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Course title: *Word in polysynthesis*

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Lecture 1. **"Polysynthetic word in Ainu"**. September 2, 2017

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Road Map

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- Polysynthetic word in Ainu: Overview
- Pronominal marking of subject and object
- Noun Incorporation
- Many potential 'slots', but few obligatory

- Polysynthesis: A new definition (Nichols, forthc.)
- Head-marking vs. Dependent-marking lgs
- Polysynthesis as *open head marking* (Nichols, forthc.)
- "New" vs. "old" polysynthesis (Fortescue 2013)
- Polysynthetic word in Ainu: Salient characteristics

Word in Polysynthesis: Definitions

- What is a 'word'?

Word is a 'minimal free form' (Bloomfield 1933: 178).

Is contrasted with

morpheme which is a 'minimal meaningful unit', and

syntagma (=phrase) consisting potentially of more than one word.

This a **syntactic** notion of 'word'.

Word in Polysynthesis: Definitions

- What is a 'word'?

  Word is not a unified construct throughout grammar, but is rather characterized as syntactic, phonological & morphological domains within which rules of different grammatical components may apply (Lyons 1968), (Anderson 1985), Zwicky (1990), (Dai 1990, 1997: 103).

  Syntactic, *phonological*, and *morphological* words

  do not necessarily converge even within one lg and vary a lot across different lgs (Zwicky & Pullum 1983), (Bresnan & Mchombo 1995), (Dixon & Aikhenvald 2002), (Bickel et al. 2007) , (van Gijn & Zúñiga 2014).

- And polysyn. lgs operate even less with unified units of type 'word' in either phonology or syntax as shown in Balthasar Bickel & Fernando Zúñiga (forthc) who developed a system of variables that allows cataloguing all verb-based domains and then determining any potential convergence of domains in an empirical way (case studies: Mapudungung and Chintang).

Word in Polysynthesis: Definitions

- What is 'polysynthesis'?

  'Extreme morphological complexity in the verb' (OUP, to appear).

- Goes back to Duponceau (1819) who defined a polysynthetic construction as one 'in which the greatest number of ideas are comprised in the least number of words.'
- A similar category was integrated into the growing framework of morphological typology by Humboldt in a work published between 1827 and 1829 (1988), but under the term *einverleibend* 'incorporating' referring to the incorporation into words of various elements whose meanings would be expressed in separate words in more analytic languages.

  See more details on the history of 'polysynthesis' in Lander (2011) (in Russian).

Word in Polysynthesis: Definitions

- What is a 'polysynthetic word'?

  A polysynthetic word (=a single complex verb) can express what takes a whole sentence in most other languages.

(1) *ko*$_1$-*kiraw*$_2$-*si*$_3$-*ka*$_4$-*oma*$_5$-*re*$_6$
to/for.APPL-antler-REFL-top-enter-CAUS
'He (=the deer) drew$_{5,6}$ his antlers$_2$ back$_5$ over$_4$ his body$_3$ for$_1$ it (the grass).' (Kubodera 1977: 562)

- This Ainu sentence consists of only 1 word, while its English translation consists of 10 words.

Word in Polysynthesis: Definitions

- What is 'polysynthesis'?

  Quantitative approach: morpheme-per-word counts.

  Polysyn. lgs: 3 morphemes-per-word or more (Greenberg 1960).

  Q: Is Japanese a polysynthetic language?

  ika$_1$-se$_2$-ta$_3$-gari$_4$-hazime$_5$-yasu$_6$-soo$_7$[-]dat$_8$-ta$_9$ Japanese

  '(It) seem$_7$ed$_{8,\ 9}$ (that it) looked$_4$ (as if) (he would) easily$_6$ start$_5$ wanting$_3$ (to) let/make$_2$ (him) go$_1$' (Miyaoka 2002: 60-61)

  A: Probably not.

  High degree of agglutination does not automatically make a language 'polysynthetic'.

Word in Polysynthesis: Definitions

- What is 'polysynthesis'?

  Qualitative approach: polyindexation plus noun incorporation (or other bound lexical formatives).

- "A prototypical polysynthetic language is one in which it is possible, in a single word, to use *information about both the predicate and all its arguments*, for all major clause types."

  = **holophrasis** (Evans & Sasse 2002: 3)

- The Polysynthesis Parameter (or the Morphological Visibility Condition (MVC)): "*Every argument* of a head element *must be related to a morpheme* in the word containing that head." (Baker 1996: 14)

Word in Polysynthesis: Definitions

- What is ‘polysynthesis’?

  Qualitative approach: polyindexation plus noun incorporation (or other bound lexical formatives).

- “To qualify as core polysynthetic, a language is expected to display **holophrasis**, i.e. the predicate must bear **pronominal marking** for all of its arguments and allow more than one **lexically ‘heavy’ morpheme**, which at least historically originated in an independent word and involved such processes as noun incorporation or verbal compounding” (OUP volume, Fortescue et al., to appear in September 2017).

Word in Polysynthesis: Definitions

- What is 'polysynthesis'?

  Qualitative approach: polyindexation plus noun incorporation (or other bound lexical formatives).

- **Problems of polysyn:** What's the status of external argument NPs?

  "Pronominal [verbal indexation] argument hypothesis" (Jelinek 1984)

  "In a polysynthetic language …nouns are not arguments and possibly not clause constituents of any kind, but simply *appositives* that lexically specify or qualify the actual arguments, which are on the verb (Boas, Jelinek, Van Valin, Kibrik, and many others)." (Nichols, to appear)

- Non-hierarchical relations between the verb and external arg. NPs, 'shallow' or 'nonconfigurational' syntax?

Word in Polysynthesis: Definitions

- According to these definitions, Ainu is a prototypical polysynthetic language.

(2) *usa-oruspe* *a-e-yay-ko-tuyma-si-ram-**suy-pa***

various-rumor 1PL.INC-about.APPL-REFL-to.APPL-far-REFL-heart-sway-PL

+1 -1 +1 0 -1 +2

(lit.) 'We keep swaying our hearts afar and toward ourselves over various rumors.' = 'We wonder about various rumors.'

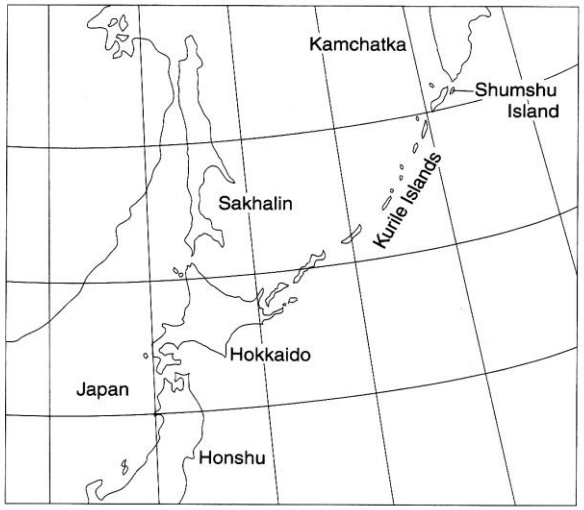
(Chiri 1974 (1936): 169)

※ -/+ indicate *Arity Calculation* as suggested in Nakagawa (1993), i.e. a calculation of the total valency value of the verb based on counting valency of each morpheme.

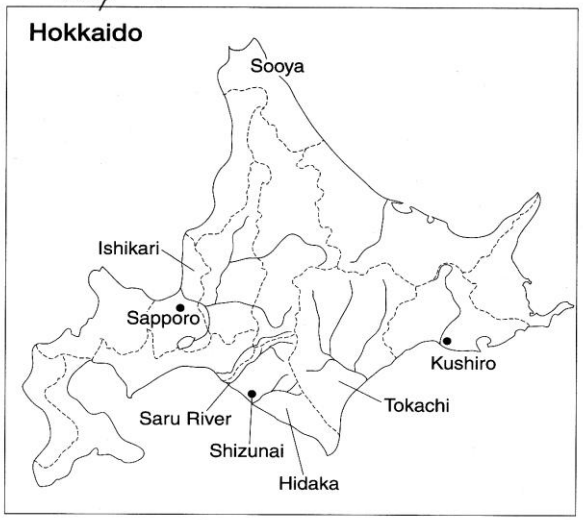
Ainu and the Ainu: Background

- AINU (isolate, almost extinct) is the only non-Japonic lang. of Japan.
- Hokkaido (**HA**),Sakhalin (**SA**) & Kuril groups of dialects.
- Was spoken in Northern Honshu Island (Tōhoku) till mid XVIII.
- Hokkaido Ainu dialects: SW & NE; Sakhalin Ainu: West and East coast.
- Is not used in daily conversation since the 1950s; Ethnical Ainu: 100,000.
- DATA: mostly from HA (SW) dial. of Saru and Chitose; my own fieldwork etc.

Map 1.

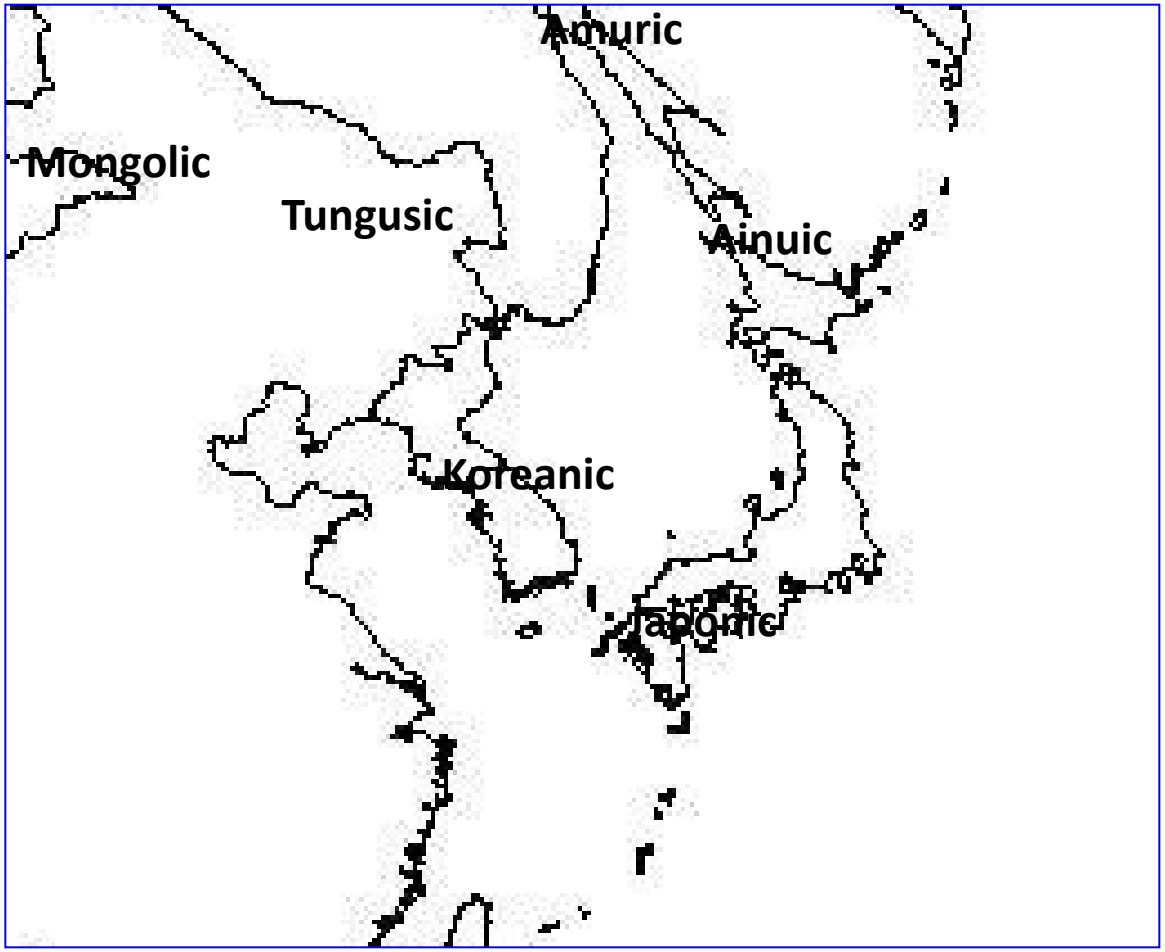


Map 2.



(adapted from Tamura 2000)

Fig. 1 Major language families in Northeast Asia (excluding Sinitic)



Preview: Ainu shares only few features with **Northeast Asian** languages and
"Is more like a morphologically reduced version of
a **North American** lang." (Johanna Nichols p.c.)

Ainu and the Ainu: Background

Physical appearance: different from other NA populations.

Traditional lifestyle: fishing, hunting, gathering, and trading with the Japanese.

The Ainu are direct descendants of the Neolithic population of the Jōmon Culture which existed in Japan in 14,000-300 BCE.

"The Ainu represent **a deep branch of East Asian diversity more basal than all present-day East Asian farmers**" and they can be traced back to **an early split from mainland Asian populations**, jointly with one of the earliest **American** founder populations (Jeong et al. 2016: 261).

- Ainu is the only surviving Jōmon language.
- Cf. Japanese is the language of the Yayoi (Iron Age) rice agriculturalists who had started migrating from the Korean Peninsular around 950 BC and eventually absorbed all Jōmon lgs, except Ainu.

Ainu and the Ainu: Background

- Agglutinating, polysynthetic, and incorporating.
- More prefixing than suffixing.
- SOV. Predominantly head-marking.
- Mixed alignment: nom.-acc., tripartite, and neut. (on the verb) .
- No case-maring on arguments (A/S/O).
- Adjuncts are marked by case postpositions.
- Verbal plurality: some verbs employ diff. stems/suff. for SG & PL.
- All intransitive verbs without personal marking can function as nouns, e.g. *uwepeker* i. 'to tell a folktale', ii. 'a folktale'.
- "Adjectives" are a sub-class of intransitives.
- Ainu lacks any kind of special subordinate morphology on verbs.
- A number of aspectual, modal, and evid. markers, but no tense.
- Extensive voice system.

Polysynthsis in Ainu: Overview

- Polysynthesis is not a homogeneous phenomenon.
- Fortescue (1994: 2601) lists 9 traits that tend to cluster in polysyn. lgs; all of them are present to a lesser or greater degree in Ainu.

a. noun stem incorporation +++

b. a large inventory of bound morph.and a limited stock of independent stems ++

c. word-formation processes: shifts back and forth from noun to verb +

d. pronominal marking of subj. and obj. ++

e. integration of locational, instrumental and other adverbial elements [appl.?] into the verb +++

f. many potential 'slots', relat. few of them obligatory ++

g. productive morphophonemic processes (allomorphs) +

h. nonconfigurational syntax (relatively free word order) +

i. head- (or double) marking type of inflection +++

※ Degree: high: +++, medium: ++, low: +

Polysynthsis in Ainu: Overview

- I'll focus on the following 3 traits of Fortescue (1994: 2601) which seem to be central for polysynthesis in Ainu, see Bugaeva (forthc.):

  - pronominal marking of subjects and objects ++
  - many potential 'slots', few of them obligatory +++
  - noun stem incorporation +++

※ Degree: high: +++, medium: ++, low: +

Pronominal marking of subject and object

- The verb is obligatorily marked for the pers. & number of S/A/O. 3rd person is zero. Alignment is mixed (nom-acc, tripartite, neut.).
- 4th person is a label for a number of related functions: indefinite, 1PL.INC, 2SG/PL honorific, '1st pers. in quotation' (logophor).
- **Table 1. *Person-number marking in SW Ainu* (A=trans. subj, S=intr subj, O=obj)**

	A/S/O pronouns	A markers	S markers	O markers
1SG	***káni*** 'I'	***ku-***	***ku-***	***en-***
1PL.EXC	***cóka*** 'we (I and he/she/them)'	***ci-***	***-as***	***un-***
2SG	***eani*** 'you.SG'	***e-***	***e-***	***e-***
2PL	***ecioká*** 'you.PL'	***eci-***	***eci-***	***eci-***
3SG	***sinuma*** 'he/she'	***Ø***	***Ø***	***Ø***
3PL	***oka*** 'they'	***Ø***	***Ø***	***Ø***
4SG/PL	(***aoka***)	***a-***	***-an***	***i-***

Pronominal marking of subject and object

- Oblig. indexing: pers mrks for the subj &obj on verbs; 3rd p. is zero.
- Arguments are not marked for case. (Adjuncts are mrkd by case postpos.)

(3) ***eani*** *iyotta* ***e-*** *pon…*

2SG(you) extremely 2SG.S-be.small

'You are the very youngest.' (K8109193UP.148)

- Independent pronouns are norm. not used. Used only for emphasis.

(4) *na* ***e-****pon* *kusu*

yet 2SG.S- be.small because

'You are still young.' (K8109193UP.148)

- But, person mrks on verbs cannot be omitted because if we do we will end up with the 3rd person subj/obj interpretation as in (1).

Pronominal marking of subject and object

- Subj. markers preceed obj. markers.

(5) ***eci-en-****hotuyekar* *yak* *pirka* *p*

2PL.A- 1SG.O- call if be.good but

'You(PL) may have called out to me.' (Tamura 1984: 36)

- But, having both subj. and obj. mrks on the verb is rare since

i. 3rd pers is zero;

ii. "1st pers subj + 2nd pers object" trigger a different (hierarchical) alignment ***eci-*** (originally 2PL.A/S/O).

(6) ***eci-****nukar*

1SG/PL.EXC.A+2SG/PL.O-see 'I/we see you/you(pl).'

or 'You (pl) see him/her.' or 'He/She sees you (pl).' (T1 33)

Pronominal marking of subject and object

- What about zero-marked 3rd person arguments?

  Is "information from ouside the verbal word" (Evans & Sasse 2002: 3) also required? Basically, yes.

- But, verbal number (SG/PL) involving suppletion or suff-n can be viewed as an extra polysyn. means helping to track 3rd p. referents:
  - In vi: plurality of subject referents (S);
  - In vt: plurality of object referents (O) or results of actions.

(7) ***arpa*** 'go.SG' – ***paye*** 'go.PL (many (people) go) (vi)
*ahu-**n*** 'enter.SG' – *ahu-**p*** 'enter.PL' (many (people) enter) (vi)
*hopun-**i*** 'get up.SG' – *hopun-**pa*** 'get up.PL' (many (people) get up) (vi)

(8) *tuy-**e*** 'cut.SG' – *tuy-**pa*** 'cut.PL (many fish or one fish many times) ' (vt)
rayke 'kill.SG' – ***ronnu*** 'kill.PL' (kill (many) bears) (vt)

Pronominal marking of subject and object

- **Verbal pluraity** in Ainu: helps to interpret grammatical relations, esp. with 3rd pers. participants.
  - **Originates in pluractionality** as in many North Americal lgs

  (Haida, Zuni, Paiute (Uto-Aztecan lgs), Pomo (Pomoan lgs), Karok (Hokan lgs), Navajo (Athabaskan lgs) (Mithun 1988）), cf. Nivkh (Gruzdeva 1997).

(9) *(aynu)* *kamuy* ***rayke***
human/Ainu bear kill.SG
'An Ainu/Ainus killed a bear (SG).' (Tamura 1996: 568)

(10) *a-kor turesi…* *aynu* ***ronnu*** *kor ek* *ruwe ne.*
4.A-have younger.sister human/Ainu kill.PL and come.SG INF.EV COP
'My younger sister …came killing Ainu people (PL).' (Nakagawa 2001: 119)

- Was later extended to marking **plurality of participants** (subj& obj)

Many potential ‘slots’, but few obligatory

- Many polysyn. lgs exhibit complex **templatic morphology**.
- Ainu has a mixed templatic/scopal organization: the suffixed part (before the **base**) is templatic and the prefixed part is scopal.

S/A-O-	I	II	III	0	IV	V	VI	-S
	APPL	APASS, REC, REFL	APPL	**base**	INTR/TR.SG/PL	DIR.CAUS	INDR.CAUS	

Fig. 2. *The structure of verbal personal stem in Ainu: A revision of Tamura’s (1955) model (Bugaeva 2015)*

- ‘Personal stem’: a stem without personal affixes; may consist of **Base(-Slot IV)** alone (**obligatory** part!) or with one/more der. affixes.
- Personal (inflect.) affixes for S/A and O attach to the personal stem.

Many potential ‘slots’, but few obligatory

S/A-O-	I	II	III	0	IV	V	VI	-S
	APPL	APASS, REC, REFL	APPL	**base**	INTR/TR.SG/PL	DIR.CAUS	INDR.CAUS	

- **Pers. stem includes valency-changing aff (none of them obligatory):**

Valency increasing means [+1]: APPL (*e-, ko-, o-*), CAUS *(-ke, -ka, -re/-e/-te*)
Valency-decreasing means [-1]: APASS (*i-*), REC (*u-*), REFL/ACAU (*yay-, si-*)

(11) *e-yay-**mina***$_{+1}$*-re* ‘make oneself laugh at sth’ (vt)
about.APPL-REFL-laugh-CAUS (I-II-**0**-VI)

(12) *yay-e-**ynonnoitak***$_{+1}$ ‘pray to the gods about oneself’ (vt)
REFL-about.APPL-pray (II-III-**0**)

(13) ***kor***$_{+2}$*-pa-re* ‘give (one thing) to each of them’ (vi)
have-PL-CAUS (**0**-IV-VI)

Many potential ‘slots’, but few obligatory

- Ainu has a mixed templatic/scopal organization: the suffixed part is **templatic** and the prefixed part is **scopal**.

- Each added prefix has sem. and gramm. **scope** over all material and alternative orders are used to convey diff. scope relations:

(14) a. ***yay-ko-****omap* ‘cherish sb alone’, lit. ‘cherish sb with/by oneself ’ (vt)

REFL-with.APPL-cherish

b. ***ko-yay-****omap* ‘feel sorry for sb’, lit. ‘cherish oneself towards sb’ (vt)

towards.APPL-REFL-cherish Cf. *omap* ‘cherish sb’ (vt).

Cf. “Hierarchical (=scopal) ordering [in Yup’ik] , as if words were built step by step, beginning with the root (Mithun 1999: 43).

Many potential ‘slots’, but few obligatory

- Minimal ‘personal stem’: **Base(-Slot IV)**, dep. on the verb type.
- Can further be expanded. Unlike Tamura (1955), I suggest that the order of val.-increasing and val.-decreasing slots to the left is not fixed, but each type can occur no more than twice.

(15) *ruska*$_{+2}$ ‘be angry with sth’ (vt) →

a. ***i****-ruska* (APASS-be.angry.with) ‘be angry’ (vi) →

b. ***ko-i****-ruska* (APPL-APASS-be.angry.with) ‘be angry with sb’ (vt) →

c. ***u-ko-i****-ruska* (REC-APPL-APASS-be.angry.with) ‘be angry with e.o.’ (vi) →

d. ***u-ko-i****-ruska****-re*** (REC-APPL-APASS-be.angry.with-CAUS)‘make sb angry with e.o’(vt)

(16) *ruska*$_{+2}$ ‘be angry with sth’ (vt) →

a. ***ko****-ruska* (APPL-be.angry.with) ‘be angry with sb because of sth’ (OI) (vd) →

b. ***yay-ko****-ruska* (REFL-APPL-be.angry.with) ‘be angry with oneself because of sth’(vt)

Cf. ****u****-ruska* (REC-be.angry.because.of) intended meaning ‘be agree with e.o.’ (vi)

Is ungrammatical because *ruska* has no personal object. (I. Oda p.c)

Many potential ‘slots’, but few obligatory

- Further expansion possibilities:

1. noun incorporation, occurs Slot II or before Slot I;
2. adverbial modifiers, can occur anywhere before the base:

    *e-yay-**somo**-mokor-e* (because.of.APPL-REFL-**NEG**-sleep-CAUS)

‘not make oneself sleep because of sth (needlework)’ (Tamura 2013: 104)

3. prefixes with adverbial meanings, immediately before the base:

    ***ru-**sesek* ‘**slightly** hot’, ***toyko-**kisma* ‘grasp **firmly**’;

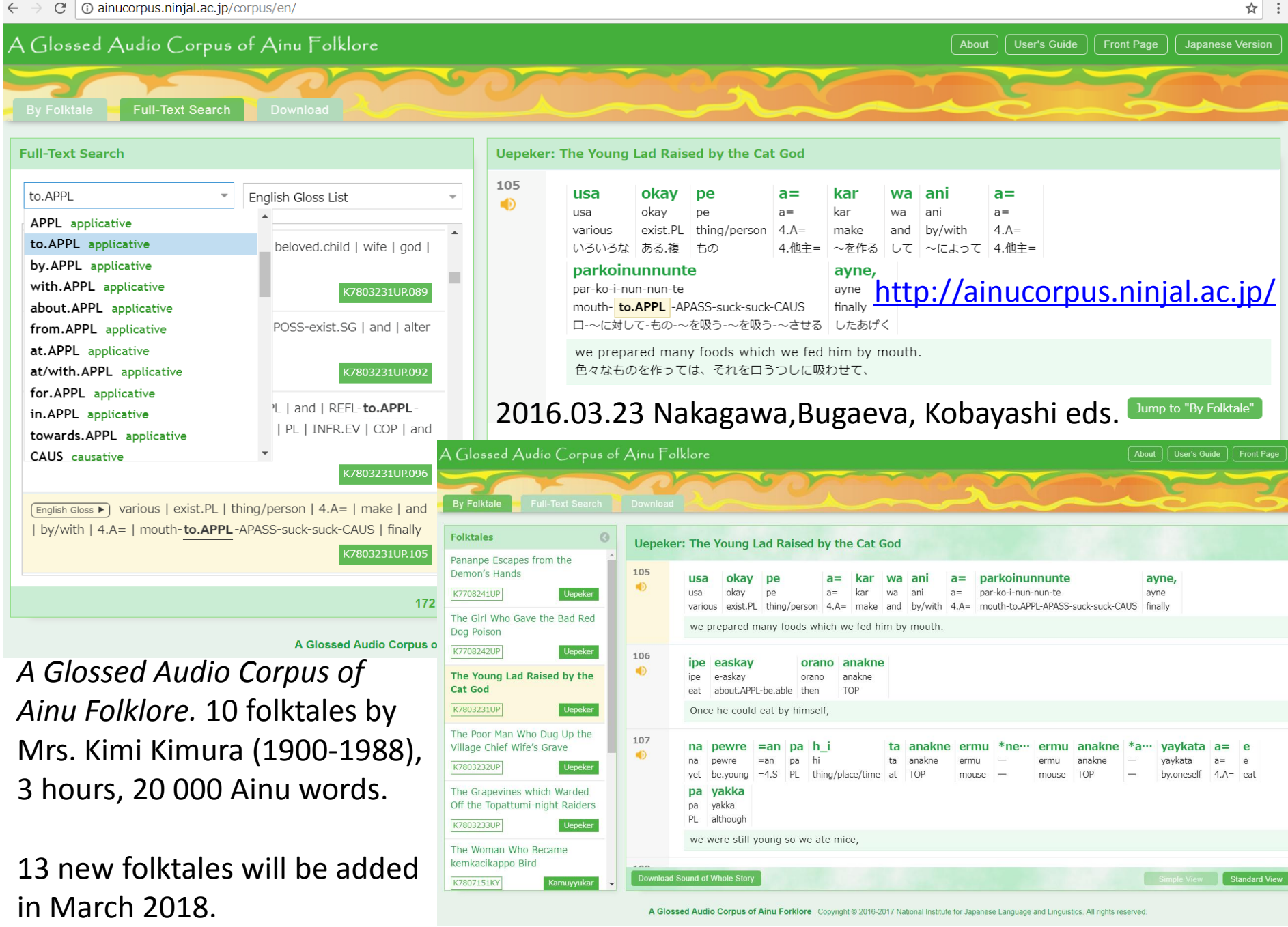
4. lexical prefixes ***he***- ‘head’ and ***ho-*** ‘bottom’, imm. before the base:

    ***he-**etaye* ‘pull one’s head in’, ***ho-**pun-i* ‘get up’;

5. verbalizing suf. orig.in ***kar*** ‘make sth’, immediately after the base:

    *sapa-**kar*** ‘cut hair’ (vi) < *sapa* ‘head’, *apto-**kar*** ‘be rained on’ (vi);

6. Aktionsart suffixes ***-kosanpa*** ‘momentary’, ***-natara/-itara*** ‘continually’, immediately after the base: *noy-**kosampa*** ‘fall suddenly’ (Kubodera 1992: 174).



A Glossed Audio Corpus of Ainu Folklore. 10 folktales by Mrs. Kimi Kimura (1900-1988), 3 hours, 20 000 Ainu words.

13 new folktales will be added in March 2018.

Many potential ‘slots’, but few obligatory

- The degree of combinability of various voice markers and noun incorporation in Ainu can be spectacular.

  But, of course, “they are encoded on lexical items only when salient” (Mithun 1998: 452)
- Moreover, particular valency-changing affixes are combinable with verbs of certain syntactically motivated semantic sub-classes of verbs (Bugaeva 2015; Bugaeva 2012, MPI Valpal Database, available online at http://valpal.info/languages/ainu).

Noun incorporation

There are 4 major types of syntactic NI

(cf. the percent. & token frequency of NI in the Chitose dial. texts (Satō 2012: 10)) :

- Object (O)-incorporation. Most commonly inc-d nouns refer to culturally significant entities (allows for base, applicative, and causative objects). Valency-decreasing. 85.9% (444 examples);
- Intransitive subject (S)-incorporation. Inc. 'natural phenomenon' nouns. Valency-decreasing. 6.8% (35 examples);
- Intransitive subject (S)-incorporation. Inc. 'body part' nouns. Valency-retaining. 5.6% (29 examples);
- Transitive subject (A)-incorporation. Inc. '(super)natural phenomenon or insect' nouns. Valency-decreasing. 1.7% (9 examples).

All these types are **word-formation** patterns, with differing productivity and syntactic and semantic effects, or regularity.

Noun Incorporation

- Object (O)-incorporation. Often refers to "conceptually unitary and nameworthy cultural activities" (Mithun 1984). E.g. *wakka-ta* 'fetch water', *cep-koyk*i 'catch fish', *cise-kar* 'build a house', *rawomap-kar* 'make a fish basket trap', *ki-otuye* 'cut grass/reed', *ni-uwomare* 'gather firewood', *pahaw-nu* 'hear a rumor', and *cip-o* 'row a boat' . Valency-decreasing. (85.9% of all NI)

(17) a. ***turep***$_{-1}$***-ta***$_{+2}$*-as* *kus* *paye-as* *wa* **NI**

lily.root-dig-1PL.EXC.S for go.PL-1PL.EXC and

'We went for <u>digging lily roots</u> and….' (Satō 2008: 220)

Cf. Base sentence (without incorporation)

b. *poro-n-no* ***turep*** *ci-ta*$_{+2}$ *wa* *sa-p-as* **Base clause**

big-EP-ADV lily.root 1PL.EXC.A-dig and descend-PL-1PL.EXC.S

'We …came back having <u>dug up a lot of lily roots</u>.' (Satō 2008: 220)

- In (17b), *ta* is a vt 'to dig sth' and *turep* 'lily root' is its obj. In (17a)*, turep* 'lily root' is incorp-d , i.e. becomes part of the verb, and **the verb in vi.** Note the change of the transive pers. mrk ***ci-*** 1PL.EXC.A- to the intransitive ***-as*** 1PL.EXC.

Noun Incorporation

- Intransitive subject (S)-incorporation. Inc. ‘natural phenomenon’ nouns, namely, *sir-* ‘appearance, world, weather’ and *me-* ‘cold’. Valency-decreasing. The resultant verb has **zero-valency**.

  (6.8% of all NI)

(18) *nisatta* *anak* ***sir***$_{-1}$*-pirka*$_{+1}$ *nankor*. **NI**

tomorrow TOP weather-be.good likely

‘It is likely that (it) will be fine weather tomorrow.’

This incorporation is obligatory, i.e., there is **no base clause** corresponding to NI; *sir-* ‘appearance, world, weather’ and *me-* ‘cold’ are bound nouns.

Noun Incorporation

- Intransitive subject (S)-incorporation.

  Inc. ‘body part’ nouns. (5.6% of all NI)

- Valency-retaining: In (19b), body part O (‘hand’) is incorporated in its possessive form (***-e***: -POSS). The original ‘body part’ subject is deleted while the Possessor (‘I’) is added as a new S.

  ‘Possessor raising’.

(19) a. *ku-**ték-e*** *páse*$_{+1}$ **Base clause**

1SG.A/POSS-hand-POSS heavy

‘My hands are heavy.’

b. *ku-**ték***$_{-1}$***-e***$_{+1}$*-pase*$_{+1}$ **NI**

1SG.A-hand-POSS-heavy

lit. ‘I am my-hands-heavy.’ = I feel as if I've aged.

Noun Incorporation

- Transitive subject (A)-incorporation. Inc. ‘(super)natural phenomenon or insect’ nouns. Valency-decreasing. (1.7% of all NI)
- Valency-decreasing: A (‘wave’) is incorporated, the base O (‘I’) is promoted to A – a passive-like feature (Evans p.c.).

(20) a. ***koy*** *en-yanke*$_{+2}$ **Base clause**

wave 1SG.O-raise

‘The wave raised me.’

b. *ku-**koy***$_{-1}$*-yanke*$_{+2}$ **NI**

1SG.S-wave-raise

‘I am wave-raised.’

Noun Incorporation

- Transitive subject (A)-incorporation. Inc. '(super)natural phenomenon or insect' nouns. Valency-decreasing. (1.7% of all NI)

(21) ***rir-****turse-re* (tide-fall.down-CAUS) 'be(come) tide-dropped'
koy-*turse-re* (wave-fall.down-CAUS) 'be(come) wave-dropped'
wakka-*mom-te* (water-float-CAUS) 'be(come) water-floated'
nis-*reye-re* (cloud-crawl-CAUS) 'be(come) cloud-carried'
kamuy-*panakte* (god/spirit-punish) 'be(come) god-punished'
urki-*o* (lice-attach) 'be(come) lousy (Kobayashi 2010: 209-210)

- The incorporation of A, although a very rare phenomenon, is also attested in the Mixean languages, for example Olutec (Roberto Zavala, forthc, OUP volume), and there as well it invariably involves the incorporation of (super)natural forces and insects.

Noun Incorporation

- There is no adjunct incorporation in Ainu (22).
- "Adjuncts" can be incorporated as applicative (=direct) objects (23). Incorporation of AO by a *monotransitive* applicative (24) produces an intransitive verb, as evidenced by the change of the transitive subject marker ***a-*** (4.A) to the intransitive subject marker ***-an*** (4.S).

(22) *kamuy or* ***un****…apunno arpa kuni* *ye.* (K7803232UP.075)

god place ALL safely go.SG should/going/surely.COMP say

'(The village chief) prayed that she would make it safely to the place of the Kamui.'

(23) *ar-kamuyasi or-o* *a-**o**-arpa* *ruwe ne* **Base APPL clause**

complete-devil place-POSS 4.A-to.APPL-go.SG INF.EV COP

'(If one dies at the place of devil), one will go to hell.' (lit. 'to the place of devil') (N20)

(24) *kamuy-or-**o**-arpa-an* *ka* *e-aykap* *korka* **NI**

god-place-to.APPL-go.SG-4.S even of.APPL-be.unable.AUX but

'I couldn't even go to the other world.' (lit. 'to the land of gods') (KK)

Noun Incorporation

- Incorporation of AO by a *trivalent* transitive applicative verb produces a monotransitive verb without a change of subj. and obj. pers. mrks.

(25) a. *a-uhuy-ka* *pa* *wa* *cise*

4.A-burn-CAUS PL and house

*a-**ko**-uhuy-ka*$_{+3}$ pa **Base APPL clause**

4.A-with.APPL-burn-CAUS PL

'(After that, since they did that to us, let's) burn them down, (let's) burn them down with the (entire) house.' (K7908032UP)

b. *hotke kurka ta Ponyaunpe a-cise*$_{-1}$*-**ko***$_{+1}$*-uhuy*$_{+1}$*-ka*$_{+1}$ **NI**

sleep top LOC P. 4.A-house-with.APPL-burn-PL

'We burned Ponyaunpe down **with the house** at the place where he had slept.' (O4 12)

Noun Incorporation

- The double noun incorporation: both the inherent and AO are inc-d

(26) *cep-ya-o-kuta-**an*** (K7908052.UP)

fish-shore-to.APPL-throw.away-4.S

-1 -1 +1 +2 = +1 (vi)

'I threw (=unloaded) the fish (he caught) on the shore.' (HN)

Cf. AO incorporation (the inherent O appears as an NP)

*pirka cep patek **a-**ya-o-kuta* (N8910291.KY)

good fish only 4.A-shore-to.APPL-throw.away

-1 +1 +2 = +2 (vt)

'I threw (=unloaded) only the good fish on the shore.' (HN)

Noun Incorporation

Even Goal O can be inc-d; claimed to be imposs. in Baker (1996: 297).

(27) a.*a-sa-ha* *oripak*$_{+1}$ *hine an ruwe ne* **Base Cl.**

4.A-elder.sister-POSS stand.in.awe and exist.SG INF.EV COP

'My sister stood in awe.' (K8007292UP.058)

b. *a-kor* *yupo* *a-**ko**$_{+1}$-oripak*$_{+1}$ **APPL**

4.A-have brother 4.A-to.APPL-stand.in.awe

'I feel respect for your brother.' (O3 251

c. *katkemat*$_{-1}$-***ko***$_{+1}$-*oripak*$_{+1}$-*an* *kor* *hotke-an* **NI**

woman-to.APPL-stand.in.awe-4.S and sleep-4.S

'I felt sorry **for (this) woman** (i.e. my lover's old wife) and fell asleep.' (T1 26)

- AOs can even be specific and referential, i.e. ***katkemat*** 'woman' occurs in discourse several times and refers to a specific woman (the old wife of the female speaker's lover) rather than to a woman in general (27c).
- Yet the inc-d nouns are never salient in discourse (Muravyova 2004: 46).

Noun Incorporation

AO incorporation poses some theoretical problems:

- Functionally, **incorporation** is characterized as a *backgrounding process* (Hopper & Thompson 1980: 254), i.e. it is used when the event is of greater interest than its participants and is unlikely to apply to arguments of high discourse salience, high animacy, specificity etc.

While,

- **Applicativization** is a *foregrounding process*: most AOs in Ainu seem to have the properties of topical arguments (tend to be expressed by nominal forms with an identifiable (definite) referent, they are subject to zero-anaphora, and left-dislocation.
- So how a topical AO can undergo back-grounding by incorporation and what's the the **discourse function of the resultant polysyntetic word**?

Polysynthesis: A new definition (Nichols, forthc.)

- **Open head marking**
- Fillers of one or more slots are not a closed set

  (Clear examples: noun incorporation, lexical suffixes)

  and/or
- No fixed number of slots
- Important: Not every slot or filler needs to be referential.

  New slots and fillers probably often enter the verb template as registration and/or with weak referentiality.

  Noun (and other) incorporation (So distinctions such as syntactic inc. or classificatory inc. are not really essential to this definition.).

  Classifier nouns and other classifiers.

  G+ elements in West Caucasian etc. (Not just the core arguments (A S O G T; max. 3 / verb: A G T) but also indexing of one or more additional roles (often benefactive, comitative, causee, instrument.)

Polysynthesis: A new definition (Nichols, forthc.)

Polysynthesis:

Is extreme development of head marking

Arises in large enough and old enough populations of languages with various developments of head marking.

Occurs regularly in such populations:

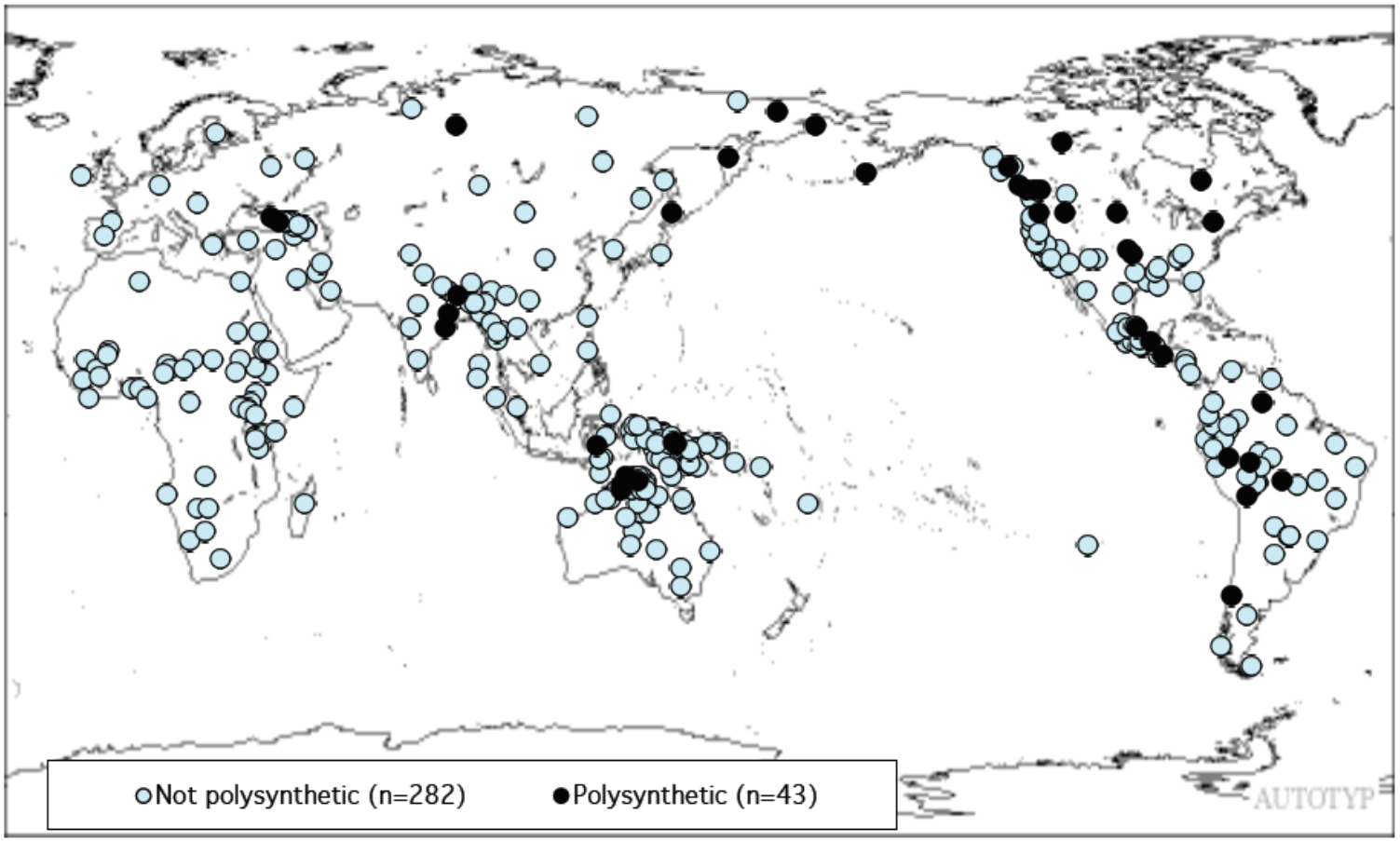
the Greater Pacific Rim (GPR: 33%, elsewhere: 9%)

(**GPR**: New Guinea north coast, Oceania, east coastal Asia, west coastal North America, Mexico and Central America, west coastal South America, and northern Australia);

the Caucasus Population.

Polysynthesis: A new definition (Nichols, forthc.)

Polysynthetic languages (and the Autotyp genetic-geographical sample)



Head-marking vs. Dependent-marking lgs

- The *head- and dependent-marking* parameter is a morphological-structural parameter which classifies lgs according to the locus of **morph-l marking** of **synt.relations** within a **constituent** (Nichols 1986).
- **Contituents** of a sentence: phrases, clauses etc. which are organized hierarchically consisting of HEADs and DEPENDENTs.

  "The HEAD is the word which determines the syntactic type of the entire constituent and hence the privileges of occurrence and syntactic distribution of the constituent. …For instance, the English noun phrase is headed by a noun, and hence has much the same distribution as a noun (so that, for example, new_D $house_H$ has its distribution determined by *house*, not by *new*). "(Nichols 1992: 46)
- **Syntactic relations** between a HEAD and a DEPENDENT:

  The head **governs** the dependent, i.e. there is requirement of one word in a particular grammatical function by another.

Head-marking vs. Dependent-marking lgs

3 major types of constituent: noun phrase (**NP**), adpositional phrase (**PP**), and clause (=verb phrase) (**S**), with 7 subtypes based on the kind of dependent.

Constituent	Subtype	Head
NP	Noun possessor	Possessed noun
	Pronoun possessor	Possessed noun
	Modifying adjective	Modified noun
PP	Noun object	Adposition
	Pronoun object	Adposition
S	Noun subject, direct object, and indirect object	Verb
	Pronoun subject, direct object, and indirect object	Verb

Examples from English are the following. Heads are boldfaced. Parenthesized words are dependents of dependents, not required by the definition of the constituent but required for completeness in English.

Constituent	Example
NP, noun possessor	(my) neighbor's **house**
NP, pronoun possessor	my **house**
NP, adjective	new **house**
PP, noun	**with** (a) friend
PP, pronoun	**with** you
S, nouns	My neighbor **gave** (a) bicycle to his son
S, pronouns	She **gave** them to us

Head-marking vs. Dependent-marking lgs

- Syntactic relations between HEAD and DEPENDENT within constituents (NP, PP, S) are encoded by **morphological marking** (inflection, affixation, cliticization) (Nichols 1992: 49-52).
- **Morphological marking** can be *located on* the dependent word, head word, both words or neither word, hence classified into

(a) Dependent marking type, e.g. *s-**an***$_D$ *a:xča*$_H$ (Chechen)
lsg-GEN money 'my money'

(b) Head marking type, e.g. *sarà*$_D$ ***sə -*** *y^{o}nə*$_H$ (Abkhaz)
lsg lsg-house 'my house'

(c) Double marking type, e.g. *men-**im***$_D$ *kullyg-**ym***$_H$ (Nogai)
lsg-GEN work-lsg 'my work'

(d) No marking type, e.g. *mi*$_D$ *l'ei*$_H$ (!Kung)
I axe 'my axe'

These are examples of Locus of Marking in Possessive Noun Phrases.

Head-marking vs. Dependent-marking lgs

Examples of Locus of of Marking in the Clause (=verb phrases).

(a) Dependent marking type

(2) Uradhi (Paman; Australia; Crowley 1983: 339)

wutpu-nku D *uma-Ø* D *ute-n* H

old.man-ERG firewood.ABS pick.up-PST

'The old man picked up some firewood.'

(b) Head marking type

(1) Tzutujil (Mayan; Guatemala; Dayley 1985: 282, 75)

jar aak'aalaa7 x-Ø-kee-k'aq aab'aj

D H D

the boys COMP-3SG-3PL-throw rock

pa rwi7 ja jaay

on top.of the house

'The boys threw rock(s) on top of the house.'

(c) Double marking type

(3) Belhare (Tibeto-Burman; Nepal; Bickel, own fieldnotes)

kubaŋ-chi-ŋa pitcha-chi n-ten-he-chi

D D H

monkey-NSG-ERG child-NSG.ABS 3NSG.A-hit-PST-3NSG.P

'The monkeys hit the children.'

(d) No marking type

(4) Thai (Nichols, own fieldnotes)

Daang hŭaróo Dam.

D H D

Dang laugh Dam

'Dang laughed at Dam.'

(WALS 2005)

Head-marking vs. Dependent-marking lgs

If a language has major, salient, head-marking morphology anywhere, it will have it at the clause level.

If a language has dependent-marking morphology at the clause level, it will have it at the phrase level. (Nichols 1986: 75)

> The central hypothesis of the head- and dependent-marking parameter, originally developed and introduced by Johanna Nichols (1986) and further elaborated in Nichols (1992), is the idea that languages tend to mark dependency relations consistently either on the head element or on a dependent element of their respective constituents. This means that languages can be classified according to these two marking types — predominantly head-marking and predominantly dependent-marking — with a significant clustering around these polar types. (Helmbrecht 2001: 1424)

Head-marking vs. Dependent-marking lgs

Correlations of dependent- vs. head-marking with some grammatical categories and processes (Nichols 1986: 64)

Dependent-marking:	Head-marking:
case	verbal agreement or cross-reference with nominal arguments
adnominal genitive	incorporation
non-finite verbs	instrumental, directional (etc.) affixes on verbs
agreement in adjectives	inflected adpositions
uninflected adpositions which govern cases	pronominal (possessive) affixes on nouns
	polysynthesis

TABLE 2.

Polysynthesis as *open head marking* (Nichols, forthc)

- No closed set of *person markers* in closed paradigm of forms. This pertains in particular to referential elements such as argument indexes and **incorporated nominals**; only the latter applies to Ainu.
- *Open roles:* Some polysyn.lgs mark/**register** on the verb, in addition to the regular set of arguments, one or more additional roles (G+) that are argument-like in some respects and often cannot be identified with any particular case; cf. some ***e-*** APPL in Ainu, which often **lack corresponding non-APPL paraphrases with case postpos.**

(28) *cikap-po poka a-**e-**omuken.*
bird-DIM even 4.A-**with.regard**.APPL-have.a.bad.hunt
'(Now we are older, and) we cannot even catch small birds.'(K7803231UP.109)

(29) *i-ramante oruspe ka a-**e-**u-ko-isoytak sekor*
APASS-hunt story even/also 4.A-**about**.APPL-REC-to.APPL-tell.story Q
'We can also talk with e.o. about hunting...' (K7803231UP.086)

Polysynthesis *as open head marking* (Nichols, forthc)

- Noun incorporation:

"Add. The incorporated noun (IN) does not go into any existing slot; rather, it creates an additional slot, and the other argument markers retain their usual forms and functions. Similarly, a pronominal argument does not go into an existing slot but creates and additional one and becomes a fourth argument.
Fill. The IN or pronominal occupies an existing slot. This necessitates adjustment to the rest of the valence; typically, what would have been the object is no longer indexed on the verb (or, if eligible, it may become a possessor). An applicative derivation may signal this valence adjustment explicitly.
Cancel. The IN takes away the argument slot of whatever it displaces. Typically, it makes the verb intransitive, removing the O slot and leaving only an S slot…

Of these three, **adding** certainly counts as polysynthetic."
(Nichols, forthc.)";

cf. Intransitive subject (S) and transitive (A)-incorporation in Ainu.

Polysynthesis as *open head marking* (Nichols, forthc.)

Why are Pacific Rim and Caucasian languages so strongly inclined to head marking?

Historical contingency. Random. Also, elaboration to extremes normally happens in lg. populations that are old enough, large enough, and isolated enough.

Head marking happened to reach some frequency threshold in these populations, setting the scene for polysynthesis to arise.

We can think of these language populations as moving toward stabilization of head marking and maybe even polysynthesis at 100%.

(Fortescue 2013: When polysynthetic morphology is old enough and enough morphological change has happened, inflection and derivation get intermingled. That is the point of no return: the language cannot evolve into a non-polysynthetic one.)

"New" vs. "old" polysynthesis (Fortescue 2013)

Symptomatic of new polysynthesis:

a) Lexical sources of derivational affixes transparent

b) There may be residual stress on incorporated or serialized stems

c) Strict adhesion to Bybee=s morpheme-ordering generalizations (derivation affixes closer to the stem than inflection)

d) Productivity of incorporation or verb serialization

This can be applied to the three languages dealt with above in the following manner (where + = symptomatic of new, and -- = symptomatic of old):

	Chukchi	*W. Greenlandic*	*Koyukon*	*Ainu*	**Ainu (Bugaeva)**
a)	+	- -	--	+	--
b)	+	--	--	--	--
c)	+	(+)	--	+	+
d)	+	(--)	(+/--)	+	(+/--)

“New” vs. “old” polysynthesis (Fortescue 2013)

a) Lexical sources of derivational affixes transparent

Ainu (MF: Michael Fortescue**): +; Ainu (AB:** Anna Bugaeva**): --**

- Neither for derivational prefixes (REFL ***yay-***, ***si-***, REC ***u-***, APPL ***e-***, ***ko-***, ***o-*** etc.) nor for derivational suffixes (CAUS ***-re/-e/-te***) do we know exactly where they come from.
- I have, however, suggested lexical sources as etymologies for the applicative prefixes ***e-***, ***ko-***, ***o-***: ‘head’, ‘to have’, ‘buttock’, at the level of hypothesis (Bugaeva 2010).

“New” vs. “old” polysynthesis (Fortescue 2013)

b) There may be residual stress on incorporated or serialized stems:
Ainu (MF): --; Ainu (AB): --

- **109** compounds (not necessarily all NI) in which accent falls in accordance with acc.rules, i.e on the 2nd syllable if the 1st syllable is open (Satō 2015). The resyllabification may go across morphemic boundaries (30), which makes the inc. noun less transparent and is symptomatic of old polysynthesis, cf. (31).

(30) ***ci.p****-é.-kusa* (boat-by.APPL-carry) ‘carry by boat’ **Old Polysyn**

ki.m*-ó.sma* (mountains-enter) ‘go into the mountains’.

- vs. **29** compounds (not necessarily all NI) in which accent falls not in accordance with acc. rules (Satō 2015):

(31) ***cíp****-e-kira* (boat-by.APPL-run) ‘run by boat’ **New Polysyn**

súy*-o* (hole-open) ‘make a hole’

“New” vs. “old” polysynthesis (Fortescue 2013)

c) Strict adhesion to Bybee’s morpheme-ordering generalizations (derivational affixes closer to the stem than inflection):

Ainu (MF): +; Ainu (AB): +

- Derivational affixes in Ainu stand closer to the stem than inflectional ones - new polysynthesis.
- Some affixes are polyfunctional as they have both infl. and der. uses (the der. functions are secondary) – cf. the 4th pers. obj. ***i=*** (infl.) and the antipassive ***i-*** (der.), 1PL.EXC.A ***ci=*** (infl.) and the resultative ***ci-*** (der.) – but this does not mean that there is any freedom in attaching these affixes: affixes with infl. uses come strictly before those with der. uses.

“New” vs. “old” polysynthesis (Fortescue 2013)

d) Productivity of incorporation or verb serialization (vs. historical layering of affixes, with fossilization in old polysynthesis): **Ainu(MF): +; Ainu(AB):**(+/--)

- I am more cautious about the productivity of NI:

(i) NI is really only productive in Classical Ainu, which is the archaic lang. of the *yukar* ‘heroic epics’. In colloquial Ainu, there is a tendency towards more analytical structures: less inc., fewer appl. (case postpos are used more often), which is due to the influence of Japanese.

(ii)There are some symptoms of **fossilization** in Ainu since some “incorporated” nouns are no longer used alone. **Old Polysyn**

E.g. ***wor-****o* (water-attach) ‘soak in water’, ***mon-****ray-ke* (hand-die-CAUS) ‘work’ (lit. ‘kill hands’), ***mon-i-****pirka* (hand-POSS-be.good) ‘be a fast worker’, and ***aske-****uk* (hand/palm-take) ‘invite’,

and many apparent APPL and APASS verbs are no longer used without the respective prefixes, e.g. ***e****pitattarke* ‘giggle over’, ***e****ramucak* ‘feel disgusted at’, and ***i****kka* ‘steal.

Polysynthetic word in Ainu: Salient characteristics

- Complexity
- Polyindexation (except for the 3rd person):

  What's the status of pronominal argument NPs?
- Applicatives can be seen as a means of registering one more additional role (G+) on the verb.
- Noun incorporation: arguments only. Most synt. types show sem. preferences for inc-d nouns,

  but O-incorporation doesn't. Any limits?
- Holophrasis (partial)
- Mixed templatic/scopal organization with multiple possibilities for a further verb expansion:

  Are Ainu wordforms created online like phrases?

Polysynthetic word in Ainu: Salient characteristics

But,

- No serious intermingling of inflection and derivation.
- No interrupted synthesis (discontinuous stems)
- No fourth argument marking
- No adjunct incorporation
- No marking of TAM and evidentiality on the verb
- No marking of interclausal relations on the verb

- The degree of polysynthesis in Ainu is moderate, which is due to its age: neither too old nor new.
- Close contact with Japanese (since the early 19th century) may have prevented Ainu from developing in the direction of more synthesis.

i-yay-i-ray-ke-re

APASS-REFL-APASS-die-CAUS-CAUS (?)

‘Thank you’