A new synchronic view on gradation and quantitative alternation in Aanaar Saami

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Background

- Castrén 1839, 1845: Earliest systematic descriptions of Aanaar Saami and Saami consonant gradation, comparison with Finnish & Estonian

- **Lagercrantz** 1927; Collinder 1929: Separation of quantitative and qualitative alternation

- **Itkonen** 1946, 1971 (etc.): Current understanding and terminology concerning quantitative and qualitative alternation and its history in AS (and other Saami languages)

- Korhonen 1967, 1969, 1981 etc.; Sammallahti 1984, 1998, 2009 etc.: Morphophonology, historical & current developments

- Morottaja & Olthuis 2022: Thorough description of AS morphophonology

- Koukkari 2020: Synchronic view to be elaborated upon in this presentation

Background

- Description of AS gradation in established terminology (from Morottaja & Olthuis 2022):
- 5 grades: strong, lengthened & shortened strong, weak, lengthened weak
- Plus: lengthening & shortening *stem types*

ASTE-VAIHTELU-TAPAHTUMA	VAHVA ASTE	VAHVAN ASTEEN		HEIKKO ASTE	HEIKON ASTEEN PIDENTYMÄ
		PIDENTYMÄ	LYHENTYMÄ		
t : đ 'mato'	t máátu	tt mááttun	- máátun	đ máádu	- máádoin
m̥ : m 'liemi'	m̥ liem̥â	mm liemmân	- liem̥ân	m liemâ	- liemáin
kk : h 'mummo'	kk ákku	- ákkun	k áákun	h ááhu	hh áhhoin
bb : b 'toinen'	bb nubbe	- nubben	b nuubán	b nube	bb nubbeest
[nnd] : nd 'poika'	[nnd] kandâ	- kandân	nd kaandân	nd kaandâ	[nnd] kandáin
lkk : lh 'maito'	lkk miel'kki	- miel'kkin	lk miälkán	lh mielhi	[llh] / lhh miel'hijn / miel'hhijn
[hht] : vt 'yksi'	[hht] ohtâ	- ohtân	ht oohtân	vt oovtâ	vtt ovttáin

Background

- Example: grades in bisyllabic verbs in the indicative (from Morottaja & Olthuis 2022):

Kaksitavuisten verbien asteet indikatiivissa

IND		1. PERS.	2. PERS.	3. PERS.
PREESENS	YKSIKKÖ	H	H	V
	KAKSIKKO	V (p)	V	V (p)
	MONIKKO	V (p)	V	V
PRETERITI	YKSIKKÖ	V (p)	V (p)	H
	KAKSIKKO	H (p)	H (p)	H (p)
	MONIKKO	H	H	V (p)

V = vahva aste

H = heikko aste

V (p): Jos verbin vahva aste on asteessa II, merkityissä muodoissa on vahvaan asteen pidentymä.

H (p): Jos verbin heikko aste on asteessa II, merkityissä muodoissa on heikon asteen pidentymä.

Background

- Established terminology relatively unchanged since Itkonen 1946.

- Itkonen's description places a lot of emphasis on *why* the system works as it does; i.e. on its diachronic background.
    - Intended for an audience of Finno-Ugricisists, not lay language learners.
        - "This is easy if you know Proto-Saamic!"

- For many consonants, the end results of different historical developments are synchronically identical!

Background

Aste-vaihtelu-tapahtuma	Vahva aste	Vahvan asteen		Heikko aste	Heikon asteen pidentymä
		Pidentymä	Lyhentymä		
t : đ 'mato'	t máátu	tt mááttun	- máátun	đ máádu	- máádoin
ṃ : m 'liemi'	ṃ lieṃâ	mm liemmân	- lieṃân	m liemâ	- liemáin
kk : h 'mummo'	kk ákku	- ákkun	k áákun	h ááhu	hh áhhoin
bb : b 'toinen'	bb nubbe	- nubben	b nuubán	b nube	bb nubbeest
[nnd] : nd 'poika'	[nnd] kandâ	- kandân	nd kaandân	nd kaandâ	[nnd] kandáin

Vowel Phonemes

Monophthongs

i	(y)	u
e, (ö)	e, â	o
ä, á		a

Diphthongs

ie	ye	uo
iä	uá	

- Standard orthography used in tables
  - y = *ü*
  - e = *ə* in the first syllable of a word, unless the following syllable contains *e* or *i*: *ennuv* /ənnuv/ 'much'
    - e = *e* otherwise: *enni* /enni/ 'mother', *alme* /alme/ 'sky'
  - â = *ə*
  - á = *ȧ* historically, but does not contrast with *ä*

- Stressed vowels may be divided into 2 classes (Koukkari 2022):
  - "Dark": a, o, u, i, (uo, ə)
  - "Bright": ä/á, e, iä, uá, ie, (ye)

Consonant Phonemes

	Labial	Dental	Alveolar	Postalv.	Palatal	Velar	Glottal
Nasals	m		n		ŋj	ŋ	
Stops	p b	t d				k g	
Affricates			c z	č ž			
Fricatives	f		s	š			
Approximants	v	đ	l r		j (i)		h

- Standard orthography used in table
  - ŋj = *ń*, đ = δ, z = *ʒ*, ž = *ǯ*
  - i = j post-vocalically

- Stops and affricates contrast fortis/lenis; lenis semi-voiced, fortis aspirated in non-initial position (initially no contrast, except in loans).

Quantity

- Three degrees of quantity can be distinguished for voiced continuant consonants and (most) monophthongal vowels: short, mid-long, and long.

  - Mid-long quantity not phonemic for vowels; may be considered an allophone of either long or short (but ambiguous which).

  - Contrast between mid-long and long consonants being lost in spoken language in certain positions (Türk et al 2015).

    - Not (yet?) standard; ignored in this presentation.

- All other consonants contrast a short vs. long degree.

- Diphthongs and consonant clusters: short vs. long.

Quantity

- Standard orthography mostly distinguishes two degrees.
  - Single letter = short phoneme: *na* /na/ 'well' (interjection)
  - Doubled letter = long phoneme: *naa* /nā/ 'yes, yeah; indeed'
  - Mid-long phonemes written the same as short ones: *kove* /kovè/ ~ /kovè/
  - Diphthong and consonant cluster length not indicated.

- Precision diacritics used in this presentation[1]:
  - Dot below = mid-long consonant: *sääṇi* 'word'
  - Grave = mid-long latus vowel: *koẏè* 'picture'
    - Not used before coda /j/ (sources disagree; length neutralized?)
  - Preceding apostrophe = short consonant cluster: *aˈmè* 'sky.GEN.SG'
    - Not used after long vowels; clusters always short in this position (?)
  - Breve on first element = short diphthong: *vy̆elgiđ* 'leave'

[1]) Modified from Sammallahti & Morottaja 1993

Terminology and Notation

jävri
'lake'

- First-syllable vowel = Vowel Center (VC)
- Consonant(s) in coda of 1st & onset of 2nd syllable = Consonant Center (CC)
- Second-syllable vowel = Latus

- The quantitative degree of the consonant center is denoted with a Roman numeral: from shortest to longest, Q_I, Q_{II}, Q_{III}.
- Q_I only exists for sonorants; short obstruents represent Q_{II}!
- Long clusters represent Q_{III}, short ones Q_{II}.

Key Observations

- Grades distinguished mainly by quantity.

- Only 2 distinct quantities for obstruents & clusters; 3 for sonorants.

- *Shortened* and *lengthened* grades distinct only where qualitative differences appear between strong and weak.
  - But: *shortening type* (ST) - short vowel center regardless of grade, occurs by default when an ending adds one or more syllables to word.

- Qualitative differences between grades only appear for a relatively small number of consonants.

Stem Types

- Disyllabic stems
  - Reflect basic Proto-Saamic stem type; most common vocabulary
  - Divided into subtypes based on *stem vowel* (typically latus in citation form)
  - Most morphophonological alternation; topic of this presentation

- Other stem types:
  - Trisyllabic: Less complex alternation; typically two stem allomorphs
  - Tetrasyllabic: Resemble bisyllabic words; somewhat less complex
  - Contracted: Either no consonant alternation at all, or roughly similar to trisyllabic words

Disyllabic Nouns

- NOM.SG ends in a vowel (usually the stem vowel)
  - May be any monophthongal vowel; *a* and *á* rare, but do exist.[1]

- Three main types of quantity alternation:
  1) Binary gradation with vowel length alternation in VC (*â-, u-, i-* & *á*-stems)
  2) Binary gradation with vowel length alternation in latus (*o-, a-, á-*)
  3) Ternary gradation (*â-, u-, i-, o-*)

- Other, rarer types also exist, but are mostly outside the scope of this presentation.

- Qualitative gradation to be dealt with separately.

- Disyllabic adjectives outside the scope of this presentation, but largely follow same rules.

[1]) Omitted by mistake from abstract of this presentation - as noted by keen-eyed anonymous reviewer - but mentioned previously in Koukkari 2020.

Disyllabic Nouns: Type 1

- Stem vowel *â, i, u* or, in bright-vocalic words, *á*.

- NOM.SG has Q$_{III}$.
  cŭoppâ 'fish meat'
  áldu 'reindeer cow'
  k̆ermi 'load'
  hĭärrá 'lord'

- Alternation Q$_{III}$: Q$_{II}$
  - Short vowel center before Q$_{III}$ and in ST, long otherwise.

SG					
NOM	**cŭoppâ**	**áldu**	**k̆ermì**	**hĭärrá**	**vQ$_{III}$ʋ**
GEN	cuopâ	ááldu	kyermi	hiärá	v̄Q$_{II}$ʋ
ACC	cuopâ	ááldu	kyermi	hiäṛá	v̄Q$_{II}$ʋ
ILL	cuopân	ááldun	kuármán	hiärán	v̄Q$_{II}$ʋn
LOC	cuopâst	ááldust	kyermist	hiäṛást	v̄Q$_{II}$ʋst
COM	**cŭoppáin**	**áldoin**	**kŭormiịn**	**hĭärráin**	**vQ$_{III}$ʋịn**
ABE	cŭopâttáá	álduttáá	k̆eṛmittáá	hĭäṛáttáá	vQ$_{II}$ʋttáá
ESS	**cŭoppân**	**áldun**	**k̆ermin**	**hĭärrán**	**vQ$_{III}$ʋn**
PART	**cŭoppâd**	**áldud**	**k̆ermid**	**hĭärrád**	**vQ$_{III}$ʋd**
PL					
NOM	cuopah	áálduh	kyermih	hiäṛáh	v̄Q$_{II}$ʋh
GEN	cuopâi	ááldui	kuormij	hiäṛái	v̄Q$_{II}$ʋị
ACC	cuopâid	áálduid	kuormijd	hiäṛáid	v̄Q$_{II}$ʋịd
ILL	**cŭoppáid**	**áldoid**	**kŭormijd**	**hĭärráid**	**vQ$_{III}$ʋịd**
LOC	cuopâin	áálduin	kuormijn	hiäṛáin	v̄Q$_{II}$ʋịn
COM	cŭopâigijn	álduigijn	kŭoṛmijgijn	hĭäṛáigijn	vQ$_{II}$ʋịgijn
ABE	cŭopâittáá	álduittáá	kŭoṛmijttáá	hĭäṛáittáá	vQ$_{II}$ʋịttáá

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Disyllabic Nouns: Type 2

- Stem vowel *o, a*[1] or, in *dark-vocalic* words, *á*.

- NOM.SG has Q$_{III}$.

  mušto 'memory'
  pirrá 'spinning top'
  teltta 'tent'

- Alternation Q$_{III}$: Q$_{II}$

  - Short latus in NOM.SG, ESS & PART; long in LOC.SG; mid-long following Q$_{II}$.
    - Ambiguous where followed by /j/.
  - Exception: ILL.SG has long VC and short latus.

  [1] Often in loans, not all of which conform regularly to this type.

SG				
NOM	**mušto**	**pìrrá**	**teltta**	vQꜰꜰυ
GEN	mùštò	piṛà	teʟtà	vQꜰꜰù
ACC	mùštò	piṛà	teʟtà	vQꜰꜰù
ILL	muušton	piirán	teeltan	v̄Qꜰꜰυn
LOC	**muštoost**	**pìrráást**	**telttaast**	vQꜰꜰ̄ῡst
COM	**muštoin**	**pìrráin**	**telttain**	vQꜰꜰυin
ABE	mùštòttáá	piṛàttáá	teʟtàttáá	vQꜰꜰùttáá
ESS	**mušton**	**pìrrán**	**telttan**	vQꜰꜰυn
PART	**muštod**	**pìrrád**	**telttad**	vQꜰꜰυd
PL				
NOM	mùštòh	piṛàh	teʟtàh	vQꜰꜰùh
GEN	mùštoi	piṛái	teʟtai	vQꜰꜰυi̯
ACC	**muštoid**	**pìrráid**	**telttaid**	vQꜰꜰυi̯d
ILL	**muštoid**	**pìrráid**	**telttaid**	vQꜰꜰυi̯d
LOC	**muštoin**	**pìrráin**	**telttain**	vQꜰꜰυin
COM	muštoigijn	piṛáigijn	teʟtaigijn	vQꜰꜰυigijn
ABE	mùštoittáá	piṛáittáá	teʟtaittáá	vQꜰꜰυittáá

Disyllabic Nouns: Type 3

- Stem vowel *â, u, i* or *o*.
- NOM.SG has Q_{II}.

  kieḷâ 'tongue, language'
  tááḷu 'house, building'
  sääṇi 'word'
  piṇò 'pile, heap'

- Alternation $Q_{III} : Q_{II} : Q_I$
  - o-stems: latus long after Q_{III}, both vowels in LOC.SG.
  - Otherwise no vowel length alternation, apart from ST.

SG					
NOM	kieḷâ	siäḷu	sääṇi	piṇò	$\sqrt{}Q_{II}\upsilon$
GEN	*kielâ*	*siälu*	*sääni*	*pinò*	$\sqrt{}Q_I\upsilon$
ACC	*kielâ*	*siälu*	*sääni*	*pinò*	$\sqrt{}Q_I\upsilon$
ILL	kieḷân	siäḷun	sááṇán	piṇòn	$\sqrt{}Q_{II}\upsilon n$
LOC	*kielâst*	*siälust*	*säänist*	*piinoost*	$\breve{\sqrt{}}Q_I\breve{\upsilon}st$
COM	*kieláin*	*siäloin*	*saanijn*	*pinoin*	$\sqrt{}Q_I\upsilon in$
ABE	*kĭelâttáá*	*sĭäluttáá*	*sänittáá*	*pinottáá*	$\breve{\sqrt{}}Q_I\upsilon ttáá$
ESS	**kiellân**	**siällun**	**säännin**	**pinnoon**	$\sqrt{}Q_{III}\breve{\upsilon}n$
PART	**kiellâd**	**siällud**	**säännid**	**pinnood**	$\sqrt{}Q_{III}\breve{\upsilon}d$
PL					
NOM	*kielah*	*siäluh*	*säänih*	*pinòh*	$\sqrt{}Q_I\upsilon h$
GEN	*kielâi*	*siälui*	*saanij*	*pinoi*	$\sqrt{}Q_I\upsilon i$
ACC	*kielâid*	*siäluid*	*saanijd*	*pinoid*	$\sqrt{}Q_I\upsilon id$
ILL	*kieláid*	*siäloid*	*saanijd*	*pinoid*	$\sqrt{}Q_I\upsilon id$
LOC	*kielâin*	*siäluin*	*saanijn*	*pinoin*	$\sqrt{}Q_I\upsilon in$
COM	*kĭelâigijn*	*sĭäluigijn*	*sanijgijn*	*pinoigijn*	$\breve{\sqrt{}}Q_I\upsilon igijn$
ABE	*kĭelâittáá*	*sĭäluittáá*	*sanijttáá*	*pinoittáá*	$\breve{\sqrt{}}Q_I\upsilon ittáá$

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Disyllabic Nouns: e-stems

- Stem-final *e* alternates with *i*, with effects on gradation.
  - *alme* 'sky'
  - *kov̯è* 'picture'

- Mixed gradation:
  - SG forms & NOM.PL: same quantity structure as o-stems
    - Q$_{III}$ in NOM.SG > type 2
    - Q$_{II}$ in NOM.SG > type 3
  - Oblique PL:
    - Q$_{III}$ in NOM.SG > as type 1
    - Q$_{II}$ in NOM.SG > VC lengthened, except in ST.

SG				
NOM	**alme**	**vQ$_{III}$ʊ**	kov̯è	vQ$_{II}$ù
GEN	a̋lmè	vQ$_{II}$ù	kov̯è	vQ$_{I}$ù
ACC	a̋lmè	vQ$_{II}$ù	kov̯è	vQ$_{I}$ù
ILL	aalma̠n	v̄Q$_{II}$ʊ*n*	kov̯a̋n	vQ$_{II}$ù*n*
LOC	**almeest**	**vQ$_{III}$ū*st***	kooveest	v̄Q$_{I}$ū*st*
COM	o̲lmi̠jn	**vQ$_{III}$ʊi̠*n***	k̲uuvijn	v̄Q$_{I}$ʊi̠*n*
ABE	a̋lmèttáá	vQ$_{II}$ù*ttáá*	kov̯èttáá	vQ$_{I}$ùttáá
ESS	**almen**	**vQ$_{III}$ʊ*n***	**kov̯veen**	**vQ$_{III}$ū*n***
PART	**almed**	**vQ$_{III}$ʊ*d***	**kov̯veed**	**vQ$_{III}$ū*d***
PL				
NOM	a̋lmèh	vQ$_{II}$ù*h*	kov̯èh	vQ$_{I}$ù*h*
GEN	o̲olmij	v̄Q$_{II}$ʊi̠	k̲uuvij	v̄Q$_{I}$ʊi̠
ACC	o̲olmijd	v̄Q$_{II}$ʊi̠*d*	k̲uuvijd	v̄Q$_{I}$ʊi̠*d*
ILL	**o̲lmi̠jd**	**vQ$_{III}$ʊi̠*d***	k̲uuvijd	v̄Q$_{I}$ʊi̠*d*
LOC	o̲olmijn	v̄Q$_{II}$ʊi̠*n*	k̲uuvijn	v̄Q$_{I}$ʊi̠*n*
COM	ő̲lmijgijn	vQ$_{II}$ʊi̠gijn	k̲uvi̠jgijn	vQ$_{I}$ʊi̠gijn
ABE	ő̲lmijttáá	vQ$_{II}$ʊi̠*ttáá*	k̲uvijttáá	vQ$_{I}$ʊi̠ttáá

Disyllabic Nouns: Possessive Forms

- Nouns may be declined to indicate the person (but not number!) of a possessor: *hĭärrám* 'my/our lord', *hĭärrád* 'your lord', *hĭärrás* 'their lord'

- Much less commonly used than the absolute declension; this account based on rules given by Itkonen (1991) and Morottaja & Olthuis (2022).

- Same gradation types as in abs. declension may be distinguished.

- More extensive syncretism: in addition to GEN.SG & ACC.SG, GEN.PL, ACC.PL & ILL.PL as well as COM.SG & LOC.PL merge in all types.
  - NOM.PL not in use (Itkonen 1991).

- ABE & COM.PL formed by attaching *-ttáá* or *-gijn*, respectively, to corresponding GEN.

hiäṛád 'of your lord'
  hiäṛádttáá 'without your lord'
hĭäṛáidis 'of their lords'
  hĭäṛáidisgijn 'with their lords'
  hĭäṛáidisttáá 'without their lords

Disyllabic Nouns: Type 1, Poss.

- Gradation Q_{III} : Q_{II}
  - Vowel lengthening only in GEN/ACC.SG 2nd & 3rd person.
  - Note lack of ST in ILL.SG & ESS.

- 2nd person forms, where not otherwise indicated, may be formed by replacing the *-n* of the corresponding 1st person form with *-d.*

  hĭäṛástân 'from my/our lord'
  hĭäṛástâd 'from your lord'

SG						
NOM	1st	cŭoppâm	áldum	kŭármám	hĭärrám	vQ‖ʋ*m*
	2nd	cŭoppâd	áldud	kŭármád	hĭärrád	vQ‖ʋ*d*
	3rd	cŭoppâs	áldus	kўermis	hĭärrás	vQ‖ʋ*s*
GEN/ACC	1st	cŭoppân	áldun	kŭármán	hĭärrán	vQ‖ʋ*n*
	2nd	cuopâd	ááldud	kuármád	hiäṛád	v̄Q‖ʋ*d*
	3rd	cuopâs	ááldus	kyermis	hiäṛás	v̄Q‖ʋ*s*
ILL	1st	cŭoppâsân	áldusân	kŭármásân	hĭärrásân	vQ‖ʋ*sân*
	3rd	cŭoppâsis	áldusis	kŭármásis	hĭärrásis	vQ‖ʋ*sis*
LOC	1st	cŭopâstân	áldustân	kўeṛmistân	hĭäṛástân	vQ‖ʋ*stân*
	3rd	cŭopâstis	áldustis	kўeṛmistis	hĭäṛástis	vQ‖ʋ*stis*
COM	1st	cŭopâinân	álduinân	kŭormijnân	hĭäṛáinân	vQ‖ʋ*inân*
	3rd	cŭopâinis	álduidis	kŭormijnis	hĭäṛáinis	vQ‖ʋ*idis*
ESS	1st	cŭoppânân	áldunân	kўerminân	hĭärránân	vQ‖ʋ*nân*
	3rd	cŭoppânis	áldunis	kўerminis	hĭärránis	vQ‖ʋ*nis*
PL						
GEN/ACC/ILL	1st	cŭopâidâd	álduidân	kŭormijdân	hĭäṛáidân	vQ‖ʋ*inân*
	3rd	cŭopâidis	álduidis	kŭormijdis	hĭäṛáidis	vQ‖ʋ*idis*

Disyllabic Nouns: Type 2, Poss.

- Gradation $Q_{III} : Q_{II}$
  - Latus long in GEN/ACC.SG 2nd & 3rd person, mid-long in LOC.SG.
  - Note lack of ST in ILL.SG & ESS.

- 2nd person forms, where not otherwise indicated, may be formed by replacing the *-n* of the corresponding 1st person form with *-d.*

  teɫtàstân 'in my/our tent'
  teɫtàstâd 'in your tent'

SG					
NOM	1st	muštom	pìrrám	telttam	vQ̰ʋ*m*
	2nd	muštod	pìrrád	telttad	vQ̰ʋ*d*
	3rd	muštos	pìrrás	telttas	vQ̰ʋ*s*
GEN/ACC	1st	mušton	pìrrán	telttan	vQ̰ʋ*n*
	2nd	muštood	pìrráád	telttaad	vQ̰ū*d*
	3rd	muštoos	pìrráás	telttaas	vQ̰ū*s*
ILL	1st	muštosân	pìrrásân	telttasân	vQ̰ʋ*sân*
	3rd	muštosis	pìrrásis	telttasis	vQ̰ʋ*sis*
LOC	1st	muštòstân	pìṛàstân	teɫtàstân	vQ̰ù*stân*
	3rd	muštòstis	pìṛàstis	teɫtàstis	vQ̰ù*stis*
COM	1st	muštoinân	pìṛáinân	teltainân	vQ̰ʋi̯*inân*
	3rd	muštoinis	pìṛáinis	teltainis	vQ̰ʋi̯*idis*
ESS	1st	muštonân	pìrránân	telttanân	vQ̰ʋ*nân*
	3rd	muštonis	pìrránis	telttanis	vQ̰ʋ*nis*
PL					
GEN/ACC/ILL	1st	muštoidân	pìṛáidân	teltaidân	vQ̰ʋi̯*inân*
	3rd	muštoidis	pìṛáidis	teltaidis	vQ̰ʋi̯*idis*

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Disyllabic Nouns: Type 3, Poss.

- Gradation $Q_{III} : Q_{II} : Q_I$
  - o-stems: Latus long after Q_{III} and GEN/ACC.SG 2nd & 3rd person, mid-long in LOC.SG.
  - Otherwise no vowel length alternation, apart from ST.
  - Note presence of ST in ILL.SG & ESS.

- 2nd person forms, where not otherwise indicated, may be formed by replacing the *-n* of the corresponding 1st person form with *-d.*

SG						
NOM	1st	**kìellâm**	**táállum**	**sáánnám**	**pìnnoom**	**vQ̩um**
	2nd	**kìellâd**	**táállud**	**sáánnád**	**pìnnood**	**vQ̩ud**
	3rd	**kìellâs**	**táállus**	**säännìs**	**pìnnoos**	**vQ̩us**
GEN/ACC	1st	**kìellân**	**táállun**	**sáánnán**	**pìnnoon**	**vQ̩un**
	2nd	*kielâd*	*táálud*	*sáánád*	*piinood*	*v̄Q̩ud*
	3rd	*kielâs*	*táálus*	*säänis*	*piinoos*	*v̄Q̩us*
ILL	1st	kĭel̩âsân	tál̩usân	sán̩ásân	pin̩òsân	vQ̩usân
	3rd	kĭel̩âsis	tál̩usis	sán̩ásis	pin̩òsis	vQ̩usis
LOC	1st	kĭelâstân	tálustân	sänistân	pinòstân	vQ̩ustân
	3rd	kĭelâstis	tálustis	sänistis	pinòstis	vQ̩ustis
COM	1st	kĭelâinân	táluinân	sanijnân	pinoinân	vQ̩ui̯nân
	3rd	kĭelâinis	táluinis	sanijnis	pinoinis	vQ̩ui̯dis
ESS	1st	kĭel̩ânân	tál̩unân	sän̩inân	pin̩ònân	vQ̩unân
	3rd	kĭel̩ânis	tál̩unis	sän̩inis	pin̩ònis	vQ̩unis
PL						
GEN/ACC/ILL	1st	kĭelâidân	táluidân	sanijdân	pinoidân	vQ̩ui̯nân
	3rd	kĭelâidis	táluidis	sanijdis	pinoidis	vQ̩ui̯dis

Disyllabic Verbs

- INF ends in stem vowel + *đ*
  - *a*- and *á*-stem disyllabic verbs do not exist.

- Two main types of quantitative alternation: binary & ternary.
  - The grade of the CC in a form does not depend on the stem vowel.
  - Qualitative gradation to be dealt with separately.

- INF always has Q$_{III}$.
  - Binary gradation if both vowels are short
  - Ternary gradation if either VC or latus is long.

- Possible subgrouping based on form of PRS.3SG:
  1) Ends in -*á*, bright VC
  2) Ends in -*a* or -*á*, dark VC
  3) Bare stem of verb (ends in *o* or *u*)

Disyllabic Verbs: Binary, Subtype 1

- i-stems, â-stems with bright VC in PRS.3SG.
  - *vy̌elgiđ* 'leave'
  - *pallâđ* 'be warm enough'

- Gradation Q_{III} : Q_{II}
  - ⁻ Long VC before Q_{II}.

	PRS			PST	
1SG	paaḷâm	vuálgám		**pallim**	**vu̯olgim**
2SG	paaḷah	vuálgáh		**pallih**	**vu̯olgih**
3SG	**páĺlá**	**vu̯áĺgá**		paaḷâi	vuolgij
1DU	**pälleen**	**vy̌elgeen**		**palláim**	**vŭolgijm**
2DU	**pallâvettee**	**vy̌elgivettee**		**palláid**	**vŭolgijd**
3DU	**pallâv**	**vy̌elgiv**		**palláin**	**vŭolgijn**
1PL	**pallâp**	**vy̌elgip**		paaḷâim	vuolgijm
2PL	**pallâvetteđ**	**vy̌elgivetteđ**		paaḷâid	vuolgijd
3PL	**pälliḥ**	**vy̌elgiḥ**		**pallii**	**vu̯olgii**
CNG	paaḷâ	vyelgi		**koddám**	**čulgâm**
	IMP			**COND**	
3SG	páálus	vuálgus		paḷâččij	vu̯áĺgàččij
3PL	**páĺlus**	**vu̯áĺgus**		paḷâččii	vu̯áĺgàččii

Disyllabic Verbs: Binary, Subtype 2

- e-stems, â-stems with dark VC in PRS.3SG.
  - *čulgâđ* 'spit'
  - *koddeđ* 'kill'

- Gradation $Q_{III} : Q_{II}$
  - Long VC in PST forms with Q_{II}.
  - â-stems: long VC in PRS.1SG, 2SG & CNG.
  - Otherwise short VC, mid-long latus with Q_{II}.

	PRS			PST	
1SG	čuulgâm	kodám		čulgim	kuddim
2SG	čuulgah	kodàh		čulgih	kuddih
3SG	čolgá	koddá		čuulgâi	kuudij
1DU	čolgeen	koddeen		čulgáim	kuddijm
2DU	čulgâvettee	koddevettee		čulgáid	kuddijd
3DU	čulgâv	koddev		čulgáin	kuddijn
1PL	čulgâp	koddep		čuulgâim	kuudijm
2PL	čulgâvetteđ	koddevetteđ		čuulgâid	kuudijd
3PL	čolgeh	koddeh		čulgii	kuddii
CNG	čuulgâ	kodè		čulgâm	koddám
	IMP			**COND**	
3SG	čolgòs	kodòs		čulgâččij	kodàččij
3PL	čolgoos	koddoos		čulgâččii	kodàččij

Disyllabic Verbs: Binary, Subtype 3

- u-stems, o-stems
  áiguđ 'intend'
  oskođ 'believe'

- Gradation Q_{III} : Q_{II}
  - VC long in u-stems before Q_{II}.
  - o-stems do not feature VC lengthening; latus mid-long after Q_{II}.

	PRS			PST	
1SG	ááigum	oˈskòm		aigum	uskum
2SG	ááiguh	oˈskòh		aiguh	uskuh
3SG	áigu	osko		ááigui	oˈskoi
1DU	áigoon	oskoon		áigoim	oskoim
2DU	áiguvettee	oskovettee		áigoid	oskoid
3DU	áiguv	oskov		áigoin	oskoin
1PL	áigup	oskop		ááiguim	oˈskoim
2PL	áiguvetteđ	oskovetteđ		ááiguid	oˈskoid
3PL	áiguh	oskoh		aiguu	uskuu
CNG	ááigu	oˈskò		áigum	oskom
	IMP			COND	
3SG	ááigus	oˈskòs		áiguččij	oˈskòččij
3PL	áigus	oskoos		áiguččii	oˈskòččii

Disyllabic Verbs: Ternary, Subtype 1

- e-stems, â-stems with bright VC in PRS.3SG.

  faallâđ 'offer'

  čäälliđ 'write'

- Gradation Q_{III} : Q_{II} : Q_I
  - INF stem in PRS.3DU, PRS.1PL & PTCP.PST.
  - Short VC in PST.3PL.
  - i-stems: short VC, mid-long latus in PRS.1SG & 2SG.
  - Long VC in all other forms, except in ST.

	PRS			PST	
1SG	*faalâm*	*čálàm*		**faallïm**	**čaallïm**
2SG	*faalah*	*čálàh*		**faallih**	**čaallih**
3SG	fáálá	čáálá		*faalâi*	*čaalij*
1DU	**fälleen**	**čälleen**		*faaláim*	*čaalijm*
2DU	faḷâvettee	čäḷivettee		*faaláid*	*čaalijd*
3DU	**faallâv**	**čäälliv**		*faaláin*	*čaalijn*
1PL	**faallâp**	**čäällip**		*faalâim*	*čaalijm*
2PL	faḷâvetteđ	čäḷivetteđ		*faalâid*	*čaalijd*
3PL	fääḷih	čääḷih		**fallïi**	**čallïi**
CNG	*faalâ*	*čääli*		**faallâm**	**čáállám**
	IMP			COND	
3SG	*fáálus*	*čáálus*		*falâččij*	*čálàččij*
3PL	**fáállus**	**čáállus**		*falâččii*	*čálàččii*

Disyllabic Verbs: Ternary, Subtype 2

- e-stems, â-stems with dark VC in PRS.3SG.

  moonnâđ 'go'

  kođđeeđ 'knit, weave'

- Gradation Q_{III} : Q_{II} : Q_I
  - INF stem in PRS.3DU, PRS.1PL & PTCP.PST.
  - Long VC in all PST forms except 3PL.
  - â-stems: long VC in PRS.1SG, 2SG & CNG.
  - Short VC and short (â) or mid-long latus elsewhere.

	PRS			PST	
1SG	*moonâm*	*kođằm*		**moonnim**	**kuuđđim**
2SG	*moonah*	*kođằh*		**moonnih**	**kuuđđih**
3SG	*maṇà*	*koṭằ*		*moonâi*	*kuuđij*
1DU	**manneen**	**kođđeen**		*moonáim*	*kuuđijm*
2DU	*moṇâvettee*	*koṭèvettee*		*moonáid*	*kuuđijd*
3DU	**moonnâv**	**kođđeev**		*moonáin*	*kuuđijn*
1PL	**moonnâp**	**kođđeep**		*moonâim*	*kuuđijm*
2PL	*moṇâvetteđ*	*koṭèvetteđ*		*moonâid*	*kuuđijd*
3PL	*maṇèh*	*koṭèh*		**monnìi**	**kuđđìi**
CNG	*moonâ*	*kođè*		**moonnâm**	**kođđáám**
	IMP			**COND**	
3SG	*maṇòs*	*kođòs*		*monâččij*	*kođằččij*
3PL	**mannoos**	**kođđoos**		*monâččii*	*kođằččii*

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Disyllabic Verbs: Ternary, Subtype 3

- u-stems, o-stems
  kuárruđ 'sew'
  orroođ 'be, stay, dwell'

- Gradation $Q_{III} : Q_{II} : Q_I$
  - INF stem in PRS.3DU, PRS.1PL & PTCP.PST.
  - Short VC in PST.3PL.
  - Long VC in PST.1SG & 2SG.
  - Long VC in u-stems before Q_{II} & Q_{II}.
  - o-stems do not feature VC lengthening; latus mid-long after Q_{II}.

	PRS			PST	
1SG	*kuárum*	*oròm*		**koorrum**	**uurrum**
2SG	*kuáruh*	*oròh*		**koorruh**	**uurruh**
3SG	kuáṛu	oṛò		*kuárui*	*oroi*
1DU	**kŭárroon**	**orroon**		*kuárọim*	*oroim*
2DU	kŭáṛuvettee	oṛòvettee		*kuárọid*	*oroid*
3DU	**kuárruv**	**orroov**		*kuárọin*	*oroin*
1PL	**kuárrup**	**orroop**		*kuáruim*	*oroim*
2PL	kŭáṛuvetteđ	oṛòvetteđ		*kuáruid*	*oroid*
3PL	kuáṛuh	oṛòh		**korruu**	**urruu**
CNG	*kuáru*	*orò*		**kuárrum**	**orroom**
	IMP			COND	
3SG	*kuárus*	*oròs*		*kŭáruččij*	*oròččij*
3PL	**kuárrus**	**orroos**		*kŭáruččii*	*oròččii*

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Qualitative Gradation

- Qualitative differences between grades only appear in historically short unvoiced stops & affricates.

  - Exception: the sound change */k/ > /h/ also affects the weak grade of the historical geminate /kk/:
    ákku (< *ākkɔ̄) 'grandmother' : *ááhu*

  - Also used to occur in sibilants (cf. Itkonen 1971), but this has been lost.

- The *strong grade* retains the original stop or affricate, while the *weak* is a fricative or an approximant.

- The pairs *p ~ v* & *t ~ đ* feature ternary gradation, with the weak grade in Q_I.

- In the pairs *h ~ γ, c ~ s, č ~ j* & *kk ~ h,* neither consonant represents Q_I; these feature *complex gradation*.

lyepi (< *lōpē) 'lamina' GEN.SG *l/̆eve*
kietâ (< *kētę̄) 'hand' : *kieđâ*
juuhâ (< *jokę̄) 'river' : *juuṿâ*
čääci (< *čācē) 'water' : *čääsi*
eeči (< *ę̄čē) 'father' : *eeji*

Qualitative Gradation: *p* & *t*, Nouns

- Disyllabic nouns with single *p* or *t* in CC in NOM.SG belong to type 3.
  - Weak grade in Q₁.

    kietâ 'hand; arm'
    liäpu 'rest'
    tääpi 'manner'
    ito 'sprout'

SG					
NOM	kietâ	liäpu	tääpi	itò	vQ_{II}ʊ
GEN	*kieđâ*	*liävu*	*täävi*	*iđò*	vQ_{I}ʊ
ACC	*kieđâ*	*liävu*	*täävi*	*iđò*	vQ_{I}ʊ
ILL	kietân	liäpun	táápán	itòn	vQ_{II}ʊn
LOC	*kieđâst*	*liävust*	*täävist*	*iiđoost*	̆vQ_{I}ʊ̆st
COM	*kieđáin*	*liävoin*	*taavijn*	*iđoin*	vQ_{I}ʊin
ABE	*kĭeđâttáá*	*lĭävuttáá*	*tävittáá*	*iđòttáá*	̆vQ_{I}ʊttáá
ESS	**kiettân**	**liäppun**	**tääppin**	**ittoon**	**vQ_{III}ʊ̆n**
PART	**kiettâd**	**liäppud**	**tääppid**	**ittood**	**vQ_{III}ʊ̆d**
PL					
NOM	*kieđah*	*liävuh*	*täävih*	*iđòh*	vQ_{I}ʊh
GEN	*kieđâi*	*liävui*	*taavij*	*iđoi*	vQ_{I}ʊį
ACC	*kieđâid*	*liävuid*	*taavijd*	*iđoid*	vQ_{I}ʊįd
ILL	*kieđáid*	*liävoid*	*taavijd*	*iđoid*	vQ_{I}ʊįd
LOC	*kieđâin*	*liävuin*	*taavijn*	*iđoin*	vQ_{I}ʊįn
COM	*kĭeđâigijn*	*lĭävuigijn*	*tavijgijn*	*iđoigijn*	̆vQ_{I}ʊįgijn
ABE	*kĭeđâittáá*	*lĭävuittáá*	*tavijttáá*	*iđoittáá*	̆vQ_{I}ʊįttáá

Qualitative Gradation: *p* & *t*, Nouns

- Cf. type-3 nouns without qualitative gradation.

SG					
NOM	kieḷâ	siäḷu	sääṇi	piṇò	$vQ_{II}ʊ$
GEN	kielâ	siälu	sääni	pinò	$vQ_{I}ʊ$
ACC	kielâ	siälu	sääni	pinò	$vQ_{I}ʊ$
ILL	kieḷân	siäḷun	sááṇán	piṇòn	$vQ_{II}ʊn$
LOC	kielâst	siälust	säänist	piinoost	$v̄Q_{I}ŭst$
COM	kieláin	siäloin	saanijn	pinoin	$vQ_{I}ʊịn$
ABE	kĭelâttáá	sĭäluttáá	sänittáá	pinottáá	$v̆Q_{I}ʊttáá$
ESS	kiellân	siällun	säännin	pinnoon	$vQ_{III}ŭn$
PART	kiellâd	siällud	säännid	pinnood	$vQ_{III}ŭd$
PL					
NOM	kielah	siäluh	säänih	pinòh	$vQ_{I}ʊh$
GEN	kielâi	siälui	saanij	pinoi	$vQ_{I}ʊị$
ACC	kielâid	siäluid	saanijd	pinoid	$vQ_{I}ʊịd$
ILL	kieláid	siäloid	saanijd	pinoid	$vQ_{I}ʊịd$
LOC	kielâin	siäluin	saanijn	pinoin	$vQ_{I}ʊịn$
COM	kĭelâigijn	sĭäluigijn	sanijgijn	pinoigijn	$v̆Q_{I}ʊịgijn$
ABE	kĭelâittáá	sĭäluittáá	sanijttáá	pinoittáá	$v̆Q_{I}ʊịttáá$

Qualitative Gradation: *p & t*, Verbs

- Disyllabic verbs with ternary gradation and *p* or *t* in CC in INF are inflected like other verbs with ternary gradation.
  - Weak grade in Q_I.

    sooppâđ 'agree; fit'
    puáttiđ 'come'

	PRS		PST	
1SG	*soovâm*	*pŭáđàm*	**sooppim**	**poottim**
2SG	*soovah*	*pŭáđàh*	**sooppih**	**poottih**
3SG	suápá	puátá	*soovâi*	*poođij*
1DU	**suáppeen**	**puátteen**	*soováim*	*poođijm*
2DU	sopâvettee	pŭátivettee	*soováid*	*poođijd*
3DU	**sooppâv**	**puáttiv**	*soováin*	*poođijn*
1PL	**sooppâp**	**puáttip**	*soovâim*	*poođijm*
2PL	sopâvetteđ	pŭátivetteđ	*soovâid*	*poođijd*
3PL	suápih	puátih	**soppìì**	**pottìì**
CNG	*soovâ*	*puáđi*	**sooppâm**	**puáttám**

	IMP		COND	
3SG	*suávus*	*puáđus*	*sovâččij*	*pŭáđàččij*
3PL	**suáppus**	**puáttus**	*sovâččii*	*pŭáđàččii*

Qualitative Gradation: *p* & *t*, Verbs

- Cf. subtype-1 verbs with ternary alternation without qualitative gradation.

	PRS			PST	
1SG	*faalâm*	*čál̀m*		**faallim**	**čaallim**
2SG	*faalah*	*čál̀h*		**faallih**	**čaallih**
3SG	*fáálá*	*čáálá*		*faalâi*	*čaalij*
1DU	**fälleen**	**čälleen**		*faaláim*	*čaalijm*
2DU	faḷâvettee	čäḷivettee		*faaláid*	*čaalijd*
3DU	**faallâv**	**čäälliv**		*faaláin*	*čaalijn*
1PL	**faallâp**	**čäällip**		*faalâim*	*čaalijm*
2PL	faḷâvetteđ	čäḷivetteđ		*faalâid*	*čaalijd*
3PL	fääḷih	čääḷih		**fallìi**	**čallìi**
CNG	*faalâ*	*čääli*		**faallâm**	**čáállám**
	IMP			COND	
3SG	*fáálus*	*čáálus*		*falâččij*	*čálàččij*
3PL	**fáállus**	**čáállus**		*falâččii*	*čálàččii*

Complex Gradation

- Concerns the alternating pairs *h ~ γ̣, c ~ s* & *č ~ j̣*, as well as *k(k) ~ h*.

- Exhibit a form of binary gradation; quantity is either Q_{III} or Q_{II}.
  - Prototypically Q_{II} (except for *kk*, which is Q_{III}), but both members of each pair may be lengthened to Q_{III}, i.e. geminated.

- Disyllabic nouns with complex gradation and stem vowel *â*, *i*, or *u* (or *á*) appear to follow the quantity structures of type 1.
  - o-stems either type 2 or mixed 2/3 (?).

- Disyllabic verbs with complex gradation are grouped with ternary gradation (or rather, II : I) by Morottaja & Olthuis (2022), but quantities do not always appear to match.

- Further research required.

Complex Gradation: Nouns

- CC *c, č, h*, or *kk* in NOM.SG.
- Stem vowel *â, i, u* or, in bright-vocalic words, *á*;
  - *muocâ* 'moth'
  - *ákku* 'grandmother'
  - *eeči* 'father'
  - *čiähá* 'hiding place, cache'

- Weak grade in all forms except NOM.SG, ILL.SG, ESS & PART.
- Quantities as in type 1, apart from NOM.SG.
  - Note retention of vowel length in ESS & PART.

SG					
NOM	muocâ	ákku	eeči	čiähá	
GEN	muosâ	ááhu	eeji	čiaγá	v̄Qᵢᵢᵤ
ACC	muosâ	ááhu	eeji	čiaγá	v̄Qᵢᵢᵤ
ILL	muocân	áákun	iáčán	čiähán	v̄Qᵢᵢᵤn
LOC	muosâst	ááhust	eejist	čiaγást	v̄Qᵢᵢᵤst
COM	mŭossáin	áhhoin	eijijn	čĭaγγáin	v̌Qᵢᵢᵤin
ABE	mŭosâttáá	áhuttáá	ejittáá	čĭaγáttáá	v̌Qᵢᵢᵤttáá
ESS	muoccân	ákkun	eeččin	čiähhán	vQᵢᵢᵤn
PART	muoccâd	ákkud	eeččid	čiähhád	vQᵢᵢᵤd

PL					
NOM	muosah	ááhuh	eejih	čiaγáh	v̄Qᵢᵢᵤh
GEN	muosâi	ááhui	eejij	čiaγái	v̄Qᵢᵢᵤi
ACC	muosâid	ááhuid	eejijd	čiaγáid	v̄Qᵢᵢᵤid
ILL	mŭossáid	áhhoid	eijijjd	čĭaγγáid	v̌Qᵢᵢᵤid
LOC	muosâin	ááhuin	eejijn	čiaγáin	v̄Qᵢᵢᵤin
COM	mŭosâigijn	áhuigijn	ejijgijn	čĭaγáigijn	v̌Qᵢᵢᵤigijn
ABE	mŭosâittáá	áhuittáá	ejijttáá	čĭaγáittáá	v̌Qᵢᵢᵤittáá

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Complex Gradation: Nouns

- Cf. type-1 nouns without qualitative gradation.

SG					
NOM	cŭoppâ	áldu	kỹermi	hĭärrá	vQₘᵥ
GEN	cuopâ	ááldu	kyermi	hiäṛá	v̄Qₘᵥ
ACC	cuopâ	ááldu	kyermi	hiäṛá	v̄Qₘᵥ
ILL	cuopân	ááldun	kuármán	hiäṛán	v̄Qₘᵥ*n*
LOC	cuopâst	ááldust	kyermist	hiäṛást	v̄Qₘᵥ*st*
COM	cŭoppáin	áldoin	kŭormijn	hĭärráin	vQₘᵥ*in*
ABE	cŭopâttáá	álduttáá	kỹeṛmittáá	hĭäṛáttáá	vQₘᵥ*ttáá*
ESS	cŭoppân	áldun	kỹermin	hĭärrán	vQₘᵥ*n*
PART	cŭoppâd	áldud	kỹermid	hĭärrád	vQₘᵥ*d*
PL					
NOM	cuopah	áálduh	kyermih	hiäṛáh	v̄Qₘᵥ*h*
GEN	cuopâi	ááldui	kuormij	hiäṛái	v̄Qₘᵥ*i*
ACC	cuopâid	áálduid	kuormijd	hiäṛáid	v̄Qₘᵥ*id*
ILL	cŭoppáid	áldoid	kŭormijd	hĭärráid	vQₘᵥ*id*
LOC	cuopâin	áálduin	kuormijn	hiäṛáin	v̄Qₘᵥ*in*
COM	cŭopâigijn	álduigijn	kŭoṛmijgijn	hĭäṛáigijn	vQₘᵥ*igijn*
ABE	cŭopâittáá	álduittáá	kŭoṛmijttáá	hĭäṛáittáá	vQₘᵥ*ittáá*

Concluding Remarks

- Consonant gradation in AS can be mostly described in terms of quantitative alternation only.

- Disyllabic words can be divided into a number of inflection classes based on the paradigmatic quantitative alternation they exhibit.

- Qualitative alternation only concerns a limited number of consonants.
    - Words exhibiting these can at least fairly often be classified into the same quantitative alternation classes as other words.

- Each inflection class can be described in relatively simple terms on its own, but the number of classes can get quite large (esp. including word types not covered in this presentation).
    - Simpler description overall? Probably a matter of taste, but perhaps the elephant is easier to eat in smaller parts.

Takkâ!

https://github.com/tkoukkar/anaraskiela/

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