

THE GENETIC ASSOCIATION OF AINU

by

Yumi Yanagizaki
B.A., Meiji University, Tokyo, 1988

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of

MASTER OF ARTS

in the Department of Linguistics

We accept this thesis as conforming
to the required standard



Dr. B. P. Harris, Supervisor (Department of Linguistics)



Dr. T. M. Hess, Departmental Member (Department of Linguistics)



Dr. R. C. Morgan, Outside Member (Pacific and Asian Studies)



Dr. W. H. Alkire, External Examiner (Department of Anthropology)

© Yumi Yanagizaki, 1994

University of Victoria

All rights reserved. This thesis may not be reproduced in whole or in part,
by photocopying or other means, without the permission of the author.

PL722

A45Y9

Supervisor: Dr. B. P. Harris

ABSTRACT

One of the most interesting issues concerning the Ainu language is the uncertainty of its genealogy. Ainu is often classified as a language isolate whose genetic affiliation to other languages or language families has not been conclusively proven, as is the case with Japanese, Ainu's neighbour. The most widely debated and studied hypothesis is the one which assigns Ainu to the Altaic family, assuming the subgrouping of Japanese-Korean and Ainu together within the family. Today, the most time-honored hypothesis seems to be the one relating Ainu to the Austronesian languages. From a linguistic point of view, the recent attempt to demonstrate the affiliation between Ainu and the Austronesian languages was made by Murayama (1992) following Gjerdman (1926:29-84), yet fully-fledged linguistic investigation has not been made involving various dialects of Ainu and recent materials for Proto-Austronesian. It is the purpose of my thesis to provide conclusive evidence relating Ainu to the Austronesian languages. The study is proceeded by setting up Ainu roots for comparison with Proto-Austronesian. A considerable number of cognate sets and regular sound correspondences between Ainu and Proto-Austronesian are found as a result of the comparison.

Examiners:

[Redacted]

Dr. B. P. Harris, Supervisor (Department of Linguistics)

[Redacted]

Dr. T. M. Hess, Departmental Member (Department of Linguistics)

[Redacted]

Dr. R. C. Morgan, Outside Member (Pacific and Asian Studies)

[Redacted]

Dr. W. H. Alkire, External Examiner (Department of Anthropology)

CONTENTS

Abstract	ii
Contents	iii
Acknowledgements	v
Dedication	vi
 Chapter I: Introduction	 1
1.1 The Ainu People and Dialect Division	3
1.1.1 The Distribution of the Ainu People	3
1.1.2 Dialect Division	4
1.2 Genetic Affiliation	5
1.2.1 The Ainu-Japanese Hypothesis	6
1.2.2 The Ainu-Altaic Hypothesis	6
1.2.3 The Ainu-Austronesian Hypothesis	11
1.3 Summary	11
 Chapter II: Principles of Comparison	 13
2.1 The Comparative Method	14
2.2 Handling Onomatopoeia	17
2.3 The Ainu Roots	18
2.4 Austronesian Root Theory	19
2.5 Summary	21
 Chapter III: Analysis	 22
3.1 Ainu and PAN Consonant and Vowel System	22
3.2 The Comparison of Ainu and PAN	24
3.2.1 The Cognate Sets	24
3.2.2 The Ambiguous Sets	99
3.3 Regular Sound Correspondences	105
 Chapter IV: Summary	 109
4.1 Linguistic Evidence	109
4.1.1 Vowel Harmony	109
4.1.2 Cognate Sets	110
4.1.3 Locating Ainu in the PAN Tree	110

4.2 Extra-linguistic Evidence	112
Bibliography	114
Appendix A: Abbreviations and the Sources	120
Appendix B: A Map of the Relevant Area	121

ACKNOWLEDGEMENTS

First of all, I would like to thank Dr. B. P. Harris for her careful proof reading and her assistance toward completion of my thesis. I also want to thank Dr. T. M. Hess and Dr. B. F. Carlson for their helpful comments and Dr. R. C. Morgan and Dr. W. H. Alkire for their valuable suggestions. I also convey my gratitude to Dr. G. N. O'Grady for providing me with much useful information. Dr. Paul Agbedor and Ph.D. student Sue Ying's assistance through out my M.A. program meant a lot to me. I am indebted to Ph.D. student Susan Fitzgerald for her careful proof reading and valuable suggestions. Finally, my cousin Naoki Tomita was a great help for arranging my trip to Hokkaido and driving me around in the summer of 1993.

DEDICATION

To my mother for her understanding and patience

Chapter I

INTRODUCTION

Uchiu Ninkari

Itakan awa
Ainu kusu
uitaknuya,
aturen-kamui
utarorke
humetoko
koenninke.

When I speak, I wonder
if they (gods) know my words,
Is it because they are human?
One after another,
my Gods disappear
followed by the sound.

Nep humi ka
oarar isam,
shiyoro keutum
ayaikore.

Finally there is
complete silence.,
Bewildered was I.

Tata otta
tekush chikap ne
rabush chikap ne
ohumsaknopo
kamuinish-ka
anechararse.

Here,
like a bird with hands,
like a bird with wings,
soundlessly
now
I run over the sky.

-Ainu Yukara (oral literature) *Uchiu Ninkari* cited from Kannari (1966).

(The translation is added by the author of this thesis.)

In terms of genetic classification, Ainu is often classified as a language isolate. In spite of various suggestions made relating Ainu to such language families as Altaic, Austronesian, Indo-European or individual languages such as Gilyak (a Siberian language), Eskimo, Japanese, Korean, or even to Hebrew, none of them has progressed beyond the level of speculation.

Today the most plausible affiliation of Ainu seems to be with the Austronesian languages. It is the purpose of this thesis to demonstrate the possible genetic connection of Ainu and the Austronesian languages, based on the comparative method, since the usefulness of the method has been well attested in the reconstruction of Proto-Austronesian (from here on PAN).

In this chapter, I will present a brief overview of the Ainu people and their language and three possible genetic affiliations of Ainu and other languages (the Ainu-Japanese, the Ainu-Altaic and the Ainu-Austronesian hypotheses). In the next chapter, working principles for the comparison are discussed. In Chapter 3, the cognate sets and their regular sound correspondences are listed. Finally in the last chapter, the summary of the comparative study is given with corroboration from extra-linguistic evidence. In the appendices, abbreviations I have used in this thesis and a map of the relevant area are provided.

1.1 The Ainu People and Dialect Division

1.1.1 The Distribution of the Ainu People

The Ainu are people living on the northern Japanese island of Hokkaido.¹ The word *Ainu* means "person, human being" in their language. The prehistoric distribution of the Ainu is not easily discernable, but many place names in the northern part of the main Japanese island of Honshu indicate that they might have once lived in that region. Ainu place names are also found in the southern part of the Kamchatka peninsula and even in Kyushu island located in the south of Japan (see appendix B for a map of the relevant area).²

Recent history indicates that the Ainu have once lived on the Chishima (Kurile) Islands and Karafuto (Sakhalin), Hokkaido has been the main area of Ainu habitation. Late in the 19th century, the Japanese government deported most of the Chishima Ainu to the southern part of the area, where their numbers were drastically reduced by deplorable living conditions, poverty, and disease. It is believed that there are no longer any direct descendants of Chishima Ainu still living.

Southern Karafuto had a relatively large Ainu population, but after the war almost all of them were repatriated to Hokkaido together with the Japanese who had been living there.

¹ Racial classification of the Ainu is still unknown. First they were thought to be a Caucasian race from their non-oriental features. However, recent anthropological studies supports a theory that the Ainu and the Polynesians had a common ancient ancestry (see Chapter 4 for details).

² Place names with Ainu words *-nay* "stream", *-pet* "river" are especially numerous throughout Japan.

In the 1940 census, the Hokkaido Ainu numbered 16,170, and the 1935 census reported the population of the Karafuto Ainu to be 1,512. In recent years, as a reflection of the Japanese government policy of advocating assimilation of the Ainu into Japanese society, the Ainu have not been considered as a distinct ethnic group for census purposes. In addition, because of the protest of Ainu people concerning their family registering system (Ainu families used to be marked by the letter A in their family register), there are no figures available for the contemporary Ainu population. The current Ainu population is estimated to be around 16,000, but as a result of intermarriage between Ainu and Japanese, pure blooded Ainu are said to number less than 1 percent of that figure (Shibatani 1990:3).

1.1.2 Dialect Division

The Ainu language was once spoken in the Tohoku area of northern Honshu and as far north as Kamchatka. Corresponding to the three main geographical areas in which the Ainu live, three major dialectal divisions have arisen: Hokkaido, Karafuto (Sakhalin), and Chishima (Kurile). The three dialects can be divided into sub-groups, but unfortunately only a limited number of these sub-dialects have been investigated in detail and in many cases the last speaker is long dead. Today the majority of the Ainu have adopted Japanese customs and life-styles as well as the language. There have been no serious attempts at a revival of the Ainu language. The language is almost extinct.

1.2 Genetic Affiliation

From a linguistic perspective, as is mentioned earlier in this thesis, there have been various hypotheses made regarding the origin of Ainu and their genetic affiliation to other language families such as Indo-European, Paleosiberian, Altaic, and Austronesian. Also some attempts have been made to relate Ainu to individual languages such as Japanese, Eskimo, and even Hebrew. However, little substantial proof has been provided in order to support these hypotheses.

For instance, because of their nonoriental features, early Westerners thought that the Ainu were a Caucasian race, which caused some linguists to attempt to relate the Ainu language to the Indo-European languages. However, the hypothesis was attacked by scholars because of the inadequacy of its theoretical approach; for example in order to support this, Lindquist (1960) provided a list of fourteen Ainu words and Proto-Indo-European forms relating to "light" and "darkness".

The idea of linking Ainu to Paleosiberian languages also stands on shaky ground, since this classification is based on geographical grouping (see Worth (1963) for the details) rather than on linguistic evidence.

Today the most feasible hypothesis relating Ainu and other languages seems to be one of the following: the Ainu-Japanese, the Ainu-Altaic and the Ainu-Austronesian hypotheses. An outline of these hypotheses and their feasibility are discussed in the following subsections.

1.2.1 The Ainu-Japanese Hypothesis

This hypothesis relates the Ainu and Japanese languages, regardless of their uncertain origins. From their geographical proximity, Ainu and Japanese are likely candidates for linguistic grouping. In spite of their distinct linguistic structures, the lexical comparison of Ainu and Japanese reveals a possibility that they have a common origin. The comparison of lexicons indicates a very close connection between some parts of old Japanese and Ainu (e.g. Ainu *moro* "house", Old Japanese *muro* "protecting shed house, cave").

However, since Kindaichi (1960) (the most influential linguist in Ainu study) gave an unfavourable opinion of this theory, it had not been supported until recently in Patrie's work (1982) relating Japanese, Korean and Ainu. The problem with this hypothesis rests on the fact that although there are many related words found between Japanese and Ainu, because of the geographical contiguity and close historical contact, it is extremely difficult to distinguish true cognates from loan words.

1.2.2 The Ainu-Altaic Hypothesis

This hypothesis relates the Ainu and the Altaic languages, placing Ainu in the Altaic family. Street (1962:92-99) suggests the possibility of a distant Altaic-Ainu connection, assuming a Proto-North-Asiatic language family which split into Proto-Altaic and another unspecified branch under which Ainu, Japanese and Korean are placed.

The most recent major work on the genetic affiliation of Ainu has been carried out by Patrie (1982). Patrie hypothesizes a subgrouping of Korean, Japanese and Ainu and their possible relationship to the Altaic family. However, some issues remain to be questioned regarding this hypothesis.

If we accept Ainu as an Altaic language, it is difficult to explain the existence of word initial /r-/ in Ainu (e.g. *rar* "eyebrow", *rekut* "neck, throat"), since Proto-Altaic liquids never appear in this position, unless we assume that Ainu has borrowed words with /r-/ from some other sources. But not all the words with /r-/ can be considered borrowings because they are numerous, and as given above, they also include those basic vocabularies which are considered resistant to change.

A second problem arises in the difference between Ainu and Altaic vowel harmony.³ Poppe (1965:177) notes vowel and consonant harmony as a common feature shared by the Altaic languages. In the Altaic family, typical cases of vowel harmony can be defined by the backness and the roundness of the vowels. The following examples of the Turkic noun suffix *-lang* are cited from Poppe: *batta-lang* "suppression", *sobo-lang* "compensation".

One of the most striking things about vowel harmony is that in most of the languages which have it, the pattern of vowel alternation goes back to prehistoric times, perhaps even to the proto-language. This suggests that vowel harmony, along with lexical evidences can be a reliable piece of evidence in relating two languages within a language family.

³ The term "harmony" in phonology, can be defined as "long distance assimilation"; i.e., a segment is assimilated to the quality of another which precedes or follows it in the word.

Chiri (1974:201-221) points out that one of the most interesting genetic and typological considerations is the possible existence of vowel harmony in Ainu. Chiri divides the vowels into three groups. The vowels of C group may co-occur with either the A group vowels or the B group vowels, but the A group vowels and the B group vowel may not co-occur. The members of the same group co-occur.

A group: a, u
B group: o
C group: i, e

However, Chiri's analysis is criticised by Patrie (1982:130). Patrie states that Chiri's work is based on statistical evidence only; that is, the combinations of the harmonic vowel groups are merely in greater abundance than the combination of other harmonic groups.

The problem of Ainu vowel harmony is that there is no clear phonetic basis separating one harmonic set from the others. In other words, harmonic sets cannot be differentiated in terms of the quality of the vowels. However, this is not the case in other Altaic languages, since the typical Altaic vowel harmony involves assimilation in respect to backness and roundness, as discussed above. Ainu vowel harmony may be regarded as a disharmony system.

Ito (1984:505-513) demonstrates a nonlinear analysis of the Ainu verbal and nominal system within the frame work of autosegmental phonology, providing evidence for the disharmony system in Ainu.⁴ Although Ito mentions that the disharmony phenomenon in the Ainu system is by no means an isolated and

⁴ Ito regards a set like (c) as "a disharmonic set" as opposed to "a harmonic set" (b) as illustrated in the following data.

unprecedented case, this system hampers us in relating Ainu to the Altaic languages, since Altaic vowel harmony is characterised by its assimilation process, in other words a "harmony system" rather than a disharmony system. The following are examples of the harmonic sets in Ainu taken from Chiri (1974:201-221) and Ito (1984:505-513) (Ito's data are cited from Chiri).

(a). CVG + e (G stands for "glide")			ray-e "kill"
			chaw-e "solve"
			hew-e "slant"
			chiw-e "sting"
			poy-e "mix"
			huy-e "observe"
(b). CaC + a (Root vowel identical to			mak-a "open"
CeC + e suffix vowel)			ker-e "touch"
CiC + i			pis-i "ask"
CoC + o			pop-o "boil"
CuC + u			sus-u "shake"
(c). CuC + i (Nonlow vowel roots taking			mus-i "choke"
CoC + i high vowel suffixes with			pok-i "lower"
CiC + u opposite backness value.)			pir-u "wipe"
CeC + u			ket-u "rub"
(d). CaC + i (Low vowel roots taking			kar-i "rotate"
CaC + u high vowel suffixes)			ram-u "think"

Ito sets up a Melodic Dissimilation Rule (MDR) to account for the disharmony system.

Melodic Dissimilation Rule (MDR)

[+high]---> [-βback] / [βback]_____

The sole difference between the roots in (b) and those in (c), is that the former have [βF], whereas the latter have [βF][+high].⁵ In (b) simple spreading of the

⁵ [βF] can be any kind of segment which is characterized by feature F, β has a value + or -.

root vowel features to the following suffix takes place, and in (c) mapping of the [+high] which undergoes the MDR results in "disharmony". Ito claims (a) to be independent evidence for the MDR, since we can capture the parallelism of the glides of the diphthong roots and the disharmonic suffixes of the nondiphthong roots.

Diphthong Roots

Ciw, Cew, Cuy, Coy, Caw, Cay

Suffixed Nondiphthong Roots

CiC + u, CeC + u, CuC + i, CoC + i, CaC + u, CaC + i

Although the diphthong roots have turned out to provide strong independent support for the MDR, Ito also notes that the occurrence of the -e suffix itself still awaits explanation. She also could not provide any convincing explanation for (d). Her analysis cannot be extended to this case, in which the *a*- roots may occur with either back or front suffixes. She assumes that /a/ is itself unspecified for backness. The backness feature then cannot be spelled out on the [+high] by MDR, because the environment of the rule is not met; thus we expect variation in the suffixes of the *a*- roots.

Although some of Ito's analysis is not clear, it is evident that the Ainu vowel harmony system demonstrated above is clearly different from that of the Altaic languages.

In addition to the problems discussed above, affiliating Ainu to the Japanese and Korean languages under a branch of the Altaic family means that we will have to somehow accept the controversial theory of the origin of Japanese and Korean. Major attempts to relate Japanese and Korean are made by Martin (1966:185-251) and Whitman (1985); however, it is still difficult to determine

whether the similarity between the two languages can be attributed to their common ancestor or to the typological similarity. Thus this hypothesis is still open to question.

1.2.3 The Ainu-Austronesian Hypothesis

This hypothesis relates the Ainu and the Austronesian languages spoken in the Pacific region. The first major attempt to connect Ainu to the Austronesian languages was made by Gjerdman (1926:29-84). Three years later, the Russian ethnologist Sternberg (1929:755-799) published an article from an anthropological point of view suggesting that the Ainu language is of southern origin. But after this, having been influenced by the Japanese-Altaic hypothesis dominating in the 1960's, no one seriously considered this possibility until Murayama's recent work (1992). This study involves a lexical comparison of the Ainu and Austronesian languages. The major problem is that his data base is extremely limited and out of date. The main data base that Murayama worked on is mainly Dempwolff's Proto-Austronesian (1934-38), now basically considered to be Proto-Malayo Polynesian. Thus, recent materials from Proto-Austronesian are ignored in his study. He also stops at investigating only one dialect of Hokkaido Ainu.

1.3 Summary

There are three feasible hypotheses regarding the relationship of Ainu with other languages: the Ainu-Japanese hypothesis, the Ainu-Altaic hypothesis and the Ainu-Austronesian hypothesis.

The former two hypotheses suffer from various problems as has been discussed already in this chapter. The major difficulty for the Ainu-Japanese hypothesis is determining pure cognate sets from borrowed forms due to the geographical proximity of the languages. However, if Benedict's (1990) study relating Japanese to the Austronesian languages is true, it is still highly probable that cognate sets found between the Ainu and the Japanese might be the result of their common history. This hypothesis awaits the confirmation of the Ainu-Austronesian hypothesis. The Ainu-Altaic hypothesis is less feasible than the Ainu-Japanese hypothesis, because of the phonological disagreement between Altaic languages and Ainu: lack of initial liquid in Proto-Altaic and aberrant vowel harmony systems between the two.

Now as both linguistic and anthropological studies show, the Ainu-Austronesian connection does seem to be the most feasible hypothesis. The geographical distance minimizes the possibility of borrowing, thus most cognate sets observed between the Ainu and Austronesian languages can be regarded as reflexes of the common ancestral forms. It is the purpose of this thesis to provide more convincing evidence to support the Ainu-Austronesian hypothesis. This will be based on a cognate search and plausible regular sound correspondences between Ainu and Proto-Austronesian, using updated PAN forms and larger Ainu data base.

Chapter II

PRINCIPLES OF COMPARISON

Preceding the formal comparison, the principles of the comparative study between the Ainu and the Austronesian languages are discussed in this chapter.

Firstly, in the following section I will discuss the basic methodology of historical linguistics, that is, the comparative method and its applicability to a language such as Ainu, which is often classified as a language isolate and has no written system. In section 2, the nature of onomatopoeic vocabulary and its treatment in the comparison is discussed. The difficulty of dealing with such vocabulary has often been discussed in the literature, for its independent, spontaneous creation and for the cross-linguistic tendency of onomatopoeia to associate certain phonetic segments or segment sequences with certain types of sound.⁶ In section 3, the reason for setting up Ainu roots prior to the actual comparison with PAN and the problem of reconstructing Proto-Ainu will be discussed. In the last section, I will discuss the Austronesian root theory and the validity of drawing the Austronesian radicals into the comparison with Ainu.

⁶ For instance, a high front vowel [i] has tendency to refer to relatively high-pitched noises, compare PMP **gikgik* "tiggle, titter" and English *giggle*.

2.1 The Comparative Method

Although it has been a long time since the Neogrammarian hypothesis was first applied in historical and comparative linguistics, it still remains as a way of identifying regular sound correspondences and as a way of using that regularity as a basis for establishing language relations.

