GLOW 37, HUBrussel / KULeuven April 2-4, 2014

INTRAPARADIGMATIC CYCLIC AND ROLL-UP DERIVATIONS IN THE OLD NORSE REINFORCED DEMONSTRATIVE*

Eric T. Lander, Ghent University
eric.lander@ugent.be

Cinque (2005) takes a very broad crosslinguistic approach in his study of Greenberg's (1963) 20th universal

Here: one language, one paradigm

GOALS

- A fine-grained morphological decomposition of the reinforced demonstrative pronoun (RDem) in Old Norse (ON)
- Show that there are three different kinds of structures within the ON RDem paradigm
- Using Cinque's (2005) U20 framework, (a) deduce the functional sequence of RDem, (b) derive the three structures, and (c) explain why only these three structures/derivations are available

1. Historical Background

RDem is a defining morphological innovation of Northwest Germanic (NWGmc); it is absent in East Germanic (Gothic) (see Lander 2013).[1]

(1)[2]

		F.NOM.SG	M.NOM.SG	N.NOM/ACC.SG
North Gmc	Runic Norse (c.800 – c.1050)	*súsi*	*sási*	*þatsi*
	Old Norse (c.1050 – c.1300)	*sjá / þessi*	*sjá / þessi*	*þetta*
West Gmc	Old English (c.650 – 1066)	*þēos*	*þe(:)s*	*þis*
	Old Frisian (c.1150 – c.1550)	*thius*	*this*	*thit*
	Old Saxon (c.830 – c.1200)	*thius*	*these*	*thit*
	Old High German (c.750 – c.1050)	*dësiu*	*dësēr*	*diz*

(Lander in prep.)

- Almost always glossed as proximal 'this'

* I am grateful to Liliane Haegeman and Michal Starke for invaluable discussion, guidance, and comments. Thanks also to Sverre Stausland Johnsen and Katrín Axelsdóttir for discussion of the data, and to GIST for useful feedback on previous versions of this talk (April 2 & 12, 2013 and March 26, 2014). My research is supported by BOF grant 01D30311.

In Proto-NWGmc, RDem was formed by adding the particle *-*si/-se*[3] to the neutral demonstrative (Dem) 'that':

(2) NWGmc neutral demonstrative + reinforcer particle

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	sō	sa	þat	þōz	þai	þō
ACC	þō	þan(-)	þat	þōz	þanz	þō
GEN	þaizōz	þas	þas	þaizō	þaizō	þaizō
DAT	þaizē	þaim	þaim	þaim(z)	þaim(z)	þaim(z)

+ **-si/-se**

(based on Nielsen's 2000: 230-5 reconstruction of Early Runic Dem)

The archaic 'Dem-*si*' stage of NWGmc is preserved in some Runic Norse (RN) inscriptons.[4]

(3)[5]

F.NOM.SG	**susi**	(*súsi*)	<	NWGmc **sō-si*
M.NOM.SG	**saR:si**	(*saRsi*)		
M.NOM.SG	**sasi**	(*sási*)	<	NWGmc **sa-si*
M.ACC.SG	**þan:si**	(*þansi*)		
	þansi	(*þansi*)	<	NWGmc **þa-n-si*
N.ACC.SG	**þat:si**	(*þatsi*)		
	þatsi	(*þatsi*)	<	NWGmc **þa-t-si*
M.DAT.SG	**þaimsi**	(*þæimsi*)	<	NWGmc **þai-m-si*

The structures in (2) and (3) typify 'internal inflection'

Internal inflection = case ending (K) is to the left of the reinforcer component (R)

(4) Early stage: internal inflection in RN

M.DAT.SG *þæimsi*

þæi-	-m	-si
D	K_{Dem}	R

where D = Dem stem

Next stages in historical development

- Reinforcer *-s(i)* absorbed into the Dem stem → new RDem stem
- RDem stem inflected with strong adjective endings
  (Haugen 1982: 100-101; EWAhd II: 611, 613)

General shift from internal inflection to external inflection

External inflection = K is to the right of R

As seen in ON:

(5) Later stage: external inflection in ON

M.DAT.SG *þessum*

þe-	-ss	-um
D	R	K

RDem stem

Though some internal inflection does survive into the later stages:

(6) Internal inflection in ON

M.ACC.SG *þenna*

þe-	-n	-na
D	K	R

2. Decomposing the reinforced demonstrative in Old Norse

I focus on the internal syntax of the 24 forms in (7)

(7) ON RDem (Gordon 1956: 295)

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	þessi	þessi	þetta	þessar	þessir	þessi
ACC	þessa	þenna	þetta	þessar	þessa	þessi
GEN	þessar	þessa	þessa	þessa	þessa	þessa
DAT	þessi	þessum	þessu	þessum	þessum	þessum

[NB: my arrangement is FEM – MASC – NEUT in order to highlight syncretisms]

A lot has happened between RN (3) and ON (7): the RN Dem-*si* forms are transparent and easily decomposable; ON forms appear to be more opaque[6]

Three observations about (7)

(2.1) RDem base *þe-*
(2.2) Boxed forms = *þess*-K
(2.3) Two kinds of non-boxed forms

2.1. First observation

- **Every form begins with *þe-* (= RDem base)**

(8) Parsing at *þe-* boundary

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	þe-ssi	þe-ssi	þe-tta	þe-ssar	þe-ssir	þe-ssi
ACC	þe-ssa	þe-nna	þe-tta	þe-ssar	þe-ssa	þe-ssi
GEN	þe-ssar	þe-ssa	þe-ssa	þe-ssa	þe-ssa	þe-ssa
DAT	þe-ssi	þe-ssum	þe-ssu	þe-ssum	þe-ssum	þe-ssum

To identify *þe-*, consider the ON Dem paradigm in (9):

(9) ON Dem

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	sú	sá	þa-t	þ-ær / þ-ár	þei-r	þa-u
ACC	þ-á	þa-nn	þa-t	þ-ær / þ-ár	þ-á	þa-u
GEN	þei-(r)rar	þe-s(s)	þe-s(s)	þei-(r)ra	þei-(r)ra	þei-(r)ra
DAT	þei-(r)ri	þei-m	þ-(v)í / þ-ȳ	þei-m	þei-m	þei-m

(Gordon 1956: 295, Haugen 1982: 101)

- Three kinds of Dem stems, which are inflected with demonstrative case endings

[*þ-* (10a-d) ; *þei-* (10e-j) ; *þa-* (10k-m)] + $-K_{Dem}$

(10) (a) F.ACC.SG þ-á
(b) F.NOM/ACC.PL þ-ær, þ-ár
(c) M.ACC.PL þ-á
(d) N.DAT.SG þ-(v)í, þ-ȳ

(e)	F.GEN.SG	þei-(r)rar
(f)	F.DAT.SG	þei-(r)ri
(g)	M.DAT.SG	þei-m
(h)	M.NOM.PL	þei-r
(i)	GEN.PL	þei-(r)ra
(j)	DAT.PL	þei-m
(k)	M.ACC.SG	þa-n(n)
(l)	N.NOM/ACC.SG	þa-t
(m)	N.NOM/ACC.PL	þa-u

ON *þ-* < PGmc **þ-*
ON *þei-* < PGmc **þai-* [PGmc **ai* > ON *ei*, an early kind of *i*-umlaut]
ON *þa-* < PGmc **þa-*

Other

(n)	M/N.GEN.SG	þe-s(s)	<	PGmc **þe-s* [root vocalism *e* instead of expected *a*]
(o)	F.NOM.SG	sú	<	PGmc **sō*
(p)	M.NOM.SG	sá	<	PGmc **sa*

RDem base is *þe-* instead of *þa-* or *þei-* for at least three reasons (historically speaking)

- Phonotactics
- Influence of genitive stem *þe-*
- *I*-umlaut triggered by *-si*

➢ **Phonotactics**

Proto-Norse **ʀs* > ON *ss*

(11) Proto-Norse **ʀs* > ON *ss* in RDem

(a)	F.GEN.SG	*þeiʀaʀ-si	>	*þeiʀa-ssi
(b)	DAT.PL	*þeimʀ-si	>	*þeim-ssi
(c)	M.NOM.PL	þeiʀ-si (**þiʀsi** (Sö 346))	>	*þei-ssi
(d)	F.NOM/ACC.PL	þēʀ-si (**þaʀsi** (Sö 40))	>	*þē-ssi

- Transition from internal to external inflection -

(12)	(a)	*þei-~~ʀa~~-ssi	>	*þei-ss(i)-	>	ON þess-ar
	(b)	*þei-~~m~~-ssi	>	*þei-ss(i)-	>	ON þess-um
	(c)	*þei-/-ssi	>	*þei-ss(i)-	>	ON þess-ir
	(d)	*þē-/-ssi	>	*þē-ss(i)-	>	ON þess-ar

Note the 'transitional stems' **þeiss-* and **þēss-* in (12)

- Syllabification fails because *ss* is an impermissible onset[7]: **þei.ssar* / **þee.ssar*

  → Pressure to reduce the long vowel/diphthong to *e*: *þes.sar*

➢ **Influence of M/N.GEN.SG Dem *þe-s(s)***

Stem = *þe-*

The spread of the genitive stem is not uncommon in other Germanic demonstrative paradigms

- Gothic Dem paradigm shows genitive stem *þi-* (< PGmc **þe-*) in more slots that the PGmc Dem paradigm
- In West Germanic, the RDem *s*-geminated stems OE *þiss-* and OF *thiss-* have probably been influenced by a genitive form (cf. OHG M/N.GEN.SG *dëss-es*) (see EWAhd II: 612-613)

➢ ***I*-umlaut triggered by *-si***

-si reinforcer could trigger *i*-umlaut (Nielsen 2000: 237, n.3)

Evident from spelling alternations robustly attested in RN:

(13)[8] *a* > *e* by *i*-umlaut

(a)	M.ACC.SG	**þan(:)si** (*þansi*)	vs.	**þensi** or **þinsi** (*þensi*)
(b)	N.ACC.SG	**þat(:)si** (*þatsi*)	vs.	**þitsi** (*þetsi*)
(c)	F.ACC.SG	**þa(:)si** (*þāsi*)	vs.	**þesi** (*þēsi*)

These three historical influences co-conspired to produce a leveling effect in the RDem paradigm

→ RDem base with root vocalism *e*

Synchronically, I will treat the RDem base *þe-* as the *i*-umlauted allomorph of the Dem stem *þa-*

2.2. Second observation

➢ **The boxed forms**

A big chunk of the paradigm shows the stem *þess-* + strong adjective endings (of the *n*-type class)

(14) *þess*-K = 'boxed forms'

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	þessi	þessi	þetta	þess-ar	þess-ir	þessi
ACC	þess-a	þenna	þetta	þess-ar	þess-a	þessi
GEN	þess-ar	þessa	þessa	þess-a	þess-a	þess-a
DAT	þess-i	þess-um	þess-u	þess-um	þess-um	þess-um

[**NB**: *þessa* is not boxed because *-a* is not the K ending in (15)]

(15) *n*-type strong adjective endings

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	-Ø	-r	-t	-ar	-ir	-Ø
ACC	-a	-n	-t	-ar	-a	-Ø
GEN	-rar	-s	-s	-ra	-ra	-ra
DAT	-ri	-um	-u	-um	-um	-um

Members of *n*-type class

- Bisyllabic adjectives ending in *-inn*
- Past participles of strong verbs
- **Various D-like items**: *-inn* 'the' (< *hinn* 'that'); *minn* 'my', *þinn* 'your', *sinn* '3.POSS.REFL'; *einn* 'one'; *nǫkkurr* 'some, any', *hverr* 'who'
  (Gordon 1956: 290, Faarlund 2004: 38)
- **RDem**

(16) *hinn*, *hin*, *hit* 'that, the' (Faarlund 2004: 38)

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	hin-Ø	hin-n (< hin-r)	hit (< hin-t)	hin-ar	hin-ir	hin-Ø
ACC	hin-a	hin-n	hit (< hin-t)	hin-ar	hin-a	hin-Ø
GEN	hin-nar (< hin-rar)	hin-s	hin-s	hin-na (< hin-ra)	hin-na (< hin-ra)	hin-na (< hin-ra)
DAT	hin-ni (< hin-ri)	hin-um	hin-u	hin-um	hin-um	hin-um

➢ One apparent exception to the 'boxed form' generalization

The *r* of the *r*-initial endings is absent in the corresponding RDem forms:

(17) (a) F.GEN.SG *-rar*
F.DAT.SG *-ri*
GEN.PL *-ra*

(b) F.GEN.SG *þess-**ar***
F.DAT.SG *þess-**i***
GEN.PL *þess-**a***

Not surprising in the context of ON phonology: inflectional *r* is highly vulnerable to assimilation

(18) (a) *sr* > *ss*

(b) M.NOM.SG *laus-r* 'loose' > *lauss*

In the case of RDem:

(19) (a) *ssr* > *ss*

(b) cf. *hvass-* 'sharp'

F.GEN.SG *hvass-**ar***
F.DAT.SG *hvass-**i***
GEN.PL *hvass-**a***

The rule in (19) could be viewed as deletion/cluster reduction instead of assimilation. The reduction of clusters involving geminates is also a well known ON phenomenon (Noreen 1923: 207-208, Barnes 2004: 101, inter alios).[9]

2.3. Third observation

➢ **Two kinds of non-boxed forms**

The bolded forms end in *-i* and the italicized forms end in *-a*

(20) Two kinds of non-boxed forms (bolded and italicized)

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	**þessi**	**þessi**	*þetta*	þess-ar	þess-ir	**þess-i**
ACC	þess-a	*þenna*	*þetta*	þess-ar	þess-a	**þess-i**
GEN	þess-ar	*þessa*	*þessa*	þess-a	þess-a	þess-a
DAT	þess-i	þess-um	þess-u	þess-um	þess-um	þess-um

Again, boxed forms consist of stem *þess-* + K endings from (15)

Non-boxed forms do NOT end with K endings in (15)

- **Bolded** forms
  - End in *-i* and surface as *þessi*
  - Do not show K overtly – we see neither M.NOM.SG *-r* nor F.NOM.SG / N.NOM/ACC.PL *-Ø*
- *Italicized* forms
  - End in *-a*
    - = 'secondary reinforcer' specific to North Gmc (i.e. developed after NWGmc *-*si*)[10]
  - Do show K overtly: K is word-internal and geminated

*þe-**nn**-a* (K = *-n*)
*þe-**tt**-a* (K = *-t*)
*þe-**ss**-a* (K = *-s*)

Improvement on the 'traditional' decomposition of RDem

- Haugen (1976: 157) claims that there are three RDem stems: *þess-*, *þenn-*, *þett-*
- Triple-stem approach is too superficial – it says nothing meaningful about the position of K, since the non-boxed forms do not end in K (*þess**i***, *þenn**a***, *þett**a***, *þess**a***)

3. Descriptive templates

3.1. The boxed forms

- ***þa-ss^{i}-K***

þa-	*-ss^{i}-*	-K
base	geminated *s*-reinforcer with floating *i*	case inflection

þa- + *i*-umlaut = *þe-*

Historically, ON *-ss-* < PN *-*R*-si*

- where the reinforcer *-si* was known to condition *i*-umlaut (see (11-13))

Thus we may represent *-ss-* as *-ss^{i}-* (i.e. **Rsi* > *ss^{i}*)

- where 'floating *i*' (= [+ front, – low]) induces *i*-umlaut and subsequently deletes

(21) þa-ss^{i}-K > þe-ss-K

Cf. Gibson & Ringen (2000): morphemes that induce *y*-umlaut in modern Icelandic contain a 'floating' bundle of [+ round, – back] features in their phonological structures[11]

3.2. The italicized forms

- ***þa-KK^{i}-a***

þa-	*-KK^{i}-*	*-a*
base	geminated K with floating *i*	*a*-reinforcer

Same thing – floating *i* triggers umlaut then deletes:

(22) þa-nn^{i}-a > þe-nn-a
þa-tt^{i}-a > þe-tt-a
þa-ss^{i}-a > þe-ss-a

3.3. The bolded forms and the phonology of floating i

- ***þa-K-ss^{i}***

þa-	-K	*-ss^{i}-*
base	case inflection	geminated *s*-reinforcer with floating *i*

> *þessi*, so in this template floating *i* surfaces

It is still unclear where K is located in the bolded forms, which all surface as *þessi*

- Understanding the phonology of floating *i* will give us a test for locating K in the bolded forms

<u>Weak *i*-stem verbs in ON</u>

Verbal root plus a "stem-forming suffix" *-i* (Faarlund 2004: 45) [= floating *i*]

E.g. *dœm-* 'judge' = underlyingly *dōm^{i}-*

- where *o:* goes to *ø:* <œ> by *i*-umlaut

(23) (a) Verb endings

	SG	**PL**
1	-Ø	-um
2	-r	-ið
3	-r	-a

(b) Present indicative of *dæm-* /dõm^{i}-/

	SG	**PL**
1	dœmi	dœm-um
2	dœm-ir	dœm-ið
3	dœm-ir	dœm-a

(Faarlund 2004: 49)

Three observations about floating *i*

- Deletes before vowel
- Surfaces word-finally
- Deletes in medial open syllable (Johnsen 2012)

➢ **Floating *i* is deleted before a vowel**

(24) 1.PL dõm^{i}-um > dœm-um
2.PL dõm^{i}-ið > dœm-ið
3.PL dõm^{i}-a > dœm-a

Also applies to a majority of the RDem forms:

(25) Floating *i* deletes before vowels

	F.SG	**M.SG**	**N.SG**	**F.PL**	**M.PL**	**N.PL**
NOM	**þessi**	**þessi**	*þett-a*	þess-ar	þess-ir	**þessi**
ACC	þess-a	*þenn-a*	*þett-a*	þess-ar	þess-a	**þessi**
GEN	þess- + -rar	*þess-a*	*þess-a*	þess- + -ra	þess- + -ra	þess- + -ra
DAT	þess- + -ri	þess-um	þess-u	þess-um	þess-um	þess-um

➢ **Floating *i* surfaces word-finally**

(26) 1.SG *dõm^{i}-Ø* > *dœmi*

Relevant for the bolded RDem forms:

(27) (a) *þa-ss^{i}* > *þe-ssi*

(b) Floating *i* surfaces word-finally in bolded forms

	F.SG	**M.SG**	**N.SG**	**F.PL**	**M.PL**	**N.PL**
NOM	**þessi**	**þessi**	*þett-a*	þess-ar	þess-ir	**þessi**
ACC	þess-a	*þenn-a*	*þett-a*	þess-ar	þess-a	**þessi**
GEN	þess- + -rar	*þess-a*	*þess-a*	þess- + -ra	þess- + -ra	þess- + -ra
DAT	þess- + -ri	þess-um	þess-u	þess-um	þess-um	þess-um

→ Floating *i* has a concrete, visible reflex in the RDem paradigm.

BUT we can still not be certain if F.NOM.SG / N.NOM/ACC.PL K *-Ø* is internal or external since both options surface as *þessi*

(28) *þa-Ø-ss^{i}* > *þessi*
þa-ss^{i}-Ø > *þessi*

But what about M.NOM.SG *-r*?

➢ **Floating *i* apparently surfaces before *r***

(29) 2/3.SG *dõm^{i}-r* > *dœmir*

More precisely:

Floating *i* is syncopated in medial open syllable (but surfaces in closed syllable)

Johnsen (2012): Proto-Norse **i* goes to zero in ON in medial open syllable

This historical rule is sychronically relevant for ON, e.g. in the paradigm for *dróttin-* 'ruler'

(30) *i* > *Ø* in medial open syllable

dróttin- 'ruler' (Johnsen 2012: 42)

(a) no *i*-syncope

NOM.SG	dróttin-r	>	drót.tinn[12]	
ACC.SG	dróttin-Ø	>	drót.tin	
GEN.SG	dróttin-s	>	drót.tins	

(b) *i*-syncope

DAT.SG	dróttin-i	>	drót.t̬i̬.ni	>	dróttni
NOM.PL	dróttin-ar	>	drót.t̬i̬.nar	>	dróttnar
GEN.PL	dróttin-a	>	drót.t̬i̬.na	>	dróttna

Accounts for the deletion of floating *i* in the RDem forms with *r*-initial endings:

(31) RDem with *r*-initial K

i-syncope

F.GEN.SG	þess^{i}-rar	>	þes.s~~i~~.rar	>	þess~~i~~ar	>	þessar
F.DAT.SG	þess^{i}-ri	>	þes.s~~i~~.ri	>	þess~~i~~	>	þessi
GEN.PL	þess^{i}-ra	>	þes.s~~i~~.ra	>	þess~~i~~a	>	þessa

(32) Floating *i* deletes in forms with *r*-initial K

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	**þessi**	**þessi**	*þett-a*	þess-ar	þess-ir	**þessi**
ACC	þess-a	*þenn-a*	*þett-a*	þess-ar	þess-a	**þessi**
GEN	þess-ar	*þess-a*	*þess-a*	þess-a	þess-a	þess-a
DAT	þess-i	þess-um	þess-u	þess-um	þess-um	þess-um

So floating *i* surfaces in *dæmir* because it is in a closed syllable: *dæm.ir*

→ Testing ground for the position of inflection in M.NOM.SG *þessi*, which should involve inflectional *-r*

TEST

- **If K ending *-r* is external…**

(33) (a) *þe-ss^{i}-r* > *þes.sir* [closed syllable → no syncope] > **þessir*

(b) cf. 2/3.SG *dæm^{i}-r* > *dæ.mir*

Incorrect form **þessir* surfaces[13]

- **If K ending *-r* is internal…**

(34) (a) *þe-r-ss^{i}* > *þesssi* > *þessi*

(b) cf. verb forms with passive/middle *-sk*

finnr-sk > *finnssk* > *finnsk* 'is found'
getr-sk > *getssk* > *getsk* <gezk> 'is begotten' (Barnes 2004: 144)

RULES
rs > *ss*
$C_1C_2C_2 > C_1C_2$ (Barnes 2004: 101)

Correct form *þessi* surfaces

Attested form is *þessi* and not **þessir* → M.NOM.SG *þessi* has internal inflection

I assume all the bolded forms have internal inflection:

(35)
þa-	-Ø	-ss^{i}	
þa-	-r	-ss^{i}	
D	K	R	

- **Supporting evidence from West Gmc for internal inflection in the bolded forms**

Old English, Old Frisian, and Old Saxon overtly show internal inflection in the relevant forms:

(36) Comparative evidence for internal inflection

(a) F.NOM.SG

OE	*þ-**ēo**-s*	(K_{Dem} < Dem *s-ēo*)
OF/OS	*th-**iu**-s*	(K_{Dem} < Dem *th-iu*)

(b) M.NOM.SG

OE	*þ-**e(:)**-s*	(K_{Dem} < Dem *s-e(:)*)

(c) NOM/ACC.PL (NB: not just the neuter)

OE	*þ-**ā**-s*	(K_{Dem} < Dem *þ-ā*)

3.4. Refining the templates

(37) Three descriptive templates

(i)	þa-	-ss^{i}	-K	[boxed]
(ii)	þa-	-KK^{i}	-a	[italicized]
(iii)	þa-	-K	-ss^{i}	[bolded]

As a final refinement, we can separate out consonant gemination in each template:

(38)
(i)	þa-	-s	-C^{i}	-K	[boxed]
(ii)	þa-	-K	-C^{i}	-a	[italicized]
(iii)	þa-	-K	-s	C^{i}	[bolded]

- Exceptionally regular RDem paradigm: each and every form in the ON RDem paradigm has a template with four distinct slots.

- Morphemes *-s* and *-a* never cooccur within the same RDem form. They are in perfect complementary distribution and can be considered two realizations of the same syntactic head.

4. A Cinquean approach

4.1. The U20 program

Cinque (2005) on the order of N, A, Num, Dem across languages:

- 14 attested orders
- 10 unattested orders (taken to be impossible)

Rules to derive the 14 possible orders but also rule out the 10 impossible ones:

- XP movement only (no head movement)
- XPs that move must contain the head noun
- Leftward movement only (antisymmetry, Kayne 1994)

4.2. Deducing the fseq of RDem

Four basic ingredients in RDem

(39)

þa-	D
adjectival endings in (15)	K
-C^{i}	R_1
complementary *-s / -a*	R_2

'R' for reinforcer (but not the adverbial locative reinforcer of Bernstein 1997)[14]

(40)

Cinque (2005)	RDem
N	D
A	K
Num	R_1
Dem	R_2

Just as in Cinque's work, there are 24 possible combinations of D, K, R_1, and R_2 ($4! = 4 \cdot 3 \cdot 2 \cdot 1 = 24$).

→ 24 possible base-generated functional sequences for RDem

(41) 24 possible RDem fseqs

(a)	R_2 R_1 K D	=	-s/-a + -C^{i} + -K + þa-
(b)	R_2 R_1 D K	=	-s/-a + -C^{i} + þa- + -K
(c)	R_2 D R_1 K	=	-s/-a + þa- + -C^{i} + -K
(d)	D R_2 R_1 K	=	þa- + -s/-a + -C^{i} + -K
(e)	R_1 R_2 K D	=	-C^{i} + -s/-a + -K + þa-
(f)	R_1 R_2 D K	=	-C^{i} + -s/-a + þa- + -K
(g)	R_1 D R_2 K	=	-C^{i} + þa- + -s/-a + -K
(h)	D R_1 R_2 K	=	þa- + -C^{i} + -s/-a + -K
(i)	K R_2 R_1 D	=	-K + -s/-a + -C^{i} + þa-
(j)	K R_2 D R_1	=	-K + -s/-a + þa- + -C^{i}
(k)	K D R_2 R_1	=	-K + þa- + -s/-a + -C^{i}
(l)	D K R_2 R_1	=	þa- + -K + -s/-a + -C^{i}
(m)	R_2 K R_1 D	=	-s/-a + -K + -C^{i} + þa-
(n)	R_2 K D R_1	=	-s/-a + -K + þa- + -C^{i}
(o)	R_2 D K R_1	=	-s/-a + þa- + -K + -C^{i}
(p)	D R_2 K R_1	=	þa- + -s/-a + -K + -C^{i}
(q)	R_1 K R_2 D	=	-C^{i} + -K + -s/-a + þa-
(r)	R_1 K D R_2	=	-C^{i} + -K + þa- + -s/-a
(s)	R_1 D K R_2	=	-C^{i} + þa- + -K + -s/-a
(t)	D R_1 K R_2	=	þa- + -C^{i} + -K + -s/-a
(u)	K R_1 R_2 D	=	-K + -C^{i} + -s/-a + þa-
(v)	K R_1 D R_2	=	-K + -C^{i} + þa- + -s/-a
(w)	K D R_1 R_2	=	-K + þa- + -C^{i} + -s/-a
(x)	D K R_1 R_2	=	þa- + -K + -C^{i} + -s/-a

[indices correspond to those in Cinque (2005), given that R_2 = Dem, R_1 = Num, K = A, D = N]

We need tests to narrow down these possibilities.

In the wider context of my research (Lander in prep.), my analysis is ultimately nanosyntactic. Thus some of the tests presented here are nanosyntactically flavored.

TESTS

➢ **Correct fseq must be able to derive the three templates from section 3 by U20 rules**

(42) Three templates

(i) D-R_2-R_1-K = þa-s-C^{i}-K => *þessum*, *þessu*, *þessir*, etc. [boxed]

(ii) D-K-R_1-R_2 = þa-K-C^{i}-a => *þenna*, *þetta*, *þessa* [italicized]

(iii) D-K-R_2-R_1 = þa-K-s-C^{i} => *þessi* [bolded]

For example, the fseq in (43a) fails to derive template (i)

(43) (a) $R_2\ R_1\ D\ K\ (N)$ = -s/-a + $-C^i$ + þa- + -K

(b) $D\text{-}R_2\text{-}R_1\text{-}K$ = þa-s-C^i-K

- Have to raise DP all the way up in order to get (43b)
- This means moving a constituent composed of D and N only (leaving K at the bottom)

Impossible: (35a) merges K in between D and N, so there can never be a constituent composed of D and N to the exclusion of K

➢ **Correct fseq must merge D and K adjacently**

We want to be able to build a constituent made up of D and K only

- Neutral demonstrative from the earlier Dem-*si* stage is an autonomous object, which may or may not be augmented by *-si*
- From the perspective of nanosyntax, we need a [D K] constituent in order for certain irregular forms to be spelled out.

Dem forms M.NOM.SG *sá* and F.NOM.SG *sú* are irregular: we expect something like **þa-r* and **þa-u* (unattested/impossible)

In other words, whenever **þa-r* and **þa-u* are built, they need to be replaced by *sá* and *sú*

(44) Phonological idioms[15]

(a) Regular entries

$<_{346}$ DP ⇔ *þa-* >

$<_{1249}$ $K_{F.NOM.SG}P$ ⇔ *-u* >

$<_{1250}$ $K_{M.NOM.SG}P$ ⇔ *-r* >

(b) Pointer entries

$<_{2386}$ [[346] 1249] ⇔ *sū* >

$<_{2387}$ [[346] 1250] ⇔ *sā* >

Same idea as:

- **bring-ed* → *brought* (Starke 2011b)
- **we's* → *our*

➢ **Correct fseq must merge K and R_1 adjacently**

Again, R_1 = consonant geminator in ON

Old English RDem shows *-s-* (non-shaded) ~ *-ss-* (shaded)

(45) OE RDem

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	þ-ēo-s	þ-e(:)-s	þi-s	þ-ā-s	þ-ā-s	þ-ā-s
ACC	þ-ā-s	þi-s-ne	þi-s	þ-ā-s	þ-ā-s	þ-ā-s
GEN	þi-s-re > þisse	þi-s-s-es	þi-s-s-es	þi-s-ra > þissa	þi-s-ra > þissa	þi-s-ra > þissa
DAT	þi-s-re > þisse	þi-s-s-um	þi-s-s-um	þi-s-s-um	þi-s-s-um	þi-s-s-um

(Campbell 2003: 291)

- Geminated / shaded forms can be thought of as:

(46) (a) *þi-s-C*-K = $D\text{-}R_2\text{-}R_1\text{-}K$

(b) = ON boxed forms / template (i)

- In the non-shaded forms we see suppression of gemination

⇒ Geminator R_1 is packaged and spelled out along with another ingredient

Only ingredient, moreover, that can track [±gemination] in the paradigm is K (i.e. D *þi-* and R_2 *-s* do not vary intraparadigmatically, while K does)

(47) (a) < $K_{M.GEN.SG}P$ ⇔ *-es* >

⇨ leaves R_1 free to be expressed as *-C*

þi-s-C-es > M.GEN.SG *þisses*

(b) < $\mathbf{R_1P}$ $K_{M.ACC.SG}P$ ⇔ *-ne* >
or
< $K_{M.ACC.SG}P$ $\mathbf{R_1P}$ ⇔ *-ne* >

⇨ gemination is suppressed due to K + R_1 packaging

þi-s-ne > M.ACC.SG *þisne*

OE shows us that we need a constituent made up of K and R_1 only → fseq must merge them adjacently

➢ **Correct fseq should be compatible with a decomposed K domain.**

Caha (2009) decomposes K domain into multiple features:

(48)
DAT	=	K_4 K_3 K_2 K_1
GEN	=	K_3 K_2 K_1
ACC	=	K_2 K_1
NOM	=	K_1

In addition to deriving all the templates, the correct fseq should be able to keep K features as a syntactic object to the exclusion of other features.

For example:

(49) K R_1 R_2 D

For template (ii) (D-K-R_1-R_2), move DP all the way up

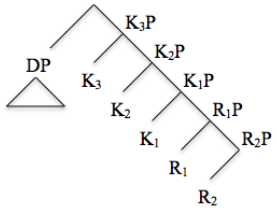
(50) **DP** KP t_{DP} R_1P t_{DP} R_2P t_{DP}

Achieves basic order of template (ii), but constituency problem for K:

M/N.GEN.SG *þessa* requires K_3, K_2, and K_1 for the genitive morpheme *-s*

BUT:

(51) No phrase containing only K features, to the exclusion of R features[16]



⇒ constituent-based spellout cannot target the case ending alone

→ Fseq (49) can be considered incompatible with decomposed K domain

---

Summarizing:

TESTS

The correct fseq must:

- Be able to derive all three ON templates by Cinque's (2005) U20 rules
  - (i) D-R_2-R_1-K = **þa-s-C^i-K**
  - (ii) D-K-R_1-R_2 = **þa-K-C^i-a**
  - (iii) D-K-R_2-R_1 = **þa-K-s-C^i**
- Have D and K adjacent so that Dem can be a constituent (**DK**)
- Have K and R_1 adjacent so that gemination can be suppressed in OE (**KR_1**)
- Not have constituency problems for multiple K features (Caha 2009) (**K**)

(52) **Testing the 24 possible base-generated orders**

KEY

* = failed test

(subex.) = requires subextraction of NP (possible in Cinque's system but not ideal[17])

KP constituency test is given after the template

(a) R_2 R_1 K D = -s/-a + -C^i + -K + þa-

þa-s-C^i-K / K
þa-K-C^i-a / K
þa-K-s-C^i / K
DK
KR_1

(b) R_2 R_1 D K = -s/-a + -C^i + þa- + -K

*þa-s-C^i-K
þa-K-C^i-a / K
þa-K-s-C^i / K
DK
*KR_1

(c) R_2 D R_1 K = -s/-a + þa- + -C^i + -K

*þa-s-C^i-K
þa-K-C^i-a / K
*þa-K-s-C^i
*DK
KR_1

(d) D R_2 R_1 K = þa- + -s/-a + -C^i + -K

þa-s-C^i-K / K
þa-K-C^i-a / K
þa-K-s-C^i / K
*DK
KR_1

(e) R_1 R_2 K D = -C^i + -s/-a + -K + þa-

*þa-s-C^i-K
þa-K-C^i-a / K
þa-K-s-C^i / K
DK
*KR_1

(f) R_1 R_2 D K = -C^i + -s/-a + þa- + -K

*þa-s-C^i-K
þa-K-C^i-a / K
þa-K-s-C^i / K
DK
*KR_1

(g) R_1 D R_2 K = -C^i + þa- + -s/-a + -K

*þa-s-C^i-K
*þa-K-C^i-a
þa-K-s-C^i / K
*DK
*KR_1

(h) D R_1 R_2 K = þa- + -C^i + -s/-a + -K

*þa-s-C^i-K
þa-K-C^i-a / K
þa-K-s-C^i / K
*DK
*KR_1

(i) K R_2 R_1 D = -K + -s/-a + -C^i + þa-

þa-s-C^i-K / K
?? þa-K-C^i-a (subex.) / *K
þa-K-s-C^i / *K
*DK
*KR_1

(j) K R_2 D R_1 = -K + -s/-a + þa- + -C^i

*þa-s-C^i-K
*þa-K-C^i-a
*þa-K-s-C^i
*DK
*KR_1

(k) K D R_2 R_1 = -K + þa- + -s/-a + -C^i

þa-s-C^i-K / K
*þa-K-C^i-a
*þa-K-s-C^i
DK
*KR_1

(l) D K R_2 R_1 = þa- + -K + -s/-a + -C^i

þa-s-C^i-K / K
þa-K-C^i-a / *K
þa-K-s-C^i / *K
DK
*KR_1

(m) R_2 K R_1 D = -s/-a + -K + -C^i + þa-

?? þa-s-C^i-K (subex.) / K
þa-K-C^i-a / *K
*þa-K-s-C^i
*DK
KR_1

(n) R_2 K D R_1 = -s/-a + -K + þa- + -C^i

*þa-s-C^i-K
*þa-K-C^i-a
*þa-K-s-C^i
DK
*KR_1

(o) R_2 D K R_1 = -s/-a + þa- + -K + -C^i

*þa-s-C^i-K
þa-K-C^i-a / *K
*þa-K-s-C^i
DK
KR_1

(p) D R_2 K R_1 = þa- + -s/-a + -K + -C^i

þa-s-C^i-K / K
þa-K-C^i-a / *K
*þa-K-s-C^i
*DK
KR_1

(q) R_1 K R_2 D = -C^i + -K + -s/-a + þa-

þa-s-C^i-K / K
*þa-K-C^i-a
þa-K-s-C^i / *K
*DK
KR_1

(r) R_1 K D R_2 = -C^i + -K + þa- + -s/-a

þa-s-C^i-K / K
*þa-K-C^i-a
*þa-K-s-C^i
DK
KR_1

(s) R_1 D K R_2 = -C^i + þa- + -K + -s/-a

þa-s-C^i-K / *K
*þa-K-C^i-a
þa-K-s-C^i / *K
DK
*KR_1

(t) D R_1 K R_2 = þa- + -C^i + -K + -s/-a

þa-s-C^i-K / K
*þa-K-C^i-a
þa-K-s-C^i / *K
*DK
KR_1

(u) K R_1 R_2 D = -K + -C^i + -s/-a + þa-

þa-s-C^i-K / K
þa-K-C^i-a / *K
?? þa-K-s-C^i (subex.) / *K
*DK
KR_1

(v) K R_1 D R_2 = -K + -C^i + þa- + -s/-a

þa-s-C^i-K / K
*þa-K-C^i-a
*þa-K-s-C^i
*DK
KR_1

(w) K D R_1 R_2 = -K + þa- + -C^i + -s/-a

þa-s-C^i-K / K
*þa-K-C^i-a
*þa-K-s-C^i
DK
*KR_1

(x) D K R_1 R_2 = þa- + -K + -C^i + -s/-a

þa-s-C^i-K / K
þa-K-C^i-a / *K
þa-K-s-C^i / *K
DK
KR_1

RESULT: Fseq (a) is the sole survivor; all other fseqs fail one or more tests[18]

4.3. Derivations

(53) Fseq: R_2 R_1 K D

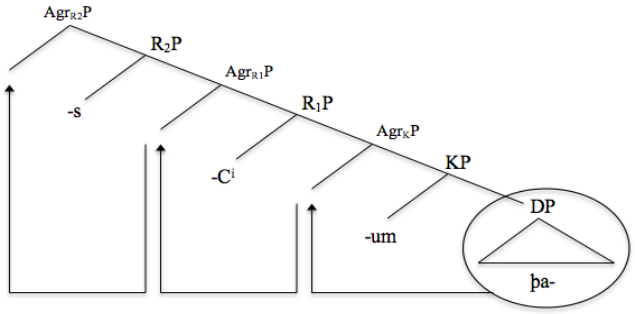
[$_{R2P}$ *-s / -a* [$_{R1P}$ *-C^i* [$_{KP}$ -K [$_{DP}$ *þa-*]]]]

U20 derivation			***Template***	
DP R_2P t_{DP} R_1P t_{DP} KP t_{DP}	'fully cyclic'	=>	(i)	þa-s-C^i-K [boxed]
[DP KP t_{DP}]$_i$ R_2P t_i R_1P t_i	'partially cyclic'	=>	(iii)	þa-K-s-C^i [bolded]
[[DP KP t_{DP}]$_i$ R_1P t_i]$_j$ R_2P t_j	'roll-up'	=>	(ii)	þa-K-C^i-a [italicized]

[In (54-56) I follow Cinque (2005) in labeling landing sites as AgrPs, but nothing hinges on this.]

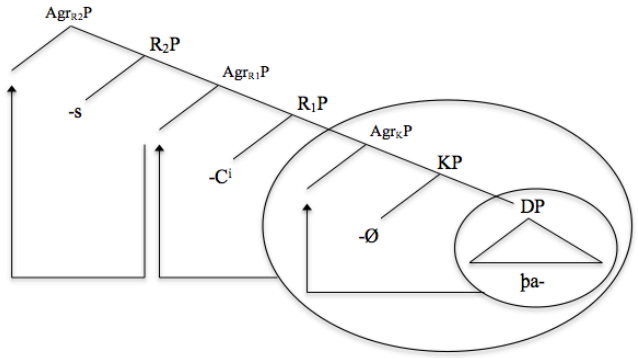
(54) Fully cyclic derivation

M.DAT.SG þa-s-C^{i}-um > *þessum*



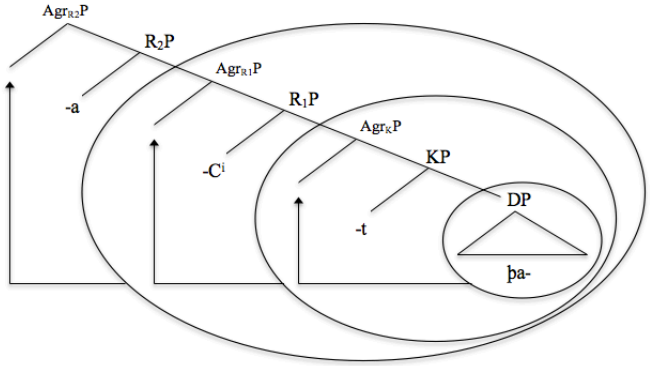
(55) Partially cyclic derivation

F.NOM.SG / N.NOM/ACC.PL þa-Ø-s-C^{i} > *þessi*



(56) Roll-up derivation

N.NOM/ACC.SG þa-t-C^{i}-a > *þetta*



- R_2 is lexicalized as *-a* only in the roll-up derivation and as *-s* if cyclic movement is involved.
- Two main *types* of derivations in the ON RDem paradigm: roll-up and cyclic

(57) Different derivations in RDem

	F.SG	**M.SG**	**N.SG**	**F.PL**	**M.PL**	**N.PL**
NOM	**þessi**	**þessi**	*þetta*	þessar	þessir	**þessi**
ACC	þessa	*þenna*	*þetta*	þessar	þessa	**þessi**
GEN	þessar	*þessa*	*þessa*	þessa	þessa	þessa
DAT	þessi	þessum	þessu	þessum	þessum	þessum

Roll-up = *italicized* [– cyclic]

Fully cyclic = boxed
Partially cyclic = **bolded** } [+ cyclic]

If a form is [– cyclic], then R_2 => *-a*

If a form is [+ cyclic], then R_2 => *-s*

→ We have straightforward morphological evidence for Cinque's derivational system.

4.4. Converging evidence for [± cyclic] in modern Icelandic

(58) Modern Icelandic RDem

	F.SG	M.SG	N.SG	F.PL	M.PL	N.PL
NOM	þessi	þessi	þetta(-ð)	þessar	þessir	þessi
ACC	þessa	þenna-n	þetta(-ð)	þessar	þessa	þessi
GEN	þessarar	þessa(%-s)	þessa(%-s)	þessara	þessara	þessara
DAT	þessari	þessum	þessu	þessum	þessum	þessum

% = children and adolescents (Axelsdóttir 2003: 60)

Very similar to the ON RDem paradigm, except for two things:

- Less interesting: boxed forms with *r*-initial endings have new stem (*þessa-*), allowing *r* to surface
- More interesting: the roll-up forms – but only the roll-up forms – show (the possibility of) an extra K marker

(59)[19] M.ACC.SG þe-**n**-C-a-**n**

M/N.GEN.SG þe-**s**-C-a-**s**

N.NOM/ACC.SG þe-**t**-C-a-**ð**[20]

That is, [– cyclic] forms are – as a class – undergoing a change in modern Icelandic, while [+ cyclic] forms are more or less the same as in ON

4.5. Why there are only three structures

- (41) showed the 24 possible *base-generated orders* for RDem
- We determined that (a) was the correct base-generated order, but there are still (in principle) 24 possible *structures* that can be derived from this underlying sequence. These structures are given in (60).

(60) 24 possible RDem structures (where base order is R_2 R_1 K D)

(a)	R_2 R_1 K D	=	-s/-a + -C^i + -K + þa-	
(b)	R_2 R_1 D K	=	-s/-a + -C^i + þa- + -K	
(c)	R_2 D R_1 K	=	-s/-a + þa- + -C^i + -K	
(d)	**D R_2 R_1 K**	**=**	**þa- + -s/-a + -C^i + -K**	**[boxed]**
(e)	R_1 R_2 K D	=	-C^i + -s/-a + -K + þa-	
(f)	R_1 R_2 D K	=	-C^i + -s/-a + þa- + -K	
(g)	R_1 D R_2 K	=	-C^i + þa- + -s/-a + -K	
(h)	D R_1 R_2 K	=	þa- + -C^i + -s/-a + -K	
(i)	K R_2 R_1 D	=	-K + -s/-a + -C^i + þa-	
(j)	K R_2 D R_1	=	-K + -s/-a + þa- + -C^i	
(k)	K D R_2 R_1	=	-K + þa- + -s/-a + -C^i	
(l)	**D K R_2 R_1**	**=**	**þa- + -K + -s/-a + -C^i**	**[bolded]**
(m)	R_2 K R_1 D	=	-s/-a + -K + -C^i + þa-	
(n)	R_2 K D R_1	=	-s/-a + -K + þa- + -C^i	
(o)	R_2 D K R_1	=	-s/-a + þa- + -K + -C^i	
(p)	D R_2 K R_1	=	þa- + -s/-a + -K + -C^i	
(q)	R_1 K R_2 D	=	-C^i + -K + -s/-a + þa-	
(r)	R_1 K D R_2	=	-C^i + -K + þa- + -s/-a	
(s)	R_1 D K R_2	=	-C^i + þa- + -K + -s/-a	
(t)	D R_1 K R_2	=	þa- + -C^i + -K + -s/-a	
(u)	K R_1 R_2 D	=	-K + -C^i + -s/-a + þa-	
(v)	K R_1 D R_2	=	-K + -C^i + þa- + -s/-a	
(w)	K D R_1 R_2	=	-K + þa- + -C^i + -s/-a	
(x)	**D K R_1 R_2**	**=**	**þa- + -K + -C^i + -s/-a**	**[italicized]**

[alphabetical indices have been kept the same as in (41)]

Only three of these (d, l, x) are observed in the RDem paradigm → Why are 21 structures ruled out?

Three constraints to narrow down (60)

- Syntactic (U20-derivable)
- Morphological ('unhappy suffixes')
- Phonological (C must immediately precede -C^i)

- **Must be derivationally possible in the U20 system**

10 structures are derivationally impossible (= would require head movement, remnant movement, etc.)

I also assume that we do not want subextraction (see n.17), meaning (p) is ruled out too

(61) (e) *R_1 R_2 K D = $-C^i$ + -s/-a + -K + þa-
(f) *R_1 R_2 D K = $-C^i$ + -s/-a + þa- + -K
(g) *R_1 D R_2 K = $-C^i$ + þa- + -s/-a + -K
(h) *D R_1 R_2 K = þa- + $-C^i$ + -s/-a + -K
(i) *K R_2 R_1 D = -K + -s/-a + $-C^i$ + þa-
(j) *K R_2 D R_1 = -K + -s/-a + þa- + $-C^i$
(m) *R_2 K R_1 D = -s/-a + -K + $-C^i$ + þa-
(p) ?? D R_2 K R_1 = þa- + -s/-a + -K + $-C^i$
(q) *R_1 K R_2 D = $-C^i$ + -K + -s/-a + þa-
(u) *K R_1 R_2 D = -K + $-C^i$ + -s/-a + þa-
(v) *K R_1 D R_2 = -K + $-C^i$ + þa- + -s/-a

➢ **Suffixes must be to the right of something**

Eliminating the structures in (61) → 13 structures left over, all of which are U20-derivable

(62) (a) R_2 R_1 K D = -s/-a + $-C^i$ + -K + þa-
(b) R_2 R_1 D K = -s/-a + $-C^i$ + þa- + -K
(c) R_2 D R_1 K = -s/-a + þa- + $-C^i$ + -K
(d) D R_2 R_1 K = þa- + -s/-a + $-C^i$ + -K
(k) K D R_2 R_1 = -K + þa- + -s/-a + $-C^i$
(l) D K R_2 R_1 = þa- + -K + -s/-a + $-C^i$
(n) R_2 K D R_1 = -s/-a + -K + þa- + $-C^i$
(o) R_2 D K R_1 = -s/-a + þa- + -K + $-C^i$
(r) R_1 K D R_2 = $-C^i$ + -K + þa- + -s/-a
(s) R_1 D K R_2 = $-C^i$ + þa- + -K + -s/-a
(t) D R_1 K R_2 = þa- + $-C^i$ + -K + -s/-a
(w) K D R_1 R_2 = -K + þa- + $-C^i$ + -s/-a
(x) D K R_1 R_2 = þa- + -K + $-C^i$ + -s/-a

We are dealing with items at the 'morphological' level rather than the 'syntactic' level

Except for *þa-*, RDem ingredients are suffixes of some kind → must be to the right of another morpheme

Nine structures fail to fulfill this requirement:

(63) (a) R_2 R_1 K D = -s/-a + $-C^i$ + -K + þa-
(b) R_2 R_1 D K = -s/-a + $-C^i$ + þa- + -K
(c) R_2 D R_1 K = -s/-a + þa- + $-C^i$ + -K
(k) K D R_2 R_1 = -K + þa- + -s/-a + $-C^i$
(n) R_2 K D R_1 = -s/-a + -K + þa- + $-C^i$
(o) R_2 D K R_1 = -s/-a + þa- + -K + $-C^i$
(r) R_1 K D R_2 = $-C^i$ + -K + þa- + -s/-a
(s) R_1 D K R_2 = $-C^i$ + þa- + -K + -s/-a
(w) K D R_1 R_2 = -K + þa- + $-C^i$ + -s/-a

⎫ ***unhappy suffixes**

Put simply, RDem must begin with *þa-*.

➢ **Consonant geminator must be immediately preceded by consonant**

→ Four structures left: (d, l, t, x)

(t) is phonologically problematic: vowel *a* of *þa-* cannot immediately precede $-C^i$

(64) (d) D R_2 R_1 K = þa- + -s/-a + $-C^i$ + -K
(l) D K R_2 R_1 = þa- + -K + -s/-a + $-C^i$
(t) D R_1 K R_2 = þa- + $-C^i$ + -K + -s/-a > *crash at PF
(x) D K R_1 R_2 = þa- + -K + $-C^i$ + -s/-a

Summarizing:

(65) **Testing the 24 possible RDem structures (where base order is R_2 R_1 K D)**

(a) R_2 R_1 K D = -s/-a + $-C^i$ + -K + þa-

U20
*suffixes
C-C^i

(b) R_2 R_1 D K = -s/-a + $-C^i$ + þa- + -K

U20
*suffixes
C-C^i

(c) R_2 D R_1 K = -s/-a + þa- + $-C^i$ + -K

U20
*suffixes
*C-C^i

(d) D R_2 R_1 K = þa- + -s/-a + $-C^i$ + -K

U20
suffixes
C-C^i

(e) R_1 R_2 K D = $-C^i$ + -s/-a + -K + þa-

*U20
*suffixes
*C-C^i

(f) $R_1\ R_2\ D\ K$ = $-C^i + -s/-a + þa- + -K$

*U20
*suffixes
*C-C^i

(g) $R_1\ D\ R_2\ K$ = $-C^i + þa- + -s/-a + -K$

*U20
*suffixes
*C-C^i

(h) $D\ R_1\ R_2\ K$ = $þa- + -C^i + -s/-a + -K$

*U20
suffixes
*C-C^i

(i) $K\ R_2\ R_1\ D$ = $-K + -s/-a + -C^i + þa-$

*U20
*suffixes
*C-C^i

(j) $K\ R_2\ D\ R_1$ = $-K + -s/-a + þa- + -C^i$

*U20
*suffixes
*C-C^i

(k) $K\ D\ R_2\ R_1$ = $-K + þa- + -s/-a + -C^i$

U20
*suffixes
C-C^i

(l) $D\ K\ R_2\ R_1$ = $þa- + -K + -s/-a + -C^i$

**U20
suffixes
C-C^i**

(m) $R_2\ K\ R_1\ D$ = $-s/-a + -K + -C^i + þa-$

*U20
*suffixes
C-C^i

(n) $R_2\ K\ D\ R_1$ = $-s/-a + -K + þa- + -C^i$

U20
*suffixes
*C-C^i

(o) $R_2\ D\ K\ R_1$ = $-s/-a + þa- + -K + -C^i$

U20
*suffixes
C-C^i

(p) $D\ R_2\ K\ R_1$ = $þa- + -s/-a + -K + -C^i$

?? U20 (subex.)
suffixes
C-C^i

(q) $R_1\ K\ R_2\ D$ = $-C^i + -K + -s/-a + þa-$

*U20
*suffixes
*C-C^i

(r) $R_1\ K\ D\ R_2$ = $-C^i + -K + þa- + -s/-a$

U20
*suffixes
*C-C^i

(s) $R_1\ D\ K\ R_2$ = $-C^i + þa- + -K + -s/-a$

U20
*suffixes
*C-C^i

(t) $D\ R_1\ K\ R_2$ = $þa- + -C^i + -K + -s/-a$

U20
suffixes
*C-C^i

(u) $K\ R_1\ R_2\ D$ = $-K + -C^i + -s/-a + þa-$

*U20
*suffixes
C-C^i

(v) K R_1 D R_2 = -K + -C^i + þa- + -s/-a

*U20
*suffixes
C-C^i

(w) K D R_1 R_2 = -K + þa- + -C^i + -s/-a

U20
*suffixes
*C-C^i

(x) D K R_1 R_2 = þa- + -K + -C^i + -s/-a

U20
suffixes
C-C^i

RESULT: Three structures (d, l, x) survive all constraints

(66) (d) D R_2 R_1 K = þa- + -s/-a + -C^i + -K => *þessum*, *þessu,* etc. [boxed / (i)]
(l) D K R_2 R_1 = þa- + -K + -s/-a + -C^i => *þessi* [bolded / (iii)]
(x) D K R_1 R_2 = þa- + -K + -C^i + -s/-a => *þetta*, *þenna*, *þessa* [italicized / (ii)]

Only other structure that fares even reasonably well in (65) is (p):

(67) (p) D R_2 K R_1 = þa- + -s/-a + -K + -C^i

?? U20 (subex.)
suffixes
C-C^i

Problem is that (p) requires subextraction, which is a questionable move.

NB: something like M.DAT.SG *þa-s-um-C^i* > **þasummi* is conceivable, but unattested

5. Conclusion

- Significant amount of intraparadigmatic variation in ON RDem
- We can isolate at least five separate RDem ingredients: *þa-*, -K, *-C^i*, *-s*, *-a*
- Four syntactic heads: D = *þa-*, K = -K, R_1 = *-C^i*, R_2 = *-s/-a*
- One fseq (R_2 R_1 K D): of the 24 possible base-generated orders of these four heads, only one can account for the RDem facts

- Three different kinds of U20 derivations / structures: 'fully cylic', 'partially cylic', 'roll-up'
- Morphological reflex of the roll-up derivation: if a form has a roll-up derivation, then R_2 is lexicalized as *-a*; if a form has a cyclic-type derivation, then R_2 spells out as *-s*.
  - In modern Icelandic the roll-up derivation also coincides with an extra K marker.
- Only three structures are possible in the first place: syntactic, morphological, and phonological constraints rule out 21 possible structures while allowing the three observed structures
- Interesting evidence for Cinque's (2005) system, but let's not get too comfortable:
  - "If cyclic, spell out *-s*; if not cyclic, spell out *-a*" → derivation controls lexicalization
  - Actually, in the Principles and Parameters framework, the opposite should hold:

    All variation is lexical; it is the content of the lexicon that dictates which syntactic structures are derived (see Starke 2011a)

REFERENCES

Axelsdóttir, Katrín. 2003. Saga ábendingarfornafnsins *sjá*. *Íslenskt mál* 25, 1: 41-77.
Barnes, Michael. 2004 [1999]. *A new introduction to Old Norse, Part I: Grammar*. Viking Society for Northern Research, University College London.
Bernstein, Judy. 1997. Demonstratives and reinforcers in Romance and Germanic languages. *Lingua* 102: 87-113.
Caha, Pavel. 2009. *The nanosyntax of case*. PhD dissertation, University of Tromsø.
Campbell, Alistair. 2003 [1959]. *Old English grammar*. Oxford University Press.
Cinque, Guglielmo. 2005. Deriving Greenberg's Universal 20 and its exceptions. *Linguistic Inquiry* 36, 3: 315-32.
The compact edition of the Oxford English Dictionary, P-Z (= OED). 1971. Oxford University Press.
D'Hulst, Yves. 2006. Romance plurals. *Lingua* 116: 1303-1329.
Etymologisches Wörterbuch des Althochdeutschen, II (= EWAhd II). 1988-. A. Lloyd, O. Springer & R. Lühr (eds.). Göttingen: Vandenhoeck & Ruprecht.
Faarlund, Jan Terje. 2004. *The syntax of Old Norse: With a survey of the inflectional morphology and a complete bibliography*. Oxford: Oxford University Press.
Gibson, C. St. John & Ringen, C.O. 2000. Icelandic umlaut in optimality theory. *Nordic Journal of Linguistics* 23, 1: 49-64.
Gordon, E.V. 1956 [1927]. *An introduction to Old Norse* (A.R. Taylor, ed.). Oxford: Oxford University Press.
Greenberg, Joseph. 1963. Some universals of grammar with particular reference to the order of meaningful elements. *Universals of language* (J. Greenberg, ed.): 73-113. Cambridge: MIT Press.
Haugen, Einar. 1976. *The Scandinavian languages: An introduction to their history*. Cambridge: Harvard University Press.
Haugen, Einar. 1982. *Scandinavian language structures*. Minneapolis: University of Minnesota Press.
Johnsen, Sverre Stausland. 2012. Syncope of long **ī* in Old Norse nouns. *Germansk filologi og norske ord*: 33-51. Oslo: Novus.
Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge: MIT Press.
Kayne, Richard. 2005. *Movement and silence*. New York: Oxford University Press.

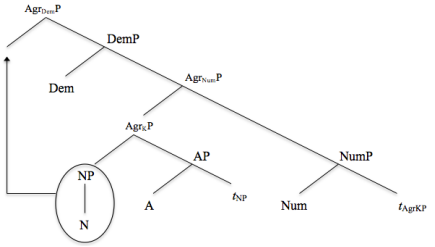
Krahe, Hans. 1969. *Germanische Sprachwissenschaft*, I-II (W. Meid, ed.), 7th ed. Berlin: Gruyter.
Lander, Eric T. 2013. Gothic and the Northwest Germanic reinforced demonstrative. 25th Scandinavian Conference of Linguistics. May 13-15, University of Iceland.
Lander, Eric T. In prep. *The nanosyntax of the Northwest Germanic reinforced demonstrative*.
Leu, Thomas. 2007. These *HERE* demonstratives. *U.Penn working papers in linguistics*, 13.1: 141-154.
Leu, Thomas. 2008. *The internal syntax of determiners* (GAGL 47). PhD thesis, NYU.
McFadden, Thomas. 2004. On the pronominal origins of the Germanic strong adjective inflection. Ms., University of Tromsø.
Nielsen, Hans Frede. 2000. *The Early Runic language of Scandinavia*. Heidelberg: Winter.
Noreen, Adolf. 1923 [1884]. *Altnordische Grammatik I: Altisländische und altnorwegische grammatik*, 4th ed. Halle (Saale): Max Niemeyer.
Robinson, Orrin W. 1992. *Old English and its closest relatives: A survey of the earliest Germanic languages*. Stanford: Stanford University Press.
Samnordisk runtextdatabas. www.nordiska.uu.se/forskn/samnord.htm. Uppsala University.
Sandøy, Helge. 1994. The nature of "overlong syllables" in the Scandinavian languages. *Phonologica 1992* (W. Dressler et al., eds.): 233-242. Torino: Rosenberg & Sellier.
Starke, Michal. 2011a. Towards an elegant solution to language variation: Variation reduces to the size of lexically stored trees. LingBuzz/001183.
Starke, Michal. 2011b. Course on nanosyntax. November 7-10, Ghent University.
Sturtevant, Albert Morey. 1943. Notes on Old Norse phonology. *Scandinavian Studies* 17, 5: 157-166. Society for the Advancement of Scandinavian Study.

[1] Though it is considered a defining morphological characteristic of the Northwest Germanic (NWGmc) branch, RDem has not received a detailed treatment in the literature and scholars apparently despair at the task:

> The dem[onstrative] pron[oun] 'this' is formed partly by adding *-se* to the [demonstrative 'that'] (as in WGmc), partly *-a*, a specially Nordic suffix, and is then given a variety of adjectival inflections, which makes it **impossible to set up a C[ommon] Sc[andinavian] paradigm**. (Haugen 1982: 100-1, my bold)

[2] Old Low Franconian, the ancestor of modern-day Dutch dialects, cannot be included in my research. Even though RDem surely existed in this language, it happens to be unattested in our limited sources of (Robinson 1992: 214).
[3] The origins of this particle are most likely verbal (OED P-Z: 3295), such that it is cognate with the following imperatives and discourse particles: Go. *saihu*, *sai*; OHG *see*, *se*; ON *sé*, *se* 'see! look!'. RDem in its earliest form probably meant something like 'look at that!'. See the EWAhd (II: 608-617) for a pronominal etymology.
[4] For the runic data I have made use of Uppsala University's *Samnordisk runtextdatabas*.
[5] **susi**: DR 229. **saʀ:si**: Sö 137, Sö 340. **sasi**: DR 189. **þan:si**: Sö 158. **þansi**: extremely prevalent, e.g. DR 40; Ög 44. **þat:si**: Sö 47. **þatsi**: Sö 46. **þaimsi**: Öl 1.
[6] Robinson (1992: 89-90, my bold): "Old Norse has developed an 'intensified' demonstrative pronoun…by attaching an intensifying particle *-si* to the regular demonstrative, and then carrying out **a series of analogical changes that render this origin obscure**."
[7] Interestingly, the sequence **ʀ-s* contained a morpheme boundary in Proto-Norse; therefore it may theoretically (according to Sandøy 1994) be syllabified using an empty nucleus (e.g. *þee.sØ.si*). However, the shift towards external inflection during the transitional period would have rendered this morpheme boundary meaningless, making such a solution unavailable.
[8] **þansi**: extremely prevalent; to name only a few, DR 40, 53, 291; Ög 81, 165; Sö 45, 131, 154; Sm 42, 78; Vg 47, 51; U 342, 394. **þan:si**: Sö 158. **þensi**: Br E2; DR 83; Ög 201, 203, 207, 211; Vg 73, 127, 175. **þinsi**: Br SC14; DR 220, EM85;239, EM85;265; N 84, 237; Ög 47, 103, 104; Öl 15, 42; Sm 125; Sö 258, 296, 367; U 319, 818, 1143, Fv1990;32A; Vg 4, 79, 122, 135. **þatsi**: Sö 46. **þat:si**: Sö 47. **þitsi**: DR 383. **þasi**: Ög 10, 157, 162, 212; Sm 17, 80; Sö 101; U 69, 126, 345. **þesi**: Ög 68; Sm 100; U 617.
[9] The existence of forms with an intrusive *r* (e.g. *hvassrar*, *hvassri*, and *hvassra*) is a development in post-classical ON due to analogy with adjectives that did not have *r*-assimilation (Noreen 1923: 200-202, 292; Sturtevant 1943), thus it is not relevant here.
[10] From Proto-Norse **-a*, which is usually said to come from **-ō(m)*, which is part of a PGmc N.NOM/ACC.SG doublet **-at ~ -at-ō(m)* (cf. Go. *blind* vs. *blindatą*) (see Krahe 1969 II: §38, McFadden 2004: 10). Secondary reinforcement was also active in West Gmc. The West Gmc RDem paradigms are treated in Lander (in prep.).

[11] Cf. also D'Hulst (2006): Latin plural *-s* > Italian *-i*, where the [+coronal] feature of *s* survives all the way into the plural marker of modern Romance.
[12] Syllabification here has been simplified from *droo.tØ.ti*... (see Sandøy 1994: 236-237 on the special status of the sequence *tt* < **ht*).
[13] Note, however, the existence of the variants M.NOM.SG *þesser* and F.NOM.SG / N.NOM/ACC.PL *þessor* (Axelsdóttir 2003: 68, Katrín Axelsdóttir p.c.). These are clear cases of external inflection. Important to note, however, is that both of these are primarily Old Norwegian forms: *þesser* is not attested in Old Icelandic texts and *þessor* is much more prevalent in Norwegian than in Icelandic (Katrín Axelsdóttir p.c.). I therefore consider them outside the realm of this talk. Nonetheless, they do not pose a problem, since they are simply 'boxed forms' in my system.
[14] But perhaps dovetailing with Kayne (2005) and Leu (2007, 2008), who propose that a silent HERE combines with a determiner to give a proximal demonstrative. This kind of HERE is distinct from the locative reinforcer *here*.
[15] These kinds of idiomatic entries are crucial for accounting for the older Norse form M/N.NOM.SG *sjá*, which was gradually replaced by *þessi*. In Lander (in prep.) I show how my system can account for the structure and spellout of *sjá*.
[16] A possible solution would be to treat $[K_3\ K_2\ K_1]$ as a complex head structure in cases such as these. Such an approach loses us the intuition that K is a suffix in ON and implies instead that we treat K as a postposition (Michal Starke, p.c.). I will take the traditional stance and assume that we want to treat ON K as suffixal.
[17] Cf. Cinque's "possibly spurious" (p) order N Dem A Num.
(i)



This order is only attested in three languages, and in two of them it alternates with the perfectly derivable order N Dem Num A (Cinque 2005: 323, fn. 27).
[18] Failure to derive a template or failure to package should be considered fatal flaws. Twenty-two of the fseqs (b-w) have such flaws and should be disposed of completely. Two fseqs are left over. Fseq (a) survives all the tests perfectly. Its reverse, fseq (x), fares next best, but it has KP constituency problems in two of the templates. As mentioned in n.16, we might save (x) by allowing KP to be a complex head, but this would imply a postpositional analysis of K in ON, a complication we should steer clear of.
[19] Note also that it is not sufficient for a form simply to end in a vowel in order for an extra agreement marker to appear: F.ACC.SG / M.ACC.PL *þessa* and N.DAT.SG *þessu* do not surface as **þessá* (i.e. *þessa-a*) or **þessú* (i.e. *þessu-u*); similarly, M.NOM.SG *þessi*, F.DAT.SG *þessari*, and GEN.PL *þessara* do not surface as **þessir* (i.e. *þessi-r*), **þessariri* (i.e. *þessari-ri*), or **þessarara* (i.e. *þessara-ra*).
[20] For the last form, *-ð* is slightly different from *-t*. It is taken from the final *-ð* of N.NOM/ACC.SG *það* (cf. also the determiner *hið*), which historically comes from N.NOM/ACC.SG *þat* (*t* > *d* > *ð* in weakly stressed words in medieval Scandinavian; Haugen 1982: 64). The N.NOM/ACC.SG ending remains *-t* in Icelandic.