MORPHOLOGICAL AGREEMENT: A SPECIAL TRAIT IN AINU

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0. Introduction

During the 19th and early 20th centuries there has been a wide variety of speculations about the origin of the Ainu people, ranging from the Altaic, to the aborigines of Australia, and more recently, across the Pacific, to the Aztec in Central America. Scholars, however, have yet to arrive at a reasonable, commonly-agreed-upon conclusion. In the meantime, the Ainu way of life has drastically changed, especially since the land reform of 1899. This change brought about the complete breakdown of Ainu culture, in general, and the Ainu language, in particular. As a result, the language, which the people spoke among themselves as a means of communication, has ceased to so function and is no longer; indeed the language is on the very verge of becoming extinct. Although now nearly a dead language, there are, fortunately, a very few old individuals, perhaps no more than a score in the whole of Hokkaido, who still remember it, with varying degrees of competence.

At one time, there were three major groups of Ainu living in Hokkaido, Sakhalin, and the Kurile Islands. It is, therefore, convenient for us to speak of three major dialects, corresponding respectively to these three geographic areas.

Of these, the third group, 97 in all, (Chiri, 1964), was evacuated to Hokkaido as early as 1884 and has long since disappeared; the last speaker whom Hattori (1964) and his associates investigated died more than twenty years ago. The second group, about 1,3000, (Chiri, 1964), moved to Hokkaido after the second world war is now scattered in small towns in the northern and southern parts of Hokkaido; of those still alive, only two women remember their language well. This leaves the first group, which makes up the majority of Ainu, numbering around 20,000. Of this group less than a dozen remember, to a greater or lesser extent, the language.

During the investigation, which formed the basis of part of this work, a number of difficulties were encountered: Finding informants was the main one; this was caused in part by the fact that it is very difficult to distinguish between an Ainu and a Japanese, except by their physical traits. Ainu speak and act like Japanese and are not particularly interested in being identified as Ainu or as descendents of Ainu. (For a detailed report on this, see Peng, et al. 1969). Added to the above is the previously mentioned problem: Of the identifiable Ainu very few speak the language.

The present work, supported in part by the NSF Grant, is part of the project

entitled *A Synchronic Study of the Ainu Language.*[1] The data used were elicited at different times from Ainu speakers by the author; other sources of information include Hattori (1964), Kindaichi (1960), Batchelor (1905), and Laufer (1917).

0.1. *Notational Remarks.* The language under study has never been reduced to a writing system, though the missionary John Batchelor (1854–1944) produced some kind of romanization a few decades ago and translated, by use of the romanization, several sections of the Bible.

Although our presentation does not make an effort at a full-fledged system of Ainu phonology, the notation for transcription below is phonemic based on an analysis of the sound pattern of Ainu. (A complete presentation of the phonological analysis is reserved for the phonological portions of *The Phonology and Morphology of the Ainu Language* to be made available later.)

Briefly, there are five vowel phonemes, nine consonant phonemes, and two semi-vowel phonemes; viz., *a, i, u, e, o, p, t, k, m, n, s, c* (affricate), *h, r, y, w.* Except for *c* and *h*, all phonemes occur at the ends of words (more specifically, at the ends of syllables). The vowel phonemes, when occurring at the beginni g of a word, tend to have a catch at the glottis which, in our context, is considered phonemically insignificant. As a consequence, all phonemes may occur thus.

Pitch is important but stress is not. A high pitch and a low pitch have been recognized as pitch phonemes. However, for reasons of notational simplification, they are not indicated in our transcription, as the problem of agreement, to which our discussion will pertain, does not allude to them.

0.2. *Purpose.* Our purpose is to describe the behavior of certain linguistic property called *grammatical agreement.* The subject matter is by no means new. However, there is a peculiarity in the Ainu language, which presents a theoretical question concerning the matter of grammatical agreement—an interesting problem that has hitherto escaped the attention of previous investigators. We deem it important that the problem be given a thorough analysis in the present context, though we shall not attempt to establish any technical generalization. For the most part, our analysis will be confined to the characteristics of the language itself—a language that has seldom yet been properly described. But it is believed that our analysis will be of therotical interest with reference to grammatical agreement, in general, and the grammatical analysis of Ainu, in particular.

0.3. *Definition.* For our purpose, there is a need to define several classes o forms and delimit their syntactic functions. Our demarcation is that when two or more words function alike syntactically, or when they have similar syntactic distributions, they form (or are grouped into) a class. We regard such a class as a part of speech.

Two parts of speech are pertinent to our discussion of the morphological agreement in Ainu; namely, (1) the Verb and (2) the Noun. Following are two definitions corresponding to the two parts of speech, each being a class of forms

in terms of specific distributional criteria.

Definition 1. A verb is a form which can precede the word *rusuy* 'would like to', e.g. *ipe* 'to eat' and *mokor* 'to sleep' as in *ipe rusuy* 'would like to eat—hungry' and *mokon rusuy*(2) 'would like to sleep—sleepy'.

