbl dahas 'secondary pounding of rice (after winnowing)';  
Ttb ra'as 'pound (rice, sago etc.)' [PPh \*DeG/qas 'finish pounding  
rice'; (Charles) \*deRqas 'secondary pounding of rice'].

## \*daha? 'blood':

Tdn raa?, Tse daa?, Tbl, Tsw daha?, Ttb ənda? 'blood' [PPh \*DaR<sub>1</sub>aQ  
'blood'].<sup>67</sup>

## \*dahum 'sew; plait thatch':

Tdn raum, Tse daum, doum, Tbl dahum, Ttb raum/ra'um 'sew or plait  
thatch for roofing'; Tsw dahum 'sew (general term); plait thatch'  
[PPh \*ZaRum 'needle (sewing)'].<sup>68</sup>

## \*daki 'grime, dirt on body':

Tdn, Ttb raki, Tse, Tbl daki 'grime, dirt on body'; Tsw dahi 'dust'  
[San daki 'grime on body'; Mal daki 'dirt, especially on body'].

## \*dakdak 'hit with implement':

Tsw dadah 'hit with implement' [PPh \*dakdak 'hit with hammer'].

## \*dalan 'road, pathway':

Tdn, Tse, Tbl lalan, Ttb lalan/lalaŋ, Tsw dalan 'road, pathway'  
[PPh \*Zalan[ ] 'road, way'].

## \*dalem 'inside; under; deep':

Tse, Tbl lalem 'inside'; Tsw dalem 'under, below; deep' [PPh \*dalem  
'deep, depth; in(to)'; (Charles) 'under; inside'].<sup>69</sup>

## \*dalid:

Tse dadid 'platform on which the shaman dances'; Ttb la'lir/lali'd  
'plank used by priest or to sleep on; long shallow wooden tray';  
Tsw dalid 'long shallow wooden tray; trough'].

## \*damah 'resin; tree from which resin is obtained':

Tdn rama, Tse damaa, Tbl damah, Ttb rama/rama?, Tsw damah 'resin;  
tree from which resin is obtained' [Mdw damag 'resin; tree from  
which resin is obtained'; PPh \*damaR<sub>4</sub> 'resin; torch; light'].<sup>70</sup>

\*d/r<sub>1</sub>aməs 'wet':

Ttb raməs 'sap, fluid; wet, damp'; Tsw daməs 'wet' [WBM hames 'wet'].

## \*dano 'water':

Tdn rano 'water; stretch of water'; Tse dano 'melt, dissolve'; Tbl dano 'water'; Ttb rano 'water, river'; Tsw dano 'bath, bathe' [PPh \*Danaw 'lake'].

\*dapdap 'tree sp. (*Erythrina indica*)':

Tdn ra?rap, Tse, Tbl dapdap 'tree sp.'; Ttb ra?dap, ra?ndap 'tree (*Erythrina indica*)' [PPh \*DapDap '(tree) *Erythrina indica*'].

\*d/r<sub>1</sub>ar<sub>1</sub>aŋ 'forbid, prohibit':

Tsw daraŋ 'forbid, prohibit' [PPh \*laraŋ 'forbid, prohibit'].

## \*datah 'even, level; plain, level land':

Tse dataa even, level; plain, level land'; Tsw dakah 'plain, level land' [PPh \*DataR 'level, plain'].

## \*date 'cold':

Tse, Tbl date 'cold'; Ttb rate 'cold; ague'; Tsw dace 'cold (of previously hot food or drink)'.

## \*dayo 'to praise':

Ttb rayo 'to praise' [San dalo, PPh \*[D]ayaw 'to praise'].

## \*da?an 'old':

Tse da?an 'rice left from the previous year'; Ttb ra?an 'old; rice, corn etc. left over from a previous year' [PPh \*daqan 'old (thing)'].

## \*dele 'palm leaf rib':

Tse dede, Ttb (Mkl) lele, Tsw dele 'palm leaf rib' [Mal lidi 'palm leaf rib'].<sup>71</sup>

## \*dəkdek:

Tse dəkdek 'pound rice for the final time' [PPh \*dekdek 'pound, pulverise'].

## \*dəmdəm 'dark':

Tdn reidəm, Tsw dəndəm 'dark'; Tse didəm, Tbl dəmdəm 'black'; Ttb rəindəm 'black, dark' [PPh (Charles) \*demdem 'overcast, dark'].<sup>72</sup>

## \*dəpa 'fathom, span of arms outstretched':

Tdn, Ttb rəpa, Tse, Tbl, Tsw dəpa 'a fathom, span of arms outstretched' [PPh \*Depa 'armspan; fathom'].

## \*dila? 'tongue':

Tdn lila? 'tongue; speak'; Tbl, Ttb lila?, Tse dida?, Tsw dila? 'tongue' [PPh \*dilaq 'tongue'].

## \*dipdip 'cut off, cut through':

Tdn ri?rip, Tse, Tbl dipdip, Ttb ri?ndip/ri?rip 'cut off, cut through' [PPh \*dipdip 'cut off'].

## \*di?di? 'to boil':

Tbl di?di?, Tsw didi 'boil (of water)'; Ttb ri?ndi?/ridi? 'boil (food)' [PPh \*diqdiq 'to boil'].

## \*dou? 'far, distant':

Tdn rou?, Tse, Tbl dou? 'far, distant' [PPh \*Za( )uq 'distant'].

## \*dohaŋ 'add to, increase':

Ttb ro?aŋ, Tsw dohaŋ 'add to, increase' [PPh \*duGaŋ 'add to, increase'].

## \*dua 'two':

Tdn, Ttb rua, Tse, Tbl, Tsw dua 'two' [PPh \*DewS<sub>3</sub>a 'two'].

## \*duhi 'bone':

Tdn rui, Tse dui, Tbl, Tsw duhi, Ttb ru?i 'bone' [PPh \*DuRi 'thorn; bone/spine'].

## \*duhu 'corner, angle':

Tdn ruu-na, Tse duu, Tbl duhu, Ttb ru?u 'corner, angle' [PPh \*ZuRu 'right angle/corner'].

## \*dukut 'grass':

Tdn, Ttb rukut, Tse, Tbl dukut 'grass' [PPh \*dukut 'grass'].

## \*dumun 'nest, lair':

Tdn rumun (Tondano) 'to brood (of hen)'; (Kakas) 'to sit'; Ttb rumun 'nest, lair; sit on ground'; Tsw dumun 'nest, lair; to nest' [PPh (Charles) \*dumun 'wild animal's lair']. cf. \*uhmun.

## \*duni? 'rainbow':

Tse, Tbl, Tsw duni? 'rainbow' [Lampung xunih 'rainbow'].

## \*duyuŋ 'dugong':

Tse duyuŋ 'kind of river fish'; duyuŋ tou, Ttb ruyuŋ 'dugong' [San dulun, PPh \*Duyuŋ 'dugong'].

## \*garot 'scratch':

Tdn garot, Tse garot 'streak, scratch, line'; Tbl garot 'write'  
[PPh \*garut 'scratch']. cf. \*kar<sub>1</sub>ot.

## \*geygey:

Tdn gegey 'carry by hand': Tse, Tbl geygey 'lift up, raise'; Ttb  
gegey 'hang down, hang in tatters' [San gə'ge? 'lift up, raise'].  
cf. \*beybey.

## \*gərgər 'shiver, tremble':

Tdn gə'gər 'cold'; Tse, Tbl gərgər, Ttb gə'gər 'shiver, tremble'  
[San gə'gələ? 'tremble, shake'].

## \*gio 'face; appearance':

Tdn gio, Ttb gio 'face; appearance; colour'; Tse, Tbl gio 'face';  
Tsw gio 'behaviour, conduct' [Bare'e lio 'face; appearance'].

## \*gogar:

Tdn gogar, Tse, Tbl gogar 'break up, demolish'; Ttb gogar 'loosen,  
break off, demolish' [San goghahə? 'destroy, devastate'; Mdw gogar  
'upset, confuse'].

\*gor<sub>1</sub>it:

Tdn gorit 'slice'; Tse gorit 'scrape'; Tbl gorit 'dig hole with  
point of knife'; Ttb gorit, Tsw goric 'to saw'.

## \*kabal 'invulnerable; thick skin':

Tdn kawal, Tse kabal 'invulnerable'; Tbl kabal 'thick skin, invul-  
nerable'; Ttb kawal 'amulet giving invulnerability; invulnerable';  
Tsw kabal 'callus, thickened skin; invulnerable' [PPh \*kabal 'thick  
skin; invulnerable'].

## \*kabisa 'when?':

Tdn, Ttb kawisa, Tse, Tbl kabisa, Tsw kaisa 'when?'. cf. \*bisa.

## \*kahabi?i 'yesterday':

Tdn kaawi?in, Tse kaabi?i, Tbl kahbi?i, Ttb ka?awi?i/ka?awi?, Tsw  
kai?i 'yesterday' [PPh \*ke-Rabi'i 'yesterday; last night'].<sup>73</sup>

## \*kahan 'scab':

Tdn kaa, Tse kaan, Tbl kahan, Ttb ka?an 'scab (on wound)' [PPh  
\*keRan/η 'scab'].<sup>74</sup>

## \*kahat 'snatch, seize':

Tdn, Tse kaat, Tbl kahat 'snatch away, seize, wrest'; Tsw kahac 'seize prey (e.g. of eagle)'.

## \*kaka? 'elder sibling':

Tdn, Tse, Tbl, Ttb kaka?, Tsw kaha? 'elder sibling' [San kaka? 'elder sibling'; PPh \*kaka' 'elder sister'].

## \*kalasey:

Tdn, Tse kalasey, Tbl, Ttb kalasey 'fish trap of bamboo lattice work'; Tsw kalasey 'bamboo lattice to block floating objects in water channel'.

## \*kalebkeb 'wing':

Tdn kale?kew, Tbl kalebkeb, Tsw kalekeb 'wing'; Tse kalebkeb 'flap wings'; Ttb kale?kew 'flounder, struggle'; (Langoan) kekele?b 'wing' [Mdw kolikip 'wing'].<sup>75</sup>

## \*kali 'dig':

Tse kadi 'gutter, ditch'; Tbl kali 'dig to a shallow depth'; Ttb kali 'gutter, drain; dig, dig a gutter'; (Langoan) 'dig' [PAN \*kali 'dig'].

## \*kalimpo?po?an 'butterfly':

Tdn, Tbl kalipo?po?, Tse kalipo?po?an, Ttb kalimpo?po?an, Tsw kalipopo?an 'butterfly' [Wolio kalipopo 'star', kalikalimpopo 'firefly'].<sup>76</sup>

## \*kami 'we (exclusive)':

Tdn key, Tse, Tbl, Ttb, Tsw kami we (exclusive)' [PPh \*kami' 'we (exclusive)'].<sup>11,77</sup>

## \*kamu 'you (plural)':

Tdn kow, Tse, Tbl kamu, Ttb kamu/kamo, Tsw kamo 'you (plural)' [PPh \*kamu' 'you (plural)'].<sup>11,77</sup>

## \*kampet:

Tdn, Tse, Ttb kampet 'grip, clutch for support (e.g. railing)'; Tsw kapec 'climb (e.g. ladder, rocks) using hands'.

## \*kan 'food; eat':

Tdn kaan, Tse, Tbl kan 'rice; eat'; Ttb, Tsw kan 'food; eat' [PAN \*kaen 'food'; PPh \*ka?en 'eat'].<sup>78</sup>

\*kantaŋ 'rise, go up':

Tdn kantaŋ 'rise, go up'; Tbl kantaŋ 'slightly raised'; Tsw kantaŋ 'rise, go up; high'. cf. \*antaŋ.

\*kanton 'large, fat, castrated pig':

Tdn, Tse, Tbl, Ttb kanton, Tsw katon 'large, fat, castrated pig' [Mdw kanton 'large, fat pig'].

\*kapey 'wave, beckon with hand':

Tdn, Tse, Tbl, Ttb kapey, Tsw kawey 'wave, beckon with hand' [WBM kapey 'beckon'; PPh \*kapay 'move - back and forth'].

\*kar<sub>2</sub>a'ka' 'boil, seethe':

Tse, Tbl, Ttb kara'ka' 'boil (of water)'; Tsw kalakad 'boil furiously, seethe'.

\*kar<sub>2</sub>ətkət 'grind teeth':

Tdn, Ttb karə'kət, Tse, Tbl karətkət 'gnaw, grind teeth'; Tsw kaləkəc 'squeak, creak, grind teeth'. cf. \*kətkət.

\*kar<sub>1</sub>is 'stripe, streak, scratch':

Tdn, Tbl, Ttb, Tsw karis 'stripe, streak, scratch' [PPh \*garis 'scratch; line, mark'].

\*kar<sub>1</sub>ot 'scratch':

Tdn, Tse, Tbl karot, Tsw karoc 'scrape, scratch (with fingernails)'; Ttb karot 'scratch, streak' [San kaho 'scratch']. cf. \*garot, \*karut.

\*karut 'scrape out, scratch out':

Tdn, Tse, Ttb karut 'scrape off/out, scoop out, scratch out' [PPh \*kalut 'scratch out; dig']. cf. \*kar<sub>1</sub>ot.

\*karkar 'scratch, dig out':

Tse, Tbl karkar 'scratch (in ground, e.g. of fowls)'; Ttb ka'kar 'hole; dig out, scoop out' [PPh \*karkar 'dig; scratch into'; WBM karkar 'dig or remove earth with scratching motion of hands'].

\*kasili 'eel':

Tdn, Tbl kasili, Tse kasidi 'eel' [PPh \*ka-sili 'eel'].<sup>79</sup>

\*kaso 'rafters':

Tdn, Tse, Tbl, Ttb, Tsw kaso 'rafters' [PPh \*kasaw 'rafter(s)'].

**\*kaskas 'scratch':**

Tdn, Ttb ka'kas, Tse kaskas 'scratch in ground or leaves (e.g. of chicken)'; Tbl kaskas 'grabble, scrabble'; Tsw kakas 'sweep, rake' [PPh \*kaskas 'scratch'].

**\*katar<sub>2</sub>e 'first':**

Tdn, Tse katare, Tbl, Ttb katare, Tsw kacale 'first'. cf. \*tar<sub>2</sub>e.

**\*kawihi 'leftside':**

Tdn kawii, Tse kabii, Tbl kabihi [San kaihi, Bare'e ka'iri, PPh \*wiRi 'leftside'].<sup>80</sup>

**\*kayoŋ 'crab':**

Tdn, Tse, Tbl, Ttb, Tsw kayoŋ 'crab'.

**\*kayo? 'stir, mix':**

Tdn, Tse, Tbl, Ttb, Tsw kayo? 'stir, mix'.

**\*kayu 'wood, tree':**

Tdn, Tse, Ttb, Tsw kayu, Tbl kay 'wood, tree' [PAN \*kayu 'wood, tree'].<sup>81</sup>

**\*ka'is 'scrape off, scratch away; make streaks':**

Tse ka'is 'streak, line; make streaks'; Tbl ka'is 'scratch away (as chicken does), sweep away'; Ttb ka'is 'brush, sweep'; Tsw ka'is 'streak, line; make lines/streaks; scrape off, scratch away' [PPh \*ka[h]is 'scrape off'].

**\*kehet 'tap sugar palm':**

Tdn, Tse keet, Tbl kehet, Ttb ke'et 'tap sugar palm'; Tsw kec-an 'sugar palm (Arenga saccharifera)' [PPh \*keRet 'cut off'].

**\*kel/r<sub>2</sub>e 'like, similar to':**

Ttb (Mkl), Tsw kele 'like, similar to' [San kere 'like, resembling'].

**\*kendoŋ 'make rope by spinning palm fibres':**

Tdn kedon, Tse, Ttb, Tsw kendoŋ, Tbl kandoŋ 'make rope by spinning palm fibres' [San kandoŋ 'spin rope'].<sup>82</sup>

**\*kento? 'lame; to limp':**

Tdn, Tse, Tbl, Ttb kento?, Tsw keto? 'lame; to limp' [San kento? 'lame, crippled'].



