BASIC SENTENCE STRUCTURES IN AINU

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Theoretical research on Ainu sentence structure has not progressed much. The present paper shows that the basic structure of Ainu sentences is determined primarily by verbal valency and five structures based on typological properties of head-marking languages: 1) personal affix, 2) personal affix plus noun phrases that are cross-referenced with them, 3) nominal prefixes or noun incorporation, 4) noun phrases that are not cross-referenced with the personal affixes but whose existence is guaranteed by verbal valency, and 5) pseudo-incorporation. This paper also points out that such an explanation has the advantage of simplifying the description of Ainu sentences, since it recognizes, for example, noun incorporation as a means of producing sentences from the start, making it unnecessary to assume a transformational operation that moves a noun into a verb.

1. INTRODUCTION

Ainu is an indigenous language of Japan. As evidenced by the 2009 UNESCO report (UNESCO 2009), Ainu is a seriously endangered language. It is not too much to say that its study is now urgent in terms of both its documentation and revitalization. Fortunately, in 2022, De Gruyter in Germany published the *Handbook of the Ainu Language* (ed. Bugaeva Anna, pp. 699), making it easier for overseas researchers to access the Ainu language. However, as is seen from the fact that even this voluminous handbook lacks a separate chapter on syntax, research on the syntax of Ainu has not made much progress. In the present paper, I will review previous studies about the syntax of Ainu and consider what is the most important property in the syntactic structures of Ainu.[1]

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2. PREVIOUS WORKS RELATING TO THE SYNTAX OF AINU AND THEIR PROBLEMS

Here, let us now take a brief look at the history of research on Ainu syntax based on Satō (forthcoming). Most of the previous works about Ainu syntax are descriptive studies, whereas theoretical ones are not so many. Among early works, Kindaichi (1931: 174–233) treats sentence structures in the chapter "Sentence styles". However, its contents mainly concern the distinction between imperative, negative, and interrogative sentences. Thus, it does not deal with the basic structures of Ainu sentences in much detail from a theoretical point of view. This shortcoming is also found in Chiri (1974: 152–171) and some post-war overviews of the Ainu grammar (Asai 1968: 794–800; Tamura 1988: 6–94; Satō 2008: 20).

2.1 Tamura's (1988) description of the Ainu sentence structure

As an example of a traditional description of Ainu sentences, here I cite a part of Tamura's (1988) description. It explains sentence structures using basic syntactic units like verb phrases, noun phrases, and phrases extended by auxiliary verbs and adjuncts along the line of the traditional structural linguistics:

L) Syntax: a complete sentence belongs to one of the following three types:

a) a sentence with a verb phrase as a predicate

(1) *ekasi* *mína*
grandfather laugh

'Grandfather laughs.'

(2) *acapo* *ek* *wa*
uncle come FP

'An uncle comes.'

b) a sentence consisting of a noun phrase or adverbial phrase, associated with a final particle

(3) *poro* *cise* *un.*
big house FP

'Here is a big house.'

(4) *tan* *pe* *he*
this thing FP

'Is it this?'

c) interjections or nouns (vocative)

(5) *hay! 'Auch!'*

(6) *hápo! 'Mother!'*

Major constituents of a sentence are a verb phrase and noun phrases. Their structures are as follows:

1) Structures of a verb phrase

i) intransitive verb

(7) *ku-inkar*
1SG.SBJ-look

'I look around.'

(Tamura 1988: 72, notationally modified)

It should be noted that the above description shows that an Ainu sentence may appear as independent noun phrase(s) and a predicate (e.g. *ekasi mina* 'An old man laughs.') as well as a predicate marked for person without a noun phrase (e.g. *ku-inkar* 'I see.'). However, Tamura's description does not describe the properties of the Ainu sentence structures in detail by explaining the differences between Ainu and Japanese or other languages.

2.2 Satō's (2008) description of the Ainu sentence structure

Satō (2008: 20) also follows the descriptions of other researchers, including Tamura, but it should be noted that he clearly defines the "basic sentence" based on the types of verbs. In other words, the position is taken that the number of arguments taken by the verb is the most important feature in the basic structure of an Ainu sentence. It is characterized by the fact that Ainu basic sentences are decided depending on the type of the verb: a one-place, a two-place, a three-place, or a copula verb. However, it is still only a descriptive explanation, and no theoretical explanation has been developed:[2]

The basic types of Ainu sentences are as follows.

2 There is yet another type of verb in the Ainu language: atransitive. However, since it is not directly relevant to the following discussion, I will not mention it further here.

i) Subject + intransitive verb

(8) *cise* *okari* *kimunkamuy* *ϕ-apkas.*
house around bear 3SG.SBJ-walk
'Around the house, the bear walks.'

ii) Subject + object + transitive verb

(9) *toan* *kur* *taan* *kur* *ϕ-ϕ-epokpa.*
that person this person 3SG.SBJ-3SG.OBJ-hate
'He hates him.'

iii) Subject + indirect object + direct object + transitive verb

(10) *toan* *katkemat,* *toan* *kur* *sine* *cep* *ϕ-ϕ-kore.*
that woman that person one fish 3SG.SBJ-3SG.OBJ-give
'That woman gives that person a fish.'

iv) Subject + complement + copula

(11) *toan* *kur* *arikinne* *wen* *pe* *ϕ-ne.*
that person extremely bad thing 3SG.SBJ-be
'That person is a very bad person.'

(Satō 2008: 20, notationally modified)

2.3 Murasaki's (1967) description of the Ainu sentence structure

Other notable studies on Ainu syntax include Murasaki (1967). Although Murasaki's study can also be said to be descriptive rather than theoretical, it differs significantly from other studies in that the method of analysis employed by Murasaki is based on generative grammar. As a result, it can be said that issues related to the sentence structure of the Ainu language not necessarily clarified in other studies have been highlighted. We will look at them briefly below.