Definition 2. A noun is a form that can be followed by the word *pirka* 'fine, pretty', e.g. *pet* 'river' and *hekattar* 'children' as in *pet pirka*' (the) river (is) pretty' and *hekattar pirka*' (the) children (are) fine'.

0.4. *Methodological explication.* All languages that exhibit grammatical agreement must posses such important morphemic features (or elements) as *person*, and/or *number*, and/or *gender*, and, sometimes, *case*. Typically, for example, when an article (definite or indefinite) precedes a noun in French, two morphemic features (viz., number and gender) must be taken into consideration in order to yield grammatical sequences, such as *un livre* and *une maison* or *les livres* and *les maisons*; otherwise, ill-formed sequences like **un maison* and **une livre*, or worse still, **un maisons* and **une livres* might result.

Grammatical agreement can be greatly complicated, if we add to it the element of case, as can be easily demonstrated by German articles and nouns, e.g. der Wagen vs den Wagen, not to mention Russian or Latin. The complication can vis-à-vis be attested by English pronouns even if it has much simpler grammatical agreement in manifestation, though by no means in acquisition.

All this, though oversimplified, may be envisaged in terms of an imaginary language called L_α which, let us say, exhibits a certain amount of grammatical agreement similar to most European languages. We let X and Y be any two words of L_α wherein X and Y are respectively made up of any one of the following sequences each of which is a string of morphs:

X: P, Pc, Pd, or Pcd

Y: Q, Qc', Qd', or $Qc'd'$.

P and Q are their respective stems, c and c' are different morphs that designate the feature of number (say, the plural) and d and d' are also different morphs that represent the feature of gender (say, the feminine). (In addition, we establish a convention to indicate the feature of the singular by the absence of c or c' and the feature of the masculine by the absence of d or d'.) It follows that X and Y are said to be in agreement, when they occur together in a given order, e.g. X Z Y, where Z may be empty, if and only if the sequences are Pc Z Qc', Pd Z Qd', and Pcd Z $Qc'd'$, because c and $c'd'$ share one feature and d and d' another, but none of the following, namely:

P Z Q, P Z Qc', P Z Qd', P Z $Qc'd'$,
Pc Z Q, Pc Z Qd', Pc Z $Qc'd'$,
Pd Z Q, Pd Z Qc', Pd Z $Qc'd'$,
Pcd Z Q, Pcd Z Qc', Pcd Z Qd'.

But note that given X or Y individually, neither word contains any grammatical

agreement in itself. We shall therefore label the kind of grammatical agreement just explicated *syntactic agreement.*

But suppose that we let X and Y be any two words of another imaginary language L_β, which also shows grammatical agreement, such that X is composed of A, aA, A', and $a'A'$ and Y of B, bB, B', $b'B$, bB', and $b'B'$. Suppose further that A and B are X's and Y's respective stems, that a and b each contain two features, say, person and number, and that in addition to being stems, A and B also contain one morphemic feature each, viz. number. And suppose furthermore that the apostrophe changes the feature (or features) contained in A, B, a, and b, and that the absence of a, b, a', or b' indicates the absence of the feature(s) therein. Then, two cases of grammatical agreement can be shown here: (1) when X and Y cooccur, be they adjacent to each other or not, and (2) when X and Y occur separately or by themselves.

In the first case, let us say X Z Y, where Z may be emty, X and Y can be said to be in agreement in two senses: first, it is a and b and/or A and B that constitute the agreement, as can be shown in A Z B, aA Z B, A Z bB, aA Z bB, and aA Z bB'. Second, it is A' and B' and/or a' and b' that constitute the agreement, as in A' Z B', A' Z $b'B'$, $a'B'$ Z B', $a'A'$ Z $b'B'$, and $a'A'$ Z $b'B$. This automatically precludes 14 other sequences like A Z B', A' Z B, aA Z B', A' Z bB, $a'A'$ Z B, A' Z $b'B$, etc.

In the second case, it is clear that X or Y alone displays grammatical agreement only in four instances, namely, aA, $a'A'$, bB, and $b'B'$. This automatically precludes 6 other words like A, A', $b'B$, bB', etc.

The first case is obviously in line with the syntactic agreement mentioned above, though there are certain variations. But, in contrast to that, the second case differs considerably for the grammatical agreement exists within each word. We shall therefore call this type of grammatical agreement *morphological agreement.*

The sections that follow will consist of the analysis and discussion of morphological agreement of the Ainu language. (We shall, since, as a subject, it is at present somewhat novel, offer the morphological agreement and reserve for another occasion the syntactic agreement.)