\*ker<sub>1</sub>et 'shout, cry out':

Tdn keret 'call to, hail; invite'; Tse, Tbl keret, Tsw kerec 'shout, cry out'; Ttb keret 'victory cry; give war cry' [San kere? 'give someone a sign (e.g. by winking)'].

\*ke'ol 'lame, crippled (with deformity)':

Tdn, Tbl, Tsw ke'ol, Tse ke'od 'lame, crippled because of deformity'; Ttb ke'ol 'unsteady on one's feet' [San keo!ə? 'crippled (with deformity of body)'].

\*ke?ke? 'laugh':

Tdn, Tse, Tbl, Ttb ke?ke?, Tsw ke?ke 'laugh' [San keke? 'laugh'].

\*kəbit:

Tsw kəbic 'pinch or pluck with fingers' [PPh \*kebit 'hook (with finger)'].

\*kəbur 'turbid, muddy':

Tdn, Ttb kəwur, Tse, Tbl kəbur 'turbid, muddy (of water)' [PPh \*kebur '(water) to churn, froth'].<sup>83</sup>

\*kəbkəb (1) 'to cover':

Tdn kə?kəw, Tse kəbkəb 'cover (e.g. with basket, cloth)' [PPh \*kebkəb 'cover; bedeck']. cf. \*kəbkəb.

\*kəbkəb (2):

Tbl kəbkəb 'nibble, bite off little pieces' [PPh \*kebkəb 'bite']; Mdw kəkəb 'chew on something hard'].<sup>84</sup>

\*kədut 'pinch':

Tse, Tbl kədut 'pinch (with fingertips); pluck off, nip off with fingernails' [PPh \*keD/zut 'pinch'].

\*(kə)kəniŋ 'eyebrow':

Tse, Tbl kəkəniŋ 'eyebrow' [PPh \*kəniŋ 'eyebrows'].

\*kələd 'phlegm':

Ttb kələr/kədāl 'phlegm; spit out phlegm'; Tsw kələd 'to spit'.<sup>85</sup>

\*kələh 'shake, tremble':

Tsw kələh 'shake, tremble' [PPh \*keLeG 'shake, tremble'].

\*kələb 'close with lid':

Tdn, Ttb kələw, Tse, Tbl kələb 'close with lid or top, put a lid on' [Mdw koləb 'cover over (with something)'; PPh \*lekeb 'close (shutter/door)'].<sup>86</sup>

\*kəməs 'wring out, squeeze; wash clothes':

Tdn, Tse, Tbl kəməs 'wash clothes'; Ttb, Tsw kəməs 'wring out, squeeze; wash clothes' [PAN (Blust) \*kemes 'held or squeezed in hollow of hand'].

\*kəmbu? 'well up, bubble up':

Tdn kəbu?, Tse, Tbl, Tsw kəmbu?, Ttb kəmbu?, kə?mbu? 'well up, bubble up (of water from ground)' [PPh \*keNbuŋ 'swell up'].

\*kəmkəm 'cover with hand; hold in closed hand; handful':

Tse, Tbl kəmkəm 'cover (e.g. eyes, mouth) with hands; hold in closed hand; handful'; Ttb kəŋkəm 'cover the opening of something with hands'; Tsw kəkəm 'hold tightly in closed hand; handful' [PPh \*kemkem 'hold shut/closed; handful'].

\*kəntəŋ 'taut, tight':

Tdn, Tse, Tbl, Ttb kəntəŋ 'taut, tight (e.g. of rope)' [PPh \*keNceŋ 'tense'].

\*kəpəl:

Tdn, Tse, Tbl, Ttb kəpəl 'stick on, press on' [PPh \*kepel 'massage, knead'].

\*kəpkəp 'embrace, hold against one's body':

Tdn kə?kəp 'cover, enclose'; Tse, Tbl kəpkəp 'cover; embrace, hold to one in arms'; Ttb kə?kəp/kəikəp 'embrace, enclose; fold the arms'; Tsw kəkəw 'carry in hand held against breast' [PPh \*kepkep 'embrace, hold, grip'].

\*kəsah 'swell':

Tdn kəsa 'to swell; swollen'; Tse kəsaa 'swell, become thick and hard'; Tbl k-im-əsah umpo?ot 'swollen belly'; Tsw kəsah 'swell; ulcer'.

\*kəsa? 'freshwater fish sp.':

Tdn, Tse, Tbl, Ttb kəsa? 'small freshwater fish with spiny back' [Mdw kəsa?, kosa? 'kind of freshwater fish, kind of bass'; Bare'e kosa 'kind of small fish with sharp fins'].

\*kəteh 'hard':

Tdn kəte, Tse kətee, Tbl, Tsw kəteh, Ttb kəte/kəte? 'hard' [San kəti? 'hard'].

## \*kətəp:

Tdn, Tse, Tbl, Ttb kətəp 'close together, without gaps (e.g. floor boards)' [PPh \*ketip 'pinch off; cut'].<sup>87</sup>

## \*kətkət 'nibble, gnaw':

Tdn, Ttb kəʔkət, Tse, Tbl kətkət, Tsw kəkəc 'nibble, gnaw' [PPh \*ketket 'nibble; gnaw']. cf. \*kar<sub>2</sub>ətkət.

## \*kiak 'scream, shout':

Ttb kiak 'yelp, screech'; Tsw kiah 'scream, yell, shout' [San kiaʔ 'shout, scream'].

## \*kiuʔ 'sexual intercourse':

Tdn, Tse, Tbl kiuʔ 'have sexual intercourse' [PPh \*kiuq 'sexual intercourse'].<sup>88</sup>

## \*kileʔ 'tickle':

Tdn, Tbl, Ttb, Tsw kileʔ, Tse kideʔ 'tickle' [PPh \*kilek 'tickle'].

## \*kima 'giant clam':

Tdn, Tse, Tbl, Ttb kima 'giant clam'; Tsw kima 'clam shell (used as ornament)' [PPh \*kima 'giant mussel'; Mal kima 'giant clam'].

## \*kirkir 'stingy, thrifty':

Tse, Tbl kirkir, Ttb kiʔkir 'stingy, thrifty' [San kəʔkideʔ 'thrifty'; Mal kikir 'miserly, stingy'].

## \*kisiʔ 'torn; to tear':

Tdn, Tse, Tsw kisiʔ, Tbl, Ttb keseʔ 'torn; to tear' [PPh \*kisiq 'tear, rend'].

## \*kiskis 'file, grate, scrape, shave':

Tdn, Ttb kiʔkis, Tse, Tbl kiskis, Tsw kikis 'file, grate, scrape, shave' [PPh \*kiskis 'scrape'].

## \*kita 'we (inclusive)':

Tdn, Tse, Tbl, Ttb kita, Tsw kica 'we (inclusive)' [PPh \*kita' 'we (inclusive)'].

## \*kiʔit (1) 'follow':

Tdn, Tse, Tbl, Ttb kiʔit, Tsw kiʔic 'follow'.

## \*kiʔit (2) 'small insect':

Tdn kiʔit, Tsw kiʔic 'small insect which hovers around food'; Tse, Tbl kiʔit 'small gnat'.

\*kiʔkiʔ 'bite':

Ttb kiʔkiʔ 'bite (e.g. of insect), sting'; Tsw kiʔkiʔ 'bite' [PPh (Charles) \*ki(q)kiq 'bite'].<sup>89</sup>

\*ko 'you (singular)':

Tdn ko, koo, Tse, Tbl, Ttb ko 'you (singular)' [PPh \*kaw 'thou'].<sup>90</sup>

\*kobkob 'cover':

Tsw kokob 'cover (e.g. with sheet)' [PPh \*kubkub 'cover']. cf. \*kəbkəb.

\*kodkod:

Tdn koʔkor 'hole'; Ttb koʔkor 'hole; dig with hands'; Tsw kokod 'dig'.

\*kokon 'head':

Tdn kokon, Tsw kohon 'head' [? Bajau Laut kok 'head'].

\*kolay 'taro':

Tdn, Tse, Tsw kolay 'taro'; Ttb kolay 'top of palm or pawpaw tree' [San ko|e, ko|ai 'taro'].

\*k/loloati 'worm':

Tdn, Tse, Tbl loloati, Ttb (Langoan) koloasi, Tsw koloaci 'worm' [PPh \*-luati 'intestinal worm'; San da|oati, Rat loloati 'worm'].

\*kolombiʔ 'large freshwater mollusc':

Tdn kəlobiʔ, Tse, Tbl, Ttb, Tsw kolombiʔ 'large freshwater mollusc' [Mdw kalumbiʔ 'edible swamp mollusc'].<sup>91</sup>

\*korkor 'to scratch':

Tdn koʔkor, Tse, Tbl korkor 'to scratch (e.g. when itchy)' [PPh \*kurkur 'scratch']. cf. \*kotkot.

\*kotkot 'to scratch':

Tdn koʔkot, Tse, Tbl kotkot 'brush lightly with fingers to attract attention'; Ttb koʔkot 'comb (hair), scratch'; Tsw kokoc 'shave, scrape, scratch' [PPh \*kutkut 'claw, scratch; dig into'].

\*koʔkoʔ 'hen, fowl':

Tdn, Tse, Tbl, Ttb koʔkoʔ, Tsw koʔko 'hen, fowl' [San kokoʔ 'fowl'].

\*kuhun 'tall grass sp. (Imperata cylindrica)':

Tdn, Tse kuun, Tbl, Tsw kuhun, Ttb kuʔun 'tall grass sp. (Imperata cylindrica)' [PPh \*kuRun 'grass: cogon'].

\*kukuk 'crow (of rooster)':

Tdn, Tse, Tbl, Ttb kukuk 'crow (of rooster)' [PPh \*kukuk 'cackle/crow'].<sup>92</sup>

\*kulat 'fungus, mushroom':

Tdn, Ttb kulat, Tse kudat, Tsw kulac 'mushroom, fungus': Tbl kulat 'kind of tree fungus' [PPh \*kulat 'mushroom'].

\*kulintaŋ 'xylophone':

Tdn, Tse, Tbl kolintaŋ, Ttb kulintaŋ, Tsw kulitaŋ 'xylophone (percussion instrument with series of wooden bars or metal cymbals)' [PPh \*kuliŋtaŋ '(musical instrument) gongs'].

\*kulit 'skin, bark':

Tdn kuli?, Tse kudit, Tbl kulit 'skin, bark', Ttb kulit 'skin', kuli?-na 'bark' [PPh \*kulit 'skin; bark of tree'].<sup>93</sup>

\*kumi 'moustache':

Tse, Tbl kumi 'moustache'; Ttb kumi 'moustache; whiskers (e.g. of cat)'; Tsw kumi 'pubic hair' [San, Mdw kumi 'moustache'].

\*kur<sub>2</sub>a:

Tdn kura 'do something, act', k-um-ura 'how?'; Tse, Tbl kura 'do something, act; how?'; Ttb kurakura, k-um-urakura 'why?'; Tsw ta-hula 'how much?' [Bare'e kuja 'what, which?'; Rungus Dusun kuraŋ 'how?']. cf. \*takur<sub>2</sub>a.

\*kur/nambər<sub>2</sub> 'thick':

Tdn kurabər, Tse kurambər, Tbl kurambəd, Ttb kura?mbər/kurambər, Tsw kunambəl 'thick' [PFm \*kədəməl 'thick'].<sup>94</sup>

\*kur<sub>1</sub>e? 'earthen cooking pot':

Tdn, Tse, Tbl, Ttb, Tsw kure? 'earthen cooking pot' [San kuriŋ, Bare'e kura 'earthen cooking pot'].

\*kuse 'cuscus (Phalanger sp.)':

Tdn, Tse, Tbl, Ttb kuse 'cuscus' [San, Bare'e, Sa'dan kuse 'cuscus'].

\*kusu 'rub':

Tdn, Tse kusu 'rub (eyes), scrub'; Ttb kusu 'rub, rub in, smear'; Tsw kusu 'rub (eyes), wipe' [PPh \*kusu[q] 'crumple, crush; rub'; San kusu 'rub (eyes), scrub'].

\*kutu 'head louse':

Tdn, Tse, Tbl, Ttb kutu, Tsw kucu 'head louse' [PPh \*kuCu( ) 'louse'].

## \*laud 'sea':

Tse (Maumbi) laud, laul, (Kauditan) loud 'go to sea; out at sea';  
Ttb laur 'sea; fish at sea' [PPh \*la'ud 'sea'].<sup>95</sup>

## \*labah '(lie) across, transverse':

Tdn lawa, Tbl labah 'lie transverse, across; block way'; Tse dabaa,  
Tsw labah 'lie transverse, across'; Ttb lawa 'lie in a direction  
not parallel to something else, lie across' [Mdw labag 'lie across,  
transverse'].

## \*lagad 'boar':

Tse dagad, Ttb lagar, Tsw lagad 'boar' [San laghadə? 'boar'].<sup>96</sup>

## \*laga? 'large red tree ant':

Tdn laga?, Tse, Tbl, Ttb laga? 'large red ant which lives in trees'  
[Parigi, Kalli, Togian laga, Mdw lolaga? 'kind of large red ant  
which nests in trees'; PPh (Charles) \*la(g)a/eq 'red ant'].

## \*lahad 'to itch':

Tdn laar, Tse daad, Tbl lahad 'to itch; fibres on plants which cause  
itching'; Ttb la?ar/la?d 'causing itch; to itch'; Tsw lahad 'to  
itch'.

## \*lako 'go':

Tse -lako 'direction away (enclitic)'; Tbl lako 'go' [San, Fijian,  
Mori lako 'go'].<sup>97</sup>

## \*laləd 'fly (insect)':

Tdn lalər, Tse, Tbl laləd, Ttb la?lər 'fly' [PPh \*lalej 'fly  
(insect)'].

## \*lamed 'swallow':

Tbl la?məd, Ttb lamə?d 'swallow without chewing'; Tsw lamed  
'swallow'.

## \*lampən 'walk':

Tbl lampən, Tsw lapan 'walk' [Ban lampən 'walk'; Mdw lampən 'step,  
walk'].

## \*lana 'oil':

Tdn, Tbl, Tsw lana, Tse dana 'oil' [PPh \*lana' 'oil'].

## \*lanut 'tough (of meat, fibres)':

Tdn, Tbl, Ttb lanut, Tse danut, Tsw loganuc 'tough (of meat, fibres)'  
[Mdw lanot 'hard'; ? PPh \*lanut 'abaca fibre'].<sup>98</sup>

\*lansat 'fruit sp. (*Lancium domesticum*)':

Tdn, Ttb lansot, Tse dansot, Tbl lasot, Tsw lasac 'fruit sp. (*Lancium domesticum*)' [PPh \*la(N)sat 'tree; fruit'].<sup>99</sup>

\*lanit 'sky':

Tdn, Tbl, Ttb lanit, Tse danit, Tsw lanic 'sky' [PAN \*lanit 'sky'].

\*lawih 'hut, shack in garden':

Tse labii 'rice shack': Tbl labih 'hut in fields consisting of a single slanting roof'; Ttb lawi 'garden hut with earth floor' [PPh \*lawiR 'hut, hovel'; Mdw laig 'garden hut'].

\*lebes 'overflow':

Tdn lewes, Tsw lebes 'overflow (of water)'; Tse lebes 'flow; pour out'.

\*lehe? 'neck':

Tdn lee?, Tse dee?, Tbl, Tsw lehe? 'neck' [San lehe?, PPh \*liqer 'neck'].<sup>100</sup>

\*leka? 'bed bug':

Tdn, Tbl, Ttb leka?, Tse deka?, Tsw leha? 'bed bug' [Mdw leka 'bed bug'; San leka 'kind of cockroach'].<sup>101</sup>

\*lemo 'citrus fruit':

Tsw lemo 'citrus fruit (generic term)' [PPh \*limaw 'citrus fruit'].

\*lempad 'to fly':

Tdn (Kakas) lempar, Tsw lepad 'to fly'; Tse lempad 'fly away, blow away'; Ttb lempar 'drop; throw away; banish', lume-lempar 'bird' [PPh \*le(N)paD 'to fly'].