Murasaki explains the syntactic structure of Ainu by establishing a categorization of verbs as intransitive (V0), transitive (V1), and ditransitive (V2), and then secondarily by processing the inflection of verbs and nouns by transformational rules based on the deletion, replacement, and movement of elements.

For example, the syntactic derivation of the possessive noun phrase *e-kurasno setaha* 'your black dog' may be roughly as follows, according to Murasaki's expla-

nation. First, according to the phase structure rules, the following clause structure is assumed in the deep structure.

e*ani* + Af_{POSS}[3] + Af_{SUB}[4] + *kurasno* + ϕ + *seta*

Eani 'you' is an independent personal pronoun, Af_{POSS} is a possessive marker ending in a noun stem, Af_{SUB} is a subjective personal affix indicating the subject of the following predicate *kurasno* 'black', and ϕ after *kurasno* would normally contain an auxiliary verb, but in this case no overt auxiliary verb is used, so it is a zero auxiliary verb. The preceding elements up to this point modify the noun *seta* 'dog'. Next, the sequence *eani* + Af_{POSS} is transformed into ϕ + *e-... -ha*, and then ϕ + *e-... -ha* + ϕ + *kurasno* + ϕ + *seta*. This sequence will ultimately be transformed into the following sequence (see also Figure 1 below).

(12) *e-ϕ-kurasno* *seta-ha*
2SG.SBJ-3SG.SBJ-black dog-POSS
'your black dog'

Similarly, *taranoka aynu uta tampe en-konte-hci* 'those people gave this to me' is derived as follows. First, according to phrase structure rules, the following clause structure is derived as a deep structure. The ϕ immediately after the verb *konte* 'give' is a zero auxiliary verb, and the ϕ at the end of the sentence is a zero final particle.

tara + *aynu* + pl.[5] + *tampe* + *kuani* + Af_{OB}[6] + *konte* + ϕ + ϕ

Next, parallel to the possessive construction, personal affixes are introduced into the verb, with *kuani* + Af_{OB} being replaced by ϕ + *en-... -hci.* Also, *tara + aynu* + pl. is replaced by *tara +* pl. *+ aynu* + Postnoun pl. for the agreement of the number of the noun and the determiner.

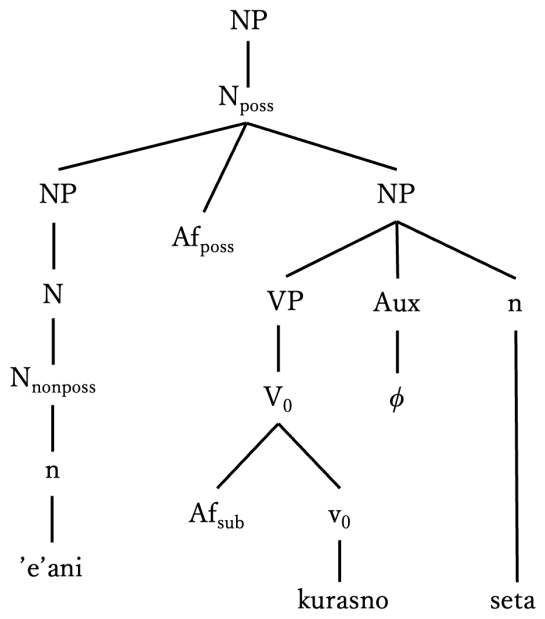
t*ara* + pl. + *aynu* + pl. + *tampe* + *kuani* + Af_{OB} + *konte* + ϕ + ϕ

Finally, the appropriate surface structure is selected and the correct sentence is obtained (see also Figure 2 below).

3 "Af_{POSS}" stands for a possessive affix. Here, I follow the original notation by Murasaki.
4 "Af_{SUB}" stands for a subjective affix. Here, I follow the original notation by Murasaki.
5 "pl." stands for PL. Here, I follow the original notation by Murasaki.
6 "Af_{OB}" stands for an objective affix. Here, I follow the original notation by Murasaki.

(13) *taranoka aynu uta tampe ϕ-en-konte-hci.*
Those people PL this 3PL.SBJ-1SG.OBJ-give-PL
'Those people gave me this.'

'e-kurasno seta-ha <オ前ノ黒イ犬>



(T.R. 2,2′) ϕ—'e-...-hV—ϕ—kurasno—seta

(MP. 3 a)) ϕ—'e-...ha—ϕ—kurasno—seta

T.S: 'e-kurasno seta-ha

Figure 1 Transformational analysis of an Ainu possessive phrase.

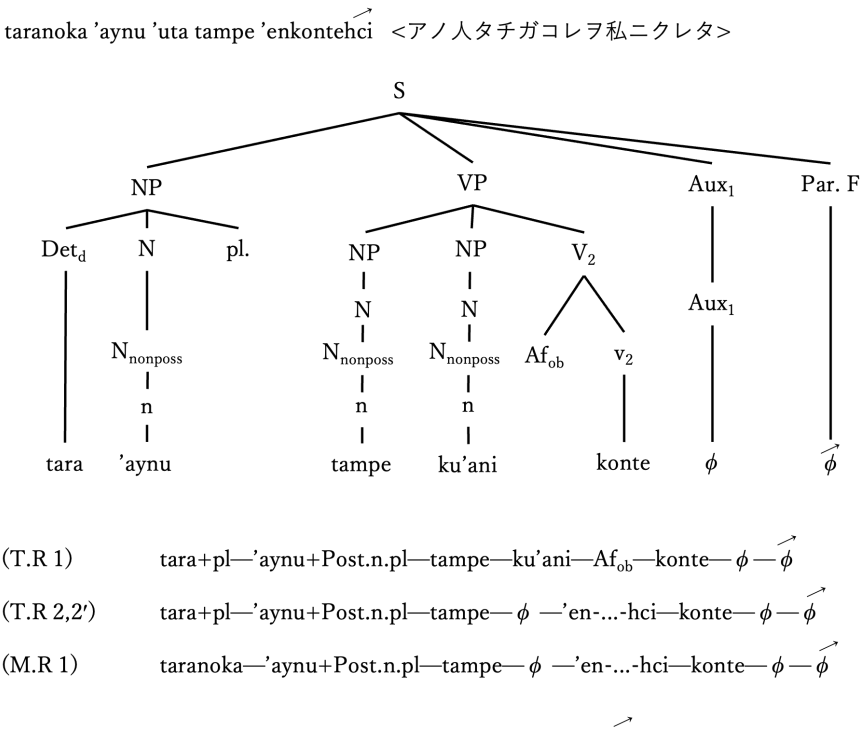


Figure 2 Transformational analysis of an Ainu clause.

Murasaki's description is not a comprehensive description of the syntactic structure of Ainu, nor is it necessarily clear-cut, but it is nonetheless noteworthy in that it clearly shows an important feature of the syntactic structure of Ainu. That is, Murasaki assumes a "transformational rule" in Ainu, which is not so problematic in the description of the syntactic structure of Japanese. Although Murasaki does not specifically mention that the rules of Ainu are more complex than those of Japanese, this is precisely because the syntactic structure of Ainu is different from that of Japanese. As this brief introduction may to some extent show, the main reason for the difference between the two languages is that Ainu nouns and verbs differ from their Japanese counterparts in that they inflect for person. In languages such as Japanese and English, grammatical relations (subject and object) that are expressed in independent noun phrases are not obligatory elements in Ainu, but rather it is the personal affixes that are obligatory for the predicates. Therefore, it can be said that the necessity of incorporating the process of adding

personal affixes into the description of a language parallel to languages such as Japanese and English makes it necessary to introduce transformational rules such as the deletion of independent pronouns and the replacement of elements.

As is made clear above, the importance of predicate types and personal affixes has been pointed out directly and indirectly in previous studies, but it has not always been sufficient in terms of theoretical analysis. In the following, I will argue that the introduction of typological findings, which have recently been developed, is indispensable to remedy inadequacies.

3. SYNTACTIC STRUCTURE AND LINGUISTIC TYPOLOGY OF THE AINU LANGUAGE

In the previous section, we saw that Murasaki's (1967) description of Ainu sentence structure requires "transformational rules" that include moving, deleting, and replacing elements. Where does the need for such "transformational rules", which are not necessarily required to describe the corresponding Japanese sentences, arise from in Ainu? Needless to say, the cause is the indication of grammatical relations by personal affixes in the Ainu language.

This structural feature of the Ainu language, centering on personal affixes, can be understood in terms of the distinction between "dependent-marking languages" and "head-marking languages", which has been established as a general concept in the subsequent development of linguistic typology, established by Nichols (1986: 57). Nichols first presents the following possessive expressions as a starting point. In the following example, M stands for marker and H for head. As these examples show, in English, the marker of possession is added to the possessor (dependent) 'man'. In contrast, in Hungarian, the marker of possession is attached to the possessee (i.e. 'house' [head]).

1) English	the man-^{M}'s	^{H}house
2) Hungarian	az ember	^{H}ház-^{M}a
	the man	house-3SG.

What this example suggests is whether a marker for a structure is attached to the head or dependent is not randomly chosen but follows the overall typological type of the language. Nichols then systematizes this finding by defining dependency relations in linguistic structures as follows.

Table 1 Dependency relations in the constructions (Nichols 1986: 57).

LEVEL	HEAD	DEPENDENT
Phrase	possessed noun	possessor
	noun	modifying adjective
	adposition	object of adposition
Clauses	predicates	arguments and adjuncts
	auxiliary verb	lexical 'main' verb
Sentence	main-clause predicate	relative or subordinate clause

Nichols (1986: 57–58), after organizing the structures and types to which markers are added as above, says: "The function of the morphology of government, agreement, cross-reference etc. is to identify these syntactic relations by appropriately marking either the head (as in 2)) or the dependent (as in 1)). I will thus speak of syntactic relations as HEAD-MARKED or DEPENDENT-MARKED."

Now, if we review Murasaki's description from this typological viewpoint of Nichols, its significance becomes clear. The fact that Ainu marks the possible arguments (subject and object) of a verb with personal affixes to the verb means, drawing on Nichols' summary above, that the arguments are obligatorily marked on the predicate, which is the head of the clause. This precisely indicates that Ainu is a language that belongs to the head-marking type. In contrast, Japanese and English are languages that lean toward the dependent-marking type because the markings of arguments on verbs are absent or not obligatory. Therefore, if one tries to formulate Ainu syntactic rules, as Murasaki did, based on the model of languages such as Japanese and English, the deep structure cannot be converted into the corresponding surface structure without setting up arguments independent of the verb and transforming them into person markers. The reason why Murasaki's analysis of the Ainu syntactic structure is unusually complex compared to the original Ainu language is that she did not start from the head-marking type, but from a grammatical theory based on dependent-marking languages, such as Japanese and English, which belong to a completely different basic linguistic type. Therefore, in future discussions on the syntax of Ainu, it is necessary to develop arguments based on the fact that Ainu is a head-marking language.[7]

7 Baker (1988: 229–232) demonstrates a similar shortcoming arising from ignoring the typological distinction between head-marking and dependent-marking languages. Using the analysis employed here, it would be clear that the process of head movement is not essential in describing the grammatical structure of the Ainu language.

4. HYPOTHESES ABOUT THE BASIC STRUCTURE OF AINU SENTENCES

Since it is not possible to discuss in detail all aspects of the syntactic structure of Ainu, I would like to point out briefly the following points that I consider very important. The following are some of the issues concerning the Ainu sentence structure.

(1) How should the basic structure of Ainu sentences be presented?

(2) More specifically, how should the sentence structure of a three-place verb in Ainu be presented?

(3) How does the basic structure of Ainu sentences relate to other Ainu grammatical phenomena?

I will discuss these points very briefly below.

4.1 The basic structure of Ainu sentences

In the previous section, we have already seen that Ainu exhibits the characteristics of a head-marking language, centered on the use of personal affixes. Based on this property, what kind of structure is appropriate to assume for the basic structure of Ainu sentences? Syntactic theories are constantly evolving, and it is impossible to follow all of them, but one syntactic theory that has attracted attention from a linguistic typological viewpoint is the "Role and Reference Grammar" (RRG) proposed by Robert D. Van Valin Jr. Van Valin is an expert on Lakhota, a language that belongs to head-marking languages like Ainu, and many examples from Lakhota have been used in RRG research. Hence, they are useful for considering Ainu sentence structure. Van Valin and LaPolla (1997: 34) states that in RRG, a distinction is made between the following levels: nucleus (NUC) with a predicate as a head, core (CORE) including arguments (ARG), clause (CLAUSE), and sentence (SENTENCE). An argument (ARG) may be an independent noun phrase (RP/NP), as in English and Japanese (Figures 3 and 4), or it may be a pronominal element (PRO) with an affix, as in Lakhota (Figure 5).

(14) I killed them. (Van Valin & LaPolla 1997: 34)

(15) *wahtashitachi-ga* *sakana-o* *toru.*
1PL.NOM fish-ACC catch
'I caught a fish.'

(16) *mathó ki kená wičá- wa- kte*
bear the those 3PL.OBJ-1SG.SBJ-kill
'I killed those bears.'

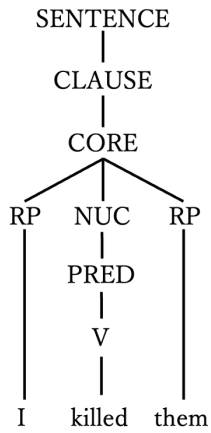


Figure 3 Layered structure of an English clause (Van Valin & LaPolla 1997: 34).

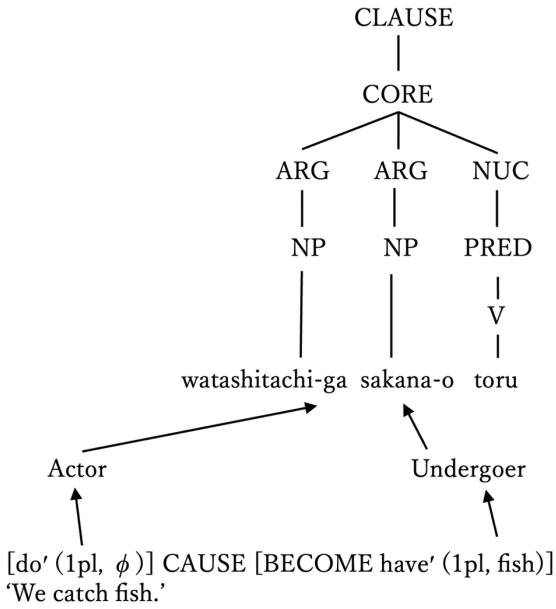


Figure 4 Layered structure of a Japanese clause.

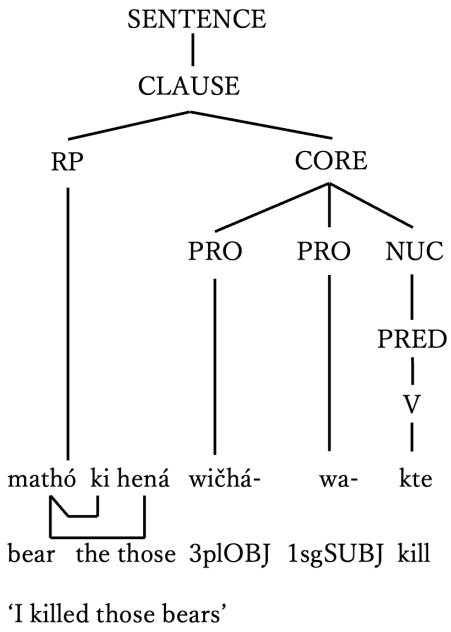


Figure 5 Layered structure of a Lakhota clause (Van Valin & LaPolla 1997: 34).

Since the term "reference phrase" (RP) is not common, the structure of an Ainu sentence *cep a-koyki* 'we catch fish.' is shown in Figure 6, using the conventional term NP. As can be seen by comparing Figure 6 with Murasaki's Ainu sentence structure in Figure 2, it can be said that Murasaki's analysis of the Ainu sentence structure does not capture well the fact that NPs are optional and hence not actually an essential element in Ainu. In contrast, in Figure 6, the arguments (ARG) are already satisfied by the PROs (personal affix) displayed in the core (CORE), and the independent NP (in this case the object *cep* 'fish') is placed outside the core (CORE) and is thus shown to be an optional element rather than an obligatory element.[8] By comparing the two figures, it can be seen that the same LS (logical structure) gives rise to morphologically different structures. This is the reason why I stated above that it is important to show morphological structure in the structural description of Ainu sentences at the same time by using the concept of "coanalysis" (Di Sciullo & Williams 1987: 88). For more

8 In RRG, the upper part of the logical structure of the verb shows the constituent projection, while the lower part shows the operator projection such as aspect, modality, and negation, but here the morphological structure is shown instead. The reason will be explained below.

details, see Satō (2023). On the other hand, in Ainu, noun incorporation also allows nouns to appear directly on verbs (Figure 7).

(17) *cep* *a-ϕ-koyki.*
fish 1PL.INCL.TR.SBJ-3PL.OBJ-catch
'We catch fish.'

(18) *cep-koyki-an.*
fish-catch-1PL.INCL.INTR.SBJ
'We catch fish.'

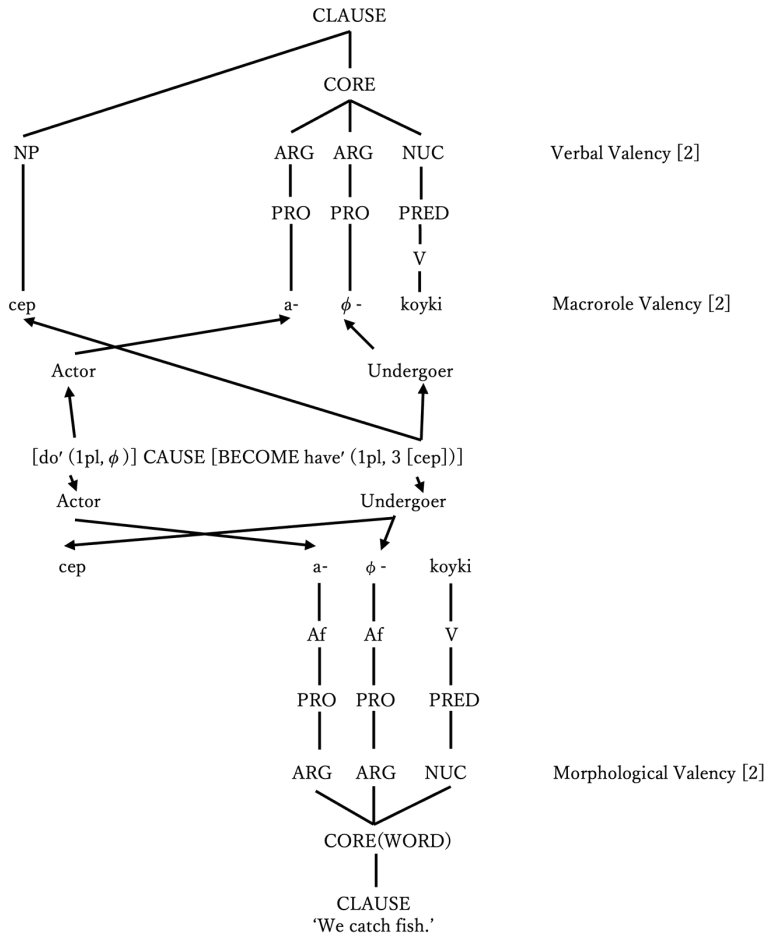


Figure 6 Layered structure of an Ainu clause with cross-reference.

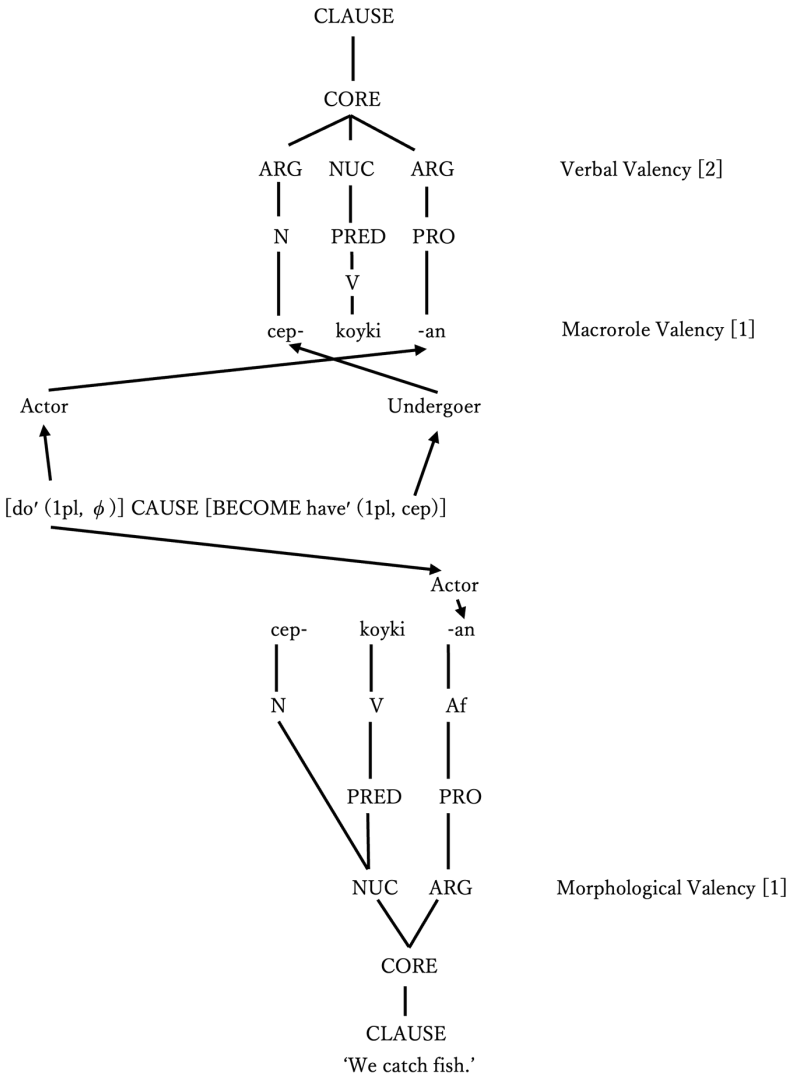


Figure 7 Layered structure of an Ainu clause with noun incorporation.

This is due to the fact that Ainu is a head-marking language. Therefore, it is necessary to consider that there are two separate structures in Ainu: one in which independent nouns appear outside the NUC (Figure 6), and the other in which an incorporated noun appears inside the NUC through noun incorporation (Figure 7). It should be noted that this account eliminates the need to explain

noun incorporation by head-movement, as in Baker (1988: 81–92), and allows for a more plausible explanation of noun incorporation.

Incidentally, a cross-referential structure with a non-ARG NP is found in languages normally considered as a dependent-marking language, such as French (Kawamoto 1963: 67) (Figure 8). However, it should be noted that the pronoun is independent of the NUC and the structure should be considered dependent-marking.

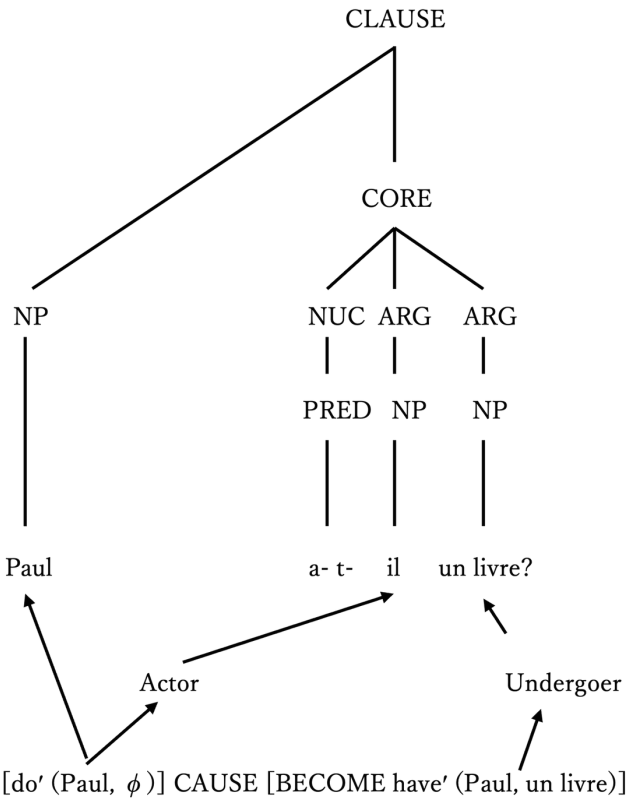


Figure 8 Layered structure of a French clause with cross-reference.

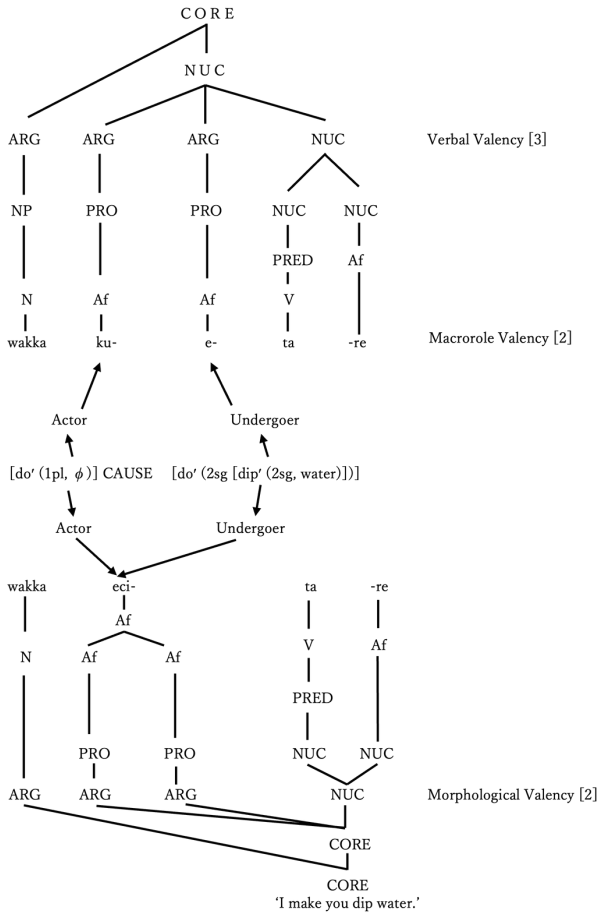


Figure 9 Layered structure of an Ainu clause with a non-macrorole argument.

4.2 Syntactic structure of Ainu three-place verbs

A major issue in considering the basic structure of Ainu sentences is the analysis of three-place (or ditransitive) verbs. I have already mentioned that the concept of core, which consists of argument(s) (ARG) and a nucleus (NUC), as postulated in the RRG, is effective in showing the basic structure of Ainu sentences, but in fact, there are various points that must be resolved even if the RRG concept is introduced. I will illustrate this point based on Satō (2023). For example, consider the following example and see the corresponding structure in Figure 9.

(19) *wakka eci-ta-re.*[9] (*a constructed example*)
water 1SG.SBJ.2SG.OBJ-dip-CAUS

'I make you dip water.'

The problem with this structure is clear from Figure 9. In Ainu, personal affixes on verbs are limited to two (i.e. subjective and objective), so the verb *tare* 'to make someone dip' that receives a first person subject and a second person object person markings cannot take further person marking (i.e. here, theoretically, the third person marker *ϕ-*) to indicate the theme (here *wakka* 'water').[10] If this is the case, what happens to the syntactic status of the independent noun phrase *wakka* 'water' ? Even if person marking is not possible, it is difficult to regard it as an optional syntactic element outside the core (CORE), as in *cep* 'fish' in Figure 6. Therefore, it must be regarded as a type of argument (ARG), which is also an argument of the core (CORE). In other words, while the general typological feature of Ainu is head-marking, three-place verbs partly show a characteristic of dependent-marking languages like Japanese and English, in which arguments are basically located outside of the nucleus. On the other hand, according to what has been presented so far, it is possible to consider that this structure also follows the head-marking property of the Ainu language. In (19), *wakka* 'water' (theme) is placed outside of the nucleus, because it cannot be cross-referenced with a personal affix because the number of personal affixes is limited to two. However, *wakka* 'water' can also appear inside the nucleus by noun incorporation, as in (20) below. In other words, potentially, examples such as (19) should also be considered not purely dependent-marking, but still under the control of the grammatical feature of head-marking. Furthermore, it is clear from the following example (21) that the theme NP is subject to anaphoric reference even if it is not cross-referenced by a personal affix: verbal valency guarantees the interpretation of anaphoric reference without any personal affix(es). This indicates that in Ainu, verbal valency exists independently of macrorole (i.e. Actor and Undergoer) valency and dominates the head-marking properties of the Ainu

9 Here, the form *eci-* is an unseparable portmanteau form that includes two morphemes indicating Actor and Undergoer.

10 It should also be noted that in three-place verbs, direct and indirect objects cannot be marked by overt person markers simultaneously. For example, 'He gave you to me' should theoretically be **ϕ-en-e-kore* (lit. he-me-you-give), but in fact it is ungrammatical. This is probably because the addition of the third-person subjective zero person affix *ϕ-*, indicating the actor, and the first-person objective person affix en-, indicating the undergoer, violates the restriction that a verb may have no more than two person markers. In short, there is no longer any place for the second person objective *e-* to go. Moreover, this fact casts doubt on Nakagawa's (1993: 43) claim that "there is no third-person affix in Ainu".

language fundamentally. It is necessary to further examine this hybrid character found in Ainu in more detail.

(20) *eci-wakka-ta-re.* (*a constructed example*)
1SG.SUBJ.2SG.OBJ-water-dip-CAUS

'I make you dip water.'

(21) *tanpe topenpe ϕ-ne na. ekasi ku-kore na.*
this sweet 3SG.SBJ-be FP old.man 1SG.SBJ-give FP

'This is a sweet. I will give it to the old man.'

Incidentally, the issue of syntactic properties exhibited by three-place verbs in Ainu may also be useful when considering syntactic issues with respect to three-place verbs in other languages. For example, the following is an example of a Basque three-place verb (Yoshida 2019: 100).

(22) *Nik amari erlojua erregalatu diot.*
I give my mother watch auxiliary

'I gave my mother a watch.'

The auxiliary verb *diot* is the form used when the actor is first person and the recipient is third person, but in this construction, only the third person is allowed for objects (theme) that take the absolutive case, such as 'watch'. Normally, despite this person restriction, Basque is considered a language in which a predicate (in this case, the auxiliary) can be marked with three-place marking. However, from what I have shown so far, it is possible that Basque, like Ainu, only allows two-place marking of verbs. That is, since the recipient is actually the undergoer that should be indicated on the verb, it would seem that the third argument "theme" has no room to be indicated inside the verb (in this case, the auxiliary verb). Moreover, if the theme is a common noun phrase like 'watch', there is no need to mark it on the modal verb. However, if the theme were the second person marker, it could not be left out from the modal verb. This fact can be explained only by the assumption that the actor and the undergoer (recipient) are already represented on the modal verb, leaving no space for the second-person marker to be marked on the modal verb.

4.3 Ainu argument realization means and syntax

As pointed out above and in Satō (2023), the grammatical structure of Ainu is strongly dominated by the linguistic typological feature of head-marking.

Furthermore, it is becoming clear that this feature is closely linked to a seemingly unrelated grammatical feature of the Ainu language. In other words, it should be noted that there are cases in which a strict separation of morphology and syntax as in other languages, does not seem to be very effective when describing the grammatical structure of Ainu. This point is briefly discussed below.

In the syntactic description of three-place verbs above, I mentioned that the theme argument of the verb is completely independent of the internal markers of the verb and is purely "syntactic" in this sense. Thus, from this example alone, it would appear that the typological pressure for head-marking in Ainu is not so strong. However, the following example shows that this is not necessarily the case.

(23) *konkane-u-w-oma-re-an.*
gold-RECP-EP-go.into-CAUS-1PL.INCL.INTR.SBJ
'We collect gold dust.'

The reason why this example is important is that it contains the three-place verb *omare* 'X causes Y to go into Z'. Moreover, although not an independent noun phrase, the *u-* 'one another' (nominal derivational affix) is added as an argument inside the verb as 'goal' and the *konkane* 'gold dust' (an incorporated noun) as object, forming a single word as a whole. As already pointed out above, however, the head-marking property of Ainu may not appear to be very strong, since personal affixes can only mark up to two arguments in a verb, but if we extend our observation to nominative derivational affixes and incorporated nouns, example (23) shows the typical head-marking property, where all the three arguments that the verb can take are morphologically marked inside the verb. That is, as can be seen from the discussion here and above, arguments may be realized sometimes by an independent noun phrase that is not cross-referenced with a personal affix due to grammatical constraints as in three-place verbs, sometimes by a personal affix, sometimes by a nominal derivational affix, and sometimes by an incorporated noun stem. Thus, since argument fulfillment in Ainu is sometimes done by syntactic means and sometimes by morphological means, it may give the impression that the distinction between syntax and morphology is blurred in Ainu. But as shown, this is because Ainu is a head-marking language where argument fulfillment is basically realized in verbs by morphological means. The dominance of head marking in Ainu is also evident from the fact that even transitive subjects can be marked on verbs by noun incorporation, as in (24).

(24) *ku-koy-yanke.*[11]
1SG.SBJ-wave-wash.onto.the shore

'The waves wash me onto the shore.'

Such examples of transitive subject incorporation in Ainu are difficult to explain by considerations based on dependent-marking languages as in Baker (1988: 81).

Finally, the distinction between verbal valency (syntactic valency) and macrorole valency (semantic valency), which is emphasized in this paper, is useful in analyzing the exceptional syntactic structures in Ainu. Here, "macrorole valency" refers to Actor and Undergoer, and "syntactic valency" refers to a non-macrorole core argument in addition to Actor and Undergoer (Van Valin 2023: 113).[12]

For example, the copula verb *ne* 'to be' can take a transitive subjective marker but cannot take an objective marker. In other words, based on macrorole valency, it is a one-place verb that can only take an undergoer. However, there are rare cases where a second person independent pronoun is taken as a complement. This structure goes against the basic principle of the Ainu language in that personal pronouns should in principle agree with the person marker attached to the verb, but it is acceptable nonetheless because *ne* is a two-place verb in verbal (syntactic) valency. This is because verbal valency in Ainu is based on head marking property that may imply the existence of a non-macrorole argument. However, even though it is acceptable, this structure is not very common because it does not use an overt person marker and therefore deviates from the typical head marking structure in Ainu.

(25) *eani* *ϕ-ne* *yakun* *ku-ϕ-kar* *wa*
you 3SG.SBJ-be if 1SG.SBJ-3SG.OBJ-make and

ku-korar *ka* *eaykap.*
1SG.SBJ-3SG.OBJ-give even impossible

'If the person is you, I can never make and give it to you.'

The distinction between verbal valency and macrorole valency is also useful in the analysis of the so-called auxiliary verb structures in Ainu. In Ainu, auxiliary

11 Here, the patient 'me' is realized as the subject. This is because the incorporation of the subject converts a transitive verb into an intransitive one, and the patient is promoted to the subject position.

12 Regarding the definition of valency, I basically follow Van Valin's definition of valency, but it should be noted that Ainu syntactic valency strongly exhibits head marking properties and, in principle, has a very strong tendency for arguments to be marked inside the verb in some way or another (Sato 2023:12).

verbs, by definition, do not take person marking, unlike verbs. In the following example, the auxiliary verb *rusuy* 'to want' does not take person marking.

(26) *enumitanne* *a-ϕ-e* *rusuy.*
wild.berry 1PL. INCL. TR. SBJ-3PL.OBJ-eat want
'We want to eat wild berries.'

However, the auxiliary verb *rusuy* 'to want', while not taking person marking, can incorporate a verb, as in:

(27) *ipe-rusuy-an.*
eat-want-1PL.INCL.INTR.SBJ
'We want to eat.'

This is because the macrorole valency of *rusuy* is 0, but its syntactic valency is 2. What is interesting is why independent auxiliary verbs as in (26) exist separately from incorporation in (27). This is related to the rule that in Ainu, one-place verbs (intransitive verbs) can be converted into nouns (Chiri 1974: 67; Sato 2020: 219). In the example of incorporation in (27), *ipe* 'to eat' is an intransitive verb and can therefore be morphologically incorporated to form a single word as the argument of *rusuy* 'to want'.

However, the *e* 'to eat' in (26) is a two-place verb (transitive), so it cannot be converted to a noun. Therefore, it cannot be incorporated into *rusuy* 'to want' to form a morphologically closely combined single word. In other words, if possible, we would like to form the single word **a-ϕ-e-rusuy* 'we want to eat it', but this is not possible in Ainu. But it should be noted that the one-place part of the verb *ϕ-e* 'to eat it' could be theoretically incorporated into *rusuy* 'to want'. However, this time it contains a third-person object person marker, which violates the constraint of the anaphoric island. So it cannot be incororated as such to form a morphologically complete single word. However, here, instead of incorporation, it is thought to be realized as a morphologically separate phrase, while still maintaining grammatical tightness. The subjective person marker should be attached to the whole **ϕ-e-rusuy* 'want to eat it' if possible, but since this is in fact not possible, it is actually added to the part *ϕ-e* 'eat it' containing the objective person marker, resulting in *a-ϕ-e rusuy* 'we want to eat it' as a whole.

Since this type of structure is akin to incorporation, it should be considered a type of 'pseudo' incorporation' (Massam 2020: 18). The auxiliary verb structure in Ainu is a structure that contradicts head marking in that the auxiliary verb does not take a person marker. But if we assume auxiliary constructions as pseudo incorporation, it also becomes a head marking structure in a broader sense, and

the contradiction is avoided. In this way, verbal (syntactic) valency in Ainu can be said to be an important grammatical property that characterizes Ainu as a head-marking language.

5. CONCLUSION

In the above, I have explained, albeit very briefly, that Ainu has the typological feature of a head-marking language and that the various means of indicating arguments inside verbs produce structural diversity in Ainu sentences.

As a result, the following structures based on head-marking grammatical features exist in Ainu sentences:

(1) A head-marking structure containing macrorole arguments indicated by personal affixes.

(2) A head-marking structure that includes noun phrases that are cross-referenced with personal affixes.

(3) A head-marking structure with noun incorporation or nominal affixes.

(4) A potential head-marking structure that includes a noun phrase whose existence is guaranteed by verbal valency and which is not cross-referenced with a personal affix.

(5) A pseudo incorporation that includes an auxiliary.[13]

It should be noted that such an explanation would make unnecessary the recent theoretical interpretation of noun incorporation in head-marking languages by head-movement transformational rules based on a dependent-marking construction, because related structures, such as noun incorporation, are allowed from the beginning in head-marking languages. In the future, it will be necessary to further examine the generality of the hypotheses formulated in this paper by comparing and contrasting them with information on similar types of other languages.

13 For pseudo incorporation with a noun phrase, see Satō (2023: 9).

ABBREVIATIONS

1	first person
2	second person
3	third person
ϕ	zero element or third person prefix
ACC	accusative
af	affix
ARG	argument
CAUS	causative
EP	epenthetic consonant
FP	final particle
INCL	inclusive
INTR	intransitive
NOM	nominative
NUC	nucleus
OBJ	objective
PL	plural
PRED	predicate
POSS	possessive
PRO	pronoun
RECP	reciprocal
RP	reference phrase
SBJ	subjective
SG	singular
TR	transitive

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