The following will consist of two parts. The first part will be concerned with the analysis of Ainu nouns, determiners, and verbs from the standpoint of morphological agreement. The analysis, entitled *Morphological Preliminaries,* is not intended to be a thorough presentation of Ainu morphology. Rather, it is thought of as an emphasis on those points which will be of direct relevance to what will appear in the second part as *The Agreement,* whereby specific statements regarding the morphological agreement will be formulated.

1. Morphological Preliminaries.

The Ainu language is essentially agglutinative, by which is meant that a word in the language tends to be made up of several morphs that adhere together in a fixed sequence. Ainu morphs, generally speaking, belong to various morphemes

that usually fall well into three categories: (1) stem, (2) prefix, and (3) suffix.

A stem in Ainu is a morpheme which comprises a group of primitive forms that can be affixed by another form. An Ainu primitive form is a single morph, free or bound, that may or may not be affixed by another morph which is a bound form. A free form is a single morph, or a sequence of two or more morphs, that can be uttered alone. A bound form is, in contrast, a morph but sometimes a sequence of more than one morph that cannot be so uttered. As Chao (1968) has pointed out, by following L. Bloomfield, a free form is only sometimes free, whereas, however, a bound form is always bound. For instance, {*hok*} 'to buy' is a stem, but it comprises two morphs, namely, *hok* and *yok* both of which are primitive; but the former is free whereas the latter is bound.

A prefix (or a suffix, for that matter) is in Ainu a morpheme that consists of a set of morphs which can be attached to various stems by preceding them (or following them, in the case of a suffix). A prefix (or a suffix) can be inflectional or derivational in Ainu. There are ten inflectional prefixes, namely, {*ku-*} 'I', {*e-*} 'you', {*ci-*} 'we', {*eci-*} 'you', {*a-*} 'they, you, we', {*en-*} 'me', {*e-*} 'you', {*un-*} 'us', {*eci-*} 'you', and {*i-*} 'them, you, us', and four inflectional suffixes, namely, {*-re*} 'causative ending', {*-yar*} 'causative ending', {*-pe*} 'nominalizer', and {*-no*} 'adverbializer' of which the last is dispensable. There are, by contrast, eight derivational prefixes, all of which are irrelevant to our discussion, and seven derivational suffixes of which only one is relevant; namely, {*-pa*} 'pluralizer'.

1.1. *The Noun.* Not all nouns pertain to the morphological agreement; only a subclass of nouns called *Pronoun* obtain. A pronoun in Ainu is made up of one of the first five inflectional prefixes and a bound stem in the shape of either *-ani* or *-oka*. The former is singular whereas the latter is plural. However, only two of the five prefixes may be attached to {*-ani*}, and the rest, to {*-oka*}. Their combinations, each of which is a pronoun, are presented in Table 1 below.

Table 1

Ainu Pronouns

	Singular	Plural
	{*-ani*}	{*-oka*}
{*ku-*}	***kani*** 'I'	
{*e-*}	***eani*** 'you'	
{*ci-*}		***coka*** 'we'
{*eci-*}		***ecioka*** 'you'
{*a-*}		***aoka*** 'you, we, they'

{*ku-*} has three allomorphs in the shape of *ku-*, *k-*, and *ϕ-*. The first two are phonologically conditioned; *ku-* occurs before a stem that begins with a consonant,

e. g. *kukasuy* 'I will help' and *k-* occurs before a stem that begins with a vowel, e. g. *kani*. The zero is morphologically conditioned in that it occurs only when {*ku-*} precedes {*eci-*}—the second one listed above—as in *φecikasuy* 'I help you'. {*e-*} has, on the other hand, only two allomorphs; namely, *e-* and *φ-*. The zero occurs only when {*e-*} precedes {*en-*} or {*un-*}, as in *φenkasuy* 'you help me' and *φunkasuy* 'you help us'. But {*ci-*} has four allomorphs in the shape of *ci-*, *c-*, *-as*, and *φ-*. The first two are phonologically conditioned in the same way as *ku-* and *k-*. The occurrence of *-as* is morphologically conditioned in that it is attached to a particular group of stems, e. g. *inkaras*[3] 'we look'. The zero occurs only when {*ci-*} precedes {*eci-*}—the second one listed above—e. g. *φecikasuy* 'we help you'. Similarly, {*a-*} has two allomorphs, viz, *a-* and *-an*; they are morphologically conditioned in the sense that *-an* occurs where *-as* of {*ci-*} occurs and *a-* occurs elsewhere. The remainder, namely, {*eci-*} is made up of a single morph, and therefore l as no allomorph.[4]

That {*-ani*} is singular and {*-oka*} is plural is based on the hypothesis that they are historically related to the verbs *an* 'there is' and *oka* 'there are', respectively. If {*-ani*} is singular and {*-oka*} plural, observe as a result that we can in the same manner group the prefixes into singular and plural to serve our purpose as a point of departure. We may in addition assign to the prefixes the feature of person[5]—first, second, and fourth—as follows.