Since the applicability of the comparative method has been well attested in the reconstruction of Proto-Austronesian (e.g. Blust 1970, 1980, 1983, 1989), I will proceed with the comparison here based on this method.

First, I will discuss the principles of the comparative method and its powerful application. Baldi (1990:1-13) provides central notions relating to the establishment of genetic units and the reconstruction of proto-languages. He states that these notions have been applied to non-Indo-European languages, and that the apparent universality of their usefulness is a basic premise of historical and comparative linguistics.

The major notion running through the comparative method for the establishment of genetic affinity of language is the Neogrammarian principle: regular phonological change, and cognates in the core vocabulary area. This means that one should expect to find consistent and systematic sound correspondences or matchings between cognate forms in cognate languages. Hock (1986:35) states the Neogrammarian hypothesis as follows.

Neogrammarian regularity hypothesis restated: Change in pronunciation which is not conditioned by non-phonetic factors is regular and operates without exceptions at a particular time and in a particular speech community, with possible environmental restrictions. Certain changes (including dissimilation and metathesis) are exempt from this hypothesis.

Since basic vocabulary and inflectional endings are considered to be the least easily borrowed and the most resistant to change, I will start the comparison with these lexical items, which includes words such as basic kinship terms, pronouns, body parts, lower numerals, basic environmental terms and those related to universal human experiences and such biological human activities as eating and sleeping. However, since such generalizations have been criticized as sheer mythology based on insufficient evidence (Haas 1969:80 and others), I have widened the range of the data base and examined items which do not appear to meet the above criteria.

Now we have to ask how far the comparative method can be extended. Since I am comparing Ainu and the Austronesian languages whose genetic origins have not been attested, the applicability of this method is naturally to be questioned prior to the comparison. This is the area where linguists disagree over the usefulness of the establishment of long-distance linguistic relationships and remote proto-languages. Baldi (1990:1-13) notes that the method has a general applicability, not only to Indo-European languages, but to languages and language families which are markedly different from these. Hoenigswald (1990:375-384) also emphasizes the power of the comparative method and confirms its general applicability. He states that the comparative method and its adjuncts are in principle general rather than language-specific or family specific.

As I noted earlier in this thesis, it is widely accepted that Ainu is best classified as a language isolate. However, Winter (1990:11-24) even encourages normal application of the comparative method to languages extremely distantly related with one another including those classified as language isolates. Concerning the language isolates, Haas (1969:61) states,

Their genealogical classification can be determined, if at all, only by comparing them with protolanguages of the first order or even of the second order or more.

Hence, in this thesis, to be conservative, the majority of the comparisons of Ainu and Austronesian languages are based on PAN; if the upper proto-level comparison is not possible, then the lower level comparison is demonstrated. In other words, when there is no cognate found between Proto-Austronesian (upper proto-level) and Ainu or when Proto-Austronesian forms are not available, but there are cognates found between Austronesian subgroups (lower proto-level)⁷ and Ainu, these cognates are included in the comparison.

The next question to be answered here is the applicability of the comparative method to a language such as Ainu which does not have a writing system, unlike Indo-European languages. The success of Bloomfield's reconstruction of Proto-Algonkian can be a reasonable answer to this question. Although many Indo-European scholars thought reconstruction of the proto-language could not be accomplished in the absence of written records of earlier stages of the languages, Bloomfield was able to reconstruct Proto-Algonkian by using the same technique that has been applied by Neogrammarians in the reconstruction of Proto-Indo-European.

Thus it now seems plausible to apply this method and its principles to the comparison of Ainu and Austronesian languages.

⁷ Formosan, Malayo-Polynesian, Western-Malayo-Polynesian, Central-Eastern Malayo-Polynesian, Central Malayo-Polynesian, Eastern Malayo-Polynesian, Oceanic etc.

2.2 Handling Onomatopoeia

As a result of comparison, a considerable number of onomatopoeic cognates have been found between Ainu and PAN. The difficulties of dealing with onomatopoeic vocabulary have often been pointed out, since the imitation of a sound can be realized in more than one way and new onomatopoeic forms can be created at any time, independent of old forms which have been previously used in the history of the language.

Secondly, as I mentioned earlier in this chapter, there is a strong tendency in onomatopoeia to associate certain phonetic segment sequences with certain types of sound which can reflect common cross-linguistic tendencies. Hence, in order to avoid proposing a cognate set which might be a mere coincidence due to the onomatopoeic quality of the items, the cognates are included in the list only when it is uncertain whether the items are onomatopoeic or not. The items that follow (which are highly probably onomatopoeia) are excluded from the cognate lists in Chapter 3.

- (a). kiki "scratch" (Y H SR O B A N S) -Ainu
 *kiskis "scrape off" (PANBL 89) -Austronesian
- (b). sirusiru "rub" (Y SR O B A N S K) -Ainu
 *S₁₃uRaQ "rub" (PHNTS) -Austronesian
- (c). put-ke "swell <-- put "puffing sound" -Ainu
 + -ke
 *bu(n)tun "swell" (PAND) -Austronesian

2.3 The Ainu Roots

It would be ideal if Proto-Ainu forms were available and if we simply could make a comparison between Proto-Ainu and Proto-Austronesian. However, Ainu is virtually extinct and the dialects have undergone various kinds of innovations.

In spite of this difficulty, the first and probably the last effort was made by Hattori (1967:207-223), when he tried to reconstruct the phonological structure of Proto-Ainu. Unfortunately, however, his attempts ended with the reconstruction of phonological structure and did not go as far as lexical reconstruction. He claims that the Karafuto dialect, which has a short and long vowel contrast, preserved the Proto-Ainu structure, and the remaining Ainu dialects developed a pitch system and lost the short-long contrast. He bases this hypothesis on the assumption that long vowels in the Karafuto dialect correspond to rising pitch in the Hokkaido dialects. When they do not correspond, for instance, when Karafuto Ainu has long vowels in the first syllable but Hokkaido dialects have rising pitch on the second syllable, it is assumed that the Proto-Ainu phonological structure was *CVVCVV.⁸ However, his analysis fails in some cases and creates unusual super-heavy syllables in the language (e.g. *kaariip* "a ring"). His study also does not show any convincing evidence that the vowel length contrast of Karafuto Ainu reflects a contrast in the proto-language.

⁸ The first long vowel was preserved in the Karafuto dialect, which is considered to be conservative in terms of the quality of the proto-vowel, and the second long vowel was based on the assumption that the rising pitch in the Hokkaido dialects is the reflection of a long proto-vowel, which was preserved only in the Karafuto dialects.

Given this ambiguity and some unclear morphological problems, in this thesis I will make use of Hokkaido Ainu as a diagnostic for establishing the vowel length of the roots for convenience, simply because they are attested in the majority of Ainu dialects. For the unclear relationship between Hokkaido Ainu and the other two major dialects, namely Karafuto and Chishima, instead of reconstructing the proto-forms, I will establish the possible roots to be compared with Proto-Austronesian. Establishing the Ainu roots is inevitable prior to the comparison, for the reason that some dialects have gone through phonological innovations and because numerous lexical items contain fossilized affixes attached to their roots.

2.4 Austronesian Root Theory

The first recognition that many of the predominantly disyllabic Austronesian languages contain a recurrent element -CVC is credited to Brandstetter (1916:1-65). The first full-fledged study of the theory was Blust's (1988a) contribution. Following Blust, Zorc (1990:175-194) and Nothofer (1990:132-152, 1991:223-258) also discussed the existence of the recurrent elements which are called "roots" by Blust and Zorc and "radicals" by Nothofer and Dyen (p.c. from Nothofer). In this thesis I will use the latter term "radicals" in order to avoid confusion with the Ainu roots. Blust concludes that most radicals have the shape CVC (e.g. *-lem* "dark") and the majority of them occur in the final syllable. But Zorc demonstrates that some radicals of the shape CV- (e.g. *bu-* "open") also occur in both the initial syllables of word bases. Nothofer establishes other initial radi-

cals of the same shape and medial radicals of the shape $V(N)(C)V^9$ (e.g. $a(N)(C)u$ "mix, knead"). Nothofer also argues that certain radicals can occur both in the initial and in the final syllables.

In the course of my comparison I have noticed that the same Austronesian radicals established by these scholars can also be compatible with Ainu data. Hence, in Chapter 3, I have provided the Austronesian radicals, as well as the cognates as additional evidence for the Ainu-Austronesian hypothesis. The following are example data extracted from Chapter 3. The items listed first are Ainu forms, and the forms whose sources are identified are the corresponding Austronesian radicals.

- (9) **kap** "bark, skin"
 kap "bark, skin" (Zorc 1990)
- (25) **nisat** "dawn"
 i(C)a "shine, sparkle, light, dazzle" (Nothofer 1991)
- (44) **par** "flat, wide"
 paD "flat, level" (Blust 1988a)
 baR "tastless, flat" (Zorc 1990)
- (51) **ram** "though, mind"
 Dem "think, ponder, brood, remember" (Blust 1988a)
- (64) **'imer** "light, lightning, shine"
 NaR "ray of light" (Blust 1988a)
- (76) **maka** "open"
 aCa "mouth, wide, open etc." (Nothofer 1991)
- (115) **ri** "strip"
 riC "sound of ripping" (Blust 1988a)

⁹ *N* and *C* stand for a nasal and a consonant respectively.

2.5 Summary

As has been already discussed, we are now able to proceed with the comparison between the Ainu and the Austronesian languages based on the traditional comparative method, despite a lack of written documents and the isolated status of the Ainu language.

For the comparison with PAN, instead of reconstructing Proto-Ainu forms, tentative root forms are to be established.

The recurrent elements in the Austronesian languages, "radicals" are to be provided (where they are available) as further evidence for the cognate sets.

The apparent onomatopoetic cognate sets are to be excluded from the comparison for the purpose of separating the putative cognates from those which might be phonologically similar by mere coincidence. However, as Blust (1988a) notes, the line between onomatopoetic and non-onomatopoetic words in Austronesian languages is not always easy to draw.

Chapter III

ANALYSIS

Preceding the analysis of data, Ainu and PAN consonant and vowel systems are given in the following section. Section 2 of this chapter compiles a list of cognate sets found between Ainu and Austronesian languages. The regular sound correspondences between Ainu and PAN are given in section 3 along with a discussion on mergers and splits observed between the two systems.

3.1 Ainu and PAN Consonant and Vowel System

Although voiced stops are excluded from the Ainu consonant system, Ainu sometimes does not show voiced and voiceless distinction among the stops in colloquial speech. The number of PAN liquids, nasals, sibilants and affricates have reduced in the Ainu system. But as can be seen from both inventories, the two systems still remain very similar to each other. As for the transcription of Ainu data, I have followed Hattori's (1964).

Ainu vowel and consonant system:

Bilabial	Dental/Alveolar	Velar	Glottal
p	t	k	'
	s		h
	c		
m	n		
	r		
Vowels		Semi-Vowels	
i	u	w, y	
e	o		
a			

The reconstruction of Proto-Austronesian phonemes is still controversial. Here I have used Blust's system (1990:231-270) shown in the following table. **t* is a dental or alveolar stop. **C* and **c* are alveolar and palatal affricates respectively. **z* is a palatal affricate. **S* is an alveolar or alveo-dental fricative distinguished from dental **s*. **R* is an alveolar or uvular trill. **r* is an alveolar tap. PAN **L* is not distinguished from **n* by Dempwolff. The quality of the sound is considered to be either **ɾ* or **n*. **ɲj* is a palatal nasal.

In contrast to the consonants, there has been little controversy over the PAN vowel system. It is generally agreed that PAN had four vowels.

In this thesis, most transcriptions are based on the original reconstruction except the following; Dempwolff's palatal plosives are written as **tj*, **dj*, **kj*, **gj*, instead of using apostrophes. Retroflexed **ɖ* and **ɗ* are written using the capital letters **T*, **D*.¹⁰ Retroflexed **ɭ*, and schwa **ə* are written as **r*, and **e* following more conventional orthography.

PAN vowel and consonant system:

Bilabial	Dental/Alveolar	Palatal	Velar	Uvular	Glottal
p	t		k	q	'
b	d		g		
			j		
		C	c		
			z		
	s	S			h
m		n	ɲj	ŋ	
		L			
		l			
		r			
		R?		R?	
Vowels		Semi-vowels			
i	u	w, y			
e					
a					

¹⁰ PAN **T*, **D* are excluded from Blust's inventory. It is still controversial whether PAN had palatalization, retroflexion, or both.

3.2 The Comparison of Ainu and PAN

In the following section, discussion of the Ainu root is included only when it is necessary for determining the Ainu root to be compared with PAN. Where the result is obvious, discussion has been omitted.

The bold items indicate the forms to be compared. The items which are not highlighted by bold letters are the data sources for the establishment of the Ainu root. The asterisk mark (*) is used for the Ainu roots and Proto-Austronesian in order to indicate that they are not attested forms, but hypothetical forms.

When it is impossible to establish the Ainu root for lack of evidence, the items which will be compared with PAN forms are shown by bold letters without the asterisk mark (*).

The cognate sets are listed in alphabetical order of the gloss. The regular sound correspondences are given in section 3 of this chapter.

3.2.1 The Cognate Sets

(1) "above, ascend"

***ka** "on, above, ascend" -root
 ka "on, above" (Y H SR O B N)
 kaata "on, above" (K)
 kata "on, above" (C)

***[tj]akat** "ascend" (PAND)

The Ainu root: The Ainu forms *kaata* and *kata* may be compared with the PAN form, however, the *-ta* in these Ainu forms is most likely a postpositional particle, in particular locative marker. Therefore I would establish the root as **ka*.

The Comparison: Dempwolff also reconstructs **[tj]akaj* "ascend",¹¹ but in either case, establishing the Ainu root without *-ta* does not eliminate the feasibility of a relationship between the above two forms. When we compare PAN **-kat* or **-kaj* and Ainu *ka*, both segments *k* and *a* are regular (for regular sound correspondences, see section 3).

(2) "accompany"

tura "accompany" -root
tura "take, go accompanied by-, (Y SR O B A K)
 follow after someone coming, or going"

**duluR* "accompany" (PANBL 80)

The Ainu Root: The above Ainu form is also used as the comitative particle "with".

The Comparison: The reason for the irregular sound correspondence of Ainu *-a* and PAN **-u-* is not clear, however, *tur-* and *dul* show perfectly regular correspondences. The above forms also agree well in terms of semantics.

(3) "acquainted, know"

**('am-)kir* "acquainted, remember, recall" -root
'amkirkur "acquaintance" (Y A N)
'amkir "acquainted" (SR O B)

**kilala'* "know" (PANDYMC)

¹¹ Dempwolff's transcription **j* = **y* in Blust's system.

The Ainu Root: Perhaps *'am* has derived from *ram* "heart, mind", which is often used in Ainu in those words associated with mental or spiritual activities (e.g. *'eram'an* "memorize it", *ramutuy* "surprise").

The Comparison: The above set shows good agreement in both phonology and semantics. The correspondence between PAN **-l-* and Ainu *-r* is regular (see section 3).

(4) "afraid, frightened"

**sito* "afraid" -root
sitoma "afraid" (Y H SR O B A N)

**sinDak* "frightened" (PANDLO)

The Ainu Root: *-ma* is an inflectional ending. Thus the root should be *sito*.

The Comparison: A widely spread phenomenon known as "nasal accretion" is recorded in the history of Austronesian languages. Dahl (1973:100) argues;

---insertion of a nasal in new words was abandoned, but the old instances survived without assimilation. But where the original stops and affricates remained as stops, the assimilation took place. Thereafter the natural way to express an "emphatic" nasal was in the form of a homorganic prenasalization of the following stop. We must therefore suppose that the instances of nasal accretion, having come into being later in the history of the language, were created in the homorganic form.

The prenasalization was lost in Ainu in this case, and only the stop has been retained (see (7) for a loss of prenasalization in Ainu). In other cases like *kunne* "black" (13), the following stop was completely assimilated to the preceding nasal. I have found two forms elsewhere in my data, in

which PAN nasal accretions have been preserved in Ainu; *'anpa* "hold" (52), *'anpe* "rain" (83). Thus, there does not seem to be a regular pattern for the development of PAN nasal accretion in Ainu. Blust (1990:257) also mentions sporadic prenasalization as one of apparent irregular phonological change observed in Austronesian languages.

The correspondence of the vowels Ainu *-o-* and PAN **a* is regular (see section 3).

(5) "alive, living"

hu "alive" -root
hu "alive" (Y SR O B A N)

**q₂uD₂ip* "alive" (PANTS)

The Comparison: The correspondence of PAN **q* and Ainu */h/* is not regular, but from an articulatory point of view, this change is not impossible. A good semantic match bears out this comparison.

(6) "all"

**'opi(-tta)* "all" -root
'epitta "all" (Y SR)
'opitta "all" (H SR O A N S)
'oputta "all" (B)

**(')abih* "all" (PAND)

The Ainu Root: Rather than regarding the initial vowel *-e-* of the Yakumo and Saru forms as a fossilized prefix, it seems more plausible to think that it is simply a fronted *-o-* triggered by the quality of the following vowel *-i-*. The second vowel of the Bihoro form, may be attributed to the effect from

the preceding consonant *-p-*, since labials have a tendency to favor roundness and backness of vowels. As Hock (1986:141) states, vowel change can often be conditioned by preceding consonants. Or it is possible that it has been assimilated to the backness of the preceding vowel *-o-*. In either case, we assume that the quality of the original second vowel was *-i-*. *-ta* in the Ainu form may be an emphatic particle and has been geminated.

The Comparison: More examples show that PAN **a* has split into /a/ and /o/ and PAN **p* and **b* have merged to /p/ in Ainu (see section 3 for the correspondences). Thus, the Ainu form 'opi- and PAN **(')abih* show completely regular sound correspondences.

(7) "back, backside, back up"

**setur* "back" -root
setur "back" (Y H SR O B S)
seturu "back" (A N K)

**uNduR* "back up" (PPHZ)
**puNkuR* "back side" (PPHZ)

The Ainu Root: The final vowel of the A, N, K forms is an echo vowel. Ainu tends to have a vowel after syllable final /r/ echoing the immediately preceding vowel.

The Comparison: Chiri (1954:229) analyses the Ainu form as having been derived from *setur* < *se* "carry on a back" + *utor* "side". Hence, I will assume the following process; **se-uNduR* > **seNtur* > *setur*. The above two Philippine forms show that in the history of the languages, the semantic shift between "back up" and "back side" may have occurred, along with

minor sound changes. Similarly, in Ainu *utor* might have had a meaning associated with "back", but the meaning might have been carried over to *se-* and *utor* has slightly shifted the meaning from "back" to "side". In colloquial Ainu, *u* is deleted in the case of an *eu* sequence. (e.g. *heheupa* > *hehepa* "to peak"). There was no cognate found at the PAN level for this gloss. However, since Philippine languages are considered to be historically conservative, I have included this set here.

(8) "back bone"

*'ikkew "back bone" -root
 'ikkewe "back bone" (A)
 'ikkew "back bone" (N)
 'ikkew "lower waist, upper hip" (H SR O B S)

*liku "back bone" (PAND)

The Ainu Root: The final vowel of the Asahikawa form is probably an echo vowel, although it is usually the case that an echo vowel follows a syllable final /r/ rather than /w/ (see (7) for an echo vowel). However, as /w/ and /r/ have some features in common, it is not improbable.

The Comparison: A remarkably similar pattern of sound change (PAN -*u* yielding -*ew* in Ainu) is found in (21).

(9) "bark"

*kap "bark, skin" -root
 nikap "bark" (Y H SR O B S)
 niikah "bark" (K)

*'u(m)pak "bark" (PAND)

The Ainu root: The Ainu forms are evidently compounded forms *ni* "tree" + *kap* "skin, bark". In Karafuto Ainu, syllable final stops /p/, /t/, /k/ have turned into /h/ due to lenition (see (41), (49), (98), (99), (116), (117), (123), (129)).

The comparison: Dempwolff's reconstruction suggests that metathesis of *k* and *p* has taken place in the Ainu form. This possibility can be well supported by *kopi* "bark" (PEPPAW) involving the same metathesis. However, Zork (1990:175-194) includes *kap* "skin, bark" as an Austronesian radical. This strongly indicates that Dempwolff's reconstruction should be reconsidered, that is, that Ainu and PEPPAW preserved the original consonant order.

(10) "bathe"

*sus "bathe" -root
 sus "bathe" (Y A SR S N)
 'osus "bathe" (H SR)

*tjukjuku "bathe" (PAND)

The Comparison: In Blust's system Dempwolff's **tj* is considered to be **s*. The following is the hypothetical change of the above set;

**tjukjuku* > **sukjuku* > **sukju* > **susu* > *sus*.

The third stage shows haplology of the final syllable. This is most likely to happen before or after a phonetically similar or identical syllable. *-kj-* has probably been assimilated to the preceding consonant *s-*.

