student

Materials and Methods of Analysis for the Study of the Ainu Language | **Lecturer/Professor**
Southern Hokkaidō and Sakhalin Varieties | Elia Dal Corso

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Personal Affixes, Reciprocal and Reflexive

Notes

3.1 Background Information and Observation

HA and SA distinguish among first, second, and third person. Both varieties have one more person, in addition to the canonical three, which for the time being we will call 'fourth person' and is expressed with the affixes *-an/a(n)-/i-*.

The so-called 'fourth person' of HA is used to mark a first person plural inclusive (that is, a first person plural 'we' that includes the speaker and the interlocutor) (1), as opposed to the first person plural exclusive (that is, a first person plural 'we' that includes the speaker, some other referent(s) but not the interlocutor). The 'fourth person' is otherwise used to mark an indefinite agent (2), an honorific second person honorific (3), or within reported speech to reference to a first or third person speaker (4).

(1) *'Eun   'i-nu-**'an**   kuni   p   somo   ne   na.*
     3S.O/towards   AP-hear-**4.S**   COND   thing NEG   COP   FP
     [These] are things **we** (= you and I) shouldn't pay attention to.' (Tamura 2000, 63)

(2) *Cise-tumam 'anak   ki   ani   **'a**-kar.*
     house-wall   TOP   reed   with   **4.S-3P.O**/make
     'The walls of the house are made of reed [lit.: **someone** made the walls of the house with reed].' (Tamura 2000, 71)

(3) *Ku-yupo,   sinenne **'a**-ani   ruwe   he   'an?*
     1S.PSR-older.brother.POSS   alone   **4.A**-3S.O/carry DIR.RSN <FOC> DIR.RSN
     'Older brother, did **you** carry [that] by yourself?' (Tamura 2000, 67)

(4) *Ta-p   **'a**-e-_upaskuma   tane ka ki   ... sekor Haca sekor*
     this-thing **4.A**-APPL-3S.O/tell.NMLZ now even SLV/VO/do ADV   Haca ADV
     'a-ye   'acapo   hawean.
     4.A-3S.O/say old.man   3S.S/speak
     'An old man called Haca said: "Indeed now **I** tell these facts ..."' (Tamura 1984, 22)

In her sketch grammar of Sakhalin Ainu, Murasaki (1979) says that there is no specific way to express a first person plural 'we' and that the only formal way to do that is with the affixes *-an/an-/i-*, which are clearly cognate of the HA 'fourth person' affixes *-an/a-/i-*. If this may apply to the western dialects spoken by the informants whom Murasaki worked with, it is certainly not true for all dialects of SA. In fact, a separate set of affixes for first person plural, cognate of those of HA, is present in eastern dialects of SA. Furthermore, the functions illustrated for the HA *-an/a-/i-* in examples (1), (2) and (4) above are also attested for *-an/an-/i-* (5)-(6) in both western and eastern dialects of SA. For this reason, it makes sense to acknowledge the presence of a polyfunctional 'fourth person' in SA as well (Dal Corso 2021).

Besides the fact that in western dialects there seems to be no formal difference between inclusive and exclusive first person plural, one more striking difference between HA and SA is that in this latter variety 'fourth person' markers are never used to cross-reference an honorific second person.

(5) *Ene   an   tok-hi   **'an**-kara-pe.*
     like.this 3S.S/exist.PC 3.PSR/mark-POSS **4.A**-3P.O/make-thing
     'Such [enormous] structures [could have made one think that] **someone** made them [on purpose].' (Dal Corso 2021, 277)

(6) ***'An**-kasmesu-hu   hee   **'an**-kaasiw-[H]e   he   **'an**-ki   kusu*
     4.A-3S.O/help-NMLZ   FOC   **4.A**-3S.O/aid-NMLZ FOC **4.A-3S.O**/do CAU.FIN
     neampe   nah   ramu.
     TOP   COMP 3S.A/3S.O/think
     'She thought: "How in the world [can] **I** do to help or assist it?"' (Dal Corso 2021, 274)

Person is marked on Ainu verbs via affixes (both prefixes and suffixes). In both HA and SA third person singular is signalled by the lack of affixes. While for HA this is also true for third person plural, in SA this latter can sometimes be marked overtly, with the suffix *-(a)hci*, which is not obligatory (Murasaki 1979, 49). **Personal affixes are only used for the subject and the object (or indirect object) of a verb and a maximum of one affix (for intransitive verbs) or two affixes (for transitive verbs) can be attached to a verb**. The following tables show all personal agreement markers (subject referent) of the verbal paradigm on an intransitive and a transitive verb.

Table 1   Personal agreement affixes of HA and SA with the intransitive verb *mina/miina* 'laugh'

person	HA	SA
1sg	*ku-mina*	*ku-miina*
2sg	*e-mina*	*e-miina*
3sg	*mina*	*miina*
1pl	*mina-as*	*miina-as*
2pl	*eci-mina*	*eci-miina*
3pl	*mina*	*miina(-hci)*
4	*mina-an*	*miina-an*

Table 2   Personal agreement affixes of HA and SA with the transitive verb *nukar/nukara* 'see, look', with implied third person singular object

person	HA	SA
1sg	*ku-nukar*	*ku-nukara*
2sg	*e-nukar*	*e-nukara*
3sg	*nukar*	*nukara*
1pl	*ci-nukar*	*ci-nukara*
2pl	*eci-nukar*	*eci-nukara*
3pl	*nukar*	*nukara(-hci)*
4	*a-nukar*	*an-nukara*

➔ *Consider this additional information...*
   1. The verbal prefix *yay-* expresses reflexivity: the action carried out by the doer falls back on them – e.g. *yay-kar* (HA), *yay-kara* (SA) 'become [lit.: make oneself]'.
   2. The verbal prefix *u-* expresses reciprocality: the verb has a plural subject whose parts carry out an action towards each other – e.g. *u-koyki* (HA, SA) 'fight [lit.: beat each other up]'.

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→ *Dataset 1 – Transitive agreement*

Consider the following example sentences and the relative translations (sentences marked with * are ungrammatical). Can you determine the full transitive agreement paradigm of Ainu verbs? Try to fill in the tables below. Can you determine what is the correct version of sentences marked as ungrammatical? What peculiarities do you notice? What generalisations on the syntactic typology of the language can you make? What revisions/additions to the previously given information can you propose?

Set 1.1 (Hokkaidō Ainu)

1. *Aynu poyson se.* — The man carries the baby on his back.

2. * *Ciecinukar.* — We (exc.) see you all.

3. *Huci wakkata kopan.* — The old woman hates drawing water.

4. *Poyson kuse.* — I carry a baby on my back.

5. *Kuyupoho ekopan.* — My older brother hates you.

6. *Ecinukar.* — I see you all.

7. *Aese.* — Someone carries you on their back.

8. * *Kuennukar.* — I see myself.

9. *Aise.* — We (exc.) carry someone on our back.

10. *Ecikopan.* — I hate you.

11. *Poro sike ecise.* — You all carry a big luggage on your back.

12. * *Ciese.* — We (exc.) carry you on our backs.

13. *Huci ise.* — The old woman carries someone on her back.

14. *Aecinukar.* — Someone sees you all.

15. *Apkasas.* — We (exc.) walk.

16. * *Enanukar.* — Someone sees me.

17. *Aenkopan.* — Someone hates me.

18. *Eciense.* — You all carry me on your back.

19. * *Ainukar.* — We (inc.) see ourselves.

20. *Tan poyson unkopan.* — This baby hates us (exc.).

21. *Aunse.* — Someone carries us (exc.) on their back.

22. *Aynu ennukar.* — A person sees me.

23. * *Eense.* — You carry me on your back.

24. *Ni ase.* — We (inc.) carry firewood on our back.

25. *Kuise.* — I carry someone on my back.

26. *Ecikopan.* — We (exc.) hate you all.

27. * *Kuekopan.* — I hate you.

28. *Unnukar.* — You see us (exc.).

29. *Kuyaynukar.* — I see myself.

30. * *Ikuse.* — I carry someone on my back.

31. *Apkasan.* — We (inc.) walk.

32. *Ni ese.* — You carry firewood on your back.

33. *Teta eciinukar.* — You all see someone here.

34. *Eciunkopan.* — You all hate us (exc.).

35. *Poyson ecinukar.* — The baby looks at you all.

36. *Ainukar.* — Someone sees us (inc.).

37. *Ni cise.* — We (exc.) carry firewood on our back.

38. *Enkopan ruwe?* — Do you hate me?

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39. *Eciunukar.* You all look at each other.

40. *Ecise.* We (exc.) carry you on our back.

41. *Aynu ka poyson ka unnukar.* The man and the baby look at us (exc.).

42. *Eise.* You carry someone on your back.

43. * *Yayecinukar.* You all see yourselves.

Set 1.2 (Sakhalin Ainu)

1. *Eciinuu.* You all hear us. [western dialects]

2. *Tan aynu etura.* This person accompanies you.

3. *Wen aynu seta koyki.* The bad man beats up the dog.

4. *Ceh ankoyki.* We beat up (= kill) the fish.

5. *Ecikoykiyan.* I beat you all.

6. * *Eentura.* You accompany me.

7. *Annuuhci.* We hear them.

8. *Ekasi ucaskuma nuu.* The old man hears the tale.

9. *Ennuu.* You hear me.

10. *Ukoykian.* We beat up (= strike) each other.

11. * *Kuenuu.* I hear you.

12. *Ahci ecitura.* You all accompany the old woman.

13. *Esetaha ekoykihci.* You beat up your dogs.

14. *Ennuuhci.* Someone hears me.

15. * *Kuenkoyki.* I beat up (= strike) myself.

16. *Ecikoykihci.*   They beat you all.

17. *Enturayan.*   You all accompany me.

18. *Ahciutah seta koyki.*   The old women beat up the dog.

19. *Annuu.*   We hear them.

20. *Yaykukoyki.*   I beat up (= strike) myself.

21. *Inuu.*   You hear us. [western dialects]

22. *Ahci ka ekasi ka eciturahci.*   You all accompany the old woman and the old man.

23. *Ahci nuuhci.*   The old woman hears them.

24. *Ecikoyki.*   I beat you up.

25. *Anikoyki.*   We beat up ourselves.

26. *Iturahci.*   They accompany us. [western dialects]

27. *Inuuyan.*   You all hear us. [western dialects]

28. *Ahci kunuu.*   I hear the old woman.

29. *Anetura.*   We/I accompany you . [western and eastern dialects]

30. *Ahci ka ekasi ka seta koykihci.*   The old woman and the old man beat up the dog.

31. *Ahciutah kuturahci.*   I accompany the old women.

32. *Kuyaykoyki.*   I beat up (= strike) myself.

33. *Aynu inuu.*   The man hears us. [western dialects]

34. *Ekoykihci.*   They beat you up.

35. *Ahciutah ekasi ka seta ka nuuhci.* The old women hear an old man and a dog.

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36. *Ekasi ecitura.*   The old man accompanies you all.

37. ** Ahci nuuhci.*   The old woman hears someone.

38. *Ecinuuyan.*   We/I hear you. [western and eastern dialects]

39. *Ceh ekoyki.*   You beat up (= kill) the fish.

40. *Aynu enkoyki.*   The man beats me up.

41. *Ecikoyki*   I beat you all

42. *Ecitura*   We (exc.) accompany you [eastern dialects]

43. *Inturayan*   You all accompany us (exc.) [eastern dialects]

44. *Aninukara*   Someone sees us (inc.) [eastern dialects]

45. *Einu*   You hear us (inc.) [eastern dialects]

46. *Ahci intura*   The old woman accompanies us (exc.)
                                    [eastern dialects]

47. *Seta cinuu*   We (exc.) hear the dog [eastern dialects]

48. *Aynu inkoyki*   A person beats us (exc.) [eastern dialects]

49. *Ahci itah*   The old woman speaks

50. *Itakanahci*   We (inc.) speak [eastern dialects]

51. *Ecinuuhci*   You all hear it

52. *Ahci ka seta ka paye*   The old woman and the dog go

53. *Ecipayehci*   You all go

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Transitive agreement paradigm (HA)

	1SO	1PO	2SO	2PO	3SO	3PO	4O
1SA							
1PA							
2SA							
2PA							
3SA							
3PA							
4A							

Transitive agreement paradigm (SA)

	1SO	1PO	2SO	2PO	3SO	4O
1SA						
1PA						
2SA						
2PA						
3SA						
3PA						
4A						

Once you are finished, compare your results with the tables in the appendix.

3.2 Research

Now look at this other dataset and also read the examples from other languages given after it, which you will need for the third and last activity of this lesson.

→ *Dataset 2 – Phonological changes*

Consider the verb forms that appear in the following short sentences. All verb forms are given in IPA (note that: indicates a long vowel/double consonant) and they feature some of the intransitive and transitive personal agreement affixes, and the reflexive and reciprocal prefixes *yay-* [jaj-] and *u-* [u-] that you have just analysed. What changes do you notice in their phonological realisation or in the realisation of the verb they are attached to?

Set 2.1 (Hokkaidō Ainu)

1. ajnu suma kikʼ   The man hits the rock.

2. teta itanki kama   I put the bowl here.

3. et͡ɕius   You all extinguish.

4. sajo itankiʔor oma   The rice is in the bowl

5. itanki kukikʼ   I hit the bowl.

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6. ɸutɕi seta ere | The old woman feeds the dog.

7. tɕiɕikehe tɕama | We (exc.) put down our luggage.

8. atujʔorun kapkas | I walk to the sea.

9. eapkas | You walk.

10. kujosura | I throw someone.

11. ɸunakun etɕiʔosura ja | Where do you throw it?

12. ajnu pujara̧ kari suma osura | The man throws the rock through the window.

13. keraʔan kam patekˈke | I eat only delicious meat.

14. ɸutɕi ipe | The old woman eats.

15. ajnu itantɕikiʔot:a su ama | The man puts the pot on the floor.

16. tɕepˈtɕe ka somo ki | We (exc.) do not eat fish.

17. aʔiosura | Someone throws us (inc.).

18. seta aere | We (inc.) feed the dog.

19. utara̧ uwoma | The people are in each other (=gather together).

20. nupuri ejka | You cross the mountain.

21. ɸutɕi ruru̧ e | The old woman eats soup.

22. suma kosura | I throw the rock.

23. utara̧ ukikˈ | The people hit each other.

24. ʔaʔinukara̧ | Someone sees us (inc.).

25. kosura | I throw [it].

26. petʔot:a suma tɕosura | We (exc.) throw the rock into the river.

27. ipeʔas — We (exc.) eat.

28. jukʷpetʔorun arạpa — The deer goes to the river.

29. toan nupuri kujka — I cross that mountain.

30. ɸuʨi ijere — The old woman feeds us (inc.).

31. tanto kuipe ka somo ki — Today I do not eat.

32. juk:am eʨie — You all eat deer meat.

33. poron:o eʨi:pe — You all eat a lot.

34. tunasno apkas — They walk fast.

35. pase ɕike kukʷ — I take a heavy luggage.

36. eʨiapkas — You all walk.

37. suma ʨukʷ — We (exc.) take a rock.

38. nupuri ʨika ka eajkapʷ — We (exc.) cannot cross the mountain.

39. kus — I extinguish.

40. kamuj kuɕikehe ukʷ — A bear takes my luggage.

41. ipeʔan — We (inc.) eat.

Set 2.2 (Sakhalin Ainu)

1. itanki kuʔampa — I bring a bowl.

2. ajnu ramu — The man thinks of it.

3. ahʨi jo:nohka — The old woman lulls us.

4. itanki eampaha — Do you bring a bowl?

5. meko ʨeh kue:re — I feed fish to the cat.

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6. nupuru anika: We cross the mountain.

7. aht͡ɕi t͡ɕeh et͡ɕiʔe:re   The old woman feeds you all fish.

8. kuramu   I think of it.

9. ajnu nupuru ika: The man crosses the mountain.

10. aht͡ɕi iwante   The old woman knows us.

11. aht͡ɕi ten:ehpo o:nohka   The old woman lulls the baby.

12. ni: kuʔuɸ   I take firewood.

13. ni: et͡ɕiuɸ   You all take firewood.

14. ajnu haru jajkara   The man prepares provisions himself.

15. aht͡ɕi ajnu itah kue:t͡ɕa:kasno   I teach the old woman the Ainu language.

16. kuʔoman   I go.

17. aht͡ɕi t͡ɕeh je:re   The old woman feed us fish.

18. seta ni: uɸ   The dog takes firewood.

19. nupuru kuika: I cross the mountain.

20. aht͡ɕi meko ajnu itah e:t͡ɕa:kasno   The old woman teaches the Ainu language to the cat.

21. ten:ehpo t͡ɕeh su: o:mare   The baby puts the fish in the pot.

22. haru aj:ajkara   We prepare provisions ourselves.

23. itanki anampa   We bring a bowl.

24. ajnu iʔa:re   The man makes us sit down.

25. t͡ɕeh su: eʔo:mare   You put the fish in the pot.

26. antamu   We think of it.

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27. meko t͡ɕeh et͡ɕie:re — You all feed fish to the cat.

28. aht͡ɕi ajnu itah ije:t͡ɕa:kasno — The old woman teaches us the Ainu language.

29. ni ku:ɸ — I take firewood.

30. aht͡ɕi su: io:mare — The old woman puts us in the pot.

31. ten:ehpo t͡ɕeh ampa — The baby brings the fish.

32. aht͡ɕi ten:ehpo a:re — The old woman makes the baby sit down.

33. ajnu itanki wo:mare — The man puts the bowls away [lit. makes the bowls be in each other]

34. nupuru anʔika: — We cross the mountain.

35. hemata eampaha — What do you bring?

36. aht͡ɕi aw:ante — We know the old lady.

37. ten:ehpo eo:nohka — You lull the baby.

38. su: kuampa — I bring the pot.

39. nupuru kuʔika: — I cross the mountain.

40. aht͡ɕi t͡ɕeh iʔe:re — The old woman feeds us fish.

41. t͡ɕeh et͡ɕiʔuɸ — You all take the fish.

42. ten:ehpo kuo:nohka — I lull the baby.

43. ajnu anʔa:re — I make the man sit.

Examples from Other Languages…

Ancient Greek (Hellenic, Greece)

γράφειν 'to write': perfect tense *γεγραφ- /ɣeɣraɸ/

γέγραφα	ɣeɣraɸa	'I have written'
γέγραφας	ɣeɣraɸas	'you have written'

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γέγραφε	ɣeɣraɸe	'he has written'
γεγράφαμεν	ɣeɣraɸamen	'we have written'
γεγράφατε	ɣeɣraɸate	'you all have written'
γεγράφατον	ɣeɣraɸaton	'you two have written'
γέγραμμαι	ɣeɣram:ai	'I have been written'
γέγραψαι	ɣeɣrapsai	'you have been written'
γέγραπται	ɣeɣraptai	'he has been written'
γεγράμμεθα	ɣeɣram:eθa	'we have been written'
γέγραφθε	ɣeɣraɸθe	'you all have been written'
γέγραφθον	ɣeɣraɸθon	'you two have been written'

In Ancient Greek the perfect tense of the verb γράφειν is formed from the stem *γεγραφ- [ɣeɣraɸ], that is made up of two **bound morphemes**: the verbal root γραφ- and the prefix Cε- (realised as γε- in this instance). When personal endings are added, the final sound of the verbal stem and the first sound of the personal suffix may be difficult to pronounce in sequence. Therefore, one of the two sounds is accomodated to ease pronunciation – one sound undergoes **assimilation** to the other. If the change concerns the second sound in the sequence, assimilation is said to be **progressive**. If the change concerns the first sound in the sequence, assimilation is said to be **regressive**. The case above shows two instances of regressive assimilation in the forms ɣeɣrammai, ɣeɣrammeθa and ɣeɣraptai, where the voiceless bilabial fricative /ɸ/ assimilates to the bilabial nasal /m/ and to the voiceless dental-alveolar plosive /t/ respectively, acquiring the same manner of articulation thus becoming itself the bilabial nasal [m] in the first case, or the voiceless bilabial plosive [p] in the second case. In all other phonetic environments /ɸ/ remains unchanged since we do not encounter difficulties in pronunciation.
We can formalise this assimilation as follows:
/ɸ/ > [m] / _m
/ɸ/ > [p] / _t
/ɸ/ > [ɸ] / elsewhere
The phonological change that concerns /ɸ/ in the form ɣeɣrapsai is, on the contrary, a case of dissimilation (see below).

Sanskrit (Indo-Aryan, India)

Declension of the noun /goːdʰuk/ 'cow-milker'.

	singular	dual	plural
nom	goːdʰuk	goːduhaw	goːduhʌh
voc			
acc	goːduhʌm		
ins	goːduhaː	goːdʰugbʰjaːm	goːdʰugbʰih
dat	goːduheː		goːdʰugbʰjʌh
abl	goːduhʌh		
gen		goːduhoːh	goːduhaːm
loc	goːduhi		goːdʰukṣu

Throughout its declension, the Sanskrit noun goːdʰuk 'cow-milker' features two phonological processes. The first process is assimilation (i.e. /k/ > [g] / _C_voiced) and the second is **dissimilation** which is the opposite of assimilation. With dissimilation a sound becomes less similar to another to ease pronunciation. In the case at hand the aspiration imposed on the voiced dental-alveolar plosive /dʰ/ is lost whenever the voiceless glottal fricative /h/ appears in the noun ending. Like assimilation, dissimilation can be progressive or regressive. We formalise dissimilation in Sanskrit as follows:
/dʰ/ > [d] / _uh

Hanunó'o (Austronesian, Philippines) (data from Olson, Schultz 2002 in Payne 2006, 87)

ʔusa	'one'	kasʔa	'once'
duwa	'two'	kadwa	'twice'
tulu	'three'	katlu	'three times'
ʔupat	'four'	kapʔat	'four times'
pitu	'seven'	kapitu	'seven times'

In Hanunó'o numeral adverbs are formed with the addition of the prefix *ka-* to the cardinal number form. However, the first vowel of the cardinal number form disappears if it is *u*. This phonological process is called **elision** and again it serves to ease pronunciation. In addition to elision, cardinal numbers where *u* is preceded by the glottal stop also show **metathesis** – the glottal stop and the consonant following the elided *u* are inverted. We can formalise elision in adverbial numerals as follows:
/u/ > Ø / C_C
We can formalise elision followed by metathesis as:
/u/ > Ø / ʔ _ C; ʔC$_i$ > C$_i$ʔ

Ancient Greek (Hellenic, Greece)

Declension of the noun ἀνήρ 'man' /anɛr/ (root *ἀνρ- /anr/)

ἀνήρ	anɛr	'the man'
ἀνδρός	andros	'of the man'
ἀνδρί	andri	'to the man'
ἄνδρα	andra	'the man'
ἀνέρ	aner	'oh man'

The declension of the noun ἀνήρ 'man' in Ancient Greek starts from the root *ἀνρ- /anr/ that contains a consonant cluster that is difficult to pronounce (i.e. /nr/). In order to ease pronunciation, an epenthetic sound is added – this process is called **insertion** (or **epenthesis**) and it is the opposite of elision.
We formalise insertion as it appears in the case at hand as follows: Ø > [d] / n_r

English (Germanic, UK) (data from Payne 2006, 76)

ækjəɹət	'accurate'	ɪnækjəɹət	'inaccurate'
kɔŋgɹuəs	'congruous'	ɪŋkɔŋgɹuəs	'incongruous'
pɔsəbl̩	'possible'	ɪmpɔsəbl̩	'impossible'
dəskɹaʲbəbl̩	'describable'	ɪndəskɹaʲbəbl̩	'indescribable'
tɔləɹənt	'tolerant'	ɪntɔləɹənt	'intolerant'
sɛnsɪtɪv	'sensitive'	ɪnsɛnsɪtɪv	'insensitive'
vɛɹiəbl̩	'variable'	ɪnvɛɹiəbl̩	'invariable'
gloɹiəs	'glorious'	ɪŋgloɹiəs	'inglorious'
mɛʒəɹəbl̩	'measurable'	ɪmmɛʒəɹəbl̩	'immeasurable'
bæləns	'balance'	ɪmbæləns	'imbalance'

Morphemes can take different realisations depending on the **phonological environment** they are in. Sometimes, the phonological processes a morpheme undergoes (among which the ones above) can affect its realisation to the point where it is difficult to recognise the separate forms actually as the same morpheme. Usually semantics helps us in this case, giving us a hint of the same source for the separate forms we see. The prefixes [ɪn-], [ɪm-] and [ɪŋ-] in English are one such case, for which we can assume a same origin given the systematic meaning they contribute to the word they attach to (i.e. a negative meaning). To make linguistic analysis and description easier, morphemes are presented in one 'representative' form which may change due to phonological processes – this form is the **underlying form**. The underlying form should be the form that occurs in the largest number of environments and the one that is most difficult to derive by a rule – these two precautions save us a lot of time in writing derivation rules! In the case at hand, [ɪn-] appears before æ, d, t, s, v, [ɪm-] appears before p, m, b, and [ɪŋ-] appears before k, g. The most varied environment is the one of [ɪn-] that we take as our underlying form, while the other two realisations are **alloforms** of this latter. We can formalise the derivation rules as follows:

/ɪn-/ > [ɪm-] / _C$_{[bilabial]}$
/ɪn-/ > [ɪŋ -] / _C$_{[velar]}$
/ɪn-/ > [ɪn-] / elsewhere

See Payne 2006, 70-3 for further explanation.

3.3 Analysis and Description

Once you finish your analysis of the data, describe, in no less than 300 words, the phonological processes that characterise personal affixes of HA and SA. Provide the right name for them and, optionally, write a formal rule to describe them.

- From what premises did your analysis start?
- What is the underlying form of the HA first person singular subject and of the SA first person plural subject/fourth person (in transitive agreement)? Justify your answer.
- What type of alignment does Ainu display?
- If any, what doubts remain that prevent you from confidently answering this last question?
- How could these doubts be clarified?
- Go back to the last examples (41-53) of set 2.1 in which the suffix *-hci* is used. Do you notice any alternative forms of this suffix? Look at how the suffix is used with transitive and intransitive verbs: is it really a person agreement marker, as your were told in the opening of this lesson, or should we reconsider its status? Motivate your answer.