Table 2

Pronominal Prefixes

	Singular	Plural
First Person	{*ku-*}	{*ci-*}
Second Person	{*e-*}	{*eci-*}
Fourth Person		{*a-*}

1.3. *The Verb.* Ainu verbs are peculiar. There are two sets of such verbs, called *Transitive* and *Intransitive* each of which has three subsets; namely, *Causative, Singular,* and *Plural.* Their relationships may be presented in the following diagrams.

Diagram 1

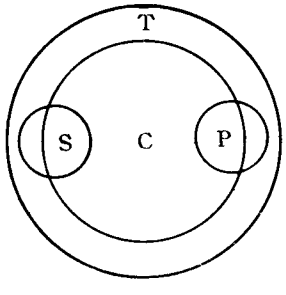
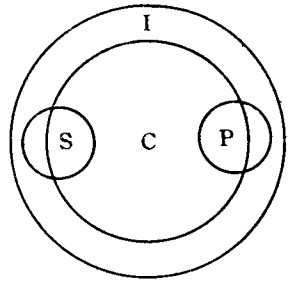


Diagram 2



T stands for transitive,
I for intransitive,
C for causative,
S for singular, and
P for plural.

From the diagrams above we are able to derive twelve groups of verbs which may be described as follows: (1) transitive alone; (2) transitive and causative; (3) transitive and singular; (4) transitive and plural; (5) transitive, causative, and singular; (6) transitive, causative, and plural; (7) intransitive alone; (8) intransitive and causative; (9) intransitive and singular; (10) intransitive and plural; (11) intransitive, causative, and singular; and (12) intransitive, causative, and plural (cf. Peng, forthcoming).

To be precise, these twelve groups of verbs may be stated in symbolic terms as follows:

Table 3

Description of the Classifications of Ainu Verbs

C	S	P	Description	
−	−	−	$I \cap C' \cap S' \cap P'$	$I \cap (C \cup S \cup P)'$
+	−	−	$I \cap C \cap S' \cap P'$	$I \cap C \cap (S \cup P)'$
−	+	−	$I \cap C' \cap S \cap P'$	$I \cap S \cap (C \cup P)'$
−	−	+	$I \cap C' \cap S' \cap P$	$I \cap (C \cup S)' \cap P$
+	+	−	$I \cap C \cap S \cap P'$	
+	−	+	$I \cap C \cap S' \cap P$	
−	−	−	$T \cap C' \cap S' \cap P'$	$T \cap (C \cup S \cup P)'$
+	−	−	$T \cap C \cap S' \cap P'$	$T \cap C \cap (S \cup P)'$
−	+	−	$T \cap C' \cap S \cap P'$	$T \cap S \cap (C \cup P)'$
−	−	+	$T \cap C' \cap S' \cap P$	$T \cap (C \cup S)' \cap P$
+	+	−	$T \cap C \cap S \cap P'$	
+	−	+	$T \cap C \cap S' \cap P$	

+ represents the presence of causativity, singularity, or plurality; − represents the absence of each.
X′: complement.

Obviously, not all of them pertain to the morphological agreement under study. Pure causative verbs, which are neither singular nor plural, are unimportant as far as the morphological agreement is concerned. This is to say: only $I \cap S$, $I \cap P$, $I \cap S' \cap P'$, $T \cap S$, $T \cap P$, and $T \cap S' \cap P'$ are of relevance here. They can be sorted out into three groups; namely, (1) $I \cap S$ and $T \cap S$, (2) $I \cap P$ and $T \cap P$, (3) $I \cap S' \cap P'$ and $T \cap S' \cap P'$. We shall regard (1) as singular, (2) as plural, and (3) regular—i. e. they can be singular or plural. But each such group does not contain verbs that have the pronominal prefixes presented in Table 2; the morphological agreement with which we are presently concerned comes into sharp focus only when we bring in the prefixes, as will be shown later. The first group is presented in the first column, the second group in the second column, and the third group in the third column, of Table 4 below.

Table 4
Ainu Verbs

1st column	2nd column	3rd column
hosipi 'returns'	***hosippa*** 'return'	***kasuy*** 'to help'
hopuni 'rises up'	***hopumpa*** 'rise up'	***nepki*** 'to work'
sinewe 'plays'	***sinewpa*** 'play'	***ipe*** 'to have a meal'
suwe 'cooks'	***supa*** 'cook'	***e*** 'to eat'
hotuye 'calls'	***hotuypa*** 'call'	***mokor*** 'to sleep'
kaye 'breaks'	***kaypa*** 'break'	***omkekar*** 'to catch cold'
tuye 'cuts'	***tuypa*** 'cut'	***sunke*** 'to tell a lie'
nuye 'writes'	***nuypa*** 'write'	***esina*** 'to conceal'
ahun 'enters'	***ahup*** 'enter'	***nuyna*** 'to hide (it)'
rikin 'ascends'	***rikip*** 'ascend'	***nukar*** 'to see'
yasa 'tears'	***yaspa*** 'tear'	***inkar*** 'to look at'
ran 'descends'	***rap*** 'descend'	***eyyok*** 'to sell'
san 'exits'	***sap*** 'exit'	***erusa*** 'to lend'
yan 'rises'	***yap*** 'rise'	***etun*** 'to borrow'
ek 'comes'	***arki*** 'come'	***rura*** 'to return (it)'
arpa 'goes'	***paye*** 'go'	***utasare*** 'to exchange'
a 'sits down'	***rok*** 'sit down'	***parpa*** 'to fan'
as 'stands up'	***roski*** 'stand up'	***hokus*** 'to fall down'
an 'there is'	***oka*** 'there are'	***hokuste*** 'to knock down'
anu 'puts it down'	***ari*** 'put it down'	***se*** 'to carry on back'
asi 'can stand'	***roski*** 'can stand'	***kar*** 'to make'
rayke 'kills'	***ronnu*** 'kill'	***sitayki*** 'to weave'
uk 'picks up'	***uyna*** 'pick up'	***ulapke*** 'to patch up'
ye 'says'	***yepa*** 'say'	***toyta*** 'to cultivate'
mina 'laughs'	***minapa*** 'laugh'	***ku*** 'to drink'
sak 'possess none'	***sakpa*** 'possess none'	***us*** 'to put on'
soyne 'goes out'	***soyompa*** 'go out'	***oterke*** 'to step on'

To justify the contrast of singular and plural verbs, we reshuffle those listed in the first and second columns into three separate tables under the headings of (1) *Partial Replacement*, (2) *Total Replacement*, and (3) *Pure Attachment*, there being two groupings in each.

Notice that the suffix {*-pa*} mentioned earlier appears as *-pa* and *-p* in Table 5 and Table 6. They are phonologically conditioned; *-pa* occurs with a stem that ends in a consonant, and *-p*, with a stem that ends in a vowel.

But notice that the third column under *Partial Replacement* has verbs that end in a consonant, namely, *n*, which is replaced by *-p* in the fourth column, and that the first column under the same heading has verbs that end in a vowel, (i. e. *i*, *e*, *a*, or *u*), which is replaced by *-pa*, in the second column.[6] The heading, therefore,

means that if we take the verbs in I–1 and II–1 as stems, part of them (the final vowel in I–1 but the final nasal in II–1) is replaced by *-pa*, in the case of I–2, and by *-p*, in the case of II–2.

Table 5
Partial Replacement

I		II	
hosipi	*hosippa*	*ahun*	*ahup*
hopuni	*hopumpa*	*rikin*	*rikip*
sinewe	*sinewpa*	*ran*	*rap*
suwe	*supa*	*san*	*sap*
hotuye	*hotuypa*	*yan*	*yap*
kaye	*kaypa*		
tuye	*tuypa*		
nuye	*nuypa*		
yasa	*yaspa*		

Table 6
Total Replacement

I		II	
ek	*arki*	*anu*	*ari*
arpa	*paye*	*rayke*	*ronnu*
a	*rok*	*uk*	*uyna*
as	*roski*		
an	*oka*		
asi	*roski*		

Table 7
Pure Attachment

I		II	
ye	*yepa*	*soyne*	*soyompa*
mina	*minapa*		
sak	*sakpa*		

From the above observations, it follows that the forms in I–2 and II–2 minus *-pa* or *-p* are variants of the forms in I–1 and II–2, respectively; for instance, *hosip-* is a variant of *hosipi* in exactly the same way that *ahu-* is a variant of *ahun*.

Under *Total Replacement*, also notice that while there is no resemblance between the two columns in I, there are partial similarities in II, e. g. the *a-* in *anu* and *ari*. Since the similarities have no morphological significance, other than mere historical accidents, we shall ignore them.

What concerns us here most is that the first and second columns in each grouping contrast with each other. Although the plural suffix does not appear in any of the forms, the contrast seems to parallel that between the singular and plural verbs explained above. We have, except for the fact that the verbs in question have no stems in common, applied the same dichotomy, i. e. singular vs. plural, to the verbs in Table 6.

The same is not true of the verbs under *Pure Attachment,* however. Notice that the plural suffix is present and that except for *soyne* and *soyom-* (at times, *soyem-*), there is no variation in the stems concerned.

Having ascertained for sure that the verbs in the first column of Table 4 are indeed singular, and those in the second column of the same table, plural, we must recall that the third column contains verbs that cannot be suffixed by {*-pa*}; that is to say, the distinction that exists between the first and second columns of Table 4 is superfluous and unnecssary with regard to the third column.

In order to show the peculiarity of Ainu verbs in a different way, we shall now rearrange those verbs exemplified in Table 4 into two groups: one may occur with *-as* and *-an* and the other may not so occur (cf. § 1.1.). For the sake of clarity and continuity, we shall not mix the three columns of Table 4; instead, we shall keep them separate in the table that immediately follows.