(11) "beach"

***pis** "beach" -root
 pis "beach" (Y H SR B A N)
 'episun "to the beach" (O)
 siripissam "beach" (K)

***pasisi** "beach" (PAND)

The Ainu Root: *-un* in the Obihiro form is an allative particle. *siri-* in the Karafuto form has probably been derived from the so-called ambient prefix *sir-*. *Sir-* is unique prefix in Ainu and used to refer to "land" or "place", but now it is used almost like a prefix for expressions of meteorological or ambient condition. Here, in this Karafuto form, it seems to be used in the traditional sense referring to "land" or "place". *pissam* is a compound form of **pis* + *sam* "shore". Thus, given this evidence, I set up the Ainu root as *pis*.

The Comparison: **pasisi* > **pisisi* > **pisi* > *pis* is a possible derivation. After the initial vowel has been assimilated to the following vowels, haplology and apocope may have taken place.

(12) "beak"

***'etuk** "beak" -root
 'etuk epuspe "beak" (Y)
 'etu "beak" (Y H SR O B N K)
 car'etoko "beak" (S)
 cikap paro etuhu "beak" (A)

***(ct)uk(ct)uk** "beak" (PANBL 73)

The Ainu Root: The following are the possible components of the above forms.

'etukepuspe < *'etuk* + *'epus* "produce a sound like thunder" + *pe* "nominalizer" (Y)

car'etoko < *car* "mouth" + *'etoko* (< **etuk*) (S)

cikap paro etuhu < *cikap* "bird" + *paro* "mouth" + *etuh* (< **etuk*) (A)

In the Soya form the final *-o* and the penultimate vowel were lowered, which was possibly triggered by the preceding vowel *-e-*, thus, I would set up *-u-* for the final vowel of this root. The final consonant *-k* has undergone lenition and changed to *-h-* in the Asahikawa form which justifies the final consonant of the root as *-k*. In addition, Ainu *tuk* "protruding, projection," supplies some semantic corroboration for this.

The Comparison: From the data shown below, Nothofer's (1991:223-258) Austronesian medial radical *u(N)(C)u*¹² "protruding (headland, point, mouth, nose, lip, snout, beak, horn)" does seem to have been realized as *itu* or *etu* in Ainu through **utu* > *itu* > *etu*. The following are the examples: (a). *shiretu* "headland" < *shir* "ambient prefix" + *'etu* (n.d.); (b). *situ* "peak" (Y H SR A N S); (c). *'etu(k)* "nose" (Y H SR O B A N S K C); (d). *'etuk* "beak" (Y H SR O B N K). It is also possible that the initial vowel *e-* is a fossilized preffix *h(e)-* indicating "face" (see (17) for details of this use). If this is the case, the above derivation **utu* > *itu* > *etu* should be refuted, but the above set would still remain valid, since Ainu *tuk* "beak" and PAN **(ct)uk(ct)uk* "beak" are compatible in terms of both semantics and phonology.

¹² C stands for a consonant.

(13) "black"

*konne "black" -root
 konne "black" (Y H SR O B A N S K)

*gu(n)Dem "black" (PANBL 89)

The Comparison: **gu(n)Dem* > **kunnem* > *konne* may be a possible derivation of the Ainu form. Later, more examples (see section 3 for the correspondences) will show that PAN **g* and **k* have merged to /*k*/ in Ainu. -*D*- was assimilated to its preceding nasal. For further discussion of nasal accretion, see (4). The majority of Ainu reflexes indicate that PAN schwa turns out to be /*e*/ in Ainu (see section 3).

(14) "break, broken"

ko'as "break" (O B)

*gas "break" (PANDLO)

The Ainu Root: Since there is not enough evidence to set up the original Ainu root from these two dialects, the comparison is made directly between the above form and the PAN form.

The Comparison: It is possible that the above form is borrowed from Japanese *kowas* "break". However, since the sound correspondences between the Ainu form and the PAN form are regular, I would rather regard these forms as being ultimately related to each other.

(15) "breast"

*to(-tto) "breast" -root
 totto "breast" (Y H SR A N S)
 too "breast" (K)

*duduq "breast" (PANBL 89)

The Ainu Root: It is not clear whether the original root was a monosyllabic or a reduplicated form.

The Comparison: PAN /u/ seems to have split into /o/ and /u/ in Ainu (see section 3 for more examples of this case). PAN *d and Ainu /t/ show a regular sound correspondence.

(16) "breathe"

*he(-se) "breathe" -root
 hese "breathe" (Y H SR O B A N S)
 heese "breathe" (K)

*heseN "breathe loudly" (PANDLO)

The Comparison: It is possible that the above forms could be onomatopoeic, since the Ainu form is most likely to have consisted of *he* "sound of breath" + *se* "to produce such a sound" (for the usage of *-se* see (32), (97), (108), (117)). Thus, *-se* should not be compared with the PAN form, although it demonstrates the regular sound correspondence. This is probably a secondary development in Ainu. However, since the first syllables agree well both phonologically and semantically, I have included this lexeme here.

(17) "buy, sell"

*hok "buy, sell" -root
 hok "buy, sell" (Y H SR O B A N S)
 'e'ihok "sell" (Y H N)

*hok "buy, sell" (PPNBIWO)

The Ainu Root: 'e in Y H N form may be a prefix denoting direction. Ainu has a systematic way of indicating motion toward or away from various locations. There are two productive prefixes for this purpose; (h)e- "facing" and (h)o- "away from".¹³ Thus, 'e may be explained by considering the act of selling as getting benefit or money. 'i is possibly a generalized object prefix (see (81), (115) for this prefix).

The Comparison: The above set shows complete agreement in both semantics and phonology.

(18) "carry, carry in canoe, cargo carried in canoe"

*rura "carry" -root
 rura "carry" (Y H SR O B A N S)
 ruura "carry" (K)

*Ruda "cargo carried in canoe" (PEOLESM)
 *luda "carry in canoe" (PMLS)

The Comparison: The semantic difference between "carry", "cargo carried in canoe" and "carry in canoe" can be explained by looking back at Ainu life and that of Austronesians in both of which canoes were definitely the major form of transportation in their history. $d > r$ is not regular, in fact this change is the sole case found in my data, but this is phonologically

¹³ e.g. *he-hakasi oman* "go toward the mountain side", *ho-makasi ek* "come from the mountain side" (*mak* "mountain", *oman* "go", *ek* "come")

quite natural. In relation to this, there are two cases (51) and (98), in which retroflexed $D > r$. The initial liquids and the vowels are perfectly regular in the above set.

Ainu *rur* "tide" and Blust's (1988a:123) Austronesian radical *luR* "flow" may be ultimately related to the above set, see (89) for this set.

(19) "cliff"

pira "cliff" (Y C)

**dampilas* "cliff" (PPHCH)

The Ainu Root: Since there is not enough evidence to set up the original Ainu root from these two dialects, the comparison is made directly between the above form and the PAN form.

The Comparison: The above comparison is well supported by Blust's (1988a:85) Austronesian radical *bir* "rim, edge". The semantic relationship of "cliff", "rim" and "edge" seems natural, with narrowing taking place to derive "cliff" from a more general meaning of the radical. Thus, the root of the Proto-Philippine form is possibly *-*pilas*. Further evidence comes from *paLis* "cliff" (BITER), in which the vowels *a-i* are metathesized.

(20) "come"

*'ar(i)ki "come" -root

'arki "come" (Y H SR O B N S)

'ariki "come" (K)

*ari "let's go, come" (PANBL 80)

The Ainu Root: It remains unclear whether the penultimate vowel *-i-* in the Karafuto form is an echo vowel or the ancestral one which has been inherited from the PAN form (see (46), (82), and (138) for similar cases). If it is an echo vowel which somehow inherited the quality of the preceding vowel or the following vowel, there should be some pattern of the process, however, as seen in *pirika* "good" (46), it does not seem to exhibit a particular pattern. In case of *pirika* "good", the second vowel behaves like an echo vowel influenced by the preceding vowel (see (7) for a discussion of echo vowels), whereas in the above case, the second vowel appears to have been influenced by the following vowel, rather than the preceding vowel. In both cases, the second vowel shows a perfect match with that of the Austronesian forms. Thus, given this irregularity and the fact that they reflect the same quality as the PAN vowels, in both cases it is possible to assume that the seemingly epenthetic vowels in the Karafuto forms were in fact the ancestral vowels inherited from PAN.

The Comparison: The above forms agree well both phonologically and semantically.

(21) "corner"

*sikkew "corner" -root
 sikkew "corner" (Y H SR O B A N S)
 siskew "corner" (K)

*tjiku "corner" (PAND)

The Ainu Root: *-s-* in Karafuto Ainu is one of several widely observed lenitions in the dialect: syllable final stops turn into */s/*, when they follow */i/*, see (111) for the same process of change.

The Comparison: Considering this and the example (8), it seems plausible to posit PAN **ku-->kew/____(') #*. But I was unable to find further conclusive evidence for this. Recall that Dempwolff's PAN **tj* is now regarded as **s*.

(22) "cry"

cis "cry" -root
cis "cry" (Y H SR O B A N S K)

C₁angis "cry" (PANTS)

The Comparison: Murayama (1992:71) compares this Ainu form with Dempwolff's reconstruction *tangitj* assuming **tangitj > *tngis > cis*. Here, I have used Tsuchida's reconstruction which is even more compatible with the Ainu form and requires no explanation for the initial segment.¹⁴ Thus, the possible change should be **C₁angis > *Cngis > cis*. The second stage can be motivated by a reflex of the PAN form found in Tsou (Formosan language) *m-cngsi* "to cry, to weep".

(23) "cut"

petu "cut" (SR A)

**puTul* "cut" (PANBL 72)

The Ainu Root: Since there is not enough evidence to set up the original Ainu root from these two dialects, the comparison is made directly between the above form and the PAN form.

¹⁴ Formosan languages (Taiwan aboriginal languages) were not included when Dempwolff reconstructed Proto-Austronesian. But Tsuchida's reconstruction includes Formosan data.

The Comparison: Although V_1 shows an irregular sound correspondence, the good semantic match and the rest of the phonological correspondences would indicate that the Ainu form and the PAN form may be related.

(24) "dark"

**kunne* "dark" -root
sirkunne "dark" (Y H SR O B A N S)
kunne "dark" (Y SR O A)

**kudem* "darkened by cloud" (PANBL 89)

The Ainu Root: Without doubt, *sir-* is an ambient suffix which has already been discussed (see (11)).

The Comparison: The striking parallelism of the above set and (13) indicates that they may be ultimately related to each other. In PAN **gu(n)Dem* "black" (13), the intervocalic prenasalized stop has assimilated to the preceding nasal *-n-* in Ainu, yielding *kunne* "black".

(25) "dawn"

**nisat* "dawn" -root
nisat "dawn" (Y H SR O B)
nisatpeker "dawn" (N)
nisatpeke "dawn" (S)

**singa(R)* "dawn" (POCGR)

The Ainu Root: Hattori (1964:252) describes *nisat* as "whiteness of the sky when the sun rises". *peker* (N) and *peke* (S) both mean "clear".

The Comparison: There were no cognates found at the PAN level for this gloss, but **singa(R)* might have been derived from [*sQ*]/*iNaR* "light"

(PANTS) and has undergone a slight semantic change. In the same way, the above Ainu form *nisat* "dawn" seems to be associated with *sune* "light" (Y SR O B A N S),¹⁵ thus providing a positive explanation for the changes in the above consonants, *n* and *s* having been metathesized in *nisat*. Additional evidence comes from the medial radical **i(C)a* "shine, sparkle, light, dazzle" (*C* here stands for a consonant) listed in Nothofer (1991:223-258). The above Ainu form also indicates that this cannot be dismissed for the radical.

(26) "day"

*tokam "day" -root
 tokam "day" (A N)
 tokap "day" (Y H SR)
 to "day" (N)
 toykapne "day" (s)
 toono "day" (K)

*daqani "day" (PANBL 80)

The Ainu Root: The quality of the final consonant of the Ainu root is not clear; i.e. whether it should be *-m* or *-p*. Generally, $p > m$ is more natural than $m > p$. But with the meaning of "sun", *-cup* is often added following *tokam* and *tokap*. In *tokap* and *toykapne* it is therefore possible to assume that assimilation has been triggered by this *-p*, and *-m* has been assimilated to *-p*. It is also natural to assume this as an instance of nasal substitution. If *-p* were set up for the original final consonant, it would be more difficult to accept the above forms as related.

¹⁵ See (63) and (64) for details.

-y- in the Soya form is probably a sporadic insertion of a glide, which has frequently been observed in Ainu. The last syllable *-ne* in this dialect is not clear. It could be a translatative particle "be, become".

The function of *-no* in the Karafuto form is uncertain.

The Comparison: PAN **d* and **t* have merged in as Ainu /t/. PAN **a* has split into /a/ and /o/ in Ainu (see section 3). PAN **-q-* > Ainu *-k-* is a regular change (see section 3).

(27) "decide"

**'atki(-r)* "decide" -root
sine'atkire "decide" (SR O N)

**[t]aki[']* "decide" (PAND)

The Ainu Root: Perhaps the Ainu form is composed of *sine* "one" + *atki(r)* "decide"--> "decide on one thing". *-(r)e* is possibly a causative suffix.

The Comparison: In the course of change, PAN *t-* and *-a-* may have been reversed in Ainu.

(28) "dig"

**kar* "dig" -root
suykar "dig" (H S)

**karkar* "dig" (PANBL 89)

The Ainu Root: *suykar* < *suy* "hole" + *kar* "dig". *-kar* in the Ainu form is found only in this particular compound form. Most Ainu dialects have adopted a Japanese form *'o'horu* "to dig" for this gloss.

The Comparison: Phonologically and semantically both forms agree well.

(29) "dream"

**tara* "dream" -root
tarap "dream" (Y H)
tara "dream" (K)

**taRa* + *qinep* "dream" (PPHZ)

The Ainu Root: -*p* in Y and H is probably a nominalizer.

The Comparison: The above forms show good agreement both in phonology and semantics.

(30) "drip, drop"

*(*ha-*)*cir* "drip, drop" -root
hacir "drop" (Y H SR O B A N S)
haaciri "drop" (K)
cirir "drip" (SR)

**tiR₁₂is* "drip" (PANDYMC)

The Ainu Root: The Saru dialect word *cirir* is the result of partial reduplication. In the majority of cases, partial reduplication in Ainu represents ongoing action (e.g. *pasas* "keep running", *parur-ke* "keep bubbling"), thus in this case, "keep dripping". Perhaps the final vowel -*i* in the Karafuto form is an echo vowel rather than an ancestral vowel (for discussion of Ainu echo vowels following syllable final /*r*/, see (7)).

The Comparison Regarding Ainu /*c*/ < PAN **t*, Ainu has a phonetic rule turning [*t*] to an affricate before [*i*].

(31) "drink"

*num(num) "drink, suck" -root
 numnum "suck" (Y)
 nunnun "suck" (SR O A K)
 nonnon "suck" (S)
 num "suck" (B)

*inum "drink" (PANBL 83)

The Ainu Root: It is not clear whether the original Ainu root was a reduplicated form or monosyllabic, however, *-m-* in the Yakumo and Bihoro forms is likely to be the original sound and *-n-* in SR O A K S is probably triggered by assimilation to the preceding or the following consonant.

The Comparison: This set could be onomatopoeic, since similar words occur in baby-talk around the world.

(32) "drop, fall"

*rapap(-se) "drop, fall" -root
 rapapse "drop, fall" (Y H SR N)

*labuh "drop" (PAND)

The Ainu Root: We may suspect that *rapapse* is onomatopoeic. *-se* "to produce such a sound/noise" indicates this possibility, thus *rapap* may be a sound of falling. Furthermore it is not certain whether this form could be related to *rap* "feather", and *raprapu* "flap the wings" (41), sharing the notion of flying and falling. Or the Ainu form may be the product of partial reduplication as seen in (30) indicating the continuing motion of "falling".

The Comparison: Although, there is some ambiguity left in the above set, since they demonstrate good phonological and semantic matches, I have included this set here. PAN **l*, Ainu */r/* and PAN **b*, Ainu */p/* are regular sound correspondences.

(33) "dry, shallow"

**sat* "dry, shallow" -root
sat "dry" (Y H SR O B A N)
sattək "shallow" (Y B N)
rekuci sat "throat thirsty" (H SR N)

**[q'h]asat* "shallow" (PANDYMC)

The Ainu Root: *-tek* in the Y, B, N form is a particle that shows a certain kind of state. *rekuci* in the H SR N means "throat".

The Comparison: Both the Ainu and the Austronesian forms can be semantically associated, sharing a concept "lack of water (of a river)". The Proto-Philippine form **asat* "dry" (PPHZ), which is evidently related to the PAN form, also provides positive evidence for the validity of the semantic relation between "dry" and "shallow".

(34) "dust, earth"

**pana* "dust" -root
pana "dust" (SR O B A)
mana "dust" (Y)

**banu(v)a'* "earth" (PAND)

The Ainu Root: *p-* has been weakened to *m-* in Yakumo form.

The Comparison: A possible process of the change would be

**banu(v)a' > *banua > *bana > pana*

(35) "edge"

*pa "edge, rim" -root
 pa "edge" (H)
 parur "edge, rim, (river) bank" (Y)
 parurke "edge, rim" (H A N)

*tapa "edge" (PPNBIWO)

The Ainu Root: The motivation for setting up *pa "edge" as an Ainu root rests on the common feature of the concepts that the above forms share. The multiple meaning "edge, rim, river bank" of the Yakumo forms suggests that *parur* may be a compound form *pa* "edge" + *rur* "tide". *-ke* in *parurke* is probably a locative marker.

The Comparison: The above set shows a good agreement in terms of phonology and semantics.

(36) "eel"

sumarura "eel" (Y)

*tuNa' "eel" (PANDYMC)

The Comparison: In spite of the fact that there is only one possible form available in one dialect of Ainu, it is hard to say that the good phonological and semantic matches of the above forms are mere coincidence. Although, Ainu *s-* and PAN **t* is not a regular correspondence, assibilation, a stop becoming a sibilant, namely an *s*-sound, is a commonly observed phenomenon. Further instances of the same process are found in (70) and (101). Secondly, given the fact that the Austronesian homeland and Ainu speech areas (Hokkaido) are relatively far apart and that there

is no record of contact between the Austronesian and Ainu peoples in their history, the chances that Ainu borrowed this form from Austronesian are slim. Hence, I have included this set here.

(37) "end"

- *('o-)kere "end" -root
- 'okere "end", come to an end" (Y H SR O B N S)
- *ikuR "end" (PANDYPMPL)

The Ainu Root: The initial vowel -o- may be related to 'o "buttocks". 'o also can play a role as an affix indicating "end" (e.g.'osor "buttocks"), thus, it now seems reasonable to exclude the initial vowel from the root. The specific association of "end" and "buttocks" is attested in other cultures.

The Comparison: Although the consonants show regular sound correspondences, the vowels are all irregular. However, given the regularity of the consonants and the fact that semantically both forms show a perfect match, I have included this set in my list. Vowels are relatively less stable than consonants.

(38) "father"

- 'ona "father" -root
- 'ona "father" (H SR A N A K)
- amaH₂ "father" (PANBL89)

The Comparison: For the correspondence of Ainu /o/ and PAN *a, see section 3. This set agrees well in both phonology and semantics.

(39) "father"

*'aca "father" -root
 'acapo "father" (Y)
 'aca "father" (S)
 'aaca "father" (K)
 *'ajah "father" (PAND)

The Comparison: *-po* in the Yakumo form is a suffix of endearment, not a result of fortition PAN **-h* > *-p-*. The correspondence between the intervocalic consonants, PAN **j* and Ainu *-c*, is probably an instance of sporadic change.

(40) "fathom"

tem "fathom" -root
 tem "fathom" (Y SR O B A N K C)
 *depa['h] "fathom" (PANDYMC)

The Comparison: Although Ainu *-m* and PAN **p* do not show a regular sound correspondence, a shift from *p* > *m* is quite natural in terms of the place of articulation. This type of weakening process is also observed in (73) and (76).

(41) "feather, fly"

*rap "fly, feather" -root
 rap "feather" (Y H SR O B A N S K)
 raprapu "to fly" (H)
 rah "feather" (K)
 *layap "fly" (PANBL 86)

The comparison: *rap* might have gone through a change like **layap* > **laap* > *rap*. A glide in intervocalic position is often susceptible to loss. For a relevant discussion, see (32).

(42) "fire"

'apoi "fire" (C)
 'ape "fire" (Y H SR O B A N S C)
 abi "fire" (C)

*X₁apuy "fire" (PANTS)

The Ainu Root: It is difficult to assess whether the Chishima form 'apoi is derived from 'ape + ruy "the fire burns" or from PAN *X₁apuy. Although the majority of dialects show 'ape, because of the undetectable etymon of the Chishima form, I was unable to set up the original Ainu form for this gloss with confidence.

The Comparison: Therefore, here I would tentatively compare the Chishima form 'apoi with the PAN form for the reason that PAN *u seems to have split into /o/ and /u/ in Ainu, thus showing a regular change (see section 3). This assumes that the Chishima form retained the ancestral form; *X₁apuy > 'apoi. But at the same time a derivation like *X₁apuy > *'api > 'ape is also feasible, especially when 'ape is attested in most Ainu dialects. In the light of further research on etymologies in Ainu dialects, this kind of ambiguity may be solved.

(43) "five, hand"

*'asik(-nep) "five" -root
 'asiknep "five" (Y H SR O B A N)
 ashki(m/n)ep "five" (C)

*siku(n) "hand" (POCGR)

The Ainu Root: 'asiknep may very well have been derived from 'askepet "finger" + nep "weigh", or 'askepet "finger" + ne "a suffix forming an

adjective from a noun" + *p(e)* "nominalizer". The reason for claiming that *-p* might be a nominalizer comes from the following examples; *'inen* "four persons", *'inep* "four"/ *iwaniw* "six persons", *'iwanpe* "six". The suffix *-p(e)* usually produces a noun that denotes a person or thing characterized by the meaning of the original word (e.g. *husko* "old" - *husko-p* "old thing", *wen* "bad" - *wen-pe* "poor man"). However, Ainu does seem to treat persons and objects separately in their numeral system, that is, this nominalizer is used only for counting objects.

The Comparison: In either case, the root **'asik* can be compared with the POC form. Universally, the semantic association of the numeral "five" and "finger" or "hand" is very common.

(44) "flat, wide"

**par* "flat wide" -root
para "wide" (H S K)

**parpar* "flat" (PANBL 73)

The Ainu Root: Additional motivation for positing the above root comes from the following data: (a). *kapar* "flat, thin" (Y H SR O B A N S) < *kap* "skin" + *par*; (b). *kapara* "flat, thin" (K); (c). *parakot* "valley" (Y H SR A S); (d). *paratek* "hand" (Y SR O B) < *para* "wide, flat" + *tek* "hand"; (e). *para'ure* "foot" (Y SR O B A N S) < *para* "wide, flat" + *'ure* "leg". As has been said in (7), Ainu has a strong tendency for a syllable final *-r* to have a vowel echoing the immediately preceding vowel. This reasoning together with a form like *kapar* (7) suggests that it is most likely that the syllable final *-a* in *para* is an echoing vowel, thus I will posit *par* as a root.

The Comparison: The above set can be supported by Blust's (1988a:134) Austronesian radical *paD* "flat, level". Additional evidence has been provided by Zorc (1990:175-194), who also establishes *baR* "tastless, flat, insipid" as a radical.

(45) "forest"

kenas "forest" -root
kenas "forest" (H SR O)

***halas** "forest" (PANDLO)

The Comparison: In spite of the fact that Ainu *k-* and PAN **h-*, Ainu *-e-* and PAN **a*, Ainu *-n-* and PAN **l* do not show regular sound correspondence, from an articulatory point of view these can still be regarded as sporadic natural change. Since the items are identical in meaning, although they show slight differences in terms of regular sound correspondence, I have included them in my data.

(46) "good"

***pir(i)ka** "good" -root
pirka "good" (Y H SR O B A N S)
pirika "good" (K C)

***piliq** "selected one" (PANDYMC)

The Ainu Root: Again it is not clear whether *-(i)-* is an echo vowel or has been inherited from the PAN form (see (20), (82), (138) for similar examples), that is, in the latter case the majority of Ainu dialects have undergone syncope.

The Comparison: The Ainu /k/ and PAN *q correspondence is found in other examples as well (see section 3). The given glosses seem rather different from each other; however, their basic concepts are not difficult to understand.

(47) "grass, flower"

mun "grass" -root
mun "grass" (Y H SR O B A N S K C)

*bunga "flower" (PANBL 72)

The Comparison: PAN *ng has split into /n/ and /k/ in Ainu (see section 3 for examples). Ainu m- < PAN *b is phonetically natural.

(48) "grease"

sum "grease" -root
sum "grease" (Y H SR O B A N K)

*SimaR "grease" (PANBL 80)

The Comparison: I will provide the following forms to support the irregular correspondence of Ainu -u- and PAN *i: (a) *sinu' "grease" (PPNBIWO), (b) *sulu "grease" (PMLS), (c) *luma "grease" (POCBLAA), (d) *sama "grease" (POCGR). In two proto-forms (PMLS and POCBLAA), PAN V₁ *-i- has been realized as *-u- as seen in Ainu.

(49) "grow tall, grow"

*tuk "grow tall" -root
tuk "grow tall" (Y H SR O B A)
tuh "grow tall" (K)

*Cubuq "grow" (PANTS)

The Comparison: This set also appears to reflect Nothofer's (1991:223-258) medial radical **u(N)(C)u* "protruding (headland, point, mouth, nose, lip, snout, beak, horn)". For detail on this, see (12). I propose the following process of the change: **Cubuq* > **Cuwuq* > **tuuq* > *tuk*.

(50) "hear"

'inu "hear" (vi)
 nu "hear" (vt)
 ('i)nu "hear" (Y H SR B A N C)
 ('i)nuu "hear" (K)

***dinger** "hear" (PANBL 86)

The Comparison: As seen from the other examples (see section 3), PAN **ng* appears to have split into /n/ and /k/ in Ainu. As for the irregular sound correspondence of Ainu -u and PAN **e*, since **e* stands for schwa, it has potential to change into various vowels in Ainu, in this case -u. Blust (1988a:125) presents *neR* "hear" as a radical. A possible root in Ainu is *nu*. The problem is whether we should compare the intransitive form or the transitive form of the Ainu verb with the PAN form, but in any case, this set agrees well.

(51) "heart, thought, mind, think"

***ram** "thought, mind" -root
 ram "mind, heart, soul" (H SR B N K)
 ramu "to think" (Y H SR O B A N K)

***DemDem** "think, ponder, consider" (PANBL n.d.)

The Ainu Root: It is evident that a root which expresses mental activities occurs as *ram* in Ainu based on other examples such as *'eram(')an* "to

know", *ramumakke* "to enjoy", *ramupekamam* "to be sad", *ramutuy* "to become surprised".

The Comparison: In comparing this root **ram* with **DemDem*, recall that PAN **e* is a schwa in Blust's orthography and in this thesis, so a correspondence between PAN **-e-* and *-a-* is not implausible. *D* is retroflexed. PAN **D* > Ainu *r* is also found in (98). Convincing evidence for this comparison can be drawn from Austronesian radicals. Blust (1988a:95) establishes a radical *Dem* "think, ponder, brood, remember," giving supporting evidence from **DemDem* "think, ponder, consider" (PANBL n.d.), **qe(n)Dem* "think, brood, remember" (Proto-Western Malayo-Polynesian (Blust n.d.)), **ta(n)Dem* "remember" (Proto-Western Malayo-Polynesian (Blust n.d.)). It certainly seems plausible that this Austronesian radical can also be applied to the above Ainu root.

(52) "hold, take hold of"

'anpa "hold" -root

'anpa "hold" (Y H SR O A N K)

**da(m)bat* "take hold of" (PAND)

The comparison: This is an another example in my data in which PAN nasal accretion was preserved in Ainu (for further discussion of this, see (4)). Chiri (1954:34) remarks that Ainu has an allophonic variant *[m]* assimilating to the homorganic stop, in this case *-p-*.

(53) "I"

ku "1st person subject marker" -root
 ku "1st person subject marker" (Y H O B N K)

*akun "I" (PANTS)

The Comparison: The above forms agree well in both phonology and semantics. Since pronouns are relatively stable, this is good evidence for the relationship of Austronesian languages and Ainu.

(54) "ice drift, melt"

'apu "ice drift" -root
 'apu "ice drift" (H SR N S K)

*labur "melt" (PAND)

The Comparison: As far as phonology is concerned, none of the segments poses a problem, but the above items are rather different in their meanings and do not demonstrate any clear relationship. Furthermore, "ice" is a rather foreign thing in the climate where Austronesian languages are spoken, while in an environment where Ainu is spoken, vocabulary such as "ice" and "snow" are commonly used in daily life. Thus, perhaps for the Ainu people the one obvious thing to be melted in their environment was "ice." The environment of a human group can change in either of two ways: by climate change, or by migration; however any possible environmental change in the Ainu people's life still remains unclear. Strikingly similar semantic relation is found between this set and (146) Ainu *hapur* "soft", PAN **lambut* "soft". Ainu 'apu "icedrift", PAN **labur* "melt", Ainu *hapur* "soft", and PAN **lambut* "soft" all seem to share the concept of "not

rigid" involving the common root **(e/a)(p/b)u-*. Therefore, it is possible that these forms might have originated from one source and have undergone slight semantic and phonological shifts.

(55) "if"

'ika "if" (H N)

*ka "if" (PANBL 83)

The Comparison: Unfortunately there is not enough information available to establish the above Ainu form as a possible root. However, it seems that a good semantic and phonetic match make it plausible to determine that the above forms are related.

(56) "kill"

*ray(-ke) "kill" -root
rayke "kill" (Y H SR O B A N S)
rayki "kill" (K)

*patai "die, dead" (PANDL)
*matai "die, dead" (PAND)

The Ainu Root: *-ke* in this case serves as a transitive suffix (*ray* "die"-->*rayke* "kill").¹⁶

The Comparison: Dahl (1973:119) reconstructs two verbal PAN affixes which are widely distributed. One of them is *ma-*, forming words signifying quality adjectives. Another prefix with broad distribution is *pa-* (cau-

¹⁶ In Ainu there are several suffixes used in transitive forms. Although the great majority of intransitive and transitive verb pairs are morphologically related, each form must be learned separately, for there is no way of predicting which suffix a given form can take. For instance, the above transitive suffix can be used as an intransitive suffix for other classes of verbs.

sative). Dahl suggests that the Formosan forms of **matai* and **patai* "die, dead" (Dahl's reconstruction) are certainly formed with these affixes and not with nasal substitution of $p > m$. The Formosan form **patai* generally means "kill", while **matai* means "die". Thus the Ainu form *ray* can be regarded as an affixless form, accompanied by PAN **-t-* > Ainu *r-*.

(57) "knee, leg"

kokka(-sapa) "knee" -root
kokkasapa "knee" (Y H SR S)

**keku* "leg" (PANTS)

The Ainu Root: *kokkasapa* clearly consists of *kokka* + *sapa* "head", thus the Ainu form probably used to have the meaning "a head of a leg --> knee". The final vowel *-a* in *kokka* may have been assimilated to the following vowel of *sapa*.

The Comparison: Another possibility would be to compare the above Ainu form to **kukut* "joint" (PAND). Murayama (1992:227) proposes a derivation; *kokka* < **kukt-a* < **kokot-a* < **kukut*.

This comparison can be supported by *'ukot* "joint" (H). If this is the case, the *-a* of *kokka* was assimilated to the following vowels when *sapa* was added, otherwise there is no possible reasoning for this segment.

(58) "lake"

to "lake" -root
to "lake" (Y H SR O B A N S C)

**loto* "lake" (PANBL 71)

The Comparison: Although the first syllable of the PAN form has been completely lost in Ainu, the perfect match of the second syllable of the PAN form and the Ainu form, and the complete semantic agreement indicates that the forms are conceivably to be related.

(59) "land, continent"

**ya* "land" -root
yata "on the land" (Y)
yata "land by the river" (A)
yaata "on the land" (K)
ya "dry land, the shore" (H SR O B S)

**daya* "continent" (PANS)

The Comparison: We might be tempted to compare *yata* and **daya* assuming metathesis of the consonants, however, it does not seem to be the case here, since *-ta* in Ainu is likely to be a locative particle. It is therefore more plausible to compare the Ainu form *ya* and PAN **daya*, in which case the complete loss of the PAN initial syllable **da-* has taken place in Ainu. The loss of PAN initial syllable is also found elsewhere in my data (1), (9), (33), (53), (56), (58), (67), (96).

(60) "leg and foot"

**cikir* "leg and foot" -root
cikir "leg and foot" (Y H O B A)
'omcikir "leg and foot" (N)

**Ci[]el* "leg and foot" (PPHZ)

The Ainu Root: *'omcikir* must have been derived from *'om* "thigh" + *cikir*, thus, the root of the Ainu form should be *cikir*.

The Comparison: The intervocalic segment of PPHZ form was not identified, however, the reflex *tiqil* "leg" (Cebuano) suggests the quality of the original consonant. Under this assumption, the change to *-k-* in Ainu is not so difficult to accept.

(61) "lengthen, extend, line"

**turi* "to lengthen, to extend" -root
turi "to lengthen, to extend" (H SR O B A N K)
turiri "to lengthen, to extend" (Y SR S)

**Curit* "line" (PANBL 89)

The Ainu root: The final syllable of *turiri* is probably a consequence of partial reduplication of the preceding syllable (lit. "makes it longer and longer". For details of this reduplication, see (30)).

The Comparison: In the comparison with PAN form, if we consider "line" as a long item, it is not difficult to understand the semantic relationship between the two forms. Both forms agree well in phonology. For the sound correspondence of Ainu /t/ and PAN *C, see section 3.

(62) "lick, move around the mouth"

kem "lick" -root
kem "lick" (Y H SR O B A N S K)

**kemuR* "to move around the mouth" (PANDYMC)

The Comparison: The nature of "licking" is nothing but a movement of tongue around the mouth.

(63) "light"

sune "light" -root
 sune "light" (Y SR O B A N S)

*[sQ]iNaR "light" (PANTS)

The Comparison: For further discussion of the PAN form, see (25) "dawn".

It is interesting to note that the original vowels of the PAN form survived in the Ainu form *nisat* "dawn", but the consonants of the PAN form were retained in *sune* "light", not having metathesized. These changes may have been triggered either by their semantic shift, or the semantic change being accompanied by the sound change.

(64) "light"

*'imer "light, lightning, shine" -root
 'imeru "lightning" (Y H SR O B A N S K)
 'imeru "shine" (SR)
 mermer "shine" (SR)

*[sQ]iNaR "light" (PANTS)

The Comparison: We might be tempted to compare the above Ainu form with *damaR* "shine" (PAND), however, the initial vowel 'i- of the Ainu form 'imer indicates that it should rather be compared with *[sQ]iNaR "light" (PANTS).

It is usually the case that PAN *a corresponds to Ainu /a/. But in the above set and in the preceding one (63), PAN *a is represented as /e/ in Ainu. Since the majority of cases show PAN *a corresponding to Ainu /a/ (see section 3), we may be able to disregard this as an exceptional case.

It should be noted here that PAN **[sQ]iNaR* has been realized in three forms in Ainu; *nisat* "dawn" (25), *sune* "light" (63) and *'imer* "lightning, shine" (64), but all of them are closely related semantically. Blust (1988a:127) establishes a radical *NaR* "ray of light" which might have been realized as *mer* in Ainu.

(65) "line"

**rit* "line" -root
sinrit "ancestors" (Y H SR O B A N S)
kemrit "blood vessel" (Y H O B A N)
kemorit "blood vessel" (SR)
kem'ooris "blood vessel" (K)

**urit* "line" (PANBL 86)

The Ainu root: Murayama (1992:75) compares *rit* "blood vessel" with **uγat* "blood vessel" (PAND) giving a derivation **uγat* > **uγit* > **urit* > *rit*, but his analysis falls short in the study of the Ainu root and etymology. First of all, *rit* in Ainu should be glossed as "line" rather than "blood vessel". Although this form does not exist as a free morpheme, the following data provide confirming evidence that *rit* in Ainu originally had a meaning "line". *sinrit* "ancestors" is probably a compounded form *sine* "the same" + *rit* "line". Similarly, *kemrit* "blood vessel" is composed of *kem* "blood" + *rit* "line". Although, Murayama does not specify the dialect from which his data are taken, *rit* "blood vessel" (SR) is found. It is obvious that in the Saru dialect, *kem* "blood" has been lost and only the second syllable *rit* survived, covering a wider semantic range. Given this evidence, it now seems plausible to establish **rit* as an Ainu root.

The Comparison: This analysis eliminates the difficulty of explaining the vowel shift from *-a-* to *-i-* in Murayama's derivation.

(66) "love"

*tutu'askarap "love" -root
tu'askarap "love (vt)" (B)
'utu'as karap "love (vi)" (B)

*qarep "love" (PANBIROLI 65)

The Comparison: Complete etyma of the Ainu forms and their prefixed parts are undetectable. However, Ainu *karap* and PAN **qarep* show a striking similarity. In fact, further examples support the correspondence of Ainu /*k*/ and PAN **q* (see section 3). Since schwa has the potential to change in any direction, the last vowel of the Ainu form *karap* has simply assimilated to the preceding vowel.

(67) "low, underlayer"

*ram "low" -root
ram "low" (Y H SR O B A N C)
'oram "low" (S K)

*galaN "underlayer" (PANDLO)
*kalaN "underlayer" (PANDLO)
*dulaN "underlayer" (PANDLO)

The Ainu Root: 'o- in the S K form is probably a prefix (*h*)o- which indicates "end", (see (37) for details). The semantic association of "low" and "end" can be easily understood.

The Comparison: It is not certain from which PAN form the Ainu forms have derived, nevertheless, it is apparent that the Ainu forms should be compared with *-laN* which is shared by the above three PAN forms.

(68) "man, male"

*'okkay "man, male" -root
 'okkay "man, male" (O B)
 'okkayo "man, male" (Y H SR A N S K)
 'ohkayo "man, male" (K)

*RaqaNay "male" (PANBL 86)

The Ainu Root: The word final -o used to be a third person marker, but fossilized and became a part of the noun.

The Comparison: I propose the following change;

*RaqaNay > *'aqNay > *'okNay > 'okkay.

Toward the end of the change, the unidentified nasal *N* was possibly velarized and finally completely assimilated to the preceding velar stop.

(69) "mother, breast"

'unu "mother" -root
 'unu "mother" (H SR A N K)

*nunū "breast" (PANBL 80)

The Comparison: In many languages, the semantic change between "mother" and "breast" is present as an instance of synecdoche.

(70) "mushroom"

karus "mushroom" -root
 karus "mushroom" (Y H SR O B A N S K)

*kulat "mushroom" (PAND)

The Comparison: The vowel in the Ainu form is a consequence of metathesis. The same *a-u* metathesis is found in (103) and (124). Ainu -s and PAN

*-t is not a regular sound correspondence, however, as mentioned in (36), assibilation, a stop becoming a sibilant, is a frequently observed change.

(71) "name"

'ak "called -" (B)

*(ng)agan "name" (PANDL)

The Comparison: There is not enough evidence available to conclude that the Bihoro form is an ancestral Ainu form, but phonologically and semantically neither form in this comparison causes any problems.

(72) "new"

*'asir "new" -root

'asir "new" (Y H SR O B A N SR)

'asiri "new" (K)

ashiri "new" (C)

*baq₂eRuH₁ "new" (PANTS)

The Comparison: *baq₂eRuH₁ > *baq₂ir > 'asir(i) is a possible change. In order to support the irregular sound correspondence PAN *q > Ainu /s/, I cite an ambiguous segment PAN *[sQ] in Tsuchida's (1975) reconstructions. Tsuchida reconstructs *be[sQ]uR "satiated" (PHNTS), *qa(n)[sQ]ipa "turtle" (PHNTS), *[sQ]iNaR "light" (PANTS). These data suggest the ambiguity of two segments *s and *Q as well as *s and *q (Tsuchida's *Q and *q are now both considered to be the uvular stop *q).

(73) "no"

*samo "no" -root
somo "no" (H SR O B A N)
'isam "no" (K)
'isam "die, disappear" (H SR)

*sapo "negative" (PNBPAWS)

The Ainu Root: The initial vowel *-o-* of *somo* has probably been assimilated to the following vowel. But this vowel has survived as *-a-* in the remaining forms accompanied by a slight semantic change.

The Comparison: Weakening of bilabial stops $> m$ is also observed in (40) and (76).

(74) "noise, sound"

*hum(-i) "noise, sound" -root
hum(i) "noise, sound" (Y H SR O B A)
humi'as "to make a noise/sound" (Y H SR O B N S)
humih'i'as "to make a noise/sound" (A)

*huni' "noise, sound" (PAND)

The Ainu Root: *-as* here is used as a verbalizer. It is not clear whether the second vowel *i* as seen in *hum(i)* and its fossilized verbal form *humi'an*, is a suffix denoting the possessor of an object,¹⁷ or whether it can be an ancestral vowel derived from PAN **-i-* of **huni'*. Considering examples such as (139) in which *-i* is the possessor suffix, the former case seems more plausible.

¹⁷ Ainu nouns exhibit neither case inflection nor gender distinctions. However, they do show a formal distinction between forms denoting generic concepts and those denoting specifically possessed objects.

The Comparison: Although the correspondence of the nasal is not regular, the remaining segments and semantics matches well.

(75) "nose"

*'etu(k) "nose" -root
'etu "nose" (Y H SR O B A N K C)

*ijung "nose" (PANBL 69)

The Ainu Root: Chiri (1954:316) proposes 'etu < 'e "face" + tu "peak". The analysis of "beak" (see (12)) indicates that an Ainu root for "nose" was *'etu(k), in which case Ainu /k/ and PAN *ng follow the regular sound correspondence (see section 3). *tuk*, *toko* has a meaning of "protruding, projective" in Ainu, which may support this assumption from a semantic point of view.

The Comparison: I propose that the Ainu form has been derived directly from the PAN form through the following change. The derivation is based on the attested Ainu form;

*ijung > *idung > *idu > *edu > 'etu.

-j- to -d- is well motivated by an example like *idu "nose" (PCPPAW).

(76) "open"

maka "open" -root
maka "open" (Y H SR O B A N)

*banga' "open" (PAND)

The Comparison: Other examples indicate that PAN *ng has split into /k/ and /n/ in Ainu (see section 3). Ainu m- < PAN *b- is quite natural, elsewhere in my data (40) and (73) bilabial stops > m is found.

Strong support for this comparison also comes from Austronesian radicals. Nothofer (1991:223-258) posits **aCa* "mouth, wide open etc."¹⁸ as a medial radical. This radical could also be applied to Ainu: (a). *sara* "open" (Y B), (b). *'owa* "empty, vacant" (B), (c). *'oha* "empty, vacant" (Y H SR O B A N S),¹⁹ (d). *'apa* "entrance" (Y H SR O B A N S). This language internal evidence also strongly indicates that the above forms are related by sharing a common radical *aCa*.

(77) "open, gap (space, interval, hole, opening)"

**sara* "open" -root
sarare "open it" (Y)
sara "open" (Y B)

**tjelang* "gap" (PAND)

The Ainu Root: *-re* in the Yakumo form is probably a causative suffix.

The Comparison: Dempwolff's symbol **tj* is now considered to be an equivalent of **s*. Since schwa has the potential to change in any direction, *V₁* in the Ainu form was naturally assimilated to the following vowel. PAN **l* and **r* have merged into Ainu /*r*/ (see section 3).

(78) "opening, gap, space"

**'o(w/h)a* "empty, vacant" -root
'oha "empty, vacant" (Y H SR O B A N S)
'owa "empty, vacant" (B)

**wawaq* "opening" (PANDLO)

¹⁸ *C* stands for consonant here.

¹⁹ Recall that PAN **a* has split into Ainu /*a*/ and /*o*/, thus, *'owa* and *'oha* can be regarded as reflexes of Austronesian radical **aCa*.

The Ainu Root: The quality of the second consonant is not clear. *-w-* is only manifested in one dialect, Bihoro, and the remaining dialects have *-h-* intervocalically. Exactly the same instance is found in (107). In (107), the Bihoro dialect has 'owaw "soup", while the rest of the dialects have 'ohaw "soup", in which case it seems likely that the intervocalic *-h-* has assimilated to the following *-w-*. However, this argument cannot be applied in the above data, since there is no environment to trigger $h > w$, because unlike (107) it is not followed by *-w*.

It is also possible to think that the original intervocalic segment was *-h-* and has changed to *-w-* triggered by the preceding [+round] vowel *-o-*. In both (78) and (107), the intervocalic segment follows *-o-*. Since the intervocalic segments *w/h* in (78) and (107) are surrounded by the same vowels regardless of the existence of the final consonant, it is more plausible to assume that the conditioning factor of *-h- > -w-* is the preceding [+round] vowel *-o-* rather than the following *-w* (107). Another example 'ahunke "put it on" (Y H SR O A N S K), 'awunke "put it on" (B) also suggests this possibility, since the intervocalic segment is followed by the [+round] vowel *-u-*. This will lead us to an assumption that the original intervocalic segment was *-h-*.

But this analysis fails in some cases. Evidence against this argument comes from *cise'uhuy* "fire (of a house)" (Y H SR O) & *cise'uyuy* "fire (of a house)" (B). If it is an adjacent [+round] vowel which triggers *-h- > -w-*, the Bihoro form should be **cise'uwuy* rather than *cise'uyuy* just like the previous example 'ahunke & 'awunke "put it on". The same should be true

in *'ihoski* "get drunk" (Y H SR O A N K) & *'iyoski* "get drunk" (SR B A) in which *-h-* is followed by the [+round] vowel *-o-*, therefore if it is the result of assimilation to the adjacent vowel, *'ihoski* should be realized as **'iwoski* rather than *'iyoski*.

Here I will rather suggest the possible original intervocalic segment was *-w-* and as a result of dissimilation, *-w-* > *-h-* has occurred. It seems that the original intervocalic segment *-w-* has dissimilated when it is adjacent to [+round] vowel. This will explain data such as *'oha* & *'owa* "empty" (78), *'ohaw* & *'owaw* "soup" (107), *'ahunke* & *'awunke* "put it on" in which the intervocalic *-w-* has dissimilated to *-h-*, since it is adjacent to the [+round] vowel. Another argument to support this assumption that the intervocalic *-h-* is the result of dissimilation comes from a constraint of /w/ and /y/ in Ainu. Normally the sequences [wu] and [yi] do not occur in Ainu. Thus, in an example like *'ahunke* & *'awunke* "put it on", the sequence of [wu] has dissimilated to hu due to this constraint. This may have something to do with OCP violation.²⁰ In this case, when the [+round] intervocalic segment *-w-* is adjacent to [+round] vowel, the intervocalic segment undergoes dissimilation *-w-* > *-h-*. Thus, both in (78) and (107) it is more likely that the intervocalic segment was **-w-* rather than *-h-* and the *-w-* has dissimilated to *-h-*, since it is preceded by a [+round] vowel *-o-* in each case.

²⁰ Identical units ([+round] feature in this case) cannot be adjacent to each other---Obligatory Contour Principle.

The Comparison: If the above forms are related, it would provide more convincing evidence that the intervocalic consonant is *-w-*. The following is the change that might have occurred; **wawaq > *'awaq > *'owaq > 'owa*. After the loss of the initial consonant, the following vowel *a-* was assimilated to the roundness of the following consonant and became *-o-*. A loss of word or syllable final PAN **q* is observed elsewhere ((15), (108)). Whatever the original Ainu intervocalic consonant was, this set still fits nicely into Nothofer's (1991:223-258) Austronesian radical *aCa* "mouth, wide open" (in which C stands for a consonant).

(79) "penis"

**ci* "penis" -root
ci "penis" (Y SR O B A N S K)
cii "penis" (K)

**'uti'* "penis" (PAND)

The Comparison: Ainu has a rule changing *[t]* to an affricate when it is followed by high front vowel *[i]*, thus **'uti > *ti > ci* is assumed.

(80) "pick up, pick"

'uk "pick up" -root
'uk "pick up" (Y H SR O B A N S)

**S₂ukit* "pick" (PANDYMC)

The Comparison: Proto-Austronesian **S*, which is assumed to have been an alveolar or alveo-dental fricative, has weakened to */h/* or zero in most attested Austronesian languages. Perhaps the same kind of lenition has taken place in Ainu.

(81) "pile, file".

*('i-)kiri "pile up, heap up" -root
 'ikirikar "pile up, heap up" (Y H SR O B A N S)
 'ikirihikar "pile up, heap up" (K)
 'ikirituri "draw a line" (H)

*kikir "file" (PANDLO)

The Ainu Root: *-kar* means "to make", *-hi-* in the Karafuto form may be a place particle. *'i* is possibly a generalized object prefix "it".

The Comparison: The process of change might have been **kikir* > **kikiri* > ('*i*)*kiri*.

In relation to this comparison, Nothofer (1990:132-152) presents a medial radical *iri* "line, row, file, trail, drag". The above Ainu forms do seem to fit well into this radical both semantically and phonologically. The Horobetsu dialect form *'ikirituri* < *'ikiri* + *turi* "line" confirms that *'ikiri* is not used only in a sense of "laying out things vertically --> pile", but also used in a sense of "laying out things in horizontal direction --> line".

(82) "poison, poisoned arrow, sting"

*sur(u)ku "poison, poisoned arrow" -root
 surku "poison, poisoned arrow" (Y H SR O B A N)
 suruku "poison, poisoned arrow" (K)
 shuruku "poison, poisoned arrow" (C)

*zuluk "sting" (PANDLO)

The Ainu Root: The penultimate vowel of the K and C forms may be an echo vowel following a syllable final /r/ (see (7) for a discussion of echo vowels), but at the same time, it is also possible that it has been inherited from the PAN form (see (20), (46), (138) for similar cases).

The Comparison: To justify the above forms as being related, a form like **silu* "eat someone's poison" (PANBL 73) may serve as a lubricant. Most often poisoning can be induced by being stung by insects or by eating something poisonous food. Hence, "poison" can be ultimately related to "sting". The sound correspondences of the consonants and the vowels are all regular.

(83) "rain"

*'anpe "rain" -root
 ruyanpe "rain" (O A N S K)
 ru'anpe "rain" (B)

*(q)(ae)ngpi(ae)s "rain" (PANBL 71)

The Ainu Root: The Ainu form can be broken down to *ruy* "fall, blow, rain, hail, wind, etc." + 'anpe "rain".

The Comparison: The possible change would be *qangpi(ae)s > *qangpi > *qangpe > 'anpe.

For discussion of retention of PAN nasal accretion, refer to (4).

(84) "roll, round"

*kari "roll, round" -root
 sikari "round" (Y SR O B A N S K)
 sikari "turn around" (Y H O A N S)
 karip "wheel, ring" (Y SR O B N)
 kokari "to roll it" (Y H SR)

*galin "roll" (PANDLO)

The Ainu Root: *karip* may have been derived from *kari* + *p* "nominalizer" ---> "a round thing". *si-* means "to wind, to roll" which seems to be used

in a compound form attached to semantically similar forms (e.g. *sipoye* "whirl pool"). It is clear from the rest of the Ainu forms shown above, that the original root to be compared with the PAN form is **kari*.

The Comparison: Every correspondence observed between the Ainu root and the PAN form is regular, and the set also shows good semantic agreement.

(85) "row, dug out"

**cip(-o)* -root
cipo "row" (Y H SR O B S)
cipoo "row" (K)

**(ctT)ib(ae)g* "dug out" (PANBL 71)

The Ainu Root: Clearly *-o* in *cipo* is a verbalizer which serves to create a new verbal form from a noun. In this case *cip* "a boat" + *o* "verbalizer"--> *cipo* "row".

The Comparison: The above forms show good regular sound correspondences, the semantic difference is very slim.

(86) "run away, run"

kira "run away" -root
kira "run away" (Y H SR O B A N S K)

**kaRiw* "run" (PANDLO)

The Comparison: The above forms agree well in meaning, but the situation is unclear in terms of the vowels. Either the vowels are the consequence of *a-i* metathesis, or the above Ainu forms should be compared with **kilas*

"fast" (PANBL 73) which is phonetically more straightforward, but rather abberant in its meaning. However, the swiftness of "running away" might be associated to the state of running "fast".

(87) "say, voice, tongue"

*haw "say, tongue, voice" -root
 hawan "say" (Y)
 hawe'an "say" (H SR)
 'aw "tongue" (Y S K)
 haw(-e) "voice" (Y H SR O B A N S)
 hau "voice" (K)

*awang "say" (POCGR)

The Ainu Root: *-an* in *hawan* and *hawe'an* is obviously a verbalizer. "say," "tongue" and "voice" all share a common semantic feature that can be traced back to the same etymon.

The Comparison: Although it has not been pointed out in the study of Austronesian root theory, it seems reasonable to establish a radical *awa/au* "say, voice, howl" based on the above Oceanic form and examples like **raung* "howl" (PANBL 83) and **laung* "howl" (PANBL 89). The above Ainu forms also seem to reflect this. As for the initial consonant *h-* of the Ainu forms, it is natural to question whether the presence of *h-* is epenthetic or original in the comparison with the Austronesian form. Evidence for assuming it as an ancestral segment comes from the Proto-Philippine reflex **kuwan* "say" (PPHCH). It is conceivable that at a higher level of the genetic tree, there was an initial consonant preserved in at least the Philippine languages, but lost in the Oceanic group. If it were **k-*, for

instance, as observed in PPHCH, the shift from PAN **k* to Ainu *h*- would be very likely to occur.

(88) "sea, salt water"

'atuy "sea" -root
'atuy "sea" (Y H SR O B)

*a(dt)u "sea" (PCPPAW)

The Comparison: In terms of both regular sound correspondences and semantics, the above forms agree well.

(89) "sea water, tide, flow"

rur "tide, sea water" -root
rur "tide, sea water" (H SR N S)

*iluR "flow" (PWMPD)
*saluR "flow" (PWMPD)

The Comparison: Blust (1988a:123) establishes an Austronesian radical *luR* "flow" which shows a perfectly regular sound correspondence with the above Ainu form. For establishing the radical Blust also cites *Sulog* "flow (of water), current" (Bikol) along with other evidence, which helps us to account for the slight semantic difference of the above set.

(90) "see"

*nu(-kar) "see" -root
nukar "see" (Y H SR O B A N S)
nukara "see" (K)

*nungnung "see" (PANBL 80)
*nungnung "stare" (PANBL 89)

The Ainu Root: The final vowel of the Karafuto form *-a* is an echo vowel (see (7)). Chiri (1954:403) analyses *nukar* < *nu* "eye" + *kar* "make, consist". Thus, the Ainu root to be compared with PAN form is *nu*.

The Comparison: Phonologically and semantically this set causes no problem.

(91) "seed, plant"

tane "seed" -root
tane "seed" (Y H SR O B)

*tanem "to plant" (PANDYMC)

The Comparison: The above Ainu form is exactly the same as the modern Japanese and the Old Japanese *tane* "seed". As I have mentioned already, there are elements in the Japanese vocabulary that may have originated in Austronesian languages. This is one of the examples of this. However, since the genetic relationship of Japanese and Altaic or Austronesian is beyond the scope of my thesis, I will leave this issue aside. Good phonological match and the semantic corroboration of the above set suggest that the Ainu forms and the Austronesian proto-form are genetically related rather than that the Ainu forms are to be attributed to a Japanese loan. The Ainu are usually portrayed as foragers who relied heavily on fishing and hunting in historic times, but recent archaeological study (Crawford and Yoshizaki (1987:201-213) shows implication of the possible existence of an agricultural phase in Ainu history. If this archaeological study is true, this also eliminates the possibility of the Ainu form being a Japanese loan,

since a lexical item such as "seed" is a core agricultural term. If, on the other hand, the Ainu were solely dependent on fishing and hunting, such a term must have been introduced, possibly from the Japanese, along with agriculture.

(92) "seed"

*pi "seed" -root
pi "seed" (Y H SR O N S)
pii "seed" (K)

*bini "seed" (PAND)

The Comparison: In addition to the previous set, Hattori (1964:199) also provides the above forms which are less problematic for comparison. These forms provide evidence that "seed" is an old concept for Ainu, and weakens the argument that "seed" was a borrowed concept from Japanese.

(93) "sharp, pointed"

*'e'en "sharp" -root
'e'en "sharp" (Y H SR O B N S)
'e'enke "sharp" (S K)

*(t T)e(n nj)ek "pointed" (PANDYMC)

The Ainu Root: *-ke* is perhaps a suffix which marks a certain condition, in this case "being sharp."

The Comparison: I propose the following derivation;

*(t T)e(n nj)ek > *'enek > *'ene > *'en > 'e'en.

The last stage is probably a result of partial reduplication.

(94) "shell fish"

pipa "shell fish" -root
 pipa "shell fish" (Y SR A N)

*paa "shell fish" (PPNBIWO)
 *pipi "shell fish" (PPNBIWO)

The Comparison: The Ainu form seems to be a mixture of the two Austronesian sources.

(95) "shining, light up"

(tonna)tara "shining" (n.d.) -root

*tarah "light up" (PANDLO)

The Ainu Root: *ton-* might have been derived from *tom* "shine" or from *tono cup* "sun".

The Comparison: In both Ainu and Austronesian, *tar(a)* appears to express "brightness" (e.g. Ainu *retar* "white", and **sindar* "light, bright" (PANBL 89) are found). The above set shows good agreement in both phonology and semantics.

(96) "short"

*tak "short" -root
 takne "short" (Y H SR O A N C)
 'otakne "short" (B S)
 'otahkon "short" (K)

*panDak "short" (PANDLO)

The Ainu Root: *-ne* here is evidently a transitive particle denoting a certain state. The source of *-on* in the Karafuto form is not clear.

The Comparison: Ainu **tak* and PAN *-Dak* agree very well both phonology and semantics.

(97) "sip"

*horop(-se) "sip" -root
 horopse "sip" (Y H S)
 'oropse "sip" (O A N)
 horop "sip" (Y)
 *hiγup "sip" (PAND)

The Ainu Root: -se means "to produce such a sound" (see (16) for this usage). Chiri (1954:300) notes *horop* as a sound made by sipping liquid, thus, it is possible that the above Ainu forms are onomatopoeic.

The Comparison: Conclusive evidence to support this set comes from an Austronesian radical (Zorc 1990:175-194) *Rup* "sip, slurp", which is realized as Ainu *rop*. Ainu /o/ corresponds to PAN **u*, since PAN **u* is considered to have split into /o/ and /u/ in Ainu (see section 3). The Ainu form might have been derived through the following process;

*hiγup > *hirup > *hurop > horop .

(98) "sit"

*rok "sit" -root
 rok "sit" (Y H SR O B A N)
 roh "sit" (K)
 *DukDuk "sit" (PAND)

The Comparison: PAN **u* has split into /o/ and /u/, as is mentioned in the previous set (see section 3). Blust (1990:231-270) excludes **D* from his

Austronesian phoneme inventory.²¹ However, since this segment is retroflexed, $D > r$ is quite natural. The same correspondence is found in (51).

(99) "skin"

*kap "skin" -root
 kap "skin" (Y H SR O A N S)
 kah "skin" (K)

*kabal "skin" (PPHZ)

The Comparison: Although the Austronesian form could not be found at a higher level of the genetic tree, this comparison is well supported by an Austronesian radical *kap* "skin, bark" established by Zorc (1990:175-194), as well as by the set in (9).

We may be tempted to say that the above Ainu form has been borrowed from Japanese *kaFa*²² "skin" (Old Japanese), *kawa* "skin" (modern Japanese), but this does not seem to be the case here, since the above comparison is strongly motivated by Austronesian root theory. Rather, it is highly probable that both the Ainu and the Japanese forms are ultimately related to the Austronesian form.

(100) "skin"

*rus "fur" -root
 rus "skin" (B)
 rus "fur" (Y H SR O B A N S K)
 rushi "fur" (C)

*kurus "skinny" (PPHZ)

²¹ Recall that it is not clear whether PAN had palatalization, retroflexion, or both.

²² *F* stands for bilabial voiceless fricative.

The Comparison: In spite of the good phonological match, the only plausible form to be compared with the above Ainu form was found at the Proto-Philippine level; however, **kelas* "skin off" (PANBL 86) gives support to the validity of the Proto-Philippine form. Hence, given the conservative nature of the Philippine languages, it is certainly possible that the above Ainu forms and the Proto-Philippine form can be traced back to PAN **kelas* "skin off".

(101) "sky"

nis "sky" -root
nis "sky" (Y H O A)
**langit* "sky" (PANDYTV)

The Comparison: Here, we have the expected correspondence Ainu *n* to PAN **ng* (see section 3). PAN **t* > Ainu *-s* is not regular, but it can be regarded as a natural phonetic change. The same assibilation process is found in (36) and (70).

(102) "sleep"

**mo(-kor)* "sleep" -root
mokor "sleep" (Y H SR O B A)
mokoro "sleep" (K C N S)
**ma + duDur* "sleep" (PANC)

The Ainu Root: *kor* is a verbalizer and is used in the meaning of "have, own" (e.g. *mat* "wife" + *kor* ---> "take a wife"). Final *-o* in K C N S is an echo vowel. For a discussion of echo vowel following syllable final *r*, see (7).

The Comparison: We might be tempted to compare *mokor* and a form like **maturu* "sleep" (PEOOLCA), however, Capell's reconstruction given above and Ainu morphology would suggest the roots to be compared are Ainu *mo* and PAN **ma* respectively. PAN **a* has split into Ainu /a/ and /o/ (see section 3).

(103) "smell, aroma"

hura "smell" -root
hura "smell" (Y H SR O B A N S K C)

**ha(r)um* "aroma" (PAND)

The Comparison: The vowels are probably the consequence of the *a-u* metathesis. The same metathesis is found in (70) and (124).

(104) "smoke, steam, smoke food"

**pa* "steam, smoke" -root
pa "steam" (Y H SR S)
pa "smoke" (N S)
paa "smoke" (K)

**(t)apa* "to smoke food" (PAND)

The Comparison: The etymon of *pa* is not certain. But in this connection it seems that the PAN form and all the Ainu forms are related to "fire" both phonologically and semantically (see "fire" (42)).

(105) "smooth, grate"

**rarak* "smooth, slide, polish" -root
rarak "smooth" (Y H SR A N S)
rarak "slide" (S)
rarakka "polish" (SR)

**RaQRaQ* "grate" (PHNTS)

The Comparison: Although a relationship between these forms is well motivated by their phonology, they are slightly aberrant in their meanings. But the difference may be understood by regarding "grating" as a process in making a surface "smooth". For instance, a form which might be possibly related to this is **sulaq* "bald" (PANDLO) indicating smooth surface. There is a chance that this set may be onomatopoetic.

(106) "sneeze"

'esna "sneeze" -root
'esna "sneeze" (Y H SR O B A N S K)

ba'etjing "sneeze" (PAND)

The Comparison: The above set is listed in Murayama (1992:71). Although Murayama provides the following derivation, it seems difficult to explain the final *-a*, which does not appear to be playing a suffix-like role here.

**ba'etjing-a* > **esina* > *esna* (Murayama's derivation). Aside from this difficulty, the forms show good agreement in phonology and semantics. Recall that now Dempwolff's PAN **tj* is considered to be **s*.

(107) "soup"

*'o(h/w)aw "soup" -root
'owaw "soup" (B)
'ohaw "soup" (H SR O A N S K)

*sa(m)baw "soup" (PANBL 83)

The Ainu Root: It is not clear whether the original intervocalic segment was *-h-* or *-w-*, however, (78) and other Ainu data indicate that it is more likely that the intervocalic segment was *-w-* rather than *-h-*. For details, see (78).

The Comparison: If the original intervocalic segment was *-w-*, PAN **(m)b-* > Ainu *-w-* is regarded as a phonologically natural change.

(108) "spit, saliva"

*t(u/o)p(-se) "spit" -root
 tupse "spit" (Y)
 topse "spit" (A N S)

*suba "saliva" (PANBL 86)
 *supaq "saliva-dbl." (PANBL 86)

The Ainu Root: The Ainu form can be broken down to *tup/top* + *se* "to produce such a sound".

The Comparison: Thus, the root to be compared with the PAN form is *tup-/top*. As far as the initial consonants are concerned, *s* > *t* is less likely to happen than the reversed change *t* > *s* which is regarded as assibilation observed elsewhere ((36), (70), (101)). In this connection, Old Japanese *tubak-i* "spit" is found. As an alternative to account for this change, we may have to accept a reconstructed form like Proto-Austro-Japanese **tsu(m)paq* "spit" (Benedict 1990).

(109) "split"

soso "split" -root
 soso "split" (Y O B A N)

*sasa(1) "split" (POCGR)

The Comparison: There is at least a possibility that the forms in this set could be onomatopoetic, coming from the splitting sound.

(110) "star"

*keta "star" -root
 keta "star" (S K)
 ketta "star" (C)

*qata "star" (POCGR)

The Comparison: Given the fact that the above Ainu forms do belong to only northern dialects, and a possible cognate was not available at the PAN level, these forms might have survived in the peripheral area of the Austronesian languages.

(111) "steal"

*('i)kka "steal" -root
 'ikka "steal" (Y H SR O A S)
 'iska "steal" (B K)

*t₂a(N)kav "steal" (PANDL)

The Ainu Root: -s- in Bihoro and Karafuto form is a common type of lenition, observed especially in the Karafuto dialect; a syllable final stop becomes /s/, when it follows /i/, see (21) for the same process. 'i- is probably a generalized object "it".

The Comparison: Murayama (1992:227) attempts to compare 'ikka "steal" and the above PAN form proposing 'ikka < 'iska < *i-saka < *i-t₂aka. I would agree with him regarding the comparison of 'ikka and *t₂a(N)kav, since an assibilation of t₂ > s is a natural change observed elsewhere ((36), (70), (101)), and -a- has undergone syncope. However, his hypothetical derivation must be reviewed in the light of internal evidence in Ainu. Firstly, the last stage of this derivation should be 'ikka > 'iska. This is highly disguising, since at a glance it seems as if geminate *kk* has resulted

from the assimilation of *s* to *k*, but evidence from other data such as *'ismawre* "belch" (B), *'ikmawre* "belch" (Y H SR O A N) indicates that the original root was *'ikka* and the first *k* has undergone lenition in the Bihoro and Karafuto dialects. This type of weakening is especially widely observed in Karafuto Ainu.²³ Unless we are able to find other examples of *s* assimilating to *k* in the environment where *s* is adjacent to the following *k* in the Bihoro dialect, it will be very difficult to identify the process of the change as assimilation rather than lenition. Another argument to verify this as a weakening process comes from the patterns of assimilation observed in Ainu. In Ainu the assimilation of stops is a very common phenomenon, and we find examples of stops assimilating to other stops, and *r* assimilating to a following *t*, but we must pay attention to the fact that *s* assimilating to following stop is an unusual phenomenon, if the geminate *kk* is due to assimilation. I therefore propose that after the dropping of the PAN initial syllable, **kav* has undergone lenition **kav* > **kaw* > *ka* and then *k* has been geminated.

(112) "stick, pole"

turi "pole" -root
turi "pole" (Y H SR O A N S)

*DiRi "stick" (PANBL 69)

The Comparison: Nothofer (1990:132-152) sets up a medial radical *iri* "line, row, file, trail, drag". Although this might also hold true in Ainu, it is instead realized as **uri* "pole, stick, line". See (81) also, which may be

²³ Karafuto Ainu *Cip*, *Cit*, *Cik* (*C* stands for consonant) have weakened to *Cis*.

associated with **urit* "line" (PANBL 86) (65).

(113) "stone"

**wat(-ara)* "stone" -root
watara "stone" (Y)

**batuH₂* "stone" (PANTS)

The Ainu Root: Hattori (1964:208) notes that the Ainu form is an old form. It is possible that *watara* has been derived from *wat* "stone" + *'ara* "to decorate". Perhaps in the old days stones were the most familiar ornament in the Ainu people's natural environment, and were possibly used in religious ceremonies.

The Comparison: I would assume the following process; **batuH₂* > **bat* > *wat*. The Ainu *w* and PAN **b* correspondence is not regular, but this can be regarded as a natural weakening process.

(114) "straight, rope"

tus "rope" -root
tus "rope" (Y H SR O B A N S)

**tusu(k)* "straight" (POCGR)

The Ainu Root: Motivation to connect two concepts "rope" and "straight" comes from a Karafuto form *istusne* "a long straight road" which can be broken down to *'is* "strong rope" + *tus* "rope" + *ne* "translative particle". The original concept of *tus* may have been retained in the peripheral Karafuto dialect and lost in the remaining dialects.

The Comparison: A view similar to that in (110) can be held here as well. In both cases, the cognates are found in the periphery area of the Ainu and Austronesian speaking areas, thus, the center area might have gone through innovations and lexical replacement and lost the above form. Refer to (118) for a relevant discussion.

(115) "strip"

```
*ri "strip" -root
ri "strip, skin" (Y H SR)
'iri "strip, skin" (SR O N)

*baris "strip" (PANDLO)
*turis "strip" (PANDLO)
```

The Ainu Root: Perhaps 'i- in SR O N is a generalized object "it".

The Comparison: From the Austronesian forms given above, it is clear that the root we are concerned with here is **-ris*.

Blust's (1988a:146) Austronesian radicals *riC* "sound of ripping" and *ris* "scratch a line" show some implication that both Ainu *ri* and PAN **-ris* are onomatopoetic.

(116) "three"

```
*re "three" -root
rep "three" (Y H SR O B A N S)
reh "three" (K)

*telu "three" (PAND)
```

The Ainu Root: For the discussion of final -p in numerals, refer to (43).

The Comparison: Murayama (1992:74) provides the above set assuming $re < *le < *telu$. The correspondence of Ainu vowel *-e-* and PAN **-u* is rather unusual, but as Murayama analyses, there might have been an schwa as an intermediate stage.

(117) "throb, heart"

*toktok(-se) "to throb" -root
toktokse "to throb" (Y H SR O)
tohtohse "to throb" (K)

*tutjuk "heart" (PAND)

The Comparison: Since *-se* in Ainu is possibly a particle meaning "to produce such a sound" (in this case "to produce a sound like *toktok*"), and given the fact that the Ainu forms are reduplicated, there is a possibility that both Ainu and PAN forms could be onomatopoeic. The possible process of the change would be $*tutjuk > *tusuk > *tuuk > *tuk > tok$. The sound correspondence between PAN **u* and Ainu /o/ is regular.

(118) "tie, rope"

tus "rope" -root
tus "rope" (Y H SR O B A N S)

*tustus "to tie" (PANDLO)

The Comparison: Compared to (114), this set is more straightforward and convincing both from phonological and semantic point of view. Rather than regarding "a rope" to be "a long straight object" (114), it seems more reasonable to make a connection "a rope" and "to tie". It may be that the forms in (114) and the above forms are ultimately related.

(119) "tie"

sina "tie" -root
 sina "tie" (Y H SR O B A N S)

*sirat "tie" (PANDLO)

The Comparison: Ainu *-n-* and PAN **r* is not a regular correspondence found elsewhere in my data set, but from an articulatory point of view, this is not an impossible change.

(120) "tooth"

*nimak "tooth" -root
 mimak "tooth" (Y SR)
 nimak "tooth" (H SR A N)
 'imak "tooth" (O B S K)

*ngi(cs)i "tooth" (PANBL 73)
 *maka "tooth" (POCGR)

The Ainu Root: The initial *m-* in *mimak* is the result of assimilation to the following *-m-*. Thus I would establish *n-* as the initial segment for this root.

The Comparison: Chiri (1954:300) proposes *mimak* having been derived from *mi* "tooth" + *mak* < *pake* "head", leaving a question mark with it. Here, I would suggest the Ainu form to be a compound form of the above two Austronesian sources; **ngi-maka* > **nimaka* > *nimak*. Such derivation posits no violation of regular sound correspondences.

(121) "trace"

*kot "trace" -root
 kot "trace" (Y)
 rukoci "trace" (SR B)

*baka(ct) "trace" (PANBL 70)

The Ainu Root: Since Ainu has a rule turning *[t]* to an affricate before *[i]*, the original final consonant was presumably *-t* as represented in the Yakumo form. *rukoci* is likely to consist of *ru* "line" + *koci*.

The Comparison: Although the above Ainu root is not attested in many dialects, phonologically and semantically it seems plausible to propose that these forms are related. For the split of PAN **a* into Ainu */a/* and */o/*, see section 3.

(122) "tree"

ni "tree" -root
 ni "tree" (Y H SR O B A N S C)

*ni(n)tuq "tree" (PANBL 86)

The Comparison: Murayama (1992:73) compares this Ainu form with PAND **niyup* "palm tree"; however, it is more plausible to make a comparison of generic terms rather than one species of trees. Furthermore the climate is too cold for the palm trees to grow in a place where Ainu is spoken. But it is also possible that PAN **ni(n)tuq* and **niyup* are related.

(123) "two"

*tu "two" -root
 tup "two" (H SR O B A N S)
 tuh "two" (K)
 tun "two persons" (Y H SR O B A N S)

D₁ewS₃a "two" (PANTS)

The Ainu Root: *tup* is probably derived from *tu* "two" + *p(e)* "nominalizer"

(for a discussion of *p(e)*, refer to (43)).

The Comparison: The following process of the change is assumed.

*D₁ewS₃a > *dewha²⁴ > *duha > *dua > *du > *tu*

(124) "vomit"

'atu "vomit" -root
 'atu "vomit" (Y H SR O B A N S)

*utaq₂ "vomit" (PANTS)

The Comparison: Murayama (1992:70) states that the Ainu vowels are the result of *a-u* metathesis. Chiri (1954:349) suggests 'atu < 'at "sound of vomiting" + *u* "inflection of the verb", thus, there is at least a possibility that this pair may be onomatopoeitic. Unfortunately I do not have any evidence for assessing the feasibility of their opinions.

(125) "vulva"

pok "vulva" (Y H O N)
 kakka "vulva" (B S)
 *pukak "vulva" (PANBL 73)

²⁴ Among Austronesian languages *S > *h* is a widespread change (Blust 1990:231-270).

The Comparison: Both Ainu forms seem to have inherited one part of the PAN form.

**pukak > *pokak > pok*

**pukak > *kak > kakka*

The sound correspondence between PAN **u* and Ainu /o/ is regular.

(126) "wait"

**tere* "wait" -root
tere "wait" (Y H SR A N S)
teere "wait" (K)

**[tT]aRaH₂* "wait" (PHNTS)

The Comparison: Although the vowels in the Ainu and PHN forms show an irregular correspondence, the perfect semantic match and the regular sound correspondence of the consonants indicate that the above set are conceivably related.

(127) "walk, leg, foot"

wawa "walk" (B)
wa "walk" (S)

**waqay* "leg, foot" (PANBL 89)

The Ainu Root: I would hesitate to establish a root from just two dialects and no further evidence. There is no way of knowing whether the reduplicated form or the monosyllabic form was original.

The Comparison: Although the etymology of the Ainu forms cannot be detected, the semantic association of "walk" and "leg, foot" does not seem too aberrant.

(128) "wash"

*huray(-e) "wash" -root
 huraye "wash" (Y H SR A S K)
 'uraye "wash" (B A O H N)

*huyatj "wash" (PAND)

The Ainu Root: The presence of plural forms such as *huraypa(pe)*, *'uraypa(pe)* suggest *huray* should be treated as the root.

The Comparison: The change of the last segment is rather ambiguous, however, the first two syllables show perfectly regular correspondence. Further, the meanings of the above set is identical.

(129) "water"

*wakka "water" -root
 wakka "water" (Y H SR O B A)
 wahka "water" (K N S C)

*baSaq "water" (PANBL)

The Comparison: The shift from PAN *b to Ainu *w-* is a natural process of weakening (for another example of the same change, see (113)). PAN *S, now considered to be an alveolar or alveo-dental fricative, has weakened to /h/ or zero in most attested Austronesian languages, including virtually all Malayo-Polynesian languages. Thus, for a possible explanation of PAN *-S- > Ainu -k-, I will assume PAN *S has weakened to *-h-, and then has finally shifted to -k- followed by gemination. In terms of place of articulation, the shift of -h- to -k- is certainly plausible. At the same time a change such as the following is also possible; *baSaq > *bahaq > *baaq > *baq > *bak > *bakka > wakka.

(130) "water fall"

*so "water fall" -root
 so "water fall" (Y H SR O B A N)
 'eso "water fall" (K)

*sapu "water fall" (POCGR)

The Comparison: The following derivation is assumed;

*sapu > *safu > *saw > so. Blust (1990:231-270) describes *-aw > /o/ as a phonetically natural change observed widely in many Austronesian languages. He also states the existence of canonical erosion sequences such as *p > *f > *h > zero and segmental erosion sequences as from *p to zero in Austronesian languages. Although I have demonstrated the former case for the historical change from PAN *sapu to Ainu so, it is also possible that the latter case could have taken place.

(131) "wave, flow"

rir "wave" -root
 rir "wave" (Y H SR N)

*saliR "flow" (PWMPBL 73)

The Comparison: The forms in the above set shows a slight difference in their meanings. However, this could be overcome by their perfect regular correspondences between *rir* and *-liR*. Another set with "flow" (89) found in my data may also be a good support for this semantic relationship. In (89) the Austronesian form for "flow" is realized as "tide, sea water" in Ainu. Blust (1988a:121) provides an Austronesian radical *liR*. The above Ainu form also seems to be a reflection of this radical.

(132) "whirl pool"

*puy "whirl pool" -root
 puyra "whirl pool" (H)
 sipoye "whirl pool" (B)
 'opoye "whirl pool" (A)
 wahkakinpuy "whirl pool" (K)
 moy "whirl pool" (SR O A N)

*puyu' "whirl pool" (PANDYMC)

The Ainu Root: From a form like 'opoye, I would assume that the quality of the original vowel was -u- rather than -o-, which probably has been assimilated to the immediately preceding o-. Further, it may be worth mentioning that preceding labial consonants have a tendency to favor rounding and backing of the following vowel, thus changing the original -u- to -o-. *m-* in *moy* has undergone lenition $p > m$. *si-* "to wind, to roll" in the Bihoro form does seem to be attached to a word with similar meaning creating a compound word (see (84)).

The Comparison: Phonologically and semantically the above set shows good agreement.

(133) "whistle"

*maw- "whistle, breath" -root
 mawsoro "whistle" (O H)
 mawsuro "whistle" (A)
 mawsura "whistle" (S K)
 mawsiro "whistle" (SR)

*mapu "whistle" (PPNBIWO, PPNDP)

The Ainu Root: Chiri (1954:138) analyses *mawsoro* < *maw* "breath" + *soro* "sliding out".

the Comparison: The relationship between the Ainu and the Austronesian forms can be explained by assuming the weakening of the intervocalic segment;

**mapu > *mawu > maw.*

(134) "widen, force open"

**pira(-s(a))* "widen" -root
pirasa "widen" (Y H SR O B A N S K)

**pilak* "force open" (PANBL 80)

The Ainu root: There is a chance that *-sa* may not be a part of the root. It is highly probable that *-sa* has been derived from *yasa* "split" or *soso* "split". Another possibility is to assume a root **piras*, in which case PAN **-k > Ainu -s-* has taken place accompanying an echo vowel *-a*. However, it is more usual the case to have an echo vowel after syllable final *-r*.

The Comparison: As I mentioned, it is not clear whether the Ainu *-s-* has been derived from PAN **-k*. This may be another instance of Austronesian medial radical **aCa* (*C* stands for a consonant) "mouth, wide open" established by Nothofer (1991:223-258), which is reflected as *-asa* in this Ainu form.

Another possibility would be to regard the Ainu form as a Japanese loan **pirak* "to open" (Old Japanese). But good phonological and semantic agreement of the Ainu, PAN and the Japanese forms suggest that they may ultimately be related to one another.

(135) "wind"

**rera* "wind" -root
rera "wind" (Y H SR O B A N S)
reera "wind" (K)
re'ra "wind" (C)
reara "wind" (C)

**lelea* "driven away by the wind" (PPNBIWO)

The Ainu Root: The initial syllable of *reara* shows a striking similarity to the last syllable of PAN **lelea*, however, there is no further evidence to conclude that the Chishima dialect has preserved the original vowels. Thus, here I will simply take *rera* as the root for the convenience, only because it appears in the majority of dialects.

The Comparison: As I mentioned in the previous part, the initial syllable of *reara* and the last syllable of PAN **lelea* show regular sound correspondences. However, if the Ainu root was **reara*, there would be no satisfactory explanation for the last syllable *-ra* in Ainu nor for the initial syllable *le-*. Rather, it seems natural to compare **rera* and **lelea*. Every segment except V_2 *-e-* in PPN form shows regular sound correspondences. It is possible to assume that V_2 *-e-* in PPN is an instance of an echo vowel assimilating to the preceding vowel and this vowel is lost in the Ainu form.

(136) "wipe"

**piru* "wipe" -root
piru "wipe" (Y H SR O K)
 **buri(')* "wipe" (PAND)

The Comparison: The vowels are the consequence of metathesis.

(137) "woman"

*pine "male" -root
 pinne "male" (Y H SR O B A N C)
 piineh "male" (K)

*biney "woman" (PANDYMC)

The Comparison: The above items are semantically completely opposite, but good phonetic match suggests that it is possible that the meaning was reversed at one point in Ainu. Historically, antonymic change is not an unusual phenomenon. Or there might have been similar terms existing for both "male" and "female" in Ainu, but "female" was lost and its counterpart survived in the history. Chiri (1953:281) analyses *pinne* "male" < *pi* "seed" + *ne* "translative particle".

(138) "wound"

*pir(i) "wound" -root
 pir "wound" (Y H SR O B A N S)
 piri "wound" (K)

*bilit "wound" (PANDE)

The Ainu: There is no historical evidence available regarding whether the Karafuto Ainu form preserves the original final vowel *-i*, or it is an instance of an echo vowel, since it is preceded by /r/ (for further discussion of echo vowels, see (7)). Similarly unclear cases with respect to the quality of the root vowels following syllable final /r/ are found in (20), (46), and (82).

The Comparison: Semantically and phonologically the above forms agree well.

(139) "younger sibling"

```
*'ak(-i) "younger sibling" -root
'ak(i) "younger brother" (Y H SR O B A N S)
'aki(b/p)o "younger brother" (C)
matak(i) "younger sister" (Y H SR O B N S)
'akebo "younger sister" (C)
'akibo "younger sister" (C)
```

```
*aji(h) "younger sibling" (PANDYPMPL)
```

The Ainu Root: *-bo* and *-po* both are endearment suffixes. *matak* has been derived from *mat* "female" + *'ak(i)*. Thus, the root for this gloss should be *'aki*. Note that the vowel *(-i)* in Ainu forms is a suffix forming the possessed forms (see (74)). Thus, it should be treated separately from the *-i-* in PAN form.

The Comparison: Since PAN **j* represents a palatalized velar stop, PAN **j* > Ainu */k/* is a natural process of change.

3.2.2 The Ambiguous Sets

(140) "blow"

```
'uku "blow" -root
'uku "blow" (Y H SR O B A N S K)

*ijup "blow" (PAND)
```

The Comparison: This set seems rather dubious, but there may have been several intermediate stages in the process of the sound change. For instance, Malagasy *fiuk* "whistle" was included in the data from which Dempwolff reconstructed the above PAN form.

(141) "elbow"

***sittok** "elbow" -root
 sittok "elbow" (Y H SR N)
 sittokkew "elbow" (B S)

***siku(')h** "elbow" (PANDYMC)

The Ainu Root: *sittokkew* is undoubtedly *sittok* "elbow" + *kew* "bone".

The Comparison: The etymon of Ainu "elbow" is crucial here, in determining the form to be compared with the PAN form. Chiri (1954:334) suggests *sittok* < *sir* "ambient prefix" + *tok* "projection, protruding", while Murayama (1992:230) analyses *sittok* < **tjik-tok* "projection" < **tjiku* "elbow" (PAND). If we follow Chiri's analysis, the above set perhaps should be possibly rejected, but it seems as if Chiri's analysis is more plausible as opposed to Murayama's. The argument rests on widespread assimilation patterns. A number of assimilatory and disassimilatory processes are observed in Ainu. One of the most prominent is the assimilation of *r* to an adjacent *t*. Thus, *-r* in *sir* must have assimilated to the following *t*. A form like *sistoh* "elbow" (Shiraura dialect taken from Chiri (1954:335)) supports this analysis. *sis* can be the result of weakening of *sittok*, as is observed in Karafuto Ainu (see (21) and (111)). However, *sir* can also change to *sis* without going through a change *sittok* > *sistok* based on data like *sissese* "hot"(A N), *sirsese* "hot"(H SR O B). As mentioned in (11), *sir* is now used mainly as an ambient prefix for expressions of "weather, time", but it originally had meanings "land" or "place". Thus, perhaps *sittok* here meant "a protruding place > elbow".

An argument against Murayama's analysis comes from the assimilation of stops (e.g. *ak-pe* > *appe* "trap") which is wide-spread in the northern and eastern parts of Hokkaido, but very rare in the southern part. According to Murayama's analysis, *-k* has assimilated to the following *t*. Although this assimilation process is usually limited to the northern and eastern parts of Hokkaido, Murayama is claiming that it has spread throughout Hokkaido, as seen from the data above. This suggests that *sit-tok* has been derived from *sir* + *tok* as Chiri hypothesizes; thus this set should be excluded from the comparison. Instead, I would suggest a comparison between *sikkew* "corner" and **tjiku* "corner" (PAND), **siku(')h* "elbow" (PANDYMC) (see (21)), as both "corner" and "elbow" appear to share a common semantic feature.

(142) "many, numerous"

poro "many" (A N S)
poronno "many" (Y SR O B A)

**moRa* "numerous" (POCGR)
**ma-no* "numerous" (PPNDF)

The Comparison: Chiri (1954:483) states now these forms are used in the meaning of "many", but that they have originally derived from *ponu* "having a child". If Chiri were wrong, and the original meanings of the Ainu forms were "many", the semantic relation of "many" and "numerous, countless" could be more easily understood. An additional problem leading to hesitation to include this in the previous section is that regarding the initial consonants, as *p* > *m* is more likely to happen than *m* > *p*. How-

ever, since the Austronesian forms cited above are not found at the PAN level, it is possible to assume that there could have been a form begins with **p-* at higher proto-level.

(143) "measure"

**pakari* "weigh it" -root
pakari "weigh it" (Y SR O)
paakari "weigh it" (K)

**hukur* "measure(unit)" (PANDLO)
**(Ct)aker* "measure unit of " (PANBL 71)

The Comparison: This set agrees well in its meaning, but I was not able to account for the phonological change with a high degree of confidence.

First of all, it is not clear to which PAN form the Ainu form is related. Considering the consonant shift, it seems more likely that the Ainu form originated in PAN **hukur*; however, in terms of the quality of the vowels PAN **(Ct)aker* looks like a proper candidate. In the former case, we have to assume the fortition of the initial consonant of the Ainu *p-* < PAN *h-*. But historically fortition is less likely to occur than lenition. It may be worth noting that modern Japanese *hakar-* "measure" has been considered to have undergone the reverse change due to lenition; Old Japanese **pakar-* > **Fakar-* > *hakar* (here *F* stands for a bilabial voiceless fricative). This kind of ambiguity may be clarified only in the future by carrying out further research involving the Ainu-Japanese-Austronesian connection. A great deal of work must still be done in this field, especially in the area of subgrouping problems and external relationships of the Austronesian languages.

(144) "narrow"

*hut(-ne) "narrow" -root
hutune "narrow" (Y H SR O B A N)

*putu "squeezed, tight" (PPNDF)

The Ainu Root: -ne is possibly a translativ particle indicating the state.

The Comparison: Although Ainu *h*- and PAN **p*- do not show regular sound correspondence, the lenition of **p* to *h* is not implausible as seen in the previous Japanese example. Blust (1990:231-270) states that PAN **p* has some 17 known reflexes in Austronesian languages, and the great majority of these can be characterised as lenitions with /f/, /h/, /v/, /w/ and zero being particularly common. As far as the semantics are concerned, "narrowness" and "tightness" hold a similar notion.

(145) "salt"

sippo "salt" -root
sippo "salt" (Y H SR O B A N S)

*atjin "salt" (PAND)

The Comparison: Murayama (1992:75) provides the the following derivation for the justification of the above set; **atjin-pu* > **asinpo* > *sippo*. However, it is likely that the above Ainu form is of Altaic origin (e.g. *siyu* "salt" (Tungus-Altaic language)). Altaic languages are spoken in a geographical area relatively close to Ainu. Since I do not have any further evidence to conclude this set, I will leave it open to question.

(146) "soft"

*hapur "soft" -root
 hapur "soft" (Y H SR)
 'apur "soft" (B A N S)
 hapuru "soft" (K)

*lambut "soft" (PAND)

The Comparison: Semantically this root poses no problems. However, there is no reasonable explanation for the initial consonant shift of **l-* > *h-*.

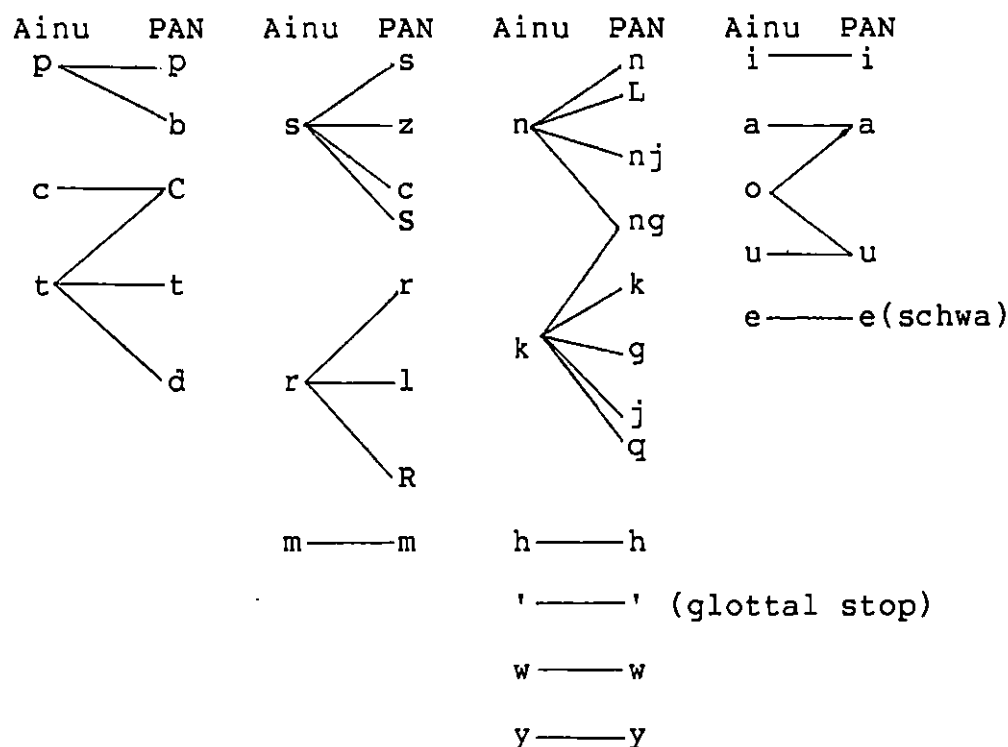
(147) "wife"

saha "elder brother's wife" (Y)

*sawa "wife" (PANC)

The Comparison: Since the above Ainu form is usually used in the sense of "sister" in the majority of dialects, the above two forms may be a mere coincidence. However, the original meaning may have been altered; as it is often said, "each word has its own history". But given the multiple meanings of the Ainu form and the close phonological match between the Ainu form and the Austronesian form, I have left this set in this section, since there is still a possibility that the forms are related.

3.3 Regular Sound Correspondences



p-p: *pis-pasisi* (11), *petu-puTul* (23), *rap-layap* (41), *pir(i)ka-piliq* (46), *tutu'askarap-qarep* (66), *'anpe-(q)(ae)ngpi(ae)s* (83), *horop(se)-hiγup* (97), *pa-(t)apa* (104), *t(u/o)p(se)-supaq* (108), *pok-pukak* (125), *puy-puyu* (132), *pira(-s(a))-pilak* (134)

p-b: *'opi(tta)-(')abih* (6), *rapap(se)-labuh* (32), *pana-banu(v)a'* (34), *'anpa-da(m)bat* (52), *'apu-labur* (54), *cip(o)-(ctT)ib(ae)g* (85), *pi-bini* (92), *t(u/o)p(se)-suba* (108), *piru-buri(')* (136), *pine-biney* (137), *pir-bilit* (138)

c-C: *cis-C₁angis* (22)

t-C: *tuk-Cubug* (49), *turi-Curit* (61)

t-t: *sat-[q'h]asat* (33), *to-loto* (58), *rit-urit* (65), *tane-tanem* (91), *tonnatara-tarah* (95), *wat(ara)-batuH₂* (113), *toktok(se)-tutjuk* (117), *tus-tustus* (118), *'atu-utaq₂* (124)

t-d: *tura-duluR* (2), *to(tto)-dudug* (15), *tokam-daqaNi* (26), *tem-depa[ʰh]* (40)

s-s: *sito-sinDak* (4), *sus-tjukjuku* (10), *pis-pasisi* (11), *ko'as-gas* (14), *sikkew-tjiku* (21), *cis-C₁angis* (22), *sat-[q'h]asat* (33), *sune-[sQ]iNaR* (63), *sara-tjelang* (77), *'esna-ba'etjing* (106), *tus-tustus* (118), *sina-sirat* (119)

s-z: *sur(u)ku-zuluk* (82)

- s-S:** *sum-SimaR* (48)
- r-r:** *'ar(i)ki-ari* (20), *kar-karkar* (28), *par-parpar* (44), *turi-Curit* (61), *rit-urit* (65), *tutu'askarap-qarep* (66), *('i)kiri-kikir* (81), *tonnatara-tarah* (95), *hura-ha(r)um* (103), *ri-baris*, *turis* (115), *piru-buri(?)* (136)
- r-l:** *tura-duluR* (2), *(am)kir-kilala* (3), *rapap(se)-labuh* (32), *rap-layap* (41), *pir(i)ka-piliq* (46), *ram-galaN,kalaN,dulaN* (67), *karus-kulat* (70), *sara-tjelang* (77), *sur(u)ku-zuluk* (82), *kari-galiN* (84), *re-telu* (116), *pira(s(a))-pilak* (134), *pir-bilit*(138)
- r-R:** *(ha)cir-tiR₁₂is* (30), *('o)kere-ikuR* (37), *imer-[sQ]iNaR* (64), *'asir-baq₂eRuH₁* (72), *kira-kaRiw* (86), *horop(se)-hiγup* (97), *turi-DiRi* (112), *huray-huγatj* (128)
- m-m:** *num(num)-inum* (31), *sum-simaR* (48), *ram-DemDem* (51), *kem-kemuR* (62), *nimak-maka* (120)
- n-n:** *num(num)-inum* (31), *pana-banu(v)a'* (34), *'unu-nunu* (69), *nukar-nungnung* (90), *tane-tanem* (91), *'e'en-(tT)e(n nj)ek* (93), *ni-ni(n)tuq* (122), *pine-biney* (137)
- n-L:** *sune-[sQ]iNaR* (63)
- n-nj:** *'e'en-(tT)e(n nj)ek* (93)
- n-ng:** *mun-bunga* (47), *'inu-dingeR* (50), *'anpe-(q)(ae)ngpi(ae)s* (83), *nis-langit* (101), *'esna-ba'etjing* (106), *nimak-ngi(cs)i* (120)
- k-ng:** *'etu(k)-ijung* (75), *maka-banga'* (76)
- k-k:** *ka-[tj]akat* (1), *(am)kir-kilala* (3), *'ikkew-liku* (8), *kap-'u(m)pak* (9), *'etuk-(ct)uk(ct)uk* (12), *sikkew-tjiku* (21), *kunne-kudem* (24), *'atki(r)-[t]aki[']* (27), *kar-karkar* (28), *('o)kere-ikuR* (37), *ku-akun* (53), *'ika-ka* (55), *kokka(sapa)-keku* (57), *kem-kemuR* (62), *karus-kulat* (70), *'uk-S₂ukit* (80), *('i)kiri-kikir* (81), *sur(u)ku-zuluk* (82), *kira-kaRiw* (86), *tak-panDak* (96), *rok-DukDuk* (98), *ikka-t₂a(N)kav* (111), *toktok(se)-tutjuk* (117), *kot-baka(ct)* (121), *pok-pukak* (125), *kokka-pukak* (125)
- k-g:** *kunne-gu(n)Dem* (13), *ko'as-gas* (14), *'ak-(ng)agan* (71), *kari-galiN* (84)
- k-j:** *'ak(i)-aji(h)* (139)
- k-q:** *pir(i)ka-piliq* (46), *tuk-Cubug* (49), *tutu'askarap-qarep* (66), *'okkay-RaqaNay* (68)
- h-h:** *he(se)-heseN* (16), *hum(i)-huni'* (74), *horop(se)-hiγup* (97), *hura-ha(r)um* (103), *huray-huγatj* (128)
- '-:** *'opi(tta)-(')apih* (6), *'aca-'ajah* (39)

- w-w:** 'o(h/w)aw-sa(m)baw (107), wawa-waqay (127)
- y-y:** ya-daya (59), 'okkay-RaqaNay (68), puy-puyu' (132)
- i-i:** (3), (4), (6), (8), (21), (22), (27), (30), (46), (61), (64), (65), (79), (81), (85), (92), (101), (115), (122), (134), (137), (138)
- a-a:** (1), (9), (14), (20), (27), (28), (32), (33), (34), (36), (39), (41), (42), (44), (45), (52), (54), (55), (56), (59), (66), (67), (68), (71), (72), (76), (77), (78), (83), (84), (91), (95), (96), (104), (107), (111), (113), (119), (125), (127), (128), (129), (134), (139)
- o-a:** (6), (26), (38), (68), (78), (102), (107), (121)
- o-u:** (15), (97), (117), (125)
- u-u:** (2), (5), (10), (12), (13), (24), (31), (36), (47), (49), (53), (54), (61), (69), (74), (75), (80), (82), (90), (118), (128), (132)
- e-e (schwa):** (13), (16), (24), (40), (62), (91), (93), (106), (116), (137)

Only the correspondences found at the PAN level from 3.2.1 are included. Asterisk marks, and for the sound correspondence of the vowels, the actual forms are omitted since they are too numerous to list.

There is only one set available for Ainu /c/ - PAN *C. However, this can be explained by the limited distribution of PAN *C, which is distinguished from *t only by certain languages of Formosa. In fact, PAN *C seems to have split into /t/ and /c/ in Ainu. Similarly, there were no data available for PAN *c, which can be also explained by the limited distribution of the proto-phoneme; PAN *c is distinguished from PAN *s only by certain languages of Western Indonesia. Probably PAN *c has merged to /s/ in Ainu as well.

Regarding Ainu /n/ and PAN *L, there is only one set available (63), in which *L is represented by *N by Tsuchida's orthography.²⁵ However, this correspondence can be well motivated, if we look at the history of this PAN phoneme;

²⁵ Blust's PAN *L = Tsuchida's PAN *N.

recall that PAN **L* was not distinguished from **n* by Dempwolff. The quality of the sound still remains uncertain.

Although I have assumed the correspondence of Ainu /s/ and PAN **S* (alveolar/alveo-dental fricative), examples like (80), and (42) (Tsuchida's PAN **X* is now considered to be the equivalent of PAN **S*), indicate that this phoneme appears to have undergone lenition in Ainu: **S* > **h* > - . This pattern of sound change is widely observed in Austronesian languages.

It is obvious that a large number of PAN consonant phonemes are reduced in Ainu. The contrast of voiced and voiceless stops is lost in Ainu. PAN liquids, nasals, and sibilants have all undergone mergers in Ainu. Semi-vowels have not undergone radical changes; they seem to remain much the same. With respect to the vowels, the number of phonemic vowels has increased in Ainu; PAN **a* has split into /a/ and /o/, and PAN **u* has split into /u/ and /o/. The majority of PAN **e* (schwa) reflexes seem to correspond to Ainu /e/ reflexes. In spite of the simplified Ainu phoneme system and the mergers and splits observed between PAN and Ainu, their basic systems still show a great deal of similarity. All the mergers and splits observed here are considered to be phonologically natural.

Chapter IV

SUMMARY

It was the purpose of my thesis to provide conclusive evidence to relate Ainu to the Austronesian languages. It now seems that there is every reason to affiliate Ainu and Austronesian languages in terms of their genetic relations. In this chapter, as a summary both linguistic and extra-linguistic evidence is given.

4.1 Linguistic Evidence

4.1.1 Vowel Harmony

As I have mentioned in Chapter 1, since vowel harmony can be a powerful device for tracing the genetic affiliation of languages, it would be ideal if the Ainu vowel harmony were similar to that of Austronesian languages. However, the examination of vowel harmony in Loniu (Hamel 1988:235-252) reveals that the system observed in the Austronesian languages clearly differs from Ainu vowel harmony.²⁶ Since some Austronesian languages such as the Philippine languages (e.g. Chamorro -Topping (1968:67-79)) have been influenced by colonial languages such as Spanish, and the results show the secondary development of the harmony system, it now seems difficult to capture the dominant system of Austronesian vowel harmony. Furthermore, the fact that Ainu and some Aus-

²⁶ The overriding tendency is to avoid any sequence of non-low vowel affix / low vowel stem --- Hamel (1988:235-252).

tronesian languages exhibit partial harmony instead of a total harmony, which spreads through the whole lexicon, makes it more difficult to make the comparison. Thus, unfortunately, I am unable to provide evidence relating Ainu to PAN based on vowel harmony. Further research is necessary in terms of a putative vowel harmony system in PAN, if such a system ever existed.

4.1.2 Cognate Sets

However, given the considerable number of cognate sets found between Ainu and the Austronesian languages and the regular sound correspondences observed between them, it now seems plausible to affiliate Ainu and the Austronesian languages in terms of their origins. Since there is no evidence of contact between Ainu and Austronesian societies recorded in the past, these similarities in the languages, along with the anthropological perspectives studied by Sternberg (1929:755-799) should be now regarded as a trace of genetic relations.

4.1.3 Locating Ainu in the PAN Tree

Today, since the discovery that Taiwanese aboriginal languages (Formosan languages) are Austronesian, the homeland of Austronesian languages is considered to be near Taiwan, possibly from southeast China (for linguistic evidence see Blust (1988b:45-67), for anthropological theory see Bellwood (1989:1-59) and others). In spite of the fact that the Ainu-speaking area is a great distance from the majority of Austronesian speaking areas, assuming that the Austronesian homeland was near Taiwan makes it more plausible to say that PAN speakers also

spread to the north through mainland Japan. If both Ainu and Japanese are Austronesian,²⁷ this would also bear out the principle of Sapir (1968:389-467); the association of the PAN homeland²⁸ using the area of highest linguistic diversity for the diagnosis of the most likely center of dispersal of a language family or linguistic subgroup. However, it still remains unclear where Ainu can be placed near the Austronesian family.

A number of proposals have been made about the external relationship of the Austronesian languages. Perhaps the most influential one at present is Japanese-Austro-Thai (Benedict (1990)). Some cognate sets found in this thesis indicate the possibility of such an external relationship,²⁹ if they are putative cognates, one of which is (14); along with the Japanese form *kowas* "break", the Ainu form *ko'as* "break" in the comparison with PAN **gas* "break" suggests that the Ainu and the Japanese form have somehow preserved the ancestral form, since **kowas* > **ko'as* > **gas* is more likely to occur than the reversed change. A similar case is found in (108) in which PAN **s-* is realized as *t-* in Ainu (PAN **subaq* "salive", PAN **supaq* "saliva-dbl.", Ainu **t(u/o)p* "spit") for which I have cited Proto-Austro-Japanese **tsu(m)paq* "spit" (Benedict 1990) as a possible explanation. Other examples such as (142) and (143) also suggest the possible external rela-

²⁷ See Benedict (1990) for the connection between Japanese and Austronesian languages.

²⁸ Even if Japanese and Ainu are genetically related to PAN, they are quite aberrant from each other. But this diversity will well fit into the picture of a hypothetical Austronesian homeland along with the aberrant Formosan languages in Taiwan. (Just like Japanese and Ainu, Formosan languages differ a great deal from each other and from the rest of the Austronesian languages).

²⁹ If this is the case, it is possible that Ainu falls in somewhere in Austric macro-family and perhaps consists a separate branch.

tionship and necessary review of PAN reconstruction.³⁰

As Benedict places Japanese externally to PAN, it may be also plausible to place Ainu externally to PAN, but as Blust (1993:9-11) says,

It is, admittedly, possible that the PAN reconstructions themselves need to be modified, but any modification should be made on the basis of internal Austronesian evidence, not on the basis of external evidence from languages whose genetic relationship to Austronesian is still in question.

I will leave this issue open to question until conclusive evidence relating Japanese to Ainu and their external relationship to PAN is clarified. I believe however, that these problems will eventually be solved. Among the Saru Ainu people, compilation of the largest Ainu dictionary ever to exist is in progress. Working with a larger Ainu data base will certainly be a great help for identifying the vowel harmony or the internal or external relationship to PAN.

4.2 Extra-linguistic Evidence

Based on DNA studies, as Stoneking & Wilson (1989:215-245) implies,³¹ recent anthropological studies also indicate the close genetic relationship between the Ainu and the Austronesian people. In studies of dentition both Brace & Leonard (1989:93-113) and Turner & Hanihara (1977:13-24) reached the same conclusion, that the overall pattern of Ainu teeth is a simplified one more like that

³⁰ In these sets, the Ainu forms seem to be the result of fortition; this strongly indicates the possibility of Ainu being a sister language of PAN, since fortition in daughter languages is far less common than lenition.

³¹ DNA samples were taken from East Asia and Pacific regions. This study implies that the population which originated in southern China moved throughout Japan and possibly reached Karafuto. This population is characterized by deletion of mitochondria DNA 9-bp. The same Asian characteristic deletion is observed among the Austronesian population as well as among the Japanese. Unfortunately, samples were not taken directly from the Ainu.

known for Polynesians and Micronesians. Their research suggests that the Ainu and people who speak Austronesian languages may be distantly related through an earlier population that once inhabited the Pacific coastal zone.

The same is probably true in linguistic relations. If Ainu and Austronesian are related, they may be distantly related. Owing to the difficulty of subgrouping Austronesian languages, the time depth of the split of Ainu and Proto-Austronesian is uncertain. Subgrouping of Austronesian languages and what languages can be included under the Austronesian tree are highly controversial.

The subgrouping of Ainu and Japanese near the Austronesian family may be the next step for further research, since there is now evidence that both languages are highly likely to be related to Austronesian whether they can be grouped into one subgroup or not.

BIBLIOGRAPHY

- Anttila, Raimo (1989) *Historical and Comparative Linguistics*. Amsterdam: John Benjamins Publishing Company.
- Batchelor, John (1938, 1981) *An Ainu-English-Japanese Dictionary*. Tokyo: Iwanami.
- Baldi, Philip (1990) The introduction: the comparative method. in Philip Baldi (ed.) *Linguistic Change and Reconstruction Methodology: 1-13*. Berlin: Mouton de Gruyter.
- Bellwood, P.S. (1989) The colonization of the Pacific: some current hypotheses. in Adrian V. S. Hill and Susan W. Serjeantson (ed.) *The Colonization of the Pacific: 1-59*. Oxford: Clarendon Press.
- Benedict, Paul K. (1990) *Japanese/Austro-Tai*. Ann Arbor: Karoma Publishers.
- Biggs, Bruce (1965) Direct and indirect inheritance in Rotuman. *Lingua* 14: 383-415.
- Biggs, Bruce, D.S. Wash & J. Waqa (1970) Proto-Polynesian finder list. *Working Papers in Linguistics*. University of Auckland.
- Bloomfield, Leonard (1925) On the sound system of Central Algonkian. *Language* 1: 130-156.
- Blust, Robert (1969) Some new Proto-Austronesian trisyllables. *Working Papers in Linguistics* 1(10): 27-62. Honolulu: University of Hawaii.
- Blust, Robert (1970) Proto-Austronesian addenda. *Oceanic Linguistics* 9(2): 104-162.
- Blust, Robert (1971) Proto-Austronesian addenda. *Working Papers in Linguistics* 3(1): 1-106. Honolulu: University of Hawaii.
- Blust, Robert (1972)a Proto-Oceanic addenda with cognates in non-Oceanic Austronesian Languages. *Working Papers in Linguistics* 4(1): 1-43. Honolulu, University of Hawaii.

- Blust, Robert (1972)b Additions to Proto-Austronesian addenda and Proto-Oceanic addenda with cognates in non-Oceanic Austronesian languages. *Working Papers in Linguistics* 4(8): 1-43. Honolulu: University of Hawaii.
- Blust, Robert (1973) Additions to Proto-Austronesian addenda and Proto-Oceanic addenda with cognates in non-Oceanic Austronesian Languages No.II. *Working Papers in Linguistics* 5(3): 33-61. Honolulu: University of Hawaii.
- Blust, Robert (1980) Austronesian etymologies. *Oceanic Linguistics* 19(1,2): 1-189.
- Blust, Robert (1983) Austronesian etymologies II. *Oceanic Linguistics* 22,23(1,2): 29-150.
- Blust, Robert (1986) Austronesian etymologies III. *Oceanic Linguistics* 25(1,2): 1-123.
- Blust, Robert (1988)a *Austronesian Root Theory: An Essay on the Limits of Morphology*. Amsterdam/Philadelphia: John Benjamins Publishing Co.
- Blust, Robert (1988)b The Austronesian homeland: A linguistic perspective. *Asian Perspectives* 26(1): 45-67. Honolulu: University of Hawaii.
- Blust, Robert (1989) Austronesian Etymologies IV. *Oceanic Linguistics* 28(2): 11-180.
- Blust, Robert (1990) Patterns of sound change in the Austronesian languages. in Philip Baldi (ed.) *Linguistic Change and Reconstruction Methodology*: 231-270. Berlin: Mouton de Gruyter.
- Blust, Robert (1993) A personal letter to Prof. Harold Fleming. in Harold Fleming (ed.) *Mother Tongue -Newsletter of the Association for the Study of Language in Prehistory* 19: 9-11. Pittsburgh: Association for the Study of Language in Prehistory.
- Brace, C. L. & W. R. Leonard (1989) Reflections on the face of Japan: a multivariate craniofacial and odontometric perspective. *American Journal of Physical Anthropology* 78: 93-113.
- Brandstetter, Renward (1916) Root and word in the Indonesian languages. C.C. Blagden (trans.) *An Introduction to Indonesian Linguistics*: 1-65. London: The Royal Asiatic Society.
- Bynon, Theodora (1977) *Historical Linguistics*. Cambridge University Press.
- Capell, Arthur (1943) *The Linguistic Position of South-eastern Papua*. Sydney: Australian Medical Publishing Co. Ltd.

- Cashmore, Christine (1969) Some Proto-Eastern Oceanic reconstructions with reflexes in southeast Solomon Islands languages. *Oceanic Linguistics* 8(1): 1-25.
- Charles, Mathew (1973) Additional reconstructions to be added to Zorc and Charles 1971. Ithaca N.Y. Typescript.
- Chiri, Mashiho (1953) *Bunrui Ainugo Jiten I*. -[Classified Ainu dictionary]. Tokyo: Nihon Joominbunka Kenkyuujo.
- Chiri, Mashiho (1954) *Bunrui Ainugo Jiten II*. -[Classified Ainu dictionary]. Tokyo: Nihon Joominbunka Kenkyuujo.
- Chiri, Mashiho (1974) *Chiri Mashiho Chosakushu* -[The collected works of Chiri Mashiho]. Tokyo: Heibonsha.
- Crawford, Garry & M. Yoshizaki (1987) Ainu ancestors and prehistoric Asian agriculture. *Journal of Archaeological Science* 14: 201-213.
- Dahl, Otto. C. (1973) *Proto-Austronesian* Lund: The Scandinavian Institute of Asian Studies.
- Dempwolff, Otto (1929) Das Austronesische sprachgut in den polynesian Sprachen. *Koninklijk Bataviaasch Genootschap van Kunsten en Wetenschappen Freestbundel* 1: 62-86.
- Dempwolff, Otto (1934-38) Vergleichende Lautlehre des Austronesischen Wortschatzes III. *Zeitschrift für Eingeborenen-sprachen Beiheft* 19. Berlin: Reimer.
- Dyen, Isidore (1949) On the History of the Trukese vowels. *Language* 25: 420-436.
- Dyen, Isidore (1953) *The Proto-Malayo Polynesian Laryngeals*. Baltimore: Linguistic Society of America.
- Dyen, Isidore & C. McFarland (1970) *Proto-Austronesian Etyma constituting an Austronesian Cognate Finderlist*. Yale University.
- Gjerdman, Olof (1926) Word-parallels between Ainu and other languages. *Le Monde Oriental* 20: 29-84.
- Grace, George (1969) A Proto-Oceanic finder list. *Working Papers in Linguistics* 1(2): 39-84. Honolulu: University of Hawaii.
- Haas, Mary (1969) *The Prehistory of Languages*. Hague: Mouton.
- Hamel, Patricia (1988) Vowel harmony and affixation in Loniū. *Studies in Austronesian Linguistics* 235-252. Athens: Ohio University.

- Hattori, Shichiro (1964) *Ainugo Hoogen Jiten*. -[The Ainu dialect dictionary], Tokyo: Iwanami Shoten.
- Hattori, Shichiro (1967) Phonological structure and accent of Ainu. *Study of Sounds* 13: 207-223
- Hertzberg, M., K. N. P. Mickleson, S. W. Serjeantson, J. F. Prior, & R. J. Trent (1989) An Asian-specific 9-bp deletion of mitochondrial DNA is frequently found in Polynesians. *The American Society of Human Genetics* 44(1): 504-510.
- Hock, H. Henrich (1986) *Principles of Historical Linguistics*. Berlin: Mouton de Gruyter.
- Hoenigswald, Henry, M. (1990) Is the comparative method general or family specific? in Philip Baldi (ed.) *Linguistic Change and Reconstruction Methodology*: 375-384. Berlin: Mouton de Gruyter.
- Kannari, Matsu (1966) *Ainu Jojishi Yukarashu*. -[Ainu oral literature, a collection of Yukara]. Tokyo: Sanseido.
- Kindaichi, Kyosuke (1960) *Ainugo Kenkyu* -[Study on Ainu language]. Tokyo: Sanseido.
- Ito, Junko (1984) Melodic dissimilation in Ainu. *Linguistic Inquiry* 15(3): 505-513.
- Levy, Richard & N. Smith (1969) *A Proto-Malaitan Lexicon*. University of California at Santa Cruz. Mimeographed.
- Levy, Richard & N. Smith (1970) *Proto-Eastern Oceanic Reconstructions*. University of British Columbia. Computer print out.
- Lindquist, Ivar (1960) *Indo-European Features in the Ainu Language (with reference to the theory of Pierre Naert)*. Lund University.
- Lopez, Cecilio (n.d.) *Studies on Dempwolff's Vergleichende Lautlehre des Austronesischen Wortschatzes*. Philippine: Summer Institute of Linguistics. Mimeographed.
- Martin, Samuel (1966) Lexical evidence relating Korean and Japanese. *Language* 42(1): 185-251.
- Murayama, Shichiro (1992) *Ainugo no Kigen* -[The origin of the Ainu language]. Tokyo: Sanichishoboo.
- Nothofer, Bernd (1990) Review article on Blust (1988). *Oceanic Linguistics* 29(2): 132-152.

- Nothofer, Bernd (1991) More on Austronesian radicals (or roots). *Oceanic Linguistics* 30(2): 223-258.
- Patrie, James (1982) *The Genetic Relationship of the Ainu Language*. Honolulu: University of Hawaii. Ph.D. dissertation.
- Pawley, Andrew (1969)a On the internal relationship of Eastern Oceanic Languages. *Studies in Oceanic Culture History* 3(13): 1-142. Honolulu: Bernice Pauahi Bishop Museum.
- Pawley, Andrew (1969)b *Reconstructions in Proto-Central Papuan and its Descendants*. University of Auckland. Mimeographed.
- Poppe, Nicholas (1965) *Introduction to Altaic Linguistics*. Wiesbaden: Otto Harrassowitz.
- Sapir, Edward (1968) Time perspective in aboriginal American culture: a study in method. in David G. Mandelbaum (ed.) *Selected Writings of Edward Sapir in Language, Culture and Personality*: 389-467. Berkeley: University of California Press.
- Serjeantson, Susan W. & A. V. S. Hill (1989) The colonization of the Pacific: genetic evidence. in Adrian V. S. Hill and Susan W. Serjeantson (ed.) *The Colonization of the Pacific*: 286-294. Oxford: Clarendon Press.
- Shibatani, Masayoshi (1990) *The Languages of Japan*. Cambridge University Press.
- Sternberg, Leo (1929) The Ainu problem. *Anthropos* 24: 755-799
- Stoneking, M. & A. C. Wilson (1989) Mitochondrial DNA. in Adrian V.S. Hill and Susan W. Serjeantson (ed.). *The Colonization of the Pacific*: 215-245. Oxford: Clarendon Press.
- Street, John (1962) Review of vergleichende grammatik der Altaischen sprachen by Nicholaus Poppe. *Language* 38(1): 92-99.
- Stresemann, Erwin (1927) Die Lautersheinugen in den ambonischen Sprachen. *Zeitschrift für Eingeborenen-Sprachen Beiheft X*. Berlin: Reimer.
- Topping, Donald M. (1968) Chamorro vowel harmony. *Oceanic Linguistics* 7(1): 67-79).
- Tsuchida, Shigeru (1975) *Reconstruction of Proto-Tsouic Phonology*. Yale University. Ph.D. dissertation.
- Turner, Christy & K. Hanihara (1977) Additional features of Ainu dentition. *American Journal of Physical Anthropology* 46: 13-24.

- Whitman, John (1985) *The Phonological Basis for the Comparison of Japanese and Korean*. Harvard University. Ph.D. dissertation.
- Winter, Werner (1990) Linguistic Reconstruction: The scope of historical and comparative linguistics. in Edgar C. Polome (ed.) *Research Guide on Language Change: 11-24*. Berlin: Mouton de Guyter.
- Worth, Dean (1963) Paleosiberian. in Thomas Sebeok (ed.) *Current Trends in Linguistics: 345-373*. Berlin: Mouton de Guyter.
- Wurm, S. A. & B. Wilson (1975) *English Finderlist of Reconstructions in Austronesian Languages*. Pacific Linguistics C-33. Australian National University.
- Zorc, R. David & M. Charles (1971) *Proto-Philippine Finder List*. Itchaca N.Y. Typescript.
- Zorc, R. David (1990) The Austronesian monosyllabic root, radical or phonestheme. in Philip Baldi (ed.) *Linguistic Change and Reconstruction Methodology: 175-194*. Berlin: Mouton de Gruyter.

APPENDIX A

ABBREVIATIONS AND THE SOURCES

A	Asahikawa Ainu dialect, Hattori (1964)
B	Bihoro Ainu dialect, Hattori (1964)
H	Horobetsu Ainu dialect, Hattori (1964)
N	Nayoro Ainu dialect, Hattori (1964)
O	Obihiro Ainu dialect, Hattori (1964)
S	Soya Ainu dialect, Hattori (1964)
SR	Saru Ainu dialect, Hattori (1964)
Y	Yakumo Ainu dialect, Hattori (1964)
K	Karafuto Ainu dialect, Hattori (1964)
C	Chishima Ainu dialect, Hattori (1964)
BITER	Unlabelled reconstructions, Biggs and Walsh (1966)
PANBIROLI	Proto-Austronesian, Biggs (1965)
PANBL	Proto-Austronesian, Blust (1969, 1970, 1971, 1972a,b, 1973, 1980, 1983, 1986, 1989)
PANC	Proto-Austronesian, Capell (1943)
PAND	Proto-Austronesian, Dempwolff (1934-38)
PANDL	Proto-Austronesian, Dahl (1973)
PANDLO	Proto-Austronesian, Lopez (n.d.)
PANDYMC	Proto-Austronesian, Dyen, and McFarland (1970)
PANDYTV	Proto-Austronesian, Dyen (1949)
PANDYPMPL	Proto-Austronesian, Dyen (1953)
PANS	Proto-Austronesian, Stresemann (1927)
PANTS	Proto-Austronesian, Tsuchida (1975)
PCPPAW	Proto-Central Papuan, Pawly (1969b)
PEOLESM	Proto-Eastern Oceanic, Levy and Smith (1970)
PEOLCA	Proto-Eastern Oceanic, Cashmore (1969)
PEPPAW	Proto-East Central Papuan, Pawley (1969b)
PHNTS	Proto-Hesperonesian, Tsuchida (1975)
PMPBL	Proto-Malayo-Polynesian, Blust (1973)
PMLS	Proto-Malaitan, Levy and Smith (1969)
PNBPAWS	Proto-Northern New Hebrides Banks, Pawley (1969a)
POCGR	Proto-Oceanic, Grace (1969)
PPHCH	Proto-Philippine, Charles (1973)
PPHZ	Proto-Philippine, Zorc and Charles (1971)
PPNBIWO	Proto-Polynesian, Biggs, Walsh, and Waqa (1970)
PPNDF	Proto-Polynesian, Dempwolff (1929)
PWMPD	Proto-Western Malayo-Polynesian, Dempwolff (1934-38)

APPENDIX B
A MAP OF THE RELEVANT AREA



VITA

Surname: Yanagizaki

Given Name: Yumi

Place of Birth: Chiba, Japan

Date of Birth: April 28, 1965

Educational Institutions Attended:

Meiji University, Tokyo

1984 to 1988

University of Victoria, B.C.

1988 to 1989, 1991 to 1994

Degrees Awarded:

B.A. 1988

Meiji University

Honours and Awards:

University of Victoria Teaching Fellowship, 1993/94

PARTIAL COPYRIGHT LICENSE

I hereby grant the right to lend my thesis to users of the University of Victoria Library, and to make single copies only for such users or in response to a request from the Library of any other university, or similar institution, on its behalf or for one of its users. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by me or a member of the University designated by me. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Title of Thesis: The Genetic Association of Ainu

Author:

Yumi Yanagizaki

Dec. 20, 1994