\*lened 'still, calm':

Tdn, Ttb lener, Tse dened 'still, calm (of water)' [San lenehə?, Pon lened 'still, calm'].

\*leno (1) 'clear, pure (of water)':

Tdn, Tbl, Ttb, Tsw leno, Tse deno 'clear, pure (of water)' [PPh \*linaw 'peaceful, clear'].

\*leno (2) 'shadow; reflection':

Tdn læ-leno, Tse deno, Tbl leno 'shadow; reflection' [PPh \*qalinaw 'shadowy outline', \*qalinu 'shadow'].<sup>102</sup>

## \*leʔad 'lean backwards':

Tdn leʔar 'sway, bend (in wind)'; Tse deʔad, Tbl leʔad, Tsw lead  
'lean backwards (e.g. to look up)' [PPh \*liqad 'stretch  
(oneself)'].<sup>103</sup>

## \*ləbəŋ 'bury':

Tdn ləwəŋ, Tse dəbəŋ, Tbl, Tsw ləbəŋ 'bury' [PPh \*lebeŋ 'bury'].

## \*ləbuh 'turbid, muddy':

Tse dəbuu, Tbl ləbuh 'flood'; Ttb ləwu/ləbu 'torrent, flood; turbid,  
muddy'; Tsw ləbuh 'turbid, stirred up' [San ləʔbuhəʔ 'turbid, muddy';  
PPh \*lebuR 'settle down; turbid'].

## \*ləkəp 'complete, finished':

Tdn, Tse, Tbl, Ttb ləkəp, Tsw ləkəw 'complete, finished' [PPh  
\*le(N)kep 'complete'].

## \*ləmeʔ:

Tdn, Tbl, Ttb ləmeʔ, Tse dəmeʔ 'soft, gentle; tender' [PPh \*lemeq  
'weak'].

## \*ləməs 'suffocate, choke; drown':

Tdn, Tse, Tbl ləməs, Ttb ləsəm 'suffocate, choke; drown' [PPh  
\*ləmes 'sink/dive into; drown']; Mdw lomot 'choke, drown'.<sup>104</sup>

## \*ləmbo 'rise to surface; float on surface':

Tdn ləbo, Tse dəmbo, Tbl, Tsw ləmbo 'rise to surface; float on  
surface'; Ttb ləmbo 'rise, come up/out' [? San lombou 'raft'].

## \*ləmbut 'bulge, swelling; to bulge':

Tdn ləbut 'lump, small swelling, pimple'; Tse dəmbut, Tsw ləmbuc  
'bulge, swelling; to swell, bulge out'; Tbl ləmbut 'fat'; Ttb  
ləmbut 'float upwards, protrude above surroundings'.

## \*lənas 'clean':

Tdn lənas 'clean; cleared (of land)'; Tbl, Ttb lənas 'pure, clean';  
Tsw lənas 'cleared (of land)' [? PPh \*linis 'clean'].

## \*lənəd 'sink':

Tse dənəd 'sink; put in water'; Tbl, Tsw lənəd 'sink' [PPh \*lened  
'sink; go under'].

## \*ləŋey 'poor, needy':

Tdn, Tbl, Ttb, Tsw ləŋey 'poor, needy'; Tse ləŋey 'stupid, silly'.<sup>105</sup>



- \*ləŋən 'arm (including hand)':  
Tse dəŋən, Tbl ləŋən 'arm (including hand)' [PPh \*ləŋən 'underarm';  
Mal ləŋən 'arm'].<sup>106</sup>
- \*ləpət 'to fold':  
Tdn, Tbl, Ttb ləpət, Tse dəpət, Tsw ləpəc 'to fold' [PPh \*lənpit,  
\*lipet 'fold'].
- \*ləseʔa 'nit, louse egg':  
Tse dəseʔa, Tbl, Tsw ləseʔa 'nit, louse egg' [PPh \*lisehaq 'nit,  
louse egg'].
- \*ləsuŋ 'mortar':  
Tbl, Ttb, Tsw ləsuŋ 'mortar (in which rice is pounded)' [PPh \*ləsuŋ  
'mortar'].
- \*lətok 'snap, explode, burst':  
Tdn, Tse, Ttb lətok, Tsw lətoħ 'snap, explode, burst, make cracking  
noise'; Tbl lə-lətok-ən 'toy which makes a noise like a cracker'  
[PPh \*retuk 'sound of wood breaking': Mal lətok 'knocking sound'].
- \*lia 'ginger':  
Tdn, Tbl, Tsw lia 'ginger'; Ttb (Mkl) lia 'Spanish pepper', lia  
tanaʔ 'ginger' [PPh \*ləqya, \*luyqa, San lia 'ginger'].
- \*likud 'back; carry on the back':  
Tse dikud, Tbl likud 'carry on the back'; Ttb likur/likud, Tsw  
lihud 'back (of body); carry on the back' [PPh \*likuD 'back'].
- \*lima 'five':  
Tdn, Tbl, Ttb, Tsw lima, Tse dima 'five' [PPh \*lima' 'five; hand'].
- \*limuhmuh 'rinse out mouth':  
Tdn limumu, Tse dimumu, Tbl limuhmuh, Ttb limuʔmuʔ, Tsw limumuh  
'rinse out mouth' [PPh (Charles) \*li-muRmuR 'rinse mouth, gargle'].
- \*linsən 'fold, wrinkle':  
Tse dinsən 'fold, wrinkle'; Ttb linsən 'worm; wind, fold, crumple,  
wrinkle'; Tsw lisən 'fold, wrinkle'.<sup>107</sup>
- \*lintaʔ 'leech':  
Tdn, Tbl, Ttb lintaʔ, Tse dintaʔ, Tsw litaʔ 'leech' [PPh \*-liŋtaq  
'leech (insect)'].

## \*linkun 'roll up':

Tdn linkun 'to smoke (cigarette)'; Tse dinkun, Tsw likun 'roll, roll up'; Tbl linkun 'roll (cigarette); turn (soil)'; Ttb linkun 'roll up; roll and smoke cigarette'.<sup>108</sup>

## \*liput 'surround, encircle':

Tse diput 'around; go round, circle (something)'; Tbl, Ttb liput 'surround, encircle' [PPh \*liput 'surround, (en)circle'].

## \*loaŋ 'wide, spacious':

Tdn, Tbl, Tsw loaŋ, Tse doaŋ 'wide, spacious' [PPh \*luaŋ 'wide'].

## \*lolo 'extract, pull out':

Tdn, Tse, Tbl, Tsw lolo 'extract, pull out'.

## \*londey 'boat, canoe':

Tdn lodey, Tse dondey, Tbl, Ttb londey 'boat, canoe' [San londe 'small outrigger canoe'; Sa'dan londe 'boat'].

## \*loŋon 'stupid, ignorant':

Tbl, Ttb loŋon 'stupid, ignorant'; Tsw loŋon 'confused, bewildered' [San loŋon 'stupid, ignorant'; Mdw lolonon 'act foolishly'].<sup>109</sup>

\*luar<sub>1</sub> 'outside':

Tdn, Tbl, Tsw luar 'outside' [PPh (Charles) \*luwar 'outside'].<sup>110</sup>

## \*lua? 'vomit':

Tdn, Tbl, Ttb, Tsw lua?, Tse dua? 'vomit' [PPh \*lu'aq 'vomit'].

## \*lue? 'tears; to weep':

Tdn, Tbl, Ttb, Tsw lue?, Tse due? 'tears; to weep' [PPh (Charles) \*luheq 'tears'].

## \*luda? 'spit':

Tse duda? 'spit' [PPh \*ludASaq 'spittle'].<sup>111</sup>

## \*lukad 'watchman; to guard, keep watch':

Tdn, Ttb lukar, Tse dukad, Tbl lukad 'watchman, guard; to guard, keep watch' [Mdw lukad 'to guard, watch'; San lukade? 'watchman, sentry; early in the morning'].

## \*lulud 'shin':

Tdn lulur, Tse dudud, Tbl lulud 'shin' [PPh \*lulud 'shin'].<sup>112</sup>

## \*lumut 'moss':

Tdn, Tbl, Ttb lumut, Tse dumut 'moss' [PPh \*lumut 'moss, algae'].

## \*lunak 'soft':

Tdn lu'nak, Tse dunak, Tsw lunah 'soft' [PPh \*lunak 'soft'].

## \*lutam:

Tdn, Tse, Tbl lutam, Ttb lutaw, Tsw lucam 'gun; to shoot' [San lutan 'shooting weapon; to shoot'; Mdw lutam 'to shoot'].<sup>113</sup>

## \*lutu? 'cook':

Tdn, Tbl lutu?, Tse dutu? 'cook'; Ttb lutu? 'meat cooked in bamboo'; Tsw lucu? 'cooked food' [PPh \*lu(N)tuq 'prepare food, cook'].

## \*maṅuni 'owl':

Tdn, Tse, Tbl, Tsw maṅuni 'owl'.

## \*mata? 'green; unripe, raw':

Tdn, Tse mata? 'unripe, raw, uncooked'; Tbl, Ttb mata?, Tsw maca? 'green (colour); unripe, raw' [PPh \*mataq 'raw, unripe'].

## \*meoṅ 'cat':

Tdn, Tse, Tbl, Ttb, Tsw meoṅ 'cat' [San meo? 'cat'].

## \*meha? 'red':

Tdn mea?, Tsw meha? 'red' [Mal merah, PPh \*iraq 'red'].

## \*muali 'happen, occur; become':

Tdn, Tse, Tbl, Ttb, Tsw muali 'happen, occur; become'.<sup>114</sup>

## \*munte 'lemon':

Tdn, Tse, Tbl, Ttb munte 'lemon, citrus' [PAN \*munti 'lemon'].<sup>115</sup>

## \*muri 'behind; back, rear':

Tdn, Tse, Tbl muri 'behind; back, rear' [PPh \*muri 'behind']. cf. \*bur<sub>1</sub>i.

## \*nabu? 'fall':

Tse, Tbl nabu?, Ttb nawu? 'fall (from height)' [San nawo, Ban nabo, PPh (Charles) \*na:buq 'fall'].

## \*nana? 'pus; to fester':

Tdn, Tse, Tbl, Tsw nana?, Ttb na'na? 'pus; to fester' [PPh \*nanaq 'pus'].

## \*nanam 'taste, flavour':

Tdn, Tse, Tbl, Ttb nanam 'taste, flavour; to taste'; Tsw n-um-anam 'delicious' [WBM nanam 'taste, flavour'].

## \*naram:

Tdn, Tse, Tbl, Ttb naram 'tame' [San naraŋ, Rat naram 'custom, habit'].<sup>116</sup>

## \*ni 'personal possessive/agentive noun marker':

Tdn, Tse, Tbl ni 'possessive/agentive animate noun marker' [PAN \*ni 'attributive marker; of'; Tagalog ni 'personal agentive/possessive noun marker']. cf. \*si.

## \*nihu 'winnowing basket':

Tdn, Tse niu, Tbl nihu, Ttb ni'u 'winnowing basket' [PPh \*niRu 'winnowing basket'].<sup>117</sup>

## \*nipis 'thin':

Tdn ipis, Tse, Tbl nipis 'thin' [PPh \*nipis 'thin'].<sup>118</sup>

## \*nisnis 'wipe, brush':

Tdn, Tbl ni'nis 'wipe, brush' [PPh (Charles) \*nisnis 'wipe clean'].<sup>119</sup>

## \*ŋalŋal:

Tdn ŋa'ŋal, Tbl ŋalŋal, Ttb ŋa'ŋal/ŋeiŋal 'to groan/moan (with pain)' [PPh \*ŋalŋal 'cry out in pain'].

## \*ŋaŋa 'wide open (of mouth), agape; to gape':

Tdn, Tse, Tbl, Ttb, Tsw ŋaŋa 'wide open (of mouth), agape; to gape' [PPh \*ŋaŋa 'agape; open (mouth)'].

\*ŋar<sub>2</sub>an 'name':

Tdn, Tse, Tbl, Ttb ŋaran, Tsw ŋalan 'name' [PPh \*ŋ+ajan 'name'].

## \*ŋa'ŋa':

Tdn, Tse, Tbl, Ttb ŋa'ŋa' 'chew, munch'; Tsw ŋa'ŋa 'chew betel nut'.

\*ŋər<sub>1</sub>ər/n 'slow':

Tdn, Tse ŋərər, Tbl ŋərəd, Ttb ŋərər/ŋərən, Tsw ŋərən 'slow'.<sup>120</sup>

\*ŋər<sub>2</sub>u:

Tdn, Tbl, Ttb ŋəru 'smell of bad fish'; Tse ŋəru 'stench, bad smell'; Tsw ŋəlu 'bad smell, musty smell'.

\**ŋətŋət* 'sting, smart (of pain)':

Tbl *ŋətŋət*, Ttb *ŋə'ŋət* 'sting, smart (of pain)' [PPh \**ŋətŋət* 'pain; gnash the teeth'].

\**ŋilu* 'on edge (of teeth)':

Tdn, Tbl, Ttb, Tsw *ŋilu* 'on edge (of teeth)' [PPh \**ŋilu* 'pain, set teeth on edge'].

\**ŋir<sub>2</sub>uŋ* 'nose':

Tse, Tbl *ŋiruŋ*, Ttb *ŋiruŋ/ŋiluŋ*, Tsw *ŋiluŋ* 'nose' [Mdw *ŋiyuŋ*, *ŋiruŋ*, PPh \**ijusuŋ* 'nose'].

\**ŋisi*:

Ttb *ŋisi* 'groan (in pain), complain'; Tsw *ŋisi* 'bare the teeth (in anger)' [PAN (Blust) \**ŋic/si* 'grin'; PPh \**ŋisi* 'smile'].<sup>121</sup>

\**padelaʔan* 'mad, crazy':

Tdn, Tse, Tbl, Ttb *palelaʔan*, Tsw *padelaʔan* 'mad, crazy'.<sup>122</sup>

\**pagər* 'fence, enclosure':

Tdn *pagər*, Tse, Tbl, Ttb *pagər* 'fence, enclosure' [PPh \**pagər* 'fence, enclosure'].

\**paha* 'attic, loft':

Tdn *paa*, Tbl *paha* 'attic, loft' [PPh \**paRa*[ ] 'attic, storage space'].

\**pahi* 'ray fish':

Tdn, Tse *pay*, Tbl *pahi* 'ray fish' [PPh \**paR<sub>1</sub>i*[h] 'ray fish'].<sup>123</sup>

\**paku* 'type of edible fern':

Tdn, Tse, Tbl *paku* 'kind of edible fern'; Ttb *paku* 'fern (general term)' [Mdw *pakuʔ* 'kind of edible fern'; Mal *paku* 'fern'].

\**palad* 'palm (of hand), sole (of foot)':

Tdn *palar*, Tse, Tbl, Tsw *palad*, Ttb *palar/palaʔd* 'palm (of hand), sole (of foot)' [PPh \**palaj* 'palm (of hand)'].

\**palaʔpaʔ* 'palm branch':

Tdn, Tse, Tbl *palaʔpaʔ*, Ttb, Tsw *palaʔpa* 'palm branch' [PPh \**p-al-aQpaQ* '[plant: midrib] leaf spine'; Mal *pələpah* 'palm branch'].<sup>124</sup>

\**paliʔ* 'cut, wound':

Tdn *paliʔ* 'cut, wound'; Ttb, Tsw *paliʔ* 'scar' [PPh \**paliq* 'cut, wound'; Mdw *paliʔ* 'wound'].

## \*paluka 'shoulder':

Tdn, Tbl, Ttb paluka, Tse paduka, Tsw paluha 'shoulder' [San pa|uka 'shoulder'].

## \*pa(n)tik 'write':

Tdn, Ttb patik, Tse, Tbl pantik, Tsw pacih 'write' [PAN \*pa(n)tk 'pointed, sharp'].

## \*paŋa 'branch, fork':

Tdn paŋa-na, Tse, Tbl paŋa 'branch'; Ttb paŋa 'forked stem or branch' [PPh (Charles) \*paŋa 'branch, fork in branch'].

## \*paŋi 'tree with edible leaves and fruit (Pangium edule)':

Tdn, Tse, Tbl, Ttb, Tsw paŋi 'tree with edible leaves and fruit (Pangium edule)' [PPh \*paŋi 'Pangium edule'].

\*paŋkur<sub>1</sub> 'beat (with hard object)':

Tbl, Ttb paŋkur, Tsw pakur 'beat (with hard object)' [San paŋku|ə?, Mdw paŋkul 'beat (with hard object)'; PPh \*paNku[r] 'hack; axe'].

## \*paras:

Tdn, Tse, Tbl, Ttb paras 'to weed, clear land' [PPh \*paras 'smoothen, flatten'].

\*par<sub>1</sub>ia 'edible gourd (Momordica charantia)':

Tdn, Tse, Tbl, Ttb, Tsw paria 'edible gourd (Momordica charantia)' [PPh \*pareya 'bitter melon (Momordica charantia)'].<sup>125</sup>

\*p/mar<sub>1</sub>ut 'sow, scatter':

Tdn, Tse, Ttb parut 'sow seed, scatter'; Tsw maruc 'sow seed'.

## \*pasaʔan 'carry on the shoulder':

Tdn, Tse pasaʔan, Tbl pasaʔan 'carry on the shoulder' [PPh (Charles) \*pasaqan 'carry on the shoulder'].

## \*pasek 'put stick or post in ground':

Tdn paʔsek, Ttb pasek 'put stick or post in ground' [WBM pasek 'put stick or post in ground'].

## \*pasuʔ 'hot':

Tdn (Tondano), Tse, Tbl pasuʔ, Tdn (Kakas), Ttb, Tsw pasuʔ 'hot' [PPh \*pasuq 'hot, burned'].

## \*patar 'flat, level':

Tdn, Tse, Tbl patar 'flat, level' [PPh \*pataR 'level; plain'].

\*pate 'die; kill':

Tdn, Tse, Tbl, Ttb pate, Tsw pace 'die; kill' [PPh \*paCey 'die; kill'].

\*patiukan 'large bee sp.':

Tdn, Ttb patiukan, Tse patikan, Tbl patirukan 'large bee sp.' [PPh \*pa-ti'uk-an 'insect: bee'].<sup>126</sup>

\*paʔa 'thigh':

Tdn, Tse, Tbl, Ttb, Tsw paʔa 'thigh' [Mal paha, Mdw paa 'thigh'].

\*paʔan 'bait, lure':

Tdn, Tse, Tbl, Ttb, Tsw paʔan 'bait, lure' [PPh \*paqen 'bait'].

\*paʔat 'to chisel':

Tdn, Tse, Ttb paʔat 'to chisel' [PPh \*paqet 'chisel'].

\*paʔit 'bitter':

Tdn, Tse, Tbl paʔit, Tsw paʔic 'bitter' [PPh \*paQiC 'bitter, acrid'].

\*pehos:

Tdn, Tse peos, Tbl pehos 'rub, stroke'; Ttb peʔos 'smear, spread (ointment); rub, massage' [San pəhuʔ 'press, squeeze'].<sup>127</sup>

\*pekoʔ 'bent, crooked; to bend':

Tdn, Tbl pekoʔ 'bent, crooked; to bend'; Ttb pekoʔ 'fold, bend' [PPh \*piku[q] 'bent, crooked']. cf. \*pəkuʔ.

\*pelaʔ 'wound':

Tdn, Tse, Tbl, Ttb, Tsw pelaʔ 'wound' [PPh \*pilAk 'sore, scab'].

\*peraʔ 'roe, fish eggs':

Tdn, Tse, Tbl, Ttb peraʔ 'roe, fish eggs' [PPh (Charles) \*piRa(q) 'roe'].

\*per<sub>1</sub>et 'bat (mammal)':

Tdn, Tse, Ttb peret 'bat'; Tbl peret 'mouse'; Tsw perec 'small bat sp.' [? Mal kampret 'bat'; Jav kampret 'small bat sp.'].]

\*pədəŋ 'shut eyes':

Tdn pərəŋ, Tse, Tbl pədəŋ 'blind; shut eyes' [PPh (Charles) \*pedeŋ 'close eyes; blindfold'].

\*pəkuʔ:

Tdn, Tse, Tbl pəkuʔ 'snapped by being bent; bend (e.g. branch) and snap'; Ttb, Tsw pəkuʔ 'broken, snapped' [San pəʔku 'bend'].

\*pənəd 'buttocks, backside':

Tdn pənar, Tse, Tbl pənəd, Ttb pə'nar/pəna'd 'buttocks, backside'  
[San pənədə? 'buttocks'].

\*pənət:

Tdn, Tse, Tbl pənət 'shut' [PPh \*penet 'squeeze/shut up'].

\*pəndam 'feel, touch':

Tdn, Tse, Ttb pəndam, Tbl pəndan 'feel, touch' [San pəndaŋ 'feel, handle'].<sup>128</sup>

\*pəntu? 'bitter':

Tdn, Ttb pəntu?, Tsw pətu? 'bitter (of taste)'.

\*pər<sub>2</sub>a 'dry':

Tdn, Tse, Tbl pəra, Ttb pəra/pəla, Tsw pəla 'dry' [PAN \*pə(r)a 'dry'].

\*pəset 'crowded, cramped; tight fitting':

Tdn, Tse, Tbl pəset, Tsw pəsec 'crowded, cramped; tight fitting'.

\*pəsəl (1) 'squeeze, knead, massage':

Tse, Ttb pəsəl 'squeeze, knead, massage' [PPh \*pecel 'squeeze in hand'; Mal pəcal 'squeeze in hand, massage'].

\*pəsəl (2) 'empty, without contents (of fruit, grain), barren':

Tdn, Tse, Tbl, Ttb, Tsw pəsəl 'empty, without contents (of fruit, grain), barren'.

\*pəsut 'press, squeeze, squeeze out':

Tdn, Tse pəsut 'burst, split open (e.g. fruit)'; Tbl, Ttb pəsut 'narrow, tight; press, squeeze, squeeze out'; Tsw pəsuc 'press, squeeze out' [San pəsü? 'press, -squeeze, squeeze out'].<sup>129</sup>

\*pətik (1) 'flick off/away (with fingers)':

Tdn, Tse, Tbl, Ttb pətik, Tsw pətih 'flick off/away (with fingers)'  
[? PPh \*pəTik 'pick, pluck'].

\*pətik (2) 'heartbeat; to beat (of heart)':

Tdn, Tse, Ttb pətik, Tsw pətih 'heartbeat; to beat (of heart)'.

\*pihis 'a pinch (of something); to pinch':

Tse piis 'pinch and twist'; Ttb pi'is 'very little, a pinch; take a pinch with fingers'; Tsw pis 'a pinch (of something); pinch, nip' [PPh \*piRis 'press, squeeze'; San pihisə? 'pinch and twist with the full hand'].<sup>130</sup>



## \*pipi 'cheek':

Tdn, Ttb pipi, Tsw piwi 'cheek' [PPh \*pipi 'cheek'].

## \*pira 'how much?, how many?':

Tdn, Tse, Tbl, Ttb pira 'how much?, how many?' [PPh \*pija' 'how much?, how many?'].

## \*pitu 'seven':

Tdn, Tse, Tbl, Ttb pitu, Tsw picu 'seven' [PPh \*piTu' 'seven'].

## \*pitpit:

Tdn, Ttb pi?pit, Tse, Tbl pitpit 'blink (eyes)' [PPh \*pit+pit 'squeeze'].

## \*pi?pi?:

Tdn pi?pi? 'wet; to wet; urinate'; Tse pi?pi? 'wet; to wet; wash';  
Tbl, Ttb pi?pi? 'urine; to urinate'; Tsw pipid 'soaking wet' [PPh  
\*piqpiq 'wash clothes or private parts'].

## \*pola 'sugarcane':

Tdn, Tse, Tbl, Ttb, Tsw pola 'sugarcane' [Toba Batak pola 'palm-wine'].

## \*polo 'wake up, get up':

Tse, Ttb, Tsw polo 'wake up, get up' [Hanunoo pulaw 'wake up'].

## \*pondos 'slender cane sort':

Tdn podos 'cane (generic term)'; Tbl, Tsw pondos 'slender cane sort';  
Ttb podos (Sonder) 'cane (generic term)'; (Kawangkoan) 'slender  
cane sort' [Mdw pondot 'slender cane sort'].

## \*ponkol 'cut off, sever':

Tse, Tbl, Ttb ponkol 'decapitate'; Tsw pokol 'cut off, sever' [PPh  
\*puNkul 'throw; beat/strike'; San pongolə? 'broken off, cut off'].

## \*popo 'hut':

Tdn popo 'hut on stilts'; Tse, Tbl popo 'garden hut'; Ttb (Mkl) popo  
'small rice shed on stilts' [San popo 'sitting place; to squat';  
Cotabato Manobo pupu 'house'].

## \*popolas 'spleen':

Tdn, Tse pepolas, Tbl, Ttb popolas, Tsw powolas 'spleen'.

## \*potot 'short':

Tdn, Tse, Tbl potot, poto?, Ttb potot 'short (of stature)' [PPh \*putut 'cut; short'].

## \*poʔot 'belly':

Tdn, Tse, Tbl poʔot, Tsw poʔoc 'belly'; Ttb poʔot 'bag, sack; belly'.<sup>131</sup>

## \*puikan 'turtle':

Tdn, Tse, Ttb poikan, Tbl puikan 'sea turtle' [PPh \*pAwikan 'sea turtle'; San puikan 'turtle'].<sup>132</sup>

## \*puhus 'wring, squeeze, squeeze out':

Tdn, Tse puus, Tbl puhus 'wring, squeeze, squeeze out; to milk'; Ttb puʔus 'wring, twist' [Mdw pugut 'squeeze, squeeze out; to milk'].

## \*pukət 'net for catching fish or animals':

Tdn, Tse, Tbl, Ttb pukət, Tsw puhəc 'net for catching fish or animals' [PPh \*puket 'net (drag/trail)'].

## \*puliŋ 'full':

Tse pudin, Tsw puliŋ 'full' [Mdw, Pon no-puliŋ, Rat puliŋ 'full'].<sup>133</sup>

## \*pulut 'gum, glue; sticky':

Tdn, Tbl pulut, Tse pudut 'sap, glue; sticky'; Ttb pulut 'plant gum, bird lime, glue' [PPh \*pulut 'glue, adhesive [sticky]'].

## \*puluʔ 'decimal unit (tens)':

Tdn, Tbl, Ttb puluʔ, Tse puduʔ, Tsw -wuluʔ 'decimal unit (tens)' [PPh \*puluq 'ten'].

## \*punti 'banana':

Tse, Tbl, Ttb punti 'banana' [PPh \*puNtl 'banana'].

## \*pupus 'pierce':

Tdn pupus, Tsw puwus 'pierce, make hole (e.g. with hot iron)'; Tse, Tbl, Ttb pupus 'skewer, spit; pierce with skewer'.

\*pur<sub>2</sub>ut 'pick up, collect, gather':

Tdn, Tse, Tbl purut, Tsw puluc 'pick up, collect, gather' [PPh \*puDut 'pick up'].

## \*pusəd 'navel':

Tdn pusər, Tse, Tbl, Tsw pusəd, Ttb pusər/pusəʔd 'navel' [PPh \*pusej 'navel'].

\*pusu? 'heart; blossom (of palm, banana)':

Tdn, Tse, Tbl, Ttb pusu? 'heart; blossom (of palm, banana)'; Tsw  
pusu? 'blossom (of palm, banana)' [PPh \*pusuq 'heart; blossom'].

\*puti? 'white':

Tdn, Tse puti? 'white'; Tbl puti?-ən 'white bird sp.' [PPh \*putiq  
'white'].

\*r<sub>2</sub>akut 'bind, tie, tie in a bundle':

Tdn rakut, Tsw lahuc 'bind together, tie in a bundle'; Tse rakut  
'carry a basket'; Tbl rakut (Tomohon) 'carry a bundle on the back',  
(Kinilow) 'tie up'; Ttb rakut 'tie firmly (e.g. something packed in  
carrying bag), bind; carry something packed' [PPh \*Rakut 'rope;  
bind; bundle'; San haku? 'tie together, tie tightly'].

\*rambun 'cloud':

Tdn rabun 'cloud'; Tbl rambun 'cloudy, dark place' [PPh \*RaNBun  
'mist, haze; cloud']. cf. \*ahbun.<sup>134</sup>

\*rambus 'snatch away':

Tdn ra?bus, Tse rambus 'snatch away'; Tbl rambus 'pull up (weeds)';  
Ttb rambus 'pull hard; snatch (from someone)' [PPh \*raNbus 'snatch  
away'].

\*r<sub>1</sub>anton 'hang (execute)':

Tdn, Tse, Tbl, Ttb ranton, Tsw daton 'hang (execute)' [PPh \*gaNtun  
'hang'].

\*raṅdan 'red':

Tse (Kauditan) rundan, (Maumbi) runḍan, Tbl raṅdan, Ttb rainḍan  
'red' [San handan 'red'; Mal raṅraṅ 'red ant'].<sup>135</sup>

\*raprap 'slash off palm leaves':

Tdn ra?rap, Tse, Tbl raprap 'slash off palm leaves' [Mdw yoyap  
'strip off leaves'; PPh \*raprap 'skin, flay, strip off'].

\*raraha 'girl':

Tdn, Tse rəraa, Tbl raraha 'girl' [PPh \*Da-DaRa 'young girl, maiden,  
virgin'].<sup>136</sup>

\*r<sub>1</sub>ar<sub>1</sub>aṅ 'warm by fire; roast':

Tdn, Tse, Tbl, Ttb, Tsw raraṅ 'warm by fire; roast' [San daraṅ  
'warm oneself by fire'; Sa'dan raraṅ 'roast'].<sup>137</sup>

\*reko? 'bent, curved; to bend':

Tdn, Tse, Tbl reko? 'bent, crooked, curved; to bend'; Ttb  
ni-reko?-an i lalan 'bend in the road' [PPh \*liku[ ] 'bend, turn';  
Timugon Murut likuq 'bend'].

\*rentek:

Tdn, Tse, Tbl, Ttb rentek 'work metal, forge' [Mdw rente? 'very  
hot'; San hente? 'heated; melt (of iron)'].

\*r<sub>2</sub>e'o 'thirst':

Tdn, Tse, Tbl re'o, Ttb re'om/le'om 'thirst'; Tsw le'o 'hunger' [San  
dou 'thirst'].<sup>138</sup>

\*r<sub>2</sub>əbuŋ 'bamboo sprouts':

Tse, Tbl rəbuŋ, Ttb rəwuŋ/lə'buŋ 'bamboo sprouts' [PPh \*rebuŋ  
'shoot, sprout'; \*Debuŋ 'bamboo sprout'].

\*rəgəs:

Tdn rəgəs, Tse, Tbl, Ttb rəgəs 'wind; to blow (of wind)' [PPh  
\*reGes 'rapid, swift, hard flow'].

\*r<sub>2</sub>əkət:

Tdn, Tse, Tbl rəkət, Ttb rəkət/ləkət 'disused field'; Tsw ləkac  
'stubble, dried rice stalks' [? PPh \*lekət 'peel (plant)'].

\*r<sub>1</sub>ənet:

Tdn, Tbl, Ttb rənet 'long; to stretch'; Tsw dənec 'tear, rip'.

\*r<sub>1</sub>əŋan 'do together, do at the same time; be of the same age':

Tdn, Ttb rəŋan 'be of the same age'; Tse, Tbl rəŋan, Tsw -rəŋan  
'do together or at the same time; be of the same age' [PPh \*[d]əŋan  
'together; companion'].

\*rəŋis 'burn':

Tdn, Tse, Tbl, Ttb rəŋis 'burn' [San həŋisə? 'burn'].

\*r<sub>1</sub>əpət 'intense, severe, fast':

Tdn, Tse, Tbl rəpət 'fast, speedy; hard, intense (of wind, rain)';  
Ttb rəpət, Tsw dəpəc 'hard, intense (e.g. of wind, rain); severe (of  
illness)' [Mdw ropot 'intense, strong, fast'].

\*rətas 'break':

Tdn, Tse rətas 'break (e.g. of rope)' [PPh \*retas 'split (seam)';  
(Charles) \*Retas 'break'].

- \*r<sub>1</sub>ibu 'thousand':  
Tdn, Ttb riwu, Tse, Tbl, Tsw ribu 'thousand' [PPh \*ribu 'thousand'].
- \*rikər 'to wind':  
Tdn, Tse, Tbl rikər 'to bind, wind round' [PPh \*li(N)ker/D 'bend; circle; wind'].
- \*r<sub>1</sub>imat 'dense, close together':  
Tdn, Tse, Tbl, Ttb rimat, Tsw dimac 'dense, close together'.
- \*r<sub>2</sub>intək 'fine, small':  
Tdn, Tse, Tbl rintək, Ttb rintək/litək 'fine, small' [PPh \*DiNtek 'little/small'; Mdw yintok, rintok 'very small'].
- \*ririh 'yellow, pale, wan':  
Tse ririi, Tbl ririh, Ttb riri 'yellow, pale, wan' [San dirihə? 'yellow, pale, wan'].
- \*r<sub>1</sub>oko? 'cloth, material':  
Tdn, Tse, Tbl, Ttb roko?, Tsw doho? 'cloth, material' [Mdw yoko? 'goods, especially those for dowry'].
- \*r<sub>2</sub>ondor<sub>2</sub> 'straight':  
Tse, Ttb rondor, Tbl rondod, Tsw londol 'straight'.
- \*r<sub>1</sub>upu 'smallpox':  
Tdn, Tse, Tbl, Ttb rupu, Tsw duwu 'smallpox'.
- \*rurag 'hollow, hole (in tree)':  
Tdn rurag, Tse, Tbl rurag, Ttb rorag 'hollow, hole in tree' [Mdw yuyag 'hollow, hole'].
- \*sa 'if, when':  
Tdn, Tse, Tbl, Ttb, Tsw sa 'if, when'.
- \*sabud 'spread, scatter':  
Ttb sawur, Tsw sabud 'spread, scatter' [PPh \*sabuD 'scatter'].
- \*sabut 'pluck out, pull out':  
Tdn sawut, Tse, Tbl sabut 'pluck out, pull out' [San sawu? 'pull out'; PPh \*cabut 'pull/tear out']. cf. \*abut.
- \*sahap 'scoop up, scoop out':  
Tdn sə-saap 'scoop (instrument)'; Tse saap, Tbl sahap, Ttb sa?ap, Tsw sahaw 'scoop, ladle' [PPh \*saJAp, \*sagap 'scoop up/out'].

## \*saho 'dew':

Tdn sao, Ttb sa'o, Tsw saho 'dew'.

## \*saka 'cockfight':

Tdn, Tse, Tbl saka 'cockfight; stage cockfight'; Ttb saka 'fight (of cocks); stage cockfight'; saka-na 'fighting cock's spur'; Tsw saha 'rooster's (natural) spur; cockfight'.

## \*sake 'ride; mount, board':

Tdn, Tse, Tbl, Ttb sake 'ride; mount, board' [PPh \*sakay 'ride; mount, ascend'].

## \*sakey 'guest':

Tdn, Tse, Tbl, Ttb sakey, Tsw sahey 'guest' [San sake 'guest'; Melanau sakay 'friend'].

## \*sakit:

Tdn, Tse, Tbl, Ttb sakit 'evil spirit which causes sickness' [PPh \*sakit 'sick; pain(ful)'].

## \*salah 'nest':

Tse salaa, Tbl salah 'nest (of bird or animal)'; Ttb sala, Tsw salah 'put up in a higher place (e.g. on a rack)' [PPh \*sala[R] 'nest'].

## \*salaksak 'rib(s)':

Tdn sala'sak, Tse salaksak, Tbl salaksak, Ttb sala'sak/saleisak, Tsw salasah 'rib(s)'.

## \*sala? 'error, mistake; do wrong, make a mistake':

Tse, Tbl, Tsw sala? 'error, mistake; do wrong, make a mistake'; Ttb sala? 'fine, penalty (for doing wrong)' [PPh \*salaq 'sin, err(or)/mistake'].

## \*saleh 'floor':

Ttb sale? 'floor'; Tsw saleh 'base, support underneath' [PPh \*saleR 'floor (of house)'].

## \*saluh 'gutter, water channel':

Tdn, Ttb salu, Tse saduu, Tbl, Tsw saluh 'gutter, water channel' [PPh \*saluR 'waters'; Mal salur-an 'conduit, gutter, channel'].

## \*samək 'dirty':

Tdn sa'mək 'dirty (person)'; Tbl samək 'foul (language)'; Ttb samək, Tsw saməh 'dirty, unclean' [Mdw samak 'dirty, soiled'].

\*sambey 'hang (over something)':

Tdn sabey 'hang over shoulder'; Tbl sambey 'hang (e.g. on shoulder, nail)'; Tsw sambey 'hang (over line, rope)' [PPh \*sa(1)bay 'carry on shoulder; hang out/over'].

\*sapu 'sweep':

Tdn, Tse sapu 'brush, sweep'; Tbl sapu 'wipe, sweep'; Tsw sawu 'wipe, rub' [PPh \*sapu 'sweep'].

\*saput 'wrap, wrap up':

Tdn, Tse, Tbl, Ttb saput, Tsw sawuc 'wrap, wrap up' [PPh \*saput 'wrap, shroud; cover'].

\*saru 'facing, in front of; to face':

Tdn, Tse saru 'facing; to face'; Tbl, Ttb saru 'front; be in front of, face' [PPh \*saDu 'facing, in front of'].

\*sawa 'large snake sp.':

Tdn sawa, Tse, Tbl saba, Ttb sowa 'large snake sp.' [PPh \*sawa 'snake'; Mal, Jav sawa 'python'].

\*sawat 'answer, reply':

Tse sabat, Ttb sowat 'answer, reply' [PPh \*sabat 'answer'].<sup>139</sup>

\*sawey:

Tse, Tbl sabey 'pubic hair'; Tsw sawey 'side whiskers'.<sup>140</sup>

\*sa?uh 'mix, mingle, blend':

Tsw sa?uh 'mix, mingle, blend' [PPh \*cahuR 'mix, blend'].

\*sa?ut 'stem of young banana (eaten as vegetable)':

Tdn sa?ut 'banana (tree and fruit)'; Tse, Tbl, Ttb sa?ut, Tsw sa?uc 'stem of young banana tree (eaten as vegetable)'.

\*sea? 'deviate, diverge, branch off':

Tdn, Tse, Tbl sea? 'deviate, diverge, turn off (path)'; Ttb, Tsw sea? 'wrong; deviate, branch off'.

\*sehed 'to sting (of insect)':

Tdn seer, Tse seed, Tbl, Tsw sehed 'to sting (of insect)'; Ttb se?er 'cling to each other, grow together' [PPh \*seGed 'sting(er)'].

\*seke? 'fight, do battle with':

Tdn, Tse, Tbl, Ttb seke?, Tsw sehe? 'fight, do battle with' [San seke? 'enemy; fight'].

\*selen 'wry neck, head twisted to one side':

Tdn, Tse, Tbl, Tsw selen 'wry neck, head twisted to one side'; Ttb selen 'avert the face, look around'.

\*senkot 'sail; to sail':

Tdn, Tse, Tbl, Ttb senkot 'sail; to sail' [San sengo 'sail'].

\*sepər<sub>2</sub> 'dyke, dam; dam up, block':

Tdn, Tse, Tbl sepər, Ttb sepəʔd, Tsw sewəl 'dyke, dam; dam up, block' [Mdw tepel 'dyke, dam'].<sup>141</sup>

\*ser<sub>1</sub>op 'slurp, sip':

Tdn, Tse, Tbl serop, Tsw serow 'slurp, sip (e.g. hot liquid)' [PPH \*siRup 'slurp'].

\*sey 'who?':

Tdn, Tbl, Ttb, Tsw sey 'who?' [PPH \*sai 'who?'].

\*seʔe:

Tdn, Tse, Tbl, Ttb seʔe 'shoot, sprout (from ground)'; Tsw seʔe 'banana (tree and fruit)'.

\*seʔseʔ 'push, shove; push out':

Tdn, Tse, Tbl, Ttb seʔseʔ, Tsw sese 'push, shove; push out/away' [San səʔseʔ 'narrow, tight; urge; oppress'; ? PPh \*siqsiq 'edge, side'].<sup>142</sup>

\*səbu 'foam, froth; extinguish fire; cool with water':

Tdn səwu, Tse, Tbl səbu 'foam, froth; to foam, effervesce; extinguish fire with water'; Ttb səwu/səʔbu 'boil over (of water); put something hot in water (e.g. hot iron to harden it)' [PPH \*sebu 'develop steam; seethe; extinguish/quench'].

\*sədaʔ 'fish; eat meat':

Tdn səraʔ, Tbl sədaʔ, Ttb səraʔ/sədaʔ 'fish; eat meat' [PPH (Charles) \*sədaq 'devour; flesh eaten with rice; fish'].<sup>143</sup>

\*sədəm 'ant':

Tse, Tbl sädəm, Ttb sərəm 'ant' [Mdw toyom, Pon soyom 'ant'; PPH (Charles) \*sejem 'black ant'].

\*səduʔ 'hiccup':

Tdn səguʔ, Tse, Tbl səduʔ, Tsw sənduʔ 'hiccup' [PPH (Charles) \*se/iduq 'hiccough'].<sup>144</sup>



\*səksək 'cram in tightly, squeeze in':

Tdn səʔsək, Tse, Tbl səksək, Tsw səsəh 'cram in tightly, squeeze in' [PPh \*seksek 'stuff; cram; fill up'].

\*sələh 'big':

Tdn sələ, Tse sələa, Tbl, Tsw sələh, Ttb sələ/sələʔ 'big' [PPh (Charles) \*sələR 'large, great'].

\*səlat 'gap, space between things':

Tdn, Tse, Tbl səlat, Tsw səlac 'gap, space between things' [PPh \*səlat 'space']. cf. \*səlat.

\*sələt 'insert (between two things)':

Tdn, Tbl, Ttb sələt 'insert (between two things)' [San sələʔ 'food that remains between teeth after eating; insert between']. cf. \*sələt.

\*səməd:

Tdn səməur, Tse, Tbl səməd, Ttb səməur/səməʔd 'snout, muzzle', (Langoan) 'mouth'; Tsw səməd 'mouth' [San sa-simuʔ 'snout'].

\*səndih 'isolated, secluded place; defecate':

Tdn sədi, Tbl səndih, Tsw səndi 'isolated, secluded place; go to such a place (to defecate); defecate'; Tse səndii 'side, edge (of yard, field)'; Ttb səndi 'exterior, outskirts; go to such a place to relieve oneself' [? San səndih-aŋ 'side (of body)'; ? Mal səndiri 'self'].<sup>145</sup>

\*sənsən:

Tdn, Tse sənsən 'satisfied, full (from eating)'; Ttb sənsən 'full, crammed full'; Tsw səsən 'gather, assemble' [PPh \*cencen 'dense, thick; frequent'].

\*səŋət:

Tdn səŋət 'ant'; Tbl səŋət 'black ant sp.'; Ttb səŋət 'small, light brown ant that bites fiercely' [PAN \*səŋət 'sting'].

\*səŋo:

Tdn, Tse, Tbl, Ttb səŋo 'blow' [PPh \*səŋaw 'leak, hiss (vapor/water)'].

\*səŋsən 'stopper; plug up':

Tse, Tbl səŋsən 'plug, stopper; plug up'; Tsw səsən 'blockage (of nose)' [PPh (Charles) \*sənsən 'stopper; stop up']. cf. \*busən.

- \*səpaʔ 'noise of smacking lips while eating; make a noise while eating':  
Tdn, Tse, Tbl, Ttb, Tsw səpaʔ 'noise of smacking lips while eating; make such a noise while eating' [PPh \*səpaq 'chew thoroughly'].
- \*səpeʔ 'slap with open hand':  
Tdn, Tse, Tbl, Ttb, Tsw səpeʔ 'slap with open hand'.
- \*səpun 'nasal mucus':  
Tdn, Tse, Tbl, Ttb səpun 'nasal mucus' [PPh \*sip/qun 'mucus; cold'].
- \*səput 'blowpipe':  
Tdn, Tse, Tbl səput 'blowpipe'; Tsw səpuc 'to blow' [San səʔpuʔ, Melanau səput 'blowpipe'].
- \*səpsəp 'suck':  
Tdn səʔsəp, Tse, Tbl səpsəp, Ttb səʔsəp/seisəp, Tsw səsəw 'suck' [PPh \*səpsəp 'suck'].
- \*sərəp 'penetrate':  
Ttb sərəp 'penetrate' [PPh \*sərəp 'penetrate'].
- \*si 'personal noun marker':  
Tdn, Tse, Tbl si 'animate noun (singular) marker'; Ttb si 'definite noun and personal noun marker'; Tsw si 'personal noun and pronoun marker' [PPh \*si 'marker: proper name'].
- \*sia 'third person singular pronoun':  
Tdn, Tse, Tbl, Ttb, Tsw sia 'third person singular pronoun'.
- \*siow 'nine':  
Tdn, Ttb, Tsw siow, Tse, Tbl siou 'nine' [PPh \*si'aw 'nine'].
- \*sikəp 'kind of hawk; snatch, seize':  
Tdn, Tse sikəp 'kind of hawk'; Tbl sikəp 'kind of hawk; snatch, seize; catch fish with hands'; Ttb sikəp, Tsw sihəw 'kind of hawk; snatch, seize' [PPh \*si(N)kep 'catch; grope for'].
- \*siku 'elbow':  
Tdn, Tse, Tbl, Ttb siku, Tsw sihu 'elbow' [PPh \*siku 'elbow'].
- \*siksik 'small beetle which bores in wood and crops':  
Tdn, Ttb siʔsik, Tsw sisih 'small beetle which bores in wood and crops'; Tbl siksik 'damage crops or fruit (of boring insect)' [Mdw sisik 'wood beetle'].

- \*sir<sub>2</sub>a 'they':  
Tdn sea, Tse, Tbl sera, Ttb sera/sila, seila, Tsw sila 'they' [PPh \*siDa' '(pronoun) they'].<sup>11,77</sup>
- \*sir<sub>2</sub>i 'sift pounded rice in pan':  
Tdn, Tse siri, Tsw sili 'sift pounded rice in pan' [San siri 'sift pounded rice in pan'; PPh \*siji 'sieve, sift'].
- \*sir<sub>2</sub>i? 'side; slope, bank':  
Tdn, Tse siri?, Ttb siri?/sili? 'slope, incline, bank'; Tbl siri? 'slope, bank; side (e.g. of house)'; Tsw sili? 'side (of house, mountain)' [PPh \*siDiq 'side, edge, bank'].
- \*sisi 'chicken (baby fowl)':  
Tse, Tbl, Ttb sisi 'chicken (baby fowl)' [PPh \*siwsiw 'chick, baby fowl'; (Charles) \*sisiw 'chick'].
- \*siwo 'cook, make':  
Tdn siwo, Tse sibo 'make, build, cook'; Tbl sibo 'make, do, carry out'; Ttb, Tsw siwo 'cook'.
- \*soksok 'eat, bite at food (of pig, dog)':  
Tdn, Ttb so'sok, Tse, Tbl soksok, Tsw sosoh 'eat, bite at food (of pig, dog)'.
- \*sompoy 'pouch, bag':  
Tdn, Tse, Tbl, Ttb sompoy, Tsw sopoy 'pouch, bag'.
- \*sondan 'dagger; stab':  
Tse, Tbl sondan 'dagger; stab'; Ttb sondan 'chopper'; Tsw sondan 'stab' [San sondan 'dagger, kris'; PAN (Blust) \*sund/D/jan 'kris'].
- \*sopit 'pinch, clamp':  
Tdn, Tse sopit 'pinch, clamp (with fingers, pincers)' [PPh \*supit '[clamp] pinch/squeeze; tongs'; Mdw tupit 'pinch, clamp'].<sup>146</sup>
- \*sulah:  
Tdn sumə-sula-na 'thorn'; Tse suda, Tbl sulah 'thorn'; Ttb sula 'sharp bamboo spikes planted in ground to catch pigs'; sumu-sula 'palm sp. with thorns on trunk' [San sula? 'any object for stabbing or pricking'; PPh \*cula[ ] 'outgrowth'; Charles \*suDaR 'thorn'].<sup>147</sup>
- \*suliŋ 'play the flute':  
Tdn, Tse, Tbl, Ttb suliŋ 'play the flute' [PPh \*suliŋ 'flute'].<sup>148</sup>

\*suli? 'take revenge, repay':

Tdn, Tsw suli? 'take revenge'; Ttb suli? 'take revenge', (Langoan)  
'return favour, repay work done' [PPh (Charles) \*suliq 'repay'].

\*sulu 'claw, nail':

Tdn, Tbl, Ttb sulu, Tse sudu, Tsw ponj-sulu 'claw, nail (of finger  
or toe)' [PMn \*sulu 'fingernail'].

\*sulu? 'torch':

Tse, Tbl sulu? 'torch'; Ttb sulu? 'torch; moonlight' [PPh \*suluq  
'torch'].

\*sumbiŋ 'jagged, chipped':

Tdn subeŋ, Tse, Tbl, Ttb sumbeŋ, Tsw sumbiŋ 'jagged, chipped' [PPh  
\*suNbiŋ 'jagged'].

\*su(n)suk 'sharp instrument; pierce, prick':

Tsw susah 'spike, sharp instrument; pierce, prick' [PPh \*su(N)suk  
'spear; pierce, prick'].

\*sune 'horn (of animal):

Tdn, Tse, Tbl, Ttb sune 'horn (of animal)' [PPh \*sunay 'horn'].

\*supi 'rheumatism':

Tdn, Tse, Tbl supi, Ttb supi?, Tsw suwi 'rheumatism'.

\*supu 'boundary, border':

Tdn supu 'plot in rice field'; pa-supu-an 'boundary, border'; Tse,  
Tbl, Ttb supu, Tsw suwu 'boundary, border'.

\*sura 'sharp spike placed in ground to trap animals':

Tdn, Tse, Tbl sura 'sharp spike placed in ground to trap animals'  
[PPh \*suja 'spike, mantrap'].<sup>147</sup>

\*surat 'plant whose roots are used to stun fish (Milletia sericea)':

Tdn, Tse, Tbl, Ttb surat 'plant (Milletia sericea) whose roots are  
used to stun fish' [Mdw tuyat 'a creeper (Milletia sericea)'].

\*surur 'comb':

Tdn, Tse surur, Tbl surud 'to comb' [PPh \*sujud 'comb'].

\*susu 'breast':

Tbl, Ttb, Tsw susu 'breast' [PPh \*susu 'breast'].

\*susud 'each, every; every time':

Tdn susur, Tse, Tbl, Tsw susud, Ttb susur/susud 'each, every; every time'.

\*susuh 'prick, pierce':

Ttb susu 'prick (with something small)'; Tsw susuh 'spike, thorn; pierce, prick' [San susu? 'pierce, prick'; Mdw tutug 'be pierced by sharp bamboo planted in the ground'].

\*susut 'near; to approach':

Tdn, Tse, Tbl, Ttb susut, Tsw susuc 'near; to approach'.

\*suysuy (1) 'speak':

Tdn susuy 'speak; say (something)'; Ttb, Tsw susuy 'teach, instruct, indicate' [PPh \*suy+suy 'tell, relate [speak]'; San səʔsui 'examine, investigate'].<sup>149</sup>

\*suysuy (2) 'follow (path, river)':

Tsw susuy 'follow (path, course of river etc.)' [PPh \*suysuy 'follow'; San səʔsui 'follow (e.g. course of river)'].

\*suʔun 'carry on the head':

Tdn, Tse suʔun 'carry on the head' [PPh \*-suqun 'carry on head'].

\*tabaŋ 'to help':

Tdn sawaŋ, Tse, Tbl sabaŋ, Ttb tawaŋ 'to help' [PPh \*tabaŋ 'help, assist'].<sup>150</sup>

\*tabaʔ 'fat (on animal body)':

Tdn, Ttb tawaʔ, Tse, Tbl tabaʔ 'fat (on animal body)' [PPh \*tabaq 'fat'].

\*tabaʔaŋ 'kind of shrub (Cordyline sp.)':

Tdn tawaʔaŋ, Tbl tabaʔaŋ, Ttb tawaʔaŋ 'kind of shrub (Cordyline sp.) planted as boundary hedge and near graves' [San tawaŋ, Ban tabaŋ 'a shrub planted near graves'].

\*tabtab:

Tse, Tbl tabtab, Ttb taʔtaw 'chop down/through bamboo'; Tsw tatab 'cut off (branch), lop off, slash'.

\*tadəm 'sharp (of point)':

Tdn, Ttb tarəṃ, Tse, Tbl tədəm 'sharp (of point)' [PPh \*tazem 'sharp'].

## \*tahas (1) 'heartwood':

Tse naas, Tbl tahas, Ttb ta'as 'heartwood' [PPh \*teR<sub>2</sub>as 'hard(wood)'];  
Mal taras 'heartwood'].<sup>151</sup> cf. \*tahas (2).

## \*tahas (2) 'tree sp. (used for timber)':

Tse taas, Tbl tahas, Ttb (Mkl) ta'as, Tsw tas 'large tree sp., used  
for timber' [PPh \*teR<sub>2</sub>as 'hard(wood)']. cf. \*tahas (1).

## \*taha? 'to plane, chop (wood) smooth':

Tdn, Tse taa?, Tbl taha? 'to plane, chop (wood) smooth' [PPh \*taRa<sub>q</sub>  
'chop; cut; plane'].

## \*tahu? 'put into, store in':

Tse tau?, Tbl tahu? 'put into, put away, store inside' [PPh \*taR<sub>1</sub>uq  
'put away; hide'; San taho 'put in, store in'].

\*takur<sub>2</sub>a 'how much?':

Tdn, Tse, Tbl, Ttb takura, Tsw tahula 'how much?'. cf. \*kur<sub>2</sub>a.

## \*taktak:

Tdn, Ttb ta'tak, Tse, Tbl taktak 'chop down/through, fell'; Tsw  
tatah 'cut wood smooth' [PPh \*taktak 'cut through weeds'].

## \*tala'ta? 'skin disease causing pale patches on body':

Tse tala'ta? 'blot, stain'; Tbl, Ttb tala'ta?, Tsw tala'ta 'skin  
disease causing pale patches on body'.

## \*tali 'rope, string':

Tdn, Tbl, Ttb, Tsw tali, Tse tadi 'rope, string' [PPh \*tali 'line,  
string'].<sup>152</sup>

## \*talikud 'turn the back; part, separate':

Tdn, Ttb talikur, Tse tadikud, Tbl talikud, Tsw talihud 'turn the  
back (on someone); part, separate' [San talikudə? 'turn the back;  
part, separate']. cf. \*likud.

## \*taliŋa 'ear':

Tdn, Tsw taliŋa 'ear'; Tse tadiŋa, Tbl taliŋa 'hear' [PPh \*taliŋa  
'ear'].

## \*talo 'cowardly, timid':

Tdn, Tse, Tbl, Ttb talo 'cowardly, timid'; Tsw talo 'to fear, be  
afraid' [PPh \*talaw 'coward(ly)'].

## \*talun 'forest':

Tdn, Tbl, Ttb, Tsw talun, Tse tadun 'forest' [PPh \*talun 'fallow land; field'; Tagbanwa, Palawan Batak talun 'forest'].

## \*tambəlan 'kind of bamboo':

Tdn tabəlan 'bamboo (generic term)'; Tse, Tbl, Ttb, Tsw tambəlan 'kind of bamboo' [Timugon Murut tambəlan 'kind of bamboo'].

## \*tanaʔ 'land; soil; ground':

Tdn, Tse, Tbl, Ttb tanaʔ 'land; soil; ground' [PPh \*tanAq 'earth, land'].

## \*tanəm 'to plant':

Tdn, Tse, Tbl, Ttb tanəm 'to plant'; Tsw t-in-anəm 'cultivated plants' [PPh \*tanem 'plant; bury'].

\*tar<sub>2</sub>e 'newly, just; now':

Tdn, Tse, Tbl, Ttb tare, Tsw tale 'newly, just; now'. cf. \*katar<sub>2</sub>e.

## \*tasik 'sea':

Tdn, Tse, Tbl tasik, Ttb taʔsik 'sea' [PPh (Charles) \*tasik 'sea'].

## \*tastas 'cut through':

Tbl tastas, Ttb taʔtas 'cut through (e.g. rope, vine)' [PPh \*tAstAs 'cut through'].

## \*tawah 'call, call to, summon':

Tse tabaa, Tbl tabah, Ttb towa/towaʔ 'call, call to, summon' [PPh \*tawar 'call'].

## \*taʔan 'snare; set a snare':

Tdn, Ttb taʔan 'snare; set a snare'; Tse, Tbl taʔan 'set a snare' [Mdw taan 'set a snare'; PPh \*taqan 'expose; (en)trap'].

## \*taʔap 'winnow':

Tdn, Tse, Tbl, Ttb taʔap, Tsw taw 'winnow' [PPh \*tahep 'winnow'].

## \*taʔi 'faeces, dregs':

Tdn, Tse, Tbl, Ttb, Tsw taʔi 'faeces, dregs' [PPh \*Caqi[ ] 'faeces, excrement'].

## \*taʔu 'know':

Tdn, Tse, Tbl taʔu 'know'; Ttb -taʔu 'tell, inform' [PPh \*taquh 'know (how)'; Mal tahu 'know'].

## \*taʔun 'year':

Tdn, Tse, Tbl, Ttb, Tsw taʔun 'year' [PPh \*taqun 'year, season'].

## \*teger:

Tdn tə-teger, Tse tə-teger 'bamboo pole (for knocking down fruit)';  
Ttb teger 'punt, push boat with pole', te-teger 'boat pole' [San  
tegeheʔ 'punt, push boat with pole'].

## \*tehep 'tree sp. (Artocarpus blumei)':

Tse teep, Tbl tehep, Ttb teʔep, Tsw tehew 'tree sp. (Artocarpus  
blumei)' [PPh \*teRep 'tree (Artocarpus sp.)'].<sup>153</sup>

## \*teleb 'fly away; fade':

Tdn tewel, telew, Tbl tebel 'to fly'; Tse tebel 'fly away'; Ttb  
telew/teleʔb 'fly away; fade (of colours)'; Tsw teleb 'fade (of  
colours)'.<sup>154</sup>

\*tenkor<sub>2</sub> 'beat (on gong, drum etc.) with stick':

Tdn, Tse, Tbl, Ttb tenkor, Tsw tekol 'beat (drum, gong etc.) with  
stick'.

## \*tete 'bridge':

Tse, Tbl, Ttb tete, Tsw tece 'bridge' [PPh \*teyey 'bridge'].

## \*təbaʔ:

Tbl təbaʔ, Ttb təwaʔ 'slash, cut with sharpened bamboo'; Tsw təba  
'sharpened piece of bamboo used as a knife' [PPh \*tebaq 'cut down  
bananas'].<sup>155</sup>

## \*təbəl 'sharp (of blade)':

Tdn təwəl, Tse, Tbl, Tsw təbəl, Ttb tələw/təbəl 'sharp (of blade)'.<sup>156</sup>

## \*təbiʔ 'break off (piece of something)':

Tse təbiʔ 'break off, crumble off'; Tbl təbiʔ, Ttb (Mtn) təwiʔ  
'husked rice'; Tsw təbiʔ 'break off (small piece of something)'  
[PPh \*tebiq 'chip off'; PAN (Blust) \*C/t/Tebi(q) 'break off a  
piece'].

## \*təkəl 'sleep':

Tdn, Tse, Tbl, Ttb təkəl 'sleep' [San tikiʔ, Rth tikil 'sleep'].

## \*təkən 'stick, staff':

Tdn, Tse, Tbl təkən '(walking) stick, staff' [PPh \*teken 'pole,  
stick, pillar'; San təʔkiŋ 'stick, staff'].



\*təktək 'stick (post) into ground':

Tse, Tbl təktək 'stake, post; stick (post) into ground'; Tsw tətəh 'stick (post) into ground, beat in (e.g. nail)' [? PPh \*TekTek 'knock, pound'].

\*tələs 'buy':

Tdn, Tse, Tsw tələs 'buy'; Tbl, Ttb tələs 'value, price; buy'.

\*təlu 'three':

Tdn, Tbl, Ttb, Tsw təlu, Tse tədu 'three' [PPh \*telu 'three'].

\*təmbir<sub>1</sub> 'edge, side, bank':

Tdn təbir, Tse, Tbl, Ttb, Tsw təmbir 'edge, side, bank' [PAN \*tə(m)biŋ 'shore, edge'].

\*təmpok 'tip, point, extremity, end':

Tdn, Tse, Ttb təmpok, Tsw təpoh 'tip, point, extremity, end'.

\*təna 'hit, strike':

Tdn təna', Tse, Ttb, Tsw təna 'hit, strike (e.g. with stone)' [San təna' 'hit, knock'; PPh \*kena[ ] 'hit, affected'].

\*təndək 'post, stake; stick (post) in ground':

Tdn tə'dək 'post, stake; stick stake in ground'; Tbl təndək 'straight (vertical), erect; stick up straight from the ground'; Ttb təndək 'post, piece of bamboo or wood stuck in the ground as a boundary sign' [PPh \*tedek 'erect; stake, post'; PS1 \*teldek 'fix, erect; fence'].

\*təŋa':

Tdn, Tse, Tbl, Ttb təŋa' 'areca palm (Areca catechu) and nut; chew betel'; Tsw təŋa' 'fibres (of betel nut, sugarcane etc.) spat out after chewing'.

\*təŋtəŋ 'look at, stare at':

Tse təŋtəŋ, Ttb təintəŋ 'look at, stare at' [WBM təŋtəŋ 'look at, stare at, examine'].

\*təpeh 'mat':

Tdn təpe, Tse təpee, Tbl təpeh, Ttb təpe/təpe' 'mat' [San tə'pihə' 'mat'].

\*təpəs:

Tdn, Tse, Ttb təpəs 'suck, suck out'; Tbl təpəs 'kiss'; Tsw təpəs 'swallow'.

## \*təruŋ 'shelter':

Tdn, Tse, Tbl, Ttb təruŋ 'simple hut or shelter in fields' [PPh (Charles) \*teduŋ 'shelter, head covering'].

## \*tiən 'belly, stomach':

Tdn, Tse, Tsw tiən 'belly, stomach'; Ttb tiən 'pregnant' [PPh \*ti'ən 'stomach, belly'].

## \*tiəʔ 'throw away':

Tdn, Tse teeʔ, Tbl, Tsw tiəʔ, Ttb tiəʔ/siəʔ 'throw away'.

## \*tiey 'pig':

Tdn, Tsw tiey 'pig'; Tse, Tbl, Ttb tiey 'call for pigs' [Mdw sioʔ 'domesticated pig'].

## \*tibəʔ 'oath; swear an oath':

Tdn, Ttb tiwəʔ, Tse, Tbl tibəʔ 'oath, swear an oath' [San tewə 'swear an oath'].

## \*tiboho 'reed sp.':

Tdn tiwoo, Tse tiboo, Tbl tiboho 'reed sp.'; Ttb tiwoʔo 'reed sp. (*Miscanthus japonicus*)' [San tiwoʔ 'reed sp.'].  
 (Miscanthus japonicus)'

## \*tihis 'drip, leak':

Tdn, Tse tiis, Tbl tihis, Ttb tiʔis, Tsw tis 'drip, leak' [PPh \*tiRis 'drip, leak'].

## \*tihoj/? 'sneeze':

Tbl tihoj, Tsw tihoʔ 'sneeze' [PPh \*tihe 'sneeze'].

## \*timuh 'south; south wind':

Tdn, Ttb (Mtn) timu, Tse timuu, Tbl timuh 'south; south wind' [PPh \*timuR<sub>4</sub> 'rain wind'; San timuhəʔ 'south; south wind'].

## \*timboy:

Tdn tiboy, Tbl, Ttb timboy 'hold, grip'; Tse timboy 'hang, dangle, swing'; Tsw timboy 'hold upside-down'.

## \*tinə:

Tse, Tbl tinə 'female (of fowl, bird)' [Mdw toʔinə 'full-grown hen'; Bare'e tinə 'female of bird or animal'; Mal bətinə 'female of animal'].

## \*tinəʔ:

Tse, Tbl tinəʔ 'blue (of bruise)'; Ttb tinəʔ/sinəʔ, Tsw tinəʔ 'pale, pallid'.

## \*tinaʔi 'intestines':

Tdn, Tse, Tbl tinaʔi, Tsw tinaʔe 'intestines'; Ttb tinaʔi/sinaʔi 'intestines; belly' [PPh \*tinaqi 'intestines'].

## \*tiŋa 'food caught between teeth':

Tdn, Tbl tiŋa 'food caught between teeth; pick teeth'; Tse tiŋa 'pick teeth' [PPh \*tiŋa[ ] 'food caught in between teeth'].

## \*tiŋtiŋ 'clang, ring (noise); produce clanging noise':

Tdn, Ttb tiŋtiŋ, Tse, Tbl tiŋtiŋ, Tsw titiŋ 'clang, ring (noise); produce such a sound' [PPh \*TiŋTiŋ 'ring; clink (sound)'].

## \*tipuʔ 'pluck (fruit); fall out':

Tdn tipuʔ, Tsw tiwuʔ 'pluck (e.g. fruit)'; Tse, Tbl tipuʔ 'remove corn kernels from cob'; Ttb tipuʔ/sipuʔ 'toothless; fall out (of teeth); pull out, pluck (fruit)' [Mdw sipuʔ 'pluck (fruit), peel (corn); fall out (of teeth)'; PPh \*tipu[q] 'fall down/out (said of fruit)'].

## \*toktok 'chop up finely':

Tdn toʔtok, Tse, Tbl toktok, Ttb toʔtok/toitok, Tsw totoh 'chop up finely'.

## \*tonton 'to lower, let down':

Tdn, Tse, Tbl, Ttb tonton 'to lower, let down'; Tsw toton 'fish hook; to fish (with rod)' [PPh \*tuntun 'lower, let down (as a rope or basket)'].

## \*toŋo 'mite (insect)':

Tdn, Tse, Tbl toŋo 'mite' [PPh \*tuŋaw '(insect) mite'].

## \*toŋkoʔ 'peck, snap':

Tdn, Tse, Tbl, Ttb toŋkoʔ, Tsw tokoʔ 'peck (of bird), snap (of snake, crocodile)'.

## \*tow 'person; be born, live, grow':

Tdn, Ttb, Tsw tow, Tse, Tbl tou 'person; be born, live, grow' [PPh \*tawu 'person'].

## \*towo 'liar, cheat; to lie, deceive':

Tdn, Ttb, Tsw towo, Tse, Tbl tobo 'liar, cheat; to lie, deceive'.

## \*toʔod 'stand up; put up, erect':

Tdn toʔor, Tse, Tbl toʔod, Ttb toʔor/toʔd, Tsw tod 'stand up, get

up; put up, erect' [PPh \*tuqeD 'stump; stand up'; \*tuquD 'stand firm']. cf. \*tuʔud.

\*tuama 'man, male':

Tdn, Tse, Tbl, Ttb, Tsw tuama 'man, male' [Sa'dan tuama 'man, male'].

\*tuar<sub>2</sub>i 'younger sibling':

Tdn, Tse, Tbl, Ttb tuari, Tsw tuali 'younger sibling' [PPh \*tu'aJi 'elder sibling; friend of same sex'; San tuari 'younger sibling'].

\*tuba 'plant used as fish poison':

Ttb tuwa 'plant whose leaves are used to stun fish'; Tsw tuba 'stunned (of fish)' [PPh \*tuba' 'plant: used as fish poison'].

\*tudaʔ 'stab':

Tdn, Ttb turaʔ, Tse, Tbl tudaʔ 'strike, stab with lance' [San turaʔ 'stab'; ? PPh \*tu[d]aq 'throw'].

\*tuduʔ 'point out, indicate':

Tdn turuʔ, Tse, Tbl tuduʔ 'show, point out, instruct, teach'; Ttb turuʔ 'point to, show, indicate' [PPh \*tuduq, \*tuZuq 'point out'].  
cf. \*tunduʔ.

\*tuhun:

Tdn tə-tuun 'bunch'; tuun-an 'waterfall'; Tse tuun 'pour down';  
tuun-an 'source of river'; tə-tuun 'bunch'; Tbl tu-tuhun 'bunch';  
Tsw tuhun 'bunch' [PPh \*tuRun 'get off/down; descend'].

\*tuma 'clothes louse':

Tdn, Tse, Tbl, Ttb, Tsw tuma 'clothes louse' [PPh \*CumaS 'louse'].

\*tumid 'heel':

Tdn tuʔmir, Tse, Tbl tuʔmld, Ttb tuʔmir/tumiʔd, Tsw tumid 'heel'  
[PPh \*tumid 'heel'].

\*tumpa 'descend, alight':

Tdn, Tse, Tbl, Ttb tumpa 'descend, alight' [San tumpa 'attack; go down, alight'].

\*tunu 'burn, bake, roast':

Tdn, Tse, Tbl, Ttb tunu 'burn, bake, roast' [PPh \*tunu 'burn, roast'].

## \*tundək:

Tdn tudək 'to point; stab': Tse tundək 'point, indicate; stab'; Tbl tundək 'point with a piece of wood; prod with finger'; Tsw tundəh 'prod, poke' [PPh \*tu[d]ek 'prick, pierce'].

## \*tunduh 'follow':

Tse tunduu 'follow' [PPh \*t+uNduR 'follow; chase'].

## \*tundu? 'to point; finger':

Tdn tudu? 'to point', tə-tudu? 'finger'; Tbl tu-tundu? 'finger'; Ttb tundu? 'be/become erect'; Tsw tundu? 'finger; to point' [PS1 \*tuIduq 'to point; finger']. cf. \*tudu?.

## \*tutuŋ 'kindle, light, set alight':

Tdn, Tse, Tbl, Ttb tutuŋ, Tsw tucu 'kindle, light (fire, lamp), set alight' [PPh \*tutuŋ 'kindle, burn'].<sup>157</sup>

## \*tu?a 'old':

Tdn, Tse, Tbl, Ttb, Tsw tu?a 'old' [PPh \*tuqaS 'old, aged'].

## \*tu?u 'indeed, really, truly':

Tdn, Tse, Tbl, Ttb tu?u 'indeed, really, truly' [PPh \*tuqu[ ] 'true; right, correct'].

## \*tu?ud 'origin, beginning, base, stump':

Tdn tu?ur, Tbl tu?ud, Tsw tud 'origin, beginning, base, stump (of tree)'; Tse tu?ud 'origin; tree'; Ttb tu?ur/tu?d 'stump of chopped-down tree' [PPh \*tu`eD 'stump; to fell'; \*tuqeD 'stump; stand up']. cf. \*to?od.

## \*tu?un 'place pot on fire':

Tbl, Ttb tu?un 'place cooking pot on fire'; Tsw tu?un 'cook' [PPh (Charles) \*tuq/0en 'place on (e.g. pot on fire)'].

## NOTES TO PROTO-MINAHASAN WORDLIST

1. Earlier Tdn wahat is attested by Niemann and Schwarz (with unexplained loss of initial a, cf. Tdn pəru < \*apədu). Niemann also gives Tse <awahat>, from which əbaat is a regular development.
2. Tsw səbu bears only a partial resemblance to the form in the northern languages.
3. Schwarz gives Tsw <acha>, i.e., aha, which appears to be a borrowing from Ttb.
4. The Tbl and Ttb (Mtn) forms show irregularity which is probably due to the frequency of the word in speech.
5. The relationship of the Ttb item to the words in the other languages is not understood (see 2.3.2.3.(f)).
6. Initial k in the Ttb word probably results from a previous prefix ka-. Initial u as an alternate of a in Tdn and Tbl is unexplained. Niemann gives the meaning 'bamboo fence' in Tse and Tbl and this may be an earlier meaning.
7. Wouw gives Tbl <aler> instead of expected <alez> (= aləd). The word may be a borrowing or Wouw may have erroneously used <r> instead of <z>, as he does in a number of other words, e.g., <ater> instead of <atez> atəd.
8. Mkl has unexplained d for expected l.
9. Blust (1970, note 108) refers to Hanunoo, where aman and ina are the vocative forms of ama? and ina?, and suggests a similar situation might have occurred in PAN. Such a situation might thus have occurred in PMin although the only evidence is from Ttb where Schwarz notes ama? as being the vocative of aman (with the roles being the reverse of those in Hanunoo).
10. The optional initial m in Ttb is unexplained but Mdw also has both ama? and mama?.
11. In a few very common words the medial consonant has been lost in Tdn, including the reflexes of \*aŋe, \*kami, \*kamu, \*sir<sub>2</sub>a.

12. Loss of initial a in Tdn is unexplained.
13. The occurrence of initial o in the north-east languages is unexplained.
14. The root in Ttb and Tsw contains a fossilised prefix ka-.
15. The Tse and Ttb (Mkl) forms reflect a final \*h but the existence of this segment is uncertain because it is not reflected in Tbl, which agrees with PPh in having a final vowel.
16. Niemann gives Tsw <ata> 'slave' but the word was not known by informants. Blust (1972) discusses this item in detail.
17. Niemann gives Ttb <atas> 'above' but the word is not in Schwarz.
18. The optional long vowel in Tse is unexplained. Hove gives Tse (Maumbi) <atedu>.
19. It is probable that the form word-medially was \*-hatus. This is discussed in section 3.2.(a).
20. Tdn owak is probably a borrowing from Ttb.
21. Although the Minahasan and PPh words are antonymous they are undoubtedly related as the similarity is too great to be coincidence. It cannot be determined if the change in meaning took place before or after the time of PMin but probably the meaning in PMin was 'to increase', there being another word, \*ina?, meaning 'to decrease'.
22. The item is included because it is the common form for this meaning in all languages. The medial y instead of n, however, suggests it may be a borrowing. In the only other known reflexes of PPh \*ñ PMin has \*n: \*nihu < \*ñiRu 'winnow' and \*-na < \*ña 'his, her'. Furthermore, San has n: anam 'weave'. However, no other items are known where PPh \*ñ is reflected morpheme-medially in the Minahasan languages so it cannot be said that y is not the regular reflex of \*ñ in this position.
23. Although no other cognates are known the PMin and Bontok forms suggest a PPh etymon \*Rldu?.

24. Loss of initial ə in Tsw is unexplained.
25. Koorders and Lengkong and Wantalangi give Tdn <embel>. This has not been tested with an informant but the expected present-day form would be əbəl.
26. Tsw also has a word omboc *'wrap sarong round body while bathing'*. This is obviously a borrowing from Mdw or Pon, indicating that outside cognates occur. However, Dunnebier's dictionary does not give this item for Mdw.
27. In Tdn the word for *'sun'* is animate and the initial vowel has assimilated to the vowel of the preceding animate class marker: si edo *'sun'*. The word for *'day'* is inanimate and takes class marker N-: nədo *'day'*.
28. The Tsw form could derive from either \*ətut or \*əntut. Since neither loss nor addition of n in this environment is regular in the other languages it is possible that both forms occurred in PMin. cf. \*pa(n)tik where \*n is only reflected in some languages.
29. Tdn, Tse and Tbl peʔan contains a fossilised referent voice suffix and Tse peʔen contains a fossilised object voice suffix. Loss of initial ə in such formations parallels its loss in Tsw ləp-an from PMin \*ələp *'drink'*.
30. This word has almost completely been replaced by reken (from Dutch).
31. Loss of initial i in Ttb is unexplained.
32. The word was not known to Tdn and Tse informants and is presumably archaic. The source for these languages is Niemann, whose translation conforms with the meaning in present-day Tbl. For Tse Hove translates *'bind together, tie to each other'*.
33. Lengthening of the final vowel in Tse and occurrence of initial l in Tsw are unexplained.
34. For Ttb Schwarz lists both inaʔ and inaŋ but informants for both dialects gave inaŋ.



35. The North-east Minahasan languages have a word Tdn wiŋkot, Tse, Tbl biŋkot 'answer'. It is possible that the Tsw form is cognate with this but because loss of initial b in Tsw is not common (see 2.3.2.3.(d)) it is more likely to be related to iŋkot.

36. \*g is not a PMin reflex of PPh/PAN \*R and the item is probably a borrowing. San has ipaŋ? which also shows irregular g. Since there is no nearby source for a loan into the Minahasan-Sangirese languages (Mdw ipa? appears not to be a candidate) it is highly likely that the item is a common inheritance in all languages, i.e., that the borrowing predates PMin.

37. Schwarz gives Tdn as having both ipən and ipəŋ and some Tbl informants gave ipəŋ. Possibly these forms are influenced by the form in Langoan, a subdialect of Mkl in which final \*n is frequently reflected as ŋ. There is also a Tbl word əmpəŋ 'molar'.

38. Hove gives Tse ombal 'cry of the returning headhunter'.

39. In Tsw uala means 'its tusk' where the final a has come to be regarded as the possessive suffix ([-na] 'its' + -a after l).

40. This item is discussed further in section 2.3.2.3.(b).

41. Although the word is given by Hove, Wouw and Schwarz it is archaic, the common present-day term for 'iron' being MdMal besi (the only source for Tsw was Niemann). In the Langoan dialect of Ttb uasey means 'iron adze head'.

42. The final consonant is uncertain because of disagreement between Tsw and the northern languages. However, Tsw agrees with PPh and there is no apparent source for borrowing (the word does not occur in Mdw). It is thus more likely that Tse and Tbl have borrowed and that the PMin form was \*ubad.

43. Tsw uan is apparently a borrowing from Ttb. The expected form would be \*\*uban.

44. Tsw bawa? suggests PMin \*bawa? but this would be reflected in Ttb as \*\*wowa?. Ttb correctly reflects the PPh form and the Tsw word is presumed to be a borrowing.

45. Tsw has *bao* 'above' instead of expected \*\**babo*.
46. Niemann gives Tdn <*wahat*> 'pregnant' (the word is not in use in present-day Tdn) which, together with the Ttb word and San *bəhaʔ* 'heavy', allows the present reconstruction although PPh medial \**R*<sub>2</sub>*q* is not always reflected in PMin by \**h*, cf. PMin \**baʔaŋ* 'tooth' < PPh \**baR*<sub>2</sub>*qaŋ*.
47. Medial \**h* is reconstructed as this is the normal reflex in PMin of PPh \**R* although there is no direct evidence for it in the Ttb form as PMin \**h* is lost in Ttb if ʔ occurs in the following syllable (see 2.2.2.3.(c)).
48. The final *b*, *mb* in Ttb is unexplained.
49. Mdw *balaan* 'cucumber' is apparently a borrowing from Minahasa as it does not show correct reflex of PPh. Its meaning therefore is not evidence for the meaning of the PMin word.
50. The *o* in the first syllable of the Tsw word results from influence of Mdw *bolulaŋ* 'armour of deer hide' but the word is unlikely to be a borrowing because of the difference in meaning, Tsw retaining the original meaning.
51. Ttb has a number of forms, e.g., *wonuʔut*, *wonoʔot*, which have unexplained sound changes.
52. The PMin and Mal forms suggest a Proto-Indonesian etymon \**baŋeR*.
53. Bare'e *baŋke*, Makassarese *bakkaʔ*, Buginese *bakkəʔ* 'big' may be cognate with this item or with the similar Ttb word *wəŋkər* 'big'.
54. Final *y* in Tsw is unexplained.
55. Tbl (Kinilow) *bauʔu*, together with the form *baʔuʔu* in a number of Manobo languages, suggests PMin \**baʔuʔu*, with subsequent loss of glottal stop when the following consonant is also glottal stop. Other Manobo languages have *baʔu* as do Tdn, Tse and Tbl (Tomohon), suggesting \**baʔu*. However, it is more likely that PMin had \**baʔuʔu*, with subsequent loss of the first \*ʔ (a process which is regular in Ttb and in Tbl (Tomohon), the only languages where potential sequences of glottal stop are

otherwise known) giving \*bau<sup>?</sup>u, with later loss of the first u except in Kinilow than that an extra u was added in Kinilow.

56. Both \*bene and \*bebene are reconstructed. Tsw reflects one of Dempwolff's reconstruction. The form in the northern languages shows reduplication of the first syllable. This corresponds to San bawine (San reduplicative Ca- corresponds to CV- (with assimilation of V) in the Minahasan languages) and is also supported by a PAN form.

57. Loss of the first syllable in Ttb is unexplained. Occurrence of a instead of ə in Tsw is unexplained.

58. The word may be a borrowing from San bin<sup>?</sup>kuŋ 'adze for working wood' but the difference in meaning suggests it is not.

59. Loss of the first syllable in Tsw is unexplained.

60. The occurrence of final glottal stop is uncertain. Its occurrence in Tdn and Ttb may be an innovation. On the other hand the other languages may have lost a previous <sup>?</sup>, perhaps under influence of Mal buka 'open'. For Tse Hove and informants give buka but Rumbajan Pakasi gives buka<sup>?</sup>.

61. Loss of glottal stop in Tdn (expected \*\*wu<sup>?</sup>wuk) is unexplained.

62. The final d in Ttb is unexplained although it sometimes occurs in this position in Tsw (see 2.3.2.3.(g)).

63. Reduction to one syllable in Tsw is unexplained.

64. The form without final ŋ in some languages is possibly from MdMal buŋa.

65. PAN \*huDi 'rear' is a possible alternative etymon for the Tsw item although \*D is not usually reflected by r in Tsw.

66. \*r<sub>2</sub> is reconstructed on the assumption that the Ttb word is originally from Mkl (see 2.3.2.3.(e)). This is supported by Rth (Niemann) <wuhenga> 'yolk', Rth h commonly corresponding to r in the Minahasan languages but not to l.

67. The expected Ttb form would be **\*\*raʔa/raʔ**. The form əndaʔ possibly results from metanalysis of preposition ə plus prenasal n- as part of the root (i.e., from **\*əndaʔ**). There is also a Ttb word raraʔ 'bleed'.
68. Loss of ʔ in Ttb (Mtn) is unexplained.
69. A doublet rarem 'under; deep' occurs in Tdn, Tse, Tbl and Ttb.
70. Schwarz and Dunnebier follow Koorders in identifying the tree as *Dammara celebica*.
71. A doublet rere occurs in Tdn, Tbl and Ttb (Mtn). Schwarz does not list the Mkl form. On the reverse ordering of l and d in PMin and Mal cf. PMin **\*dilaʔ**, Mal lidah 'tongue'.
72. The Tdn form is irregular and is probably a borrowing from Ttb. The Tse form is unexplained (for expected **\*\*dəmdəm**).
73. The final n in Tdn is probably suffix {-ən} (from which ə is lost following a vowel) but its function is not clear. Niemann gives Tbl <kahawii>. The Tbl form must result from syncope because an original **\*kahbiʔi** would give Tdn **\*\*kawiʔi(n)**. The Tsw form could well derive from some other source but the derivation **\*kahabiʔi** > **\*kabiʔi** (see 2.3.2.3.(f)) > **\*kaiʔi** (see 2.3.2.3.(d)) is possible.
74. Loss of final ŋ in Tdn is unexplained.
75. The Langoan form shows a number of irregularities including metathesis of k and l.
76. Loss of m in Tdn, Tse and Tbl and loss of final -an in Tdn and Tbl are unexplained. Hove gives Tse <kalimpoopo> (= kalimpoʔpoʔ) but this form was not given by informants.
77. In Tsw the pronouns kami, kamo and sila must be followed by a number, e.g., kami ndua 'we two'. If no specific number is referred to tahula 'several' is obligatory, e.g., kami cahula.
78. Vowel lengthening in Tdn produces a two-syllable word. The only other one-syllable roots in the language end in y or w. In Tse kaan also occurs, in variation with kan.

79. Niemann gives Tsw <kasili> but the modern form is kosili, probably from Pon kosili.
80. Ttb kaʔmbiri/kaʔbiri 'left' has unexplained ʔmb/ʔb for expected w and r for expected ʔ and is possibly a borrowing from an unknown source. The San form shows that a previous prefix \*ka- had become a fossilised part of the word prior to PMin.
81. The form kay is used in some restricted contexts in languages other than Tbl, e.g., Tdn kay ruʔur, Tsw kay lihud 'back bone', Ttb kay 'length of (rolled up) material'.
82. Tbl has a in the first syllable for expected e and is possibly a borrowing from San.
83. Tsw kabur may be cognate, with unexplained a instead of ə (cf. Tsw bacis, PMin \*batiʔis), or a borrowing from MdMal kabur 'turbid, muddy'.
84. The same root occurs in Tdn karəʔkəw, Tbl karəbkəb 'crunch, crack with teeth', with fossilised infix -ar-.
85. Metathesis of l and d has occurred in Mkl. The reconstruction is justified on the basis of the doublet in the North-east languages: Tdn, Tse kərar, Tbl kərad 'phlegm'. The meaning 'phlegm' is chosen for the reconstruction because another word \*ludaʔ is reconstructed with the meaning 'spit'.
86. Since the Mdw form shows regular correspondences with the Minahasan words it can be assumed that metathesis occurred prior to PMin. cf. also Iraya takleb 'cover'.
87. The evidence for this reconstruction is not strong as PMin \*ə is not a regular reflex of PPh \*i and the items may not be directly related. However, the occurrence in PMin of \*ə in the final syllable where PPh has \*i occurs in at least one other case: PMin \*ləpət, PPh \*ləNpət 'fold'.
88. Tsw kiuʔ 'cut open' may be cognate.
89. Tdn, Tse, Tbl kiki 'bite' is from San kiki, which is cognate with the words in Ttb and Tsw.

90. Tsw kow is either borrowed from or influenced by Mdw ikow. Optional lengthening of the vowel in Tdn only occurs when the word is stressed.
91. The expected Tse form would be **\*\*kəlombi?**.
92. Tsw kohoh 'crow' may be cognate with kukuk in the northern languages or with Ttb kokok 'cackle (of hen)'.  
*'cackle (of hen)'*.
93. Niemann gives Tsw <kulit> 'skin' which was unknown to informants.
94. The correspondence PNM \*r : Tsw n is unexplained. The evidence of PFM suggests the proto-word was **\*kurambər<sub>2</sub>**.
95. A further reconstruction, **\*loud**, can be made for PNM from Tdn lour 'lake, stretch of water'; Tse doud 'water'; Ttb lour/loʔd 'lake, pond'.  
*'lake, pond'*.
96. There is a doublet Tdn ragar, Tbl ragad.
97. Tdn laa 'go' is presumably related but the form is unexplained. Schwarz derives Ttb lalako 'ladder; climb stairs' from a former root **\*lako**. The item in Tse and Tbl may be from San but the evidence of Tdn (sound change), Tse (occurrence only as an enclitic) and Ttb (occurrence only in a derived form) suggests a long history in the Minahasan languages. The word is common throughout the Celebes.
98. Tsw loganuc has unexplained -og-. It may be a result of contamination from a Mdw word, e.g., lugagut 'hard'.
99. The northern languages reflect PNM **\*lansot**. The occurrence of o in the final syllable is unexplained.
100. One informant gave the form lehed for Tsw.
101. It is possible that this item is connected with Sanskrit likshā 'nit'. Niemann gives Tsw <lechad>.
102. Niemann gives Tsw <leno> 'shadow' but the word was not known in this sense by informants. **\*leno** (1) and (2) are obviously related but have been distinguished because of the separate reconstructions in PPh.

The semantic link between the two senses can be seen in the Ttb derivative *le-leno-an* 'mirror, pan of clear water used to see one's reflection'.

103. Loss of glottal stop in Tsw is unexplained but its occurrence would result in a sequence of glottal stops (lead = [!eaʔt]).

104. Metathesis of *s* and *m* has occurred in Ttb.

105. The Tse translation is from Hove. Niemann gives 'poor'.

106. Niemann gives Tdn <lengen> 'arm'. Watuseke (1956b:50) says *lənən* was used in Tdn until recently.

107. Niemann gives Tdn, Tbl <linsen> 'wrinkle, crumple, fold' but the word was not known to informants.

108. Niemann gives Tdn 'roll up' but this sense has since been lost.

109. Niemann gives Tse <longon> 'stupid, ignorant' which was unknown to informants.

110. Niemann gives Ttb <luwar> but the item is not included by Schwarz possibly because he assumed it to be from Mal.

111. A doublet *ruraʔ* occurs in Tdn, Tbl and Ttb.

112. Ttb *ruʔndur* 'shin (bone)' is apparently a doublet of the type discussed in section 2.3.2.3.(1).

113. The Ttb word has unexplained final *w* for *m*. The proto-word obviously did not have the same meaning as the present-day words and must be left unglossed.

114. This form may derive from or be influenced by Pon *mo-waliʔ* (Niemann gives <mowali>, cf. Mdw *mo-baliʔ*) 'happen, occur, become', reflecting PPh \**baliq* 'may, allowed; happen, occur'.

115. The PAN reconstruction is from Stresemann, cited by Wurm and Wilson.

116. Niemann gives Tsw <naram> '*used to, accustomed*' but this has not been checked with informants.
117. There is an alternate form in the northern languages: Tdn, Tse iu, Tbl ihu, resulting from metanalysis of initial n as inanimate noun marker, cf. Tdn ipis < \*nipis.
118. Loss of initial n in Tdn results from metanalysis (see note 117). Ttb impis, nimpis and Tsw nipis are unexplained.
119. The Tbl form, instead of expected \*\*nisnis, may be a borrowing from Tdn.
120. It is possible that final n in Tsw and Ttb (Mkl) results from dissimilation (avoidance of consecutive r sounds), cf. Tsw kunambəl < PMin \*kur/nambər<sub>2</sub>.
121. Niemann gives this word for Tsw with the meaning '*smile*' but this meaning was unknown to informants.
122. In Tse, Tbl and Ttb the root also occurs with the same meaning: lela? '*mad, crazy*'. But since the root does not occur free in Tsw it cannot be reconstructed in free form for PMin.
123. Ttb has unexplained pair instead of expected \*\*pa?i.
124. Loss of final ? in Ttb is unexplained.
125. Charles (1974:19) says the word, which is widespread through Philippine languages, is a borrowing from Mal (modern Mal pərɪa). But the only form in MdMal is popare, suggesting that Mal is not the source of the form in the Minahasan languages.
126. Loss of u in Tse and addition of r in Tbl are unexplained.
127. From these forms can be reconstructed a Proto-Minahasan-Sangirese form \*pəhus which appears not to be a reflex of PPh \*peRqes '*press out*' or \*piRis '*press, squeeze*'.
128. Tbl has unexplained n for expected m.



129. Niemann also gives the meaning '*press, squeeze*' for Tdn and Tse.

130. Niemann gives Tdn, Tse <piis>, Tbl <pihis> '*a pinch; to pinch; to pinch with fingers*'. The word was not known to Tdn and Tbl informants but Wouw gives for Tbl '*tug on cheek (pegang pipi lantas tarik sedikit)*'. Probably Tbl means the same as Tse, i.e., '*pinch (e.g. someone's cheek, ear) between thumb and finger and twist*'.

131. This word may be cognate with Mal pərut '*belly*'. If so they suggest a common ancestral form \*peRqut.

132. Niemann gives Ttb <putjan> (= puikan).

133. The Tsw word would be rejected as a probable borrowing except that no likely source for the Tse word is known. Lengkong and Wantalangi also give Tdn पुलिण '*full*' which was unknown to informants.

134. Tse rambun '*to flame, flare up*' may be cognate.

135. Tse has unexplained u in the first syllable for expected a. Assimilation of the nasal to the following stop is also unexpected. The word is probably from a pre-PMin form \*raŋraŋ. (See Part Two: footnote 1, p.78).

136. Niemann gives Tdn, Tse <raraha> confirming the reconstruction. The Ttb word ra'a '*aunt*' suggests there might also have been a PMin form \*raha, cf. PPh \*DaRa '*maiden, young girl*'; Tagalog daga '*aunt*'. Dahl (1973:104) rejects the possibility of this item being a borrowing from Sanskrit as is assumed by some writers.

137. Initial r instead of d in Tsw is irregular (see 2.3.1.3.).

138. The final m in the Ttb word is possibly fossilised enclitic {-əm} '*already*', which becomes -m after a vowel.

139. Tsw sowac is probably a borrowing from Ttb.

140. Ttb wusey '*pubic hair*' seems to be a metathesised form but has u for expected o.

141. Final ?d instead of r in Ttb is unexplained.

142. Loss of medial glottal stop in Tsw is unexplained.
143. Tsw *daʔ* 'fish' is probably related but loss of the first syllable is unexplained. Schwarz translates the Ttb word as 'meat, flesh' but both Mtn and Mkl informants gave the word as meaning 'fish'.
144. Tdn has unexplained *ɟ* for expected *r* but cf. PPh \**ceguk* 'hiccough'. Tsw has unexplained *n*.
145. Loss of final *h* in Tsw is unexplained.
146. Tsw *sowic* 'break off (e.g. branch)' may be a cognate.
147. Tsw *surah* 'to spike, stab', so-*surah* 'a spike' appears to result from blending of \**sura* and \**sulah*. Ttb *sula* has the same meaning as Tdn, Tse, Tbl *sura* and if it is from Mkl it is evidence for PMin \**sur*<sub>2</sub>*a* 'mantrap' rather than a Mtn reflex of \**sulah*.
148. In all languages the word for 'flute' is a derived form: Tdn, Tse *səsulinən*, Tbl, Ttb *susulinən*. Schwarz also gives Ttb *sulin* 'flute'. The word has almost been entirely replaced by MdMal *pəloit* (< Dutch *fluit*).
149. The Tdn meaning is closest to that of PPh and is given to the reconstruction. The reconstruction of the PMin item as an RM depends on the evidence of PPh, there being no known Tse or Tbl reflex. San *səʔsui* 'examine, investigate' also reflects an earlier RM.
150. Initial *s* instead of *t* in Tdn, Tse and Tbl is unexplained.
151. Nasal substitution for initial *t* in Tse is unexplained.
152. For Ttb Schwarz gives only *tali* 'net for catching wild pigs' but informants gave the meaning 'rope'.
153. Koorders gives Tsw <*tew*> (see 2.3.2.3.(f)). He also gives Tdn <*teep*, *tehep*>.
154. Tdn (optionally), Tse and Tbl show metathesis of the last two consonants.

155. Loss of final ʔ in Tsw is unexplained.
156. Metathesis of the last two consonants has occurred in Mtn.
157. Loss of final ŋ in Tsw is unexplained.

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The following abbreviations are used:

AL	<i>Anthropological Linguistics</i>
BaBu	<i>Bahasa dan Budaya</i>
BTLV	<i>Bijdragen tot de Taal-, Land- en Volkenkunde</i>
OL	<i>Oceanic Linguistics</i>
PL	<i>Pacific Linguistics</i>
TTLV	<i>Tijdschrift voor Indische Taal-, Land- en Volkenkunde</i>
VKI	<i>Verhandelingen van het Koninklijk Instituut voor Taal-, Land- en Volkenkunde</i>

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