Table 8

Alternative Groupings of Ainu Verbs

From 3rd column of Table 4

Never	With *-as* and *-an*
kasuy 'to help'	***nepki*** 'to work'
e 'to eat'	***ipe*** 'to have a meal'
omkekar 'to catch cold'	***mokor*** 'to sleep'
esina 'to conceal'	***sunke*** 'to tell a lie'
nuyna 'to hide (it)'	***inkar*** 'to look at'
nukar 'to see'	***hokus*** 'to fall down'
eyyok 'to sell'	***toyta*** 'to cultivate'
erusa 'to lend'	***ku*** 'to drink'
etun 'to borrow'	
rura 'to return (it)'	
utasare 'to exchange'	
parpa 'to fan'	
hokuste 'to knock (it) down'	
se 'to carry on back'	
kar 'to make'	
sitayki 'to weave'	
utapke 'to patch up	
us 'to put on'	
oterke 'to step on'	

Never	With *-as* and *-an*	
kaypa 'break'	*hosippa* 'return'	From 2nd column of Table 4
tuypa 'cut'	*hopumpa* 'rise up'	
nuypa 'write'	*sinewpa* 'play'	
yaspa 'tear'	*hotuypa* 'call'	
supa 'cook'	*ahup* 'enter'	
ari 'put it down'	*rikip* 'ascend'	
ronnu 'kill'	*rap* 'descend'	
uyna 'pick up'	*sap* 'exit, go down'	
yepa 'say'	*yap* 'rise'	
sakpa 'possess none'	*arki* 'come'	
	paye 'go'	
	rok 'sit down'	
	roski 'stand up'	
	oka 'there are'	
	roski 'can stand up'	
	minapa 'laugh'	
	soyompa 'go out'	
hosipi 'returns'	*mina* 'laughs'	From 1st column of Table 4
hopuni 'rises up'		
sinewe 'plays'		
suwe 'cooks'		
ahun 'enters'		
rikin 'ascends'		
ran 'descends'		
san 'goes down'		
yan 'rises'		
ek 'comes'		
arpa 'goes'		
a 'sits down'		
as 'stands up'		
an 'there is'		
hotuye 'calls'		
kaye 'breaks'		
tuye 'cuts'		
nuye 'writes'		
anu 'puts (it) down'		
rayke 'kills'		
yasa 'tears'		
uk 'picks up'		
ye 'says'		
sak 'possesses none'		

Table 9

Plural Verbs

{*ku*-} and {*e*-}	{*ci*-}, {*eci*-}, and {*a*-}	
	ci- c- a-	*-as -an*
ari 'put (it) down'	*supa* 'cook'	*hosippa* 'return'
ronnu 'kill'	*sakpa* 'possess none'	*hopumpa* 'rise up'
uyna 'pick up'		*sinewpa* 'play'
yepa 'say'		*hotuypa* 'call'
kaypa 'break'		*ahup* 'enter'
tuypa 'cut'		*rikip* 'ascend'
nuypa 'write'		*rap* 'descend'
yaspa 'tear'		*sap* 'exit'
		yap 'rise'
		arki 'come'
		paye 'go'
		rok 'sit down'
		roski
		oka
		roski
		minapa
		soyompa

Table 10

Singular Verbs

{*ku*-} and {*e*-}	{*ci*-}, {*eci*-}, and {*a*-}	
	ci- c- a-	*-as an*
hosipi 'returns'	*hotuye* 'calls'	*mina* laughs
hopuni 'rises up'	*kaye* 'breaks'	
sinewe 'plays'	*tuye* 'cuts'	
suwe 'cooks'	*nuye* 'writes'	
ahun 'enters'	*anu* 'puts (it) down'	
rikin 'ascends'	*rayke* 'kills'	
ran 'descends'	*yasa* 'tears'	
san 'goes down'	*uk* 'picks up'	
yan 'rises'	*ye* 'says'	
ek 'comes'	*sak* 'possesses none'	
arpa 'goes'		
a 'sits down'		
as 'stands up'		
an 'there is'		
asi 'can stand'		
soyne 'goes out'		

More interesting is the fact that except for those that are from the 3rd column of Table 4 the rest of Table 8 may be further divided into two subgroups, one with the singular and the other with the plural prefixes, as shown below. Thus, we have a trichotomy, rather than a dichotomy, in Table 9 and Table 10.

Keep in mind, however, that the singular verbs in the first column of Table 10 are the ones that are restricted (whereas those in the second and third columns are not) but that the plural verbs in the second and third columns of Table 9 are the ones which are restricted (while the plural verbs in the first column are not).(7)

2. The Agreement

We have in the above sections classified Ainu pronouns into singular and plural, and Ainu verbs into singular, plural, and regular. The verbs, moreover, are subdivided, with the singular and the plural trichotomized, while the regular, dichotomized, yielding taxonomically eight subgroups of Ainu verbs. We must now formulate a statement (or statements) to characterize the morphological agreement purported at the beginning.

