CUNY Conference on the Foot
15th-17th of January 2009

The Foot in Truncation

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1. Evidence for feet and their internal structure

- typological evidence: rhythmical grouping properties found across languages

  e.g. Prince (1990), Hayes (1995): asymmetrical foot inventory:

Syllabic trochees:	(σσ)
Moraic trochee:	(H), (LL)
Iamb:	(LH), (LL)

- templatic morphology as in reduplication, truncation etc.: assumed to correspond to metrical feet

The moraic trochee in Japanese Rustic Girl's Names: (H) or (LL)

(1) Japanese Rustic Girls' Names (Mester 1990)

truncated name	template	Source name
o-Yuu	(H)	Yuuko
o-Ran	(H)	Ranko
o-Yuki	(LL)	Yukiko
o-Kae	(LL)	Kaede
o-Kinu	(LL)	Kinue
o-Mido	(LL)	Midori

(other evidence for feet and their internal structure: foot-related phonological processes, cf. Alber 2005b for an overview; psycholinguistic evidence for feet, e.g. Domahs, Wiese, Bornkessel-Schlesewsky & Schlesewsky 2008, Knaus & Domahs, in press)

2. Truncation morphemes

Foot-like size, but high degree of variability

2.1 The maximal foot (σH): not a well-formed trochee in many foot-typologies (Hayes 1995)

(2) Spanish hypocoristics: (σH)-type (Piñeros 1998, 2000)

Truncated name	Source name
Fér.nan	Fer.nán.do
Bér.nar	Ber.nár.do
Xé.sus	Xe.sús

2.2 The minimal word (H): not a prosodic category

(3) Central Alaskan Yupik proximal vocative (Woodbury 1985) / German hypocoristics (Wiese 2001)

Pattern A: (H)	Source name	Truncation	Source Name
Aŋ	Aŋukaʁnaq	And-i	An.dre.as
Nup	Nupiɣaq	Gab-i	Ga.bri.e.le
Kaɬ	Kalixtuq	Will-i	Wil.helm
Is	Izailɣaq	Gert-i	Ger.trud
Kauk	Kaukaq	Hans-i	Hans

2.3 The degenerate foot (L): assumed to be extremely marked in most foot-typologies (Hayes 1995)

(4) Italian CV-hypocoristics (Alber 2007)

truncated name	Source name
Fra	Fran.ces.ca
Cri	Cris.ti.na
Lu	Lu.i.sa
Ste	Ste.fa.ni.a

2.4 The wellformed foot

2.4.1 The moraic trochee in Japanese Rustic Girl's Names: (H) or (LL)

2.4.2 The quantity sensitive iamb in Central Alaskan Yupik, Pattern B: (LH)

(5) Central Alaskan Yupik proximal vocative, Pattern B (Woodbury 1985, Weeda 1992)

a. source name truncated down to initial LH sequence

Aŋuk	Aŋukaʁnaq
Nupix, Nupik	Nupiɣaq
Kalik	Kalixtuq
Cakat	Cakataaʁəq
Akiuk	Akuɣalʁia

b. When first syllable of source name is H → schwa-epenthesis to obtain LH template

Qa.kəf	Qakfaʁalria	*Qakfaʁ
A.ʁən	Aʁnaʁayaq	*Aʁnaʁ
Nə.ŋəq	Nəŋqəχalʁia	*Nəŋqəχ
L H		H H

2.5 TRUNC morpheme variable in size

(6) Southern Italian vocatives: from first syllable to stressed vowel (Alber 2007)

Truncated name	Source name
Bá	Bár.ba.ra
Car.mé	Car.mé.la
An.to.né	An.to.nél.la

2.6 Typological survey of truncation morphemes:
(cf. Alber&Lappe, in prep., survey of 101 truncation patterns)

The overwhelming majority of TRUNC morphemes falls into three classes:

1. TRUNC is 1 syllable long
2. TRUNC is 2 syllables long
3. TRUNC is variable in size (mostly of type 2.5 above – from first to stressed syllable)

What we do not find

- NO productive TRUNCs, 3 syllables long
- NO TRUNCs which vary randomly in size (type 3. above always involves prominent positions)

Hypotheses:
- Feet are at most bisyllabic (TRUNCs type 1 and 2).
- TRUNCs of type 3 are atemplatic, hence do not correspond to feet.

3. Analysis of TRUNC templates in terms of Generalized Template Theory (GTT)
(McCarthy&Prince 1999, McCarthy&Prince 1994, Benua 1995)

(7) Templates are the result of markedness constraints in an 'Emergence of the Unmarked' Ranking: **MAX-IO >> M >> MAX-BT**

(8) MAX-IO: every segment in the input has a correspondent in the output
MAX-BT: every segment in the base has a correspondent in the TRUNC morpheme

(9) Basic Correspondence Model for Truncation:

Input
↕
Base (Output) ↔ TRUNC

Since M is ranked between the two faithfulness constraints, it can affect MAX-BT, but not MAX-IO

(10) Example: Generation of the disyllabic template (cf. McCarthy&Prince 1994, reduplication in Diyari)
MaxIO >> FT-BIN, PARSE-σ, ALLFTLEFT >> MaxBT

(11) FT-BIN: feet must be binary at some level of analysis (μ, σ)
PARSE-σ: syllables must be parsed into feet
ALLFTLEFT: ∀ foot ∃ prosodic word such that the left edge of the prosodic word and the left edge of the foot coincide.

(12) Generation of the disyllabic template

/σσσσ/	MAX-IO	FT-BIN	PARSE-σ	ALLFTLEFT	MAX-BT
a. (σ)		*!			σσσ
b. (σσσ)		*!			σ
c. (σσ)σ			*!		σ
d. (σσ)(σσ)				σσ!	
☞ e. (σσ)					σσ

i.e.: a disyllabic template allows to have a binary, maximally parsed, maximally left-aligned foot-structure

(13) Two families of *size restrictor constraints* (SRCs) (Spaelti 1997)
= M-constraints in TETU-ranking generating a template

- SRCσσ: cover term for constraints generating disyllabic templates: FT-BIN, PARSE-σ, ALLFTLEFT
- SRCσ: cover term for constraints generating monosyllabic templates:

Various proposals in the literature:

ALIGN(σ, PrWd): ∀ syllable ∃ prosodic word such that the left edge of the prosodic word and the left edge of the foot coincide
(McCarthy&Prince 1993, Spaelti 1997)

*STRUC-σ: no syllables
(Urbanczyk 1999, 2006, Walker 2000, 2002, Riggle 2006)

COINCIDE-σ_1: every segment of the ouput is in the first syllable of some morpheme
(Alber 2001, Lappe, 2003, 2005, 2007)

OO-DEP: for CV-template in reduplication: every segment in the reduplicated form have a correspondent in the base
(Gouskova 2003)

TROCH and IAMB: 'Feet must be head-initial' and 'Feet must be head-final' = feet must be monosyllabic
(A. Prince, p.c.)

3.1 The maximal foot = maximal disyllabic template

(14) Spanish hypocoristics: type (σH)
MAX-IO >> SRCσσ >> MAX-BT

/Fernándo/	MAX-IO	SRCσσ	MAX-BT
a. (Fer)		*!	nando
b. (Fer.na)			ndo!
☞ c. (Fér.nan)			do
d. (Fér.nan)do		*!	

N.B.: *Fér.nand* is out because of additional Coda-restrictions (cf. Piñeros 1998, 2000)

The maximal foot is precisely what we expect under the GTT analysis: a disyllabic template pushed to its maximum by MAX-BT

3.2 The submaximal foot = disyllabic template plus NOCODA restriction

(15) Italian disyllabic hypocoristics: (σL)

Víle	Valentína, Valentíno
Fránce	Francésca
Féde	Federíca
Símo	Simóna
Mánu	Manuéla
Mádda	Maddaléna

(16) NoCoda$_W$ >> Max-IO >> SRCσσ >> Max-BT

NoCoda$_W$: [1] word-final syllables do not have codas.

/Valentíno/	NoCoda$_W$	Max-IO	SRCσσ	Max-BT
☞ b. (Vá.le)				ntino
f. (Vá.len)	*!			tino

3.3 The minimal word (H) = maximal monosyllabic template

(17) Central Alaskan Yupik proximal vocative, Pattern A:
Max-IO >> SRCσ >> Max-BT

/Aŋukaʁnaq/	Max-IO	SRCσ	Max-BT
☞ a. Aŋ ('H)			*
b. Aŋúk (L'H)		*!	

here, too: the maximal monosyllable is precisely what we expect under the GTT analysis: a monosyllabic template pushed to its maximum by Max-BT

3.4 The degenerate foot (L) = monosyllabic template plus NoCoda restriction

(18) Italian CV-hypocoristics:
NoCoda$_W$ >> Max-IO >> SRCσ, >> Max-BT

/Francesca/	NoCoda$_W$	Max-IO	SRCσ	Max-BT
☞ a. Fra				*
b. Fran	*!			

i.e.: the degenerate foot (L) is the result of a monosyllabic template plus the force of the markedness constraint NoCoda.

Note that Italian allows for degenerate feet also elsewhere:
(19) Minimal CV word: *gru, fa, blu, o,* 'crane, does, blue, or'
Stress pattern requiring degenerate feet: *(nò.vi)(tá)*, 'news'

Preliminary conclusions:
GTT – everything else being equal – predicts templates to be maximal in size (maximal disyllabic feet, maximal monosyllabic feet)

However, markedness constraints like NoCoda can lead to the generation of a subminimal template.

Therefore: when the template is not maximal, there must be another constraint shaping the foot and this is exactly where we can learn something about the internal structure of feet.

[1] NoCoda$_W$ can be seen as a cover term for the ranking of the constraint NoCoda (militating against codas in general) under a contiguity constraint banning deletion of codas word-internally. Italian (native) words in general, not only name truncations, must not end in a consonant, therefore NoCoda$_W$ >> Max-IO.

3.5 The well-formed foot

(20) The well formed foot template in Central Alaskan Yupik, Pattern B
MAX-IO >> SRCσσ, WSP >> MAX-BT >> DEP

(21) Markedness constraint shaping the foot:

WSP: heavy syllables are prominent
(Prince 1990; Prince & Smolensky 1993/2004)

/Qakfaʁalria/	MAX-IO	SRCσσ	WSP	MAX-BT	DEP
☞ a. Qa.kə́f (L 'H)				aʁalria	*
b. Qakfáʁ (H 'H)			*!	alria	
c. Qak (H)				faʁalria!	
d. Qakfá (H 'L)			*!	ʁalria	

Similarly in Japanese Rustic Girl's Names: wellformed trochees

Observed patterns:	(H) or (LL)	even trochees (typologically the unmarked trochee)
Not observed patterns:	(HH) or (LH)	excluded by WSP
	(HL)	excluded by constraint banning uneven trochees (e.g. a ban on foot-internal mora lapses, Kager 1993 or GRPHARM, Gouskova 2003, cf. also discussion in Alber 2005a)

3.6 Atemplatic truncation

Truncation morphemes copy almost exclusively starting from a prominent position: either from the first or from the stressed syllable of the base

(22) Anchoring to the first syllable: ANCHOR-σ_1: Italian disyllabic hypocoristics, