

## Why Incorporation ?

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### 1. Problems

A set of interesting works have been recently published which throw light to the old discussion about Nivkh incorporation fifty years ago as well as to the theoretical problems on incorporation and polysynthesis. In this paper, I wish to find some plausible answers to the following questions:

- (i) The old discussion about Nivkh incorporation has not been yet settled conclusively. The recent argument on incorporation will help us to bring it to a conclusion in favor of Panfilov's view that it is not an incorporative language.
- (ii) It is often assumed that incorporation is a typical feature of polysynthetic languages. But we have at least a counter example, namely, the language Itelmen. This fact causes us to suppose that the grammatical techniques of incorporation and polysynthesis work somehow differently, although they make use of the common device for concatenation of affixed elements around the verb stem.
- (iii) In the theoretical discussion about incorporation in recent years, it has been often claimed that a single lexical category is affixed to the verbal head. But we have a set of examples of Ainu and Chukchee which show that not only affixed nouns, but also a phrase can be incorporated. This fact is related to the theoretical understanding of the notion in general as well as to Panfilov's typological view on Nivkh.
- (iv) In the syntactic interpretation of incorporation, Baker proposes to derive incorporative structure from a certain "underlying" structure via transformation Move- $\alpha$ . It has been recently developed into a new version which is characterized by the theory of parametric conditions to derive polysynthetic and incorporative structures from a universal configuration. The theory contains important observations, but it stands yet on the basis of problematic idea that incorporative structure is derived transformationally from a universal configuration.
- (v) Incorporation can not be often differentiated from composition. But the affixation to a nominal head can not be regarded as incorporation, but simply nominal composition because of its less restricted concatenation of the components as well as of possible semantic variation of compound words. But composition is an indispensable grammatical technique which any language utilize to make a complex word regardless of word class distinction. Therefore, it is surely wrong

to identify composition and incorporation. Crucial is to distinguish their particular functions.

## 2. Discussion on Nivkh Incorporation

In the middle of the last century there was a series of discussion on the topic whether Nivkh has incorporation or it has to be regarded as an agglutinative language. The discussions were held mainly in the Leningrad branch of the Linguistic Department of the Soviet Academy of Sciences, especially between the linguists E.A.Krejnovich and V.Z.Panfilov, who are both most prominent nivkhologists until today.

### 2.1. Krejnovich for Incorporation

Krejnovich asserts that Nivkh is an incorporative language, since incorporation is visible in the concatenations of nominal modification and the structure of direct complements of transitive verbs and, in both cases, it is morpho-phonologically marked by the consonant alternation. First, observe the following examples (Krejnovich 1966,48.):

- (1) a. ranr      urgur      rod'  
sister-ABS well(ADV) help-AORIST/INF  
(the sister helped well)
- b. ətək      urgur ph-ranr      \_tod'  
father-ABS      self-sister-ABS help-AORIST/INF  
(father helped well own-sister)

According him, *tod'* has allomorphs *rod'/dod'* and " \_ " indicates incorporation .

In the examples above, the phonological circumstance of the transitive verb *rod'/tod'* is identical in both cases, namely, directly after *r*. When an adverb precedes it (1a), the initial consonant of the verb remains *r*-. But in the second case (1b), when the direct complement precedes the verb directly, the initial consonant of the verb changes into *t*-. He ascribed this phonological change to the incorporation of the direct complement into the transitive verb, because this progressive consonant change indicates a tight combination of morphemes just like in the case marking by a suffix (2a) in the following examples (Krejnovich 1958, 30):

(2) a. attachment of a case marker:

- i) n'      \_ətək      \_roχ  
my      father-STEM to-DATIVE

(to my father)

ii) n' \_nanχ \_toχ

(to my elder brother)

iii) n' \_oɤla \_doχ

(to my child)

**b. nominal modification**

i) n' \_ətək \_rəf

my father-STEM house

(my father's house)

ii) n' \_nanχ \_təf

(my elder brother's house)

iii) n' \_oɤla \_dəf

(my child's house)

**c. direct complement + transitive verb**

i) n' \_ətək \_rod'

my father-STEM help-AORIST/INF

(to help my father)

ii) n' \_nanχ \_tod'

(to help my elder brother)

iii) n' \_oɤla \_dod'

(to help my child)

With these examples, he proposed the following hypotheses:

[K1] The three types of concatenations in (2) are equivalently tight because the initial consonant of the last morphemes /r- ~ t- ~ d-/ changes in the same circumstances /-k\_\_, ~ -χ\_\_, ~ -a\_/ in the same way. That is, both nominal modification and transitive complement structure make a tight construct just like the suffixation of a case marker. From this fact, Kejnovich follows that the constituents in (2b) and (2c) are incorporated into a word-like unity like (2a).

This assumption of Krejnovich was the basis for the whole discussion in Soviet Academy at that time. The crucial point was the question whether the consonant alternation indicates the incorporative combination of morphemes or it has to be regarded only as a phonological phenomenon like sandhi. Krejnovich stood on the

first view point, and the second view point was represented by Panfilov.

[K2] The examples in (2) include three sets of allomorphs for each morpheme.

- (3) a. suffix: {-roχ: -toχ: -doχ}
- b. noun: {rəf: təf: dəf}
- c. transitive verb: {rod': tod': dod'}

Here, the question arises which one of the allomorphs in each set is "original", i.e. the lexical form. The representative dictionary of this language, *Sovel'va/Taksami 1976*, chooses the forms {-roχ, təf, rod'} for the lexical representation, respectively. They are right in that these forms appear in a neutral position where no consonant alternation occurs, typically in the context: [-nasals \_\_], e.g. *qhan-roχ* (to the dog), *n' oqon təf* (the house of my fiancé), *n' oqon rod'* (to help my fiancé).

Krejnovich showed later (Krejnovich 1960) the idea that Nivkh has fundamentally two types of forms, free and bound forms. The formers are used as lexical representations, while the latter appear in the context of tight concatenation of words, i.e. in incorporative structures.

[K3] The consonant alternation occurs in the same way in case of suffixes, nouns and verbs; the consonant (-)r-, e.g. changes regularly in the different phonological contexts follows:

- (4) a. suffix {-roχ}:      -r- → -r- /-k \_\_,    -r- → -t- /-χ \_\_,    -r- → -d- /-a \_\_
- b. noun {rɯv}:        r- → r- /-k \_\_,    r- → t- /-χ \_\_,    ?
- c. transitive verb {rod'}:    r- → r- /-k \_\_,    r- → t- /-χ \_\_,    r- → d- /-a \_\_

This phenomenon supports both Krejnovich and Panfilov, although their interpretation was different: Krejnovich saw incorporation, but Panfilov sandhi in this same phenomenon.

## 2.2. Panfilov against Incorporation Theory

Panfilov did not agree with the incorporation theory of Krejnovich. He pointed out crucial negative evidences as follows:

[P1] Incorporative concatenation is marked by some phonological rule, e.g. vowel harmony, and the consonant

alternation can be a good candidate for the marker. However, the consonant alternation of Nivkh involves only plosives and fricatives of the initial consonant in contact. This is surely a remarkable phonological phenomenon, but insufficient to indicate such an important grammatical relation like incorporation. He formulated the morphophonological rules of the alternation in Panfilov 1954, which is more detailed than that of Krejnovich 1958. But according to Panfilov, these rules are applied purely as sandhi rules and, therefore, are indifferent to any grammatical function.

[P2] Panfilov's second argument is related to the grammatical status of the modifier and complement. He thinks that they are not bound forms, but free forms. In the following examples, the nouns occur with comitative case marker which makes free forms from stem:

(5) a. modifier with comitative marker

kheq-xo hyik-xo      \_zif-ku

fox-COM rabbit-COM trace-PL

(trace of a fox and a rabbit)

b. transitive complement

hoghat men khu-gho    pundi-gho \_bo-t                      vod'-ghu

then both arrow-COM bow-COM take-in-hand-PART ging-PL

(then both went with arrow and bow in hand)

According to him, presupposed that a combination of free forms cannot be incorporated, both nouns with comitative marker *-gho~xo* make no incorporation.

[P3] Panfilov claims that, when a morpheme is incorporated, it has no overt syntactic relationship with a constituent outside of the syntactic structure. That is, if *pundi-gho* (with bow) in (5b) above is incorporated with *bo-* (take into hand), it cannot make any nominal conjunction with *khu-go* (with arrow). This is also the case with the following examples:

(6) a. modification of a conjunct nouns

n'    urla    pila    mu

(my    pretty big    ship)

b. complement of a conjunct nouns with adjective modifier

hə əghmu-ərux malghola zavod-gho fabrika-gho \_djesqut-had' (Panfilov 1954,24)

this war-time-LOK many factory-COM workshop-COM destroyed-were

(in the war time, many factories as well as workshops were destroyed)

c. adverbial modification

if lele mat'ki pχov -co \_nřənəd' (Panfilov 1954,20)

he very small round fish find-FUTUR-FIN (He interpreted *nřənəd'* in past tense.)

All these cases show that it is unreasonable to regard only the last noun of modifiers or complements as the incorporated element, because the modifiers are the whole phrase *urla pila* in (6a) and the whole complement *malghola zavod-gho fabrika-gho* in (6b) and *lel mat'ki pχov-co* in (6c). The incorporation, if ever, has to involve whole of these phrases. From this observation, Panfikov asserts that the structures like (6) cannot be regarded as incorporation.

[P4] Panfikov remarks, too, that in an incorporative structure, the syntactic relationship among the components must be visible. But during the whole discussion in Leningrad, this view was presupposed as a matter of fact. And it was not discussed further. Because, as far as the cited examples are concerned, the condition is satisfied in any way, for they all shared only the structure of nominal modification or direct complement. But important is that Panfilov regarded it as the well-formedness condition for incorporative structures. He seems to have noticed that the incorporated elements must be the constituents of the verb phrase whose head is the head of the incorporative structure.

Note that the condition is satisfied automatically in an agglutinative structure, although its syntactic constituents are extracted from the verbal complex. And he interpreted the structure of Nivkh just as such.

In connection with the discussion, there is one more point to note: the direct complements of Nivkh transitive verbs include arguments which appear as dative or directive in other languages like Russian:

(7) a. kuyv nux thəd' (Panfilov 1960,55)

thread needle-ABS pass-FIN

(pass a thread through a needle)

b. n'i huxt taqu \_xrod' (Krejnovich 1958,27)

1SG robe hanger-ABS hang-FIN

(I hung a robe on a hanger)

- c. n'i t'aqo ph-ətənk\_khind' (ibid.)  
 1SG knife own-brother-ABS\_gave-FIN  
 (I gave a knife to own brother)

The nouns in absolute case in (7) are the direct object of the verbs which are, therefore, transitive in this language. Both Panfilov and Krejnovich were right to regard taking these arguments as direct complements of verbs. Merely, they interpreted the same fact differently.

[P5] Panfilov added a semantic condition for a well-formed incorporation: the incorporated elements have to preserve their inherent meanings. They may not change the meaning like in compound words, e.g.:

- (8) a. vut'zif (iron-way= railway) (Krejnovich 1958,31)  
 b. kheq-zif (fox-way) (ibid.)  
 c. pila-ŋa (long animal=snake) (ibid.)

Note that the initial consonant of the second noun in (8a,b) changes according to the rules which are applied to incorporative structures, too. But this supports the sandhi interpretation of Panfilov. But Krejnovich has to explain the difference between composition as (8) and incorporation.

### 2.3. Open Questions

The discussion on Nivkh incorporation in Leningrad has brought, in fact, no definite conclusion. Instead, it has pointed out many important questions to make clear the grammatical phenomenon of incorporation. We note here only some of them:

[Q1] A well-formed incorporative structure is subject to some syntactic conditions. In the discussions, the followings are mentioned:

- (9) a. A syntactic relationship between the incorporated terms and the head must be visible.

As, in our case, two types of structures, nominal modification and direct complement, are in question, the condition is satisfied automatically. But when a complex noun phrase is "incorporated", we have no overt marking to select an plausible interpretation as the following examples show:

(10) a. if  $[_{NP} [_A \text{lele mat'ki}](&)[_A \text{p}\chi\text{ov}] \text{co}] \text{ _n}\check{\text{r}}\text{ən}\check{\text{ə}}\text{d}'$ . (=6c)

b. if  $[_{NP} [_A \text{lele mat'ki}][_{NP}[_A \text{p}\chi\text{ov}] \text{co}]] \text{ _n}\check{\text{r}}\text{ən}\check{\text{ə}}\text{d}'$ .

b. The incorporated nouns are expected to be stems, namely, bound forms, but no free forms. They have no affix attached to indicate e.g. a number or case marker. If this is really the case, the following sentence is a clear counter example against incorporation:

(11) hoghat men  $[_{NP} [_{\text{WORD}} \text{khu-gho}][_{\text{WORD}} \text{pundi-gho}]] \text{ _bo-t vod'-ghu}$ . (=5b)

*-gho*: comitative case marker

c. According to Panfilov [P3], a incorporated term may have no syntactic relation with any term out of the incorporative complex. If this is true, the whole NP in (10a) in the interpretation (10a) if  $[_{NP} [_A \text{lele mat'ki}](&)[_A \text{p}\chi\text{ov}] \text{co}] \text{ _n}\check{\text{r}}\text{ən}\check{\text{ə}}\text{d}'$  is not well-formed as incorporation.

But, if the interpretation (10b) is possible, it is the case of a phrase incorporation.

[Q2] The semantic well-formedness condition [P5] says that incorporated terms preserve their lexical meaning. On the contrary, composition makes a semantic units which need not preserve the original meaning and can have a figurative meaning. Does this mean that there are two kinds of lexical units of the same internal structures as follows?

(12) a.  $[_{\text{WORD}} \text{X} \text{ _Y}]$  making a semantic unit  $\Rightarrow$  composition

b.  $[_{\text{WORD}} \text{X} \text{ _Y}]$  preserving meanings of X and Y  $\Rightarrow$  incorporation

[Q3] The exact rules for consonant alternation of Nivkh has not yet been established. There are some proposals; among them, the rules of Panfilov 1954 is the most detailed. But his proposal leaves yet some problems open. We will point out some of them.

(13) a. The consonant alternation rules have to explain possible allomorphs. They must indicate, first, which allomorph is the unmarked one, namely, the lexical representation, and, second, in what morpho-phonological conditions the allomorphs occur.

b. Panfilov formulated the rules as sandhi of Nivkh. But they do not explain the case (1): in



(1a), the initial consonant of the following verb *r-* changes into *t-* when an object noun precedes it (1b), but in (1a), it remains unchanged after an adverb. Is the example (1) a crucial counter argument against sandhi interpretation, or a pragmatic variant?

[Q4] The phonologically motivated allomorphs of transitive verbs in Nivkh bring out a special problem. Krejnovich 1966 showed the following paradigm:

- (14) a.            *i y d'*     (lexical form: *kill/take*)  
      b.            *i yu d'*    (transitive verb in aorist: *killed/took*)  
      c.            *co-xu-d'*    (*fish killed, fish took*)  
      d.            *co-xu-nivkh* (*man who killed/took fish*)

The paradigm shows that

- (i) “-*y-*” and “-*xu-*” are allomorphs with the meaning *kill/take*,
- (ii) *i-* in (14a,b) is exchanged with the direct complement “*co*” (*fish*) in (14c,d) and
- (iii) “-*d*” (ending of a lexical form as well as the marker of aorist) appears as the marker and can be exchanged with a noun, e.g. “*nivkh*” (man) in case of nominal modification (14d).

The prefix *i-* has allomorphs *j-* and *e-*, perhaps according to the old vowel harmony. It causes the fricativization of the initial consonant of transitive verbs, like *x- → y-*, as in the examples above. Question is, whether the prefix is really pronominal or is it possible to explain it in a different way. Shiraishi 2002 tends to regard it as prethetic, i.e. it has no morphosyntactic function, but it is only phonologically driven.

[Q5] In comparison with Chukchee, Panfilov 1954 notes that Nivkh is difficult to regard as an incorporative language because of its non-polysynthetic structure. It has no morphematic frame which includes incorporative elements into circumfixes, e.g. for agreement markers. Moreover, Nivkh is dominant in suffixation and it has no marking to indicate where an incorporative verb complex begins, if any. According to him, Nivkh is definitely an agglutinative language in all grammatical aspects, it is neither incorporative nor polysynthetic. But there are persistently the opinions that the language is something more complex. Mattisson 2001 is inclined to capture the language as polysynthetic and incorporative. In order to make this problem clear, we will observe in the next chapter how polysynthesis and incorporation interact with one another.

### 3. Polysynthesis and Incorporation

It is an empirical fact that most of polysynthetic languages utilize the morphological technique of incorporation. If the verb stem is surrounded by affixes, especially by circumfixes indicating persons and numbers, e.g. in Chukcchee, an incorporative structure is visible explicitly. However, polysynthesis is not necessarily cooccurrent with incorporation. We have at least a clear counter example against their obligatory cooccurrence.

#### 3.1. Polysynthesis of Itelmen and Ket

In the last years, there have been published two detailed grammatical descriptions of polysynthetic languages, namely, Volodin 1999 on Itelmen and Werner 1997 on Ket grammar. We cite below the polysynthetic verb frames of these languages for comparison:

(15) polysynthetic verb frame of Itelmen

-5 · -4 · -3 · -2 · -1 · <b>Root</b> · 1 · 2 · 3 · 4 · 5 · 6 · 7 · 8 · 9 · 10 · 11 · 12 · 13 · 14 · 15
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where -5: mode indicators, *t-/t'*-, *φ, n*- for indicatives and *m-, q-, q'*- for imperative, and *k-/k'-/x*- for infinitive

-4: indicator for conjunctive *k'*-

-3: reciprocal prefix *lu-/lo*-

-2: left part of anti-causative (anti-passive) circumfix *en-/an-*, *ne-*, *na-*

-1: prefix for transitivity-causation *lin-/len-, en-, ant-, t-*

#### Root

1: suffix for derivation *-te, -se/-sa, -la, -ço*

2: right part of circumfix of causative/anti-passive *-l-, -ŋ-, -w*

3: diversion-suffix *-sxen*

4: suffix for an Aktionsart *-ala*

5: suffix for an Aktionsart *-ata*

6: suffix for an Aktionsart *-zo, -t-, -st*

7: indicator for desiderative *-aV-a*

8: detransitivization (suffix) *-ʔV- φ*

9: suffix for participialization *-ʔV-I*

- 10: conjunctive indicator *-k/-ka/-ke*
- 11: infinitive indicator *-s*
- 12: aspect suffix *-qzu/-qzo/-qz/- φ*
- 13: tense suffix, *-s/-z./- φ, -al* for finite forms, *-kiIb/-ki.Ib/-kia?n/-ka.Ia?n,-ki/-ka* for infinitives
- 14: person suffix (a) *-miŋ,-wənnen,-win,-çen,-n,-sxen,-mi?ŋ,-wənnə?ŋ,-çe?n,-?n,-ne?n,-xkmiŋ* etc.
- 15: person suffix (b) *-kiçen/-keçan,-ç,-xç,-sx,-en,-wen,-we?n,-sxe?n* etc.

Of course, every element does not occur always. But in most indicative finite sentences, the mode index -5 and a person suffix 15 have to occur. In case of subject-object agreement, both person suffixes 14 and 15 occur obligatorily. The shortest sentence has a verb form with three elements, mode+root+person, e.g. *xilqaq k'-le-knen* (it became cold).

Note that the complex verb form (15) includes no position in which a incorporative elements can enter. Namely, it excludes incorporation by its nature.

Now, compare this verb frame with that of Ket. The following is the maximal model of the possible arrangement of verb constituents formulated by Werner 1997:

(16)

14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	-1	-2	-3
----	----	----	----	----	---	---	---	---	---	---	---	---	---	---	----	----	----

where 14: prefix indicating subject (obligatory), e.g. *di ta:l'*

13: root 3

12: root 2

11: derivator, e.g. *n-ŋ-*

10: prefix for causation *q-/R-*

9: prefix for indicating versions, e.g. direction, comitativity, benefactivity *ba-,bo-,...*

8: prefix indicating subject/object *ba-bo,ku-ku,...*

7: prefix for definitivity *t-,d-,...*

6: prefix indicating continuity *t-*

5: prefix for tense *a-,ç-,so/su-*

- 4: prefix for subject 2, for object/instrumental *b-/m-/p-*
- 3: prefix for aspect *n-/l-*
- 2: prefix for subject 1 *d-/t-,...*, for object 1 *d-/t-,...*, version indicator *a-,...*
- 1: prefix for imperative *d-*
- 0: root 1
- 1: suffix indicating derivation *-ŋ, -n*
- 2: plural suffix *-n*
- 3: juncture *-ka* etc.

The positions 13 and 12 in the chain (16) are prescribed for roots/stems of some nominal or verbal category. They are combined with the root/stem of the head verb 0, so that the chain  $[R_3 (13) + R_2 (12) \dots R_1 (0)]$  makes the internal verb complex of the whole verb frame (16). The verbs in the position 0 are relatively few and they have wide, often abstract meanings. They belong to the so-called function verbs whose meaning become concrete when they are combined with  $R_3 (13) + R_2 (12)$ . Krejnovich 1968 wrote in his Ket grammar that verbs in this position require incorporative counterparts  $R_3$  and  $R_2$ , so that Ket verb structure is inherently incorporative. This is especially the case with the verbs like *-t* in the example below:

- (17) **da-nan'-bet-q-(i)n-daq-et** (Werner 1997, 156)  
 14 13 12 10 3 2 0  
**she-bread-bake-CAUSE-ASPECT-us-DO**  
 (she let us bake bread)

Note that in this structure of the verb form, the incorporative elements occur in the definite positions in the chain. It is a well-known rule that a polysynthetic verb form requires a rigid ordering of internal categories. In most cases, it begins with a model and an agreement affix, then it is followed by causative, passive, aspectual, temporal markers and ends with an agreement affix indicating subject/object inflection again. But here we see that, at least in this type of polysynthesis, the incorporated element is not directly attached to the head, but it occurs discontinuously in the definite preverbal position. We do not know yet why the incorporated element stands discontinuously and how this feature is related to the functional meaning of  $R_1$  in the position 0. We suppose merely that this polysynthetic verb frame prescribes the position of incorporated elements. Otherwise, incorporation will be impossible and the possible incorporative elements must be placed outside of the verb frame.

### 3.2. Three Types of Polysynthesis

Volodin 1999 schematized the polysynthetic verb form of Itelmen as in (18a), namely, as a chain of morphemes in which a verbal root/stem R stands in the centre and is surrounded optionally by affixes with various grammatical functions. As well known, all languages of Chukoto-Kamchatka language group, Chukchee and Koryak as its representative examples, have also polysynthetic verb structure, but they are all incorporative; they include at least one incorporative element in a verb frame. Their structure of the languages looks like as (18b). We will add here the scheme of Ket of Werner 1997.

- (18) a. Itelmen: (m) + R + (m)  
 b. Chukoto-Kam. languages: (m) + (r) + R + (m)  
 c. Ket: (m) + (R<sub>3</sub>) + (R<sub>2</sub>) + ... + R<sub>1</sub> + (m)

where ( ): optional, m: morpheme(s), R: root/stem, r: second root (Volodin 1999),  
 R<sub>3</sub>, R<sub>2</sub>, R<sub>1</sub> (Werner 1997).

Volodin 1999 does not mention the internal structure of the second root r in (18b), e.g. in Chukchee. But Kurebito 1998 gives the interesting examples:

- (19) a. qora-ŋə                    gətka-mla-gʔe (=Kurebito 1998 (26a))  
           reindeer-ABS.SG leg-break-3SG.SUBJ  
 b. qor-en                    gətka-lgən    mle-gʔe (=Kurebito 1998 (26b))  
           reindeer-POSS leg-ABS.SG break-3SG.SUBJ  
           (The reindeer's leg was broken.)  
 c. epeqej                    tur-kʔeli-nni-gʔi (=Kurebito 1998 (16a))  
           grandmother(ABS.SG) new-cap-stitch-3SG.SUBJ  
           (The grandmother stitched me the new cap.)

In (19a) the noun *gətka* (*leg*) is incorporated and attached directly to the verb. But if it is modified by a possessor noun in (19b), the complex noun *qor-en gətka-lgən* (*reindeer's leg*) cannot be incorporated, but both the possessor and the head noun are “stranded out of NI”. But remarkably, the noun phrase *tur-kʔeli* (*[NP new [N cap]]*) is incorporated in (19c). This implies that Volodin's r in (18b) is not a morpheme, but it can be a syntactic constituent, except for a possessive complex noun phrase like in (19b).

Let us examine if the roots  $R_3$  and  $R_2$  in Ket can be different constituents. In the example (17), they are made of two words *nan'-bet* (*bread bake*), which constitute a verb phrase [<sub>VP</sub> complement - transitive verb], namely, a syntactic constituent. It has to be asked further, whether the R's can be separate constituents. Werner 1997 shows an example:

- (20) d-  $\Delta l'ta\eta$ - u- y- a- vet  
 14 13 12 8 5 0  
 1SG-out-drag-OBJ-DET-TENSE-MAKE  
 (I drag it out.)

Here, we have alternative interpretations: the adverb  $\Delta l'$  and the verb root *ta $\eta$*  are governed by the verb *vet* independently, or rather that they constitute an infinitive verbphrase [<sub>VPinf</sub> adverb verb]. The first interpretation says that  $R_3$  and  $R_2$  are governed by  $R_1$  separately, and the latter that  $R_3$  and  $R_2$  make a syntactic constituent which is governed by  $R_1$ . We can not determine now which interpretation is correct. We suppose that both are admissible, and we let Werner's  $R_2$  and  $R_3$  remain as they stand. Anyway, the condition is obvious in that  $R_2$  and  $R_3$  have to be governed by the head verb  $R_1$ .

### 3.3. Non-incorporative Polysynthesis

The next question is, where the syntactic component governed by the verb does occur in an incorporative and a non-incorporative polysynthetic structure. Let us compare some sentences of Itelmen and Chukchee with the same syntactic structures. The following Chukchee examples are cited from Kurebito 1998 and were translated in Itelmen by Ono Chikako together with her native friends.

- (21) a1. Chuk:  $\text{\textcircled{a}ll?a-ta}$        $\text{ine-t-ir?-\text{\textcircled{a}}-\eta-g?i}$  (=Kurebito 1998 (3a))  
 mother-INSTR(ERG) 1SG.OBJ-make-jacket-E-make-3SG.SBJ  
 (My mother made me a jacket.)  
 a2. Itel:  $\text{qoxc}$        $\text{k-ci?n\eta it'-in k\text{\textcircled{a}}mmanke}$   
 lether-jacket 1SG.DAT INF.III-stitch-3PERF 1DAT  
 (The lether-jacket (she) stitched to me)  
 b1. Chuk:  $\text{g\text{\textcircled{a}}m-nan}$      $\text{t-\text{\textcircled{a}}-m\text{\textcircled{a}}lg-\text{\textcircled{e}}jp-\text{\textcircled{a}}-g?en}$      $\text{nuterg-\text{\textcircled{a}}-n}$  (=Kurebito 1998 (36a))  
 1-ERG 1SG.SUBJ-E-grass-fill-E-3SG.OBJ hole-E-ABS.SG  
 (I filled the hole with grass.)

b2. Itel: lep̄xe mc'el k-tχnu?-in

basket rowanberry-INSTR INF.III-fill-3PERF

((She) filled the basket with rowanberry.)

These examples show that the syntactic arguments governed by the head verb are placed outside of the polysynthetic verb frame in Itelmen (21a.b), while the corresponding arguments of Chukchee are incorporated in the preverb position.

An incorporated noun is generally assumed to be indefinite. This principle holds true for the examples (19), too: inalienable possession *ḡaka* (*leg*) is incorporated (19a), but incorporation is impossible, when a possessor noun precedes it (19b). The sentences in (21) are interesting: *qoxc* (*lether jacket*) in (21a2) in Itelmen can be definite, while *ir?* (*jacket*) of Chukchee in (21a1) is indefinite. And the incorporated *m̄alg* (*grass*) in (21b1) in Chukchee is indefinite and the *nuterg* (*hole*) in absolute case definite. The relationship is perhaps true for (21b2) in Itelmem sentence, in which the definite *lep̄xc* (*basket*) precedes the indefinite *mc'el* (*rowanberry*). The question is how the quantificational difference of nouns in Itelmen is indicated, because they are all placed out of the polysynthetic frame. If the nouns exchange their position in the sentence (21b2) like (21b3) below, is the quantificationally opposite interpretation really possible?

(21) b3. Itel: mc'el lep̄xe k-tχnu?-in

(With rowanberry (she) filled a basket)?

The quantificational difference of the nouns in Itelmen are represented perhaps by some syntactic and even suprasegmental devices. But we do not know yet how it is done. This belongs to open questions which must be investigated further.

#### 4. Notion of Incorporation

We have seen in the preceding chapter that a polysynthetic structure does not necessarily involve incorporation. Polysynthesis and incorporation seem to belong to different dimensions of morphosyntactic techniques which particular languages make use of for establishing their own grammatical architectures. In this chapter, we will discuss some theoretical issues on this matter in order to make clear what is incorporation. The key point is that both incorporation and polysynthesis are the grammatical techniques to articulate (< Lat. *articulus* (*joint*)) morphemes into various linguistic units. In this sense, they are related to another technique of articulation, namely, composition as Sapir 1916 and 1921 mentioned.

#### 4.1. Two Techniques of Articulation

The technique of articulation consists of two operations: one of them should be called "technique of synthesis" as proposed by Sapir 1921 and the other "technique for word formation". The first technique is used to correlate linguistic forms with notions. It determines what type of formal units represents a semantic unit. The second technique works for word formation. It operates to determine how free forms are composed.

##### 4.1.1. Affixation as Synthetic Technique

As Sapir 1921 notes, this technique of linguistic representation brings about a variety of linguistic types. If a single morpheme corresponds to a lexical or grammatical meaning, we call the procedure an analytic representation, and if not, a synthetic. When a single notion is represented with many morphemes, especially with discontinuous ones, it is often called polysynthetic. There is, in general, no clear-cut boundary to distinguish polysynthesis from synthesis, but a possible feature of polysynthesis is the utilization of circumfixes.

Itelmen does not include the direct complement of a verb into the polysynthetic verb frame, but represents it consistently in an analytical way. On the contrary, Chukchee includes it into a verb frame prefixing it directly to the head verb. Comparing the polysynthetic verb frames of Ket and Itelmen, they are common in that grammatical categories are placed in definite positions as affixes. But lexical categories are dealt with differently. Ket treats them as affixes, placing them in the positions  $R_3$  and  $R_2$  in the same way as other grammatical categories like causative marker, etc. On the contrary, Itelmen affixes a set of grammatical categories and arranges them around the verb stem, too, but it extraposes the complement out of it, not as an affix, but as a syntactic unit.

Note that in synthetic and polysynthetic structures, lexical as well as grammatical categories are all affixed. This procedure of affixation is the necessary condition for synthesis and incorporating, namely, for the grammatical procedure to include lexical and grammatical categories into a verb frame.

Let us make a sketch on the types of synthetic technique:

##### (22) Technique of Synthesis

- a. **analytic:** lexical and grammatical categories correspond with independent morphemes which are concatenated together to make up a verb(-complex).
- b. **synthetic:** lexical and grammatical categories are affixed to a verb.
- c. **polysynthetic:**
  1. **non-incorporative:** no lexical categories involved in a verb frame, while grammatical categories are affixed to the verb.



## 2. incorporative

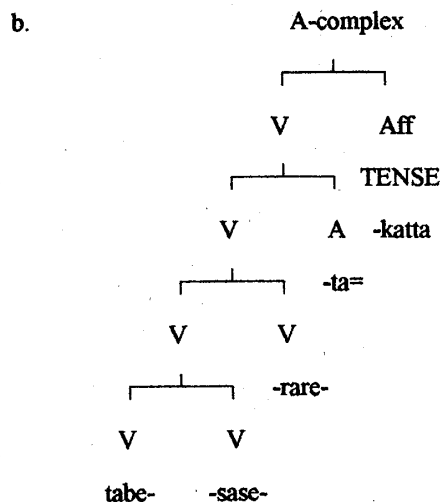
2.1. **simple incorporative**: one affixed lexical category is involved in a verb frame.

2.2. **complex incorporative**: more affixed lexical categories and/or constituents of a verb phrase are involved in a verb frame.

### 4.1.2. Technique of Word Formation

For the technique of word formation, Sapir 1921 distinguished three different operations: isolating, agglutinative and fusional ones. But the word formation techniques do not necessarily correspond to language types. A language utilizes them simultaneously. In order to see how they work, let us take an example from agglutinative verb complex of Japanese:

- (23) a. [<sub>A</sub> [<sub>V</sub> tabe]-[<sub>V</sub> sase]-[<sub>V</sub> rare]-[<sub>A</sub> ta=katta]]  
east- CAUSE- PASS- OPT=PAST  
(wished to be made to east)



The lexical head of the complex is the verb-stem [<sub>V</sub> tabe-], while the morphological feature of the whole complex is determined by the affix [<sub>A</sub> ta=katta]. Therefore, the complex word as a whole is an adjective because of its adjectival inflexion. The lexical head stands in the leftmost, but the morphological index in the rightmost position. The agglutinative verb complex of Japanese is subject to the recursive formation rule (24), where V stands for three morphological categories: verbs, adjective and adjectival verbs which we call a “verbal”:

(24) a.  $V = [{}_V V + V]$

b. V= verbals

An agglutinative structure has some problems to solve. For example, we do not know yet precisely how converbs (Russian "depricastic", Japanese *-te* form etc.) are treated in a verbal complex.

Any way, in an agglutinative structure, the representation of lexical and grammatical meaning is analytical in a large extent and the units of concatenation appear in bound forms, most of which are affixes or affixed categories. The concatenation is schematized as follows:

(25)  $[_{\text{WORD}} (\text{affix}) \dots \text{lexical head} \dots (\text{affix})]$

This is, in some sense, similar to the pattern of non-incorporative polysynthetic structure of Itelmen Volodin showed as (18a).

The third technique of concatenation, fusion, is characterized by the alternation of phonological segments within a word, just as we see an internal inflection of some European languages. In "Paleoasiatic" language, the technique is widely utilized to indicate the change of the grammatical functions of words. When a paradigm of segmental units (26b) appears in an (poly-)synthetic structure in (26a), it motivates to change grammatical functions like (26c):

(26) a.  $[(m) + \dots X \dots R \dots Y \dots + (m)]$

b. X and Y are the paradigms for grammatical units independently or together.

c.  $\{a \text{ free form} \Leftrightarrow a \text{ bound form}\}, \{N \Leftrightarrow V\}, \{\text{transitive} \Leftrightarrow \text{intransitive}\}, \dots$

A fusional word has morpho-phonological allomorphs with various grammatical functions, so that they constitutes a paradigm. If such a paradigm occur in a (poly-)synthetic structure, the language has the typological feature: (poly-)synthetic and fusional at the same time. Ket is characterized, therefore, as fusional, polysynthetic and incorporative.

The types of technique of articulation Sapir 1921 envisaged are indispensable to think about the typological aspects of languages, especially that of paleoasiatic and American languages. A question is now at stake: is a grammatical procedure of incorporation one of the techniques of concatenation? If yes, does it belong to that of synthesis or of word formation? So far, one thing is clear: incorporation affixes syntactic elements governed by the head verb and attaches to it, making a compositional word.



Baker's theory of incorporation includes all sorts of grammatical categories of the type

$[_V X^0 + V^0]$  in the notion of incorporation. It arises at least three questions:

- (i) Is an incorporation applied only to verbs? In other words, is there no incorporation which creates nominal or adjectival complex such as  $[_N X^0 + N^0] / [_A X^0 + A^0]$ ?
- (ii) Is the incorporated element  $X^0$  only a stem? In other words, has e.g. a converb construction like  $[_V V\text{-stem=affix} + V^0]$  to be excluded? If yes, then all sorts of participle constructions are excluded from this grammatical notion.
- (iii) Can all sorts of compound verbs have to be taken as incorporative? In other words, is it plausible to differentiate compound from incorporated verbs only by means of the visibility of a syntactic relationship?

b. head movement only?

The transformed element  $X^0$  in  $[_V X^0 + V^0]$  is, according to him, only a lexical head. However, as we see in Chukchee (see (19c)), there is a clear case of incorporation of a phrase. The following is the famous example from Ainu:

(29) a. wakka korachi notaku een poro mukar a-e-shi-sempir-ani. (CHIRI Mashiho 1937, p.619)

b. wakka korachi notaku een poro mukar shi sempir ta a-ani.

'water like the blade sharp big ax self behind LOC 1/4P-hold'

c. e: wakka korachi notaku een poro mukar

Here, the incorporative construction (29a) corresponds to the non-incorporative sentence (29b), where "e" refers to the nominal phrase (29c). In this example the object complement and the locative are incorporated between person affix "a-" and verb "ani" (have).

Baker's restriction to  $X^0$  is apparently too strict. It must be enlarged to a phrasal construct. Of course, the visibility condition or rather its semantic variant has to be guaranteed in such a case, too.

(28) c. universal D-structure?

Baker 1988 remained in the general framework of GB, so that it must be taken for granted that he bases on the assumption that the derivation of incorporation works on a unified configuration of "D-structure". It is made up of the general formation rules of X-bar-syntax with functional notions such as INFL, CP, VP and a set of grammatical procedures and restrictions which were

generally available at that time. The transformation Move- $\alpha$  operates on the hierarchical configuration of grammatical functions which he supposes to be applicable to any language regardless of the typological differences, something very near to a universal configuration which the S-structure of particular languages is derived from.

#### **4.2.2. Polysynthesis Parameter**

Eight years after Baker 1988, namely, in 1996, Baker integrated his incorporation theory into the more comprehensive analysis of polysynthesis. He stands now on the new stage of generative theory proposed by Chomsky 1995, i.e. Minimalist Program. Therefore, the names like "D-structure", ECP and other old theoretical notions disappeared in this new book. However, the idea of the transformational derivation of incorporation remains in essence, but with a new disguise that it works as a typological parameter applied on Universal Grammar to actualize particular types of languages. He proposed a macroparameter Morphological Visibility Condition (MVC) which is formulated as below (from p. 496):

- (30) A phrase X is visible for  $\theta$ -role assignment from a head Y only if it is coindexed with a morpheme in the word containing Y via
- (i) an agreement relationship, or
  - (ii) a movement relationship.

This goes back to his basic idea which can be characterized by the following features:

- (31) a. For the derivation of polysynthetic languages from UG, they must be filtered out by the morphosyntactic condition MVC.
- b. A polysynthetic word contains an element which has to satisfy the syntactic condition (i) or (ii) of MVC.
- c. The conditions are formulated with configurational syntactic structure traditionally utilized for the representation of D-structure, which, he seems to think, is yet valid for the interpretation of the phenomena.
- d. The incorporated element in a polysynthetic word must be coindexed with an argument in the "underlying" configurational pattern. The idea about the transformational derivation remains after that a universal configuration had "died out".

There are a lot of problems to be discussed further about his hypothesis. But we mention here only the followings:

- (32) a. If we take it for granted that the underlying structure is formulated something like he shows, there must be yet another intermediate macroparameter specifically for the representation of non-configurational languages. For, in order to operate the syntactic procedure of movement and coindexing, some different conditions are necessary than those for the configurational languages. It is, therefore, plausible to suppose a macroparameter for configurationality which is applied before the polysynthetic.
- b. Baker mentioned in many places that noun incorporation is obligatory in polysynthetic languages, but it is forbidden in all others (e.g. p.330). His MVC presupposes this idea, too. If so, he has to explain the existence of the counter example like Itelmen which rejects noun incorporation.
- c. His analysis of verb incorporation is insufficient, because it does not explain many cases of converb constructions. Also his formulation "morphological causative is limited in the polysynthetic lanugages" (p.372) is not correct. Any way, this part of grammar requires especially further investigation (see Haspelmath 1995).

Summing up so far, the syntactic derivation of incorporation is surely an attractive interpretation, especially because it can clarify the hidden syntactic relationship of the incorporated elements in its polysynthetic circumstance. But Baker's analysis presupposes a universal configuration from which a word forming morpheme is taken out by means of Move- $\alpha$ .

The simple cases of incorporation is that of an indefinite unmarked lexical category as Baker assumes. But we have more complex cases in which a phrasal construction is incorporated as in the examples of Chukchee (19c) and Ainu (29a). As Sato Tomomi in the ELPR-Conference in (2002. July 13.) mentioned, Ainu, as a rule, incorporates the long/possessive form of a noun, namely, not only a lexical category, but also an affixed category and a phrasal element.

A polysynthetic language Itelmen shows that polysynthesis does not necessarily prescribe incorporation. Of course, in a polysynthetic verb frame, we can easily recognize an incorporated element because of its occurrence within circumfixes. But because of this counter example, we must suppose that incorporation is a different grammatical technique from polysynthesis.

## 5. Typologically Relevant Oppositions

In the discussion above, we have found some keywords crucial for the further investigation of our problems about incorporation and polysynthesis. In this chapter, we thematize them again in form of the following three sets of oppositions.

### 5.1. Nouns versus Verbs

In the discussion on Nivkh incorporation, Krejnovich showed the assumption that nominal modification as well as direct complement structures are so tight a concatenation of morphemes as case marking, so that there exist not only noun-to-verb incorporation [<sub>V</sub> N+V<sup>0</sup>], but also noun-to-noun incorporation [<sub>N</sub> N+N<sup>0</sup>].

In the discussion of our internal seminars, Nakagawa Hiroshi mentioned once that deverbal nouns have wider possibility for nominal composition than the original verbs. Let us observe the following nominal compounds of Japanese:

(33) a. (o-)te-ara\_i (=toilet)

(POLITE-) hand-wash\_NOMINALIZATION

b. te-ara\_i (=hand-washing)

c. te-ara\_i (=manual washing)

d. kikai-ara\_i (= washing with a machine or washing of machine-OBJECT )

“\_” indicates here compositinal concatenation of morphemes.

Not that the corresponding verbal expressions are impossible for both the ambiguous cases in which the prefixed elements *te-* and *kikai-* appear as object or instrumental of the verb *araw-*:

(34) a. \*te-ara\_u (=manual washing, or hand-washing)

b. \*kikai-ara\_u (= washing with machine, or washing of machine)

It follows from this comparison that, as far as this type of expressions is concerned, the verbal compounds are not possible, while nominal compound of deverbal nouns has a wide possibilities of compounding like (33) and further *bubun-arai* (=partial washing), *kinubukin-arai* (=washing with silk cloth), etc. It follows, therefore, that the nominal compounds of the type (33) are constructed only after the nominalization *araw-* to *ara\_i* was once established. Moreover, nominal composition is neither subject to the syntactic conditions like MVC, nor necessary to preserve the inherent meaning of the components.

Krejnovich supposed that incorporation is found in both nominal and verbal structures in Nivkh. But note that the expressions (14c) and (14d) share no grammatical parallelism: in (14c), the head is *-xu-* (kill) to which the object *co-* (fish), say, incorporated, while the head of (14d) is the noun *nivkh* (man) which follows the modifier *co-xu-*, making a nominal phrase. In this noun phrase, we see no matter of incorporation, but only an adnominal verb phrase with a complex stem. From this, we can conclude merely that the incorporated verb stem is the adnominal modifier of the noun. Therefore, the nominal expression (14d) has nothing to do with incorporation. Krejnovich made a mistake about the structural description. But we claim further that there exist no incorporative nouns, but all cases he supposed to be incorporation are merely nominal composition.

## 5.2. Polysynthesis versus Agglutination

The agglutinative concatenation of Japanese verbs like (23) is made up with the word formation rule:

$$(35) Y = [\text{WORD } Y - X]$$

where Y is a lexical head and X an affixed category including affixes for inflectional category.

In case of (23), the initial Y is a verb stem *tabe-* and the last X is past tense affix of an adjective *-katta*, so that the whole Y is a complex adjective. The category X is an affix, inherent or derived one. It can be a relatively independent lexical category which Hattori Shiro 1950 called *huzoku-go*, a bound word.

The rule (35) is applied recursively, so that an agglutinative word can make often a long chain of morphemes. Agglutinative languages have a general tendency to prefer suffixation, therefore, right-ward concatenations appear in the majority of this type of languages. But prefixation is not excluded. A reverse notation of (35) is useful for the case as follows:

$$(36) Y = [\text{WORD } X - Y]$$

An agglutinative language makes use of both the rules (35) and (36) often simultaneously. But it uses no circumfix, i.e. no obligatory combination of pre- and suffix representing a single meaning. The analyticity of X is a salient and necessary condition for making an agglutinative word:

$$(36) \text{ a. } Y = [\text{WORD } Y - X] / [\text{WORD } X - Y]$$

b. X: an analytic affix



Polysynthesis is, on the contrary, free from the condition (36b). Polysynthetic affixes can be analytic, or often discontinuous. The “fusion” of Sapir 1921 means, in a normal sense, a phonological alternation within a word. But fusion and circumfix share a common grammatical feature in that they are not analytic, but synthetic and possibly discontinuous. We can, therefore, combine the notions as follows:

- (37) a.  $Y = [_{\text{WORD}} Y - X] / [_{\text{WORD}} X - Y] / [_{\text{WORD}} x1 \dots Y \dots x2]$ ,  
 b.  $X/x1 \dots x2$ : analytic, fusional and/or discontinuous,  
 where  $x1 \dots x2$  is a circumfix.

Both the grammatical techniques agglutination and polysynthesis make a long complex word by means of affixation. But the difference lies in that agglutination utilizes merely analytic affixes but polysynthesis not only analytic, but also synthetic and discontinuous ones. In Chapter 3, we observed that a polysynthetic verb frame consists of a set of ordered positions for lexical and grammatical categories which are represented by affixes including circumfixes. Obviously, this is the salient feature for polysynthetic structures in general.

### 5.3. Incorporation versus Composition

Incorporation and composition are not mutually exclusive, rather partially inclusive. Recall the discussion of Nivkh incorporation. Krejnovich's supposition that noun-to-noun-incorporation is false, and Panfilov was right in criticizing him. However, we do not know yet exactly under what grammatical conditions nominal composition is possible. Maybe, a semantic compatibility between the components is the least condition for successful composition in a general sense, but it is yet an open question how it is grammatically formulated. But one thing is clear that a derivational interpretation of nominal composition runs in a wrong way because it brings us inevitably to the presupposition of an “underlying” configuration just like Baker's.

Verbal categories work in a different way. First, no doubt there are various types of compound verbs. The affixed element  $X^0$  in  $[_V X^0 + V^0]$  varies on lexical categories from noun to preposition. But a question arises if  $X^0$  is a pronoun or a clitic. Its syntactic relationship with the coindexed argument is explicitly visible in case of Ainu (29), this is not the case of Nivkh (14). Here we have an open question, too. Any way, as the compositional frame  $[_V X^0 + V^0]$  is recursively applicable, the affixed element  $X^0$  can be multiplied. So, a long compound verb can be made just as nominal composition.

Recall the case of Ainu (29) again: the affixed element is no more a single lexical category, but explicitly a part of a verb phrase with a clitic. The compositional frame  $[_V X^0 + V^0]$  is no more applicable because the affixed element is not a lexical category  $X^0$ . Moreover, here works a certain semantic guarantee between the

affixed element and the head to reflect the syntactic relationship between them, satisfying something like Baker's MVC. The case (29) is a clear case of verbal incorporation which involves a phrase. Can we follow from this that incorporation arises, if a phrase is involved? But there remains yet doubt if we can draw a border-line between incorporation and composition by way of the distinction whether it is a single lexical unit or a phrase, namely,  $X^0$  or XP. Surely, the attachment of  $X^0$  is a necessary condition for composition, but not a sufficient one. And incorporation involves a lexical unit, too. In both cases, a semantic relationship among the component must be visible in any way. Therefore, we can not yet bring about any well-motivated counter-argument against the lexicalist view of Sapir 1916 (p. 42):

(38) "Hence noun incorporation is but a particular case of verb composition, using that term in this widest sense, and the objective noun incorporation but a particular syntactic use of a larger process."

This lexicalist view is correct in any way, because nominal as well as verbal composition do exist in any language. But we find rich examples in Ainu and Chukchee which involve affixed phrases XP. And the structure is productive, i.e. in these languages, it is used frequently varying the components according to the syntactic circumstances. The lexicalist view has to be revised in order to take this fact into account. We sum up the crucial features for incorporative structures:

- (39) a. The structure concerned reflects the syntactic relationship between the affixed elements and the verbal head.
- b. The affixed elements can be a phrase which is governed by the verbal head.
- c. The affixation to the verbal head is productive.

Let us regard the morphosyntactic structure satisfying these features as incorporation and distinguish it from simple verbal composition. We suppose the binary existence of the verbal categories, incorporation as well as composition. On the contrary, for nominal categories, we recognize merely composition. We call our view the weak lexicalist one, in opposition to the fully lexicalist view of Sapir 1916 (38) above.

Recall again Baker's derivational interpretation of incorporation. It suffers at least from two shortages: first, his MVC filters neither verbal composition nor agglutinative concatenation. It can not distinguish incorporation from composition, too. Second, his incorporation is confined merely to affixes of  $X^0$ . This veils over the distinction between composition and incorporation.

Summing up so far, we have the following scheme:

(40)

structure	incorporation	composition	criterion	productivity	view
$[\text{WORD-X+ N}]$	×	○	semantic compatibility	no synt. restriction	+lexicalist
$[\text{WORD-X+V}],$ $X=X^0$	○	○	semantic or syntactic relationship	functionally restricted	± lexicalist
$[\text{WORD-X+V}],$ $X=XP$	○	×	syntactic relationship	syntactically restricted	-lexicalist

Typologically observed, the use of nominal composition is wide spread and they are productive. And the verbal composition is also popular. But the distinction of incorporation from composition lies in that the verbal affixes of incorporative structures reflect their syntactic relationship to the head and the incorporated elements are governed by the head verb.

An affixed phrase XP is not found everywhere. As we see the contrast (29a) to (29b) in Ainu examples, the speaker decides whether he represents the notion (29c) in the verb frame or extraposes it outside of it. The decision is made perhaps from his aesthetic taste, and surely, it does not come from a certain grammatical compulsion of this language. On the contrary, he has an option to choose one of the grammatical devices, incorporation or extraposition which this language provides with freely to utilize. This grammatical feature characterizes the architecture of the language Ainu; in other words, it has such a mathematical (=formal-aesthetic) ingenuity to represent the same matter with a different nuance.

## 6. Conclusion

We have begun the discussion with a question whether the language Nivkh is incorporative or agglutinative. The question arose already in the organized discussion of the Soviet Academy, but ended practically with no theoretical conclusion. There remained, however, a lot of open questions which cast light to the structure of the so-called Paleosianic languages. We have seen above, first, that, in spite of the apparent criterion of consonant alternation, the incorporative characteristics have not been proved in Nivkh. But there is also no persuasive conclusion that the indefinite object complement is not incorporative as in the examples (2c) and (7). Therefore, a restricted use of incorporation is not excluded in this language. This is in relation to the problem of the prefixed *i-*, *e-*, *j-* and fricative initials of intransitive verbs. For this matter and further, we will have to talk about the vestiges of the old stages of this language.

The question whether Nivkh belongs to polysynthetic languages has been often talked about, too. The incorporative interpretation of the language seems to help this view. But we have seen in Chapter 3 that polysynthesis and incorporation are not obligatorily coexistent; they rather belong to different grammatical

techniques languages utilize for the concatenation of affixed elements. The polysynthetic frame of Itelmen shows a clear counter-example against the assertion e.g. of Baker's 1996.

The grammatical techniques composition utilizes for word formation to make a string  $Y = [{}_{\text{WORD}} X+Y]$ . This rule affixes category X and attaches to Y making up a word Y. Crucial is that it makes use of the grammatical technique of affixization. The element which comes into the position X must be changed into an affix and attached to Y. If Y is a noun, the string makes a nominal composition. But Y is verbal, the difference arises: first, if X is limited to a lexical category, namely  $X=X^0$ , a compound verb is made. In this case, it is ambiguous whether Y is a verbal composition or it is interpreted as incorporation. The latter case requires the condition that it reflects a syntactic relationship between X and Y and the structure must be productive. But if X is a phrase governed by Y, the word Y is clearly incorporative. X is often an objective complement or a phrase directly governed by the verbal head. It is often included in a polysynthetic verb frame. However, recall Sapir 1916 and capture the composition in the widest sense. We must conclude that incorporation is a grammatical technique which utilizes another grammatical technique, composition, so as to construct a compound verb which reflects a certain syntactic relationship.

For the distinction of polysynthesis from incorporation/composition, we have a crucial feature to note. A polysynthetic verb frame consists of verbal categories like agreement, causative, passive, aspect, tense etc., which are all external categories of a VP, namely, the categories of IP (I=INFL). On the contrary, incorporation and, of course, composition, too, involve grammatical categories of a VP only. But both polysynthesis and incorporation/composition have the grammatical task in common: they work to make up a complex word with many grammatical and lexical categories in itself. Incorporation fertilizes a verb with affixed categories of VP, and polysynthesis expands it into an IP-frame.

Now, let us try to answer the question of the title "why incorporation?" If a language has a mathematical taste for its grammatical architecture to decorate a verb with categories of VP, she makes use of the grammatical technique of composition and incorporation. And if she wants to dress up a verb further with categories of IP, she utilizes the synthetic technique to construct a brilliant polysynthetic word.

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