The morphological agreement under consideration must be observed in connection with Ainu pronouns and Ainu verbs. We have already pointed out for the former (cf. Table 1 and Table 2) that each stem of the pronouns must agree with the prefix. However, we have yet to indicate for the latter that similar agreement exists when a form in Table 4 is prefixed.

In so doing, we should state first that the prefixation takes place, resulting always in another verb—a derived verb which falls well within our definition (cf. § 0.3.). For instance, when {*ku-*} is prefixed to {*hosipi*}, the resultant, *kuhosipi* 'I will return', is a verb. The problem, therefore, is to express precisely the way in which the prefix and the original verb—i. e. verb stem—agree.

Suppose now that we assign +1 to the singular prefixes and −1 to the plural prefixes, with + 'plus' signifying the singularity, and − 'minus', the plurality. Suppose further that we assign +2 to {*-ani*} and −2 to {*-oka*}, with the same values of + 'plus' and − 'minus'. But suppose furthermore that we assign +2 to the singular verbs that are restricted—i. e. the first column in Table 10—and −2 to the plural verbs that are restricted—i. e. the second and third columns in Table 9—that we also assign +1 to the singular verbs which are not restricted—i. e. the second and third columns in Table 10—and −1 to the plural verbs which are not restricted, assuming of course that + and − hold the same values as before. This leaves the regular verbs unassigned; for our purpose, we choose 0 'zero' in the assignment.

It seems, as a result of the above assignments, that on the basis of the numerical values assigned specific statements can be made to characterize the morphological agreement under consideration, provided in particular that each prefixation

is regarded as a multiplication. For the pronouns, the result of the prefixation in terms of the multiplied numerical values can be characterized in Table 11 as Follows.

Table 11
Combinatory Expressions of Pronominal Prefixes & stems

		Stems	
		+2	−2
Prefixes	+1	+2	−2
	−1	−2	+2

Note that the feature of person, which we have assigned to the prefixes before (cf. Table 2), has become excessive. For in so far as we deal with agreement in Ainu, it is dispensible.

By the same token, the result of the prefixation, for the verbs, in terms of the multiplied numerical values can be characterized in the following way.

Table 12
Combinatory Expressions of Pronominal Prefixes & Verb Stems

		Verb Stems				
		+2	−2	+1	−1	0
Prefixes	+1	+2	−2	+1	−1	0
	−1	−2	+2	−1	+1	0

Actually, Table 11 and Table 12 are modified versions of Table 1. To improve the characterizations, we can restate the content of Table 11 and Table 12 linearly. In doing so, we must let α stand for prefix and β for stem (pronominal or verb) and then γ for the result; needless to say, + and − refer to singularity and plurality, respectively. The linear statement is thus:

$$\pm\alpha \times (\pm\beta) \rightarrow \gamma$$

For this statement, however, we must provide an index which is: $\alpha = 1$; $\beta = 0$, 1, or 2.

But note that Table 11 also specifies that the minus results, corresponding to the empty boxes in Table 1, are ungrammatical; that is to say, neither, for example, **koka* nor **cani* is grammatical as a pronoun. Note further that Table 12,

on the other hand, particularizes in a different way the minus results: first, it indicates that the −2's are ungrammatical; second, the −1's, though grammatical, have nothing to do with the morphological agreement with which we are concerned. That −2's are ungrammatical can be exemplified by such results as **cihosipi* and **kuhosippa*, none of which is an Ainu verb. However, −1's refer to verbs like *kukaypa* 'I will break (long things)' and *cihotuye* 'we will call (together)'.

The same constraints must be equally adequately specified in the linear statement with reference to the index. They are stated thus: If $0 > r > -2$, i.e. $r = -1$, then the result is grammatical, e.g. *kukaypa* and *cihotuye*, but if $r = -2$, i.e. $-1 > r$, then the result is ungrammatical, e.g. **cihosipi*, **kuhosipta*, **koka*, and **cani*. Beyond a doubt, the linear statement, since it enhances what have been stated in Table 11 and Table 12 with precision, is superior.

Observe now that Table 12 also contains two 0's. This implies that the result, grammatical though it is, like that concerning the −1's, does not pertain to the morphological agreement under consideration. Examples are *aype* 'you will eat; we will eat; they will eat' and *ipeas* 'we will eat'. The implication such as this, though it does not necessarily pertain to the morphological agreement, may likewise be constrained: if $r = 0$, the result is grammatical only.

But consider the pluses in both tables. They are the focus of our study, because it is in terms of those pluses that the morphological agreement—the prefix agrees with the stem in number—becomes explainable and significant as a grammatical property.

The indication of such pluses may of course be clearly stated linearly as follows: $r > 0$, i.e. $r = +1$ or $+2$, indicates the morphological agreement. Examples are *kani, coka, kuhosipi,* and *hosippaas.* Again, the linear statement enhances the indication of the pluses in both tables with much simplicity, and therefore is superior.

To incorporate the above constraints, implication, and indication into the linear statement, which may now be called Morphological Agreement Rule, we recapitulate it below.

$\pm\alpha \times (\pm\beta) \rightarrow r$, where $\alpha = 1$; $\beta = 0$, 1, or 2
if $r > 0$, agreement
if $0 \geqq r > -2$, grammatical only
if $r = -2$, ungrammatical.

To illustrate the application of the morphological agreement rule, we can, by using the index provided above, expand it into eight rules as follows.

(1) $+1 \times (+2) \rightarrow +2$
{*ku-*} {*-ani*} → *kani* 'I'
or {*ku-*} {*hosipi*} → *kuhosipi* 'I shall return'

(2) $+1 \times (+1) \rightarrow +1$
{*e-*} {*kaye*} → *ekaye* 'you broke [a long thing]'

(3) $-1 \times (-2) \rightarrow +2$
{*ci-*} {*hosippa*} → *hosippaas* 'we shall return'
or {*ci-*} {*-oka*} → *coka* 'we'

(4) $-1 \times (-1) \rightarrow +1$
{*a-*} {*yepa*} → *ayepa* 'they say'

(5) $+1 \times 0 \rightarrow 0$
{*ku-*} {*kasuy*} → *kukasuy* 'I will help'

(6) $-1 \times 0 \rightarrow 0$
{*eci-*} {*nepki*} → *ecinepki* 'you will work'

(7) $+1 \times (-1) \rightarrow -1$
{*e-*} {*yaspa*} → *eyaspa* 'you tear it [into pieces]'

(8) $-1 \times (+1) \rightarrow -1$
{*ci-*} {*yasa*} → *ciyasa* 'we tear it [into two]'

The above demonstration seems sufficiently cogent that linear statement, similar perhaps to the one we have presented, would be a good way in which to characterize morphological agreement, not only for a language like Ainu but for any other language having the same or similar grammatical peculiarity.

Linear statement, such as the one suggested above, may also be employed to characterize syntactic agreement which, unfortunately, falls outside the purview of our present discussion.

To conclude, unlike previous claims, e.g. Postal (1962),[8] we are convinced that grammatical agreement, morphological or syntactic, can be handled without any transformation. As a matter of fact, transformational handling of such grammatical agreement will greatly complicate the characterization. For, as it seems realistic and natural now, grammatical agreement is that part of grammatical property that can be treated.

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NOTES

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(2) The change from *r* to *n* concerning *mokor* and *mokon* is morphophonemic, the discussion of which falls outside the scope of the present study.

(3) **cinkar* would be ungrammatical.

(4) "The statement regarding the number of allomorphs of each prefix is based on the fact that we have for the time being ignored the pitch phonemes.

If they too are taken into consideration, in a thorough analysis of Ainu morphology, the number of allomorphs of each such prefix will definitely be larger than have been indicated thus far. For instance, {*eci-*} will have at least two allomorphs rather than no allomorph, as has been so mentioned."

(5) The third person is never expressed in the singular, though it is often expressed in the plural by way of {*a-*} which is shared by the polite variation of the second or first person; hence, the existence of the fourth person.

(6) *yaku* is an example of *u*-ending verbs, which is not cited in Table 6. *yaku* 'to crush [it]' is singular but *yakpa* 'to crush [them]' is plural.

(7) For the significant contrast between Versatile and Restricted, see Chao 1968, p. 54.

(8) In fact, Postal even asserts that "In view of the inherent limitations of phrase structure rules in describing equivalences, it seems likely that almost any kind of agreement in any language will prove to be transformational." While the first half of the assertion may be true, the second half no longer holds.

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愛奴語的一個特點：形態符合

彭 哲 卿

印歐語裏有一種衆所週知的屬性叫文法的符合 (Grammatical agreement)。因為印歐語有男性女性之別，單數複數之分。所以用起來，修辭和名詞的數和性別非互相符合不可。我們就把這種屬性稱為統語符合 (Syntactic agreement)。

相反地，愛奴語，因向來很少人注意過，另外有一種屬性。這種屬性當然跟統語符合有些不同；不同的地方就是愛奴語着重動詞的語幹和接辭的數和人稱的符合。因此，與其說這種文法的符合是統語符合，不如說是一種新的文法的符合。我們姑且把它叫做形態符合 (Morphological agreement)。

這篇論文的目的就在於討論愛奴語動詞裏的形態符合，假以建議新的文法理論。中心點是指出陳述形態符合的方法。我們的結論如下：形態符合可以用算術的乘法來陳述。

這個陳述方法既簡單又明晳。如果我們的結論不錯，那麼變形文法 (Transformational grammars) 裏所鼓吹的變形方法就不能算是最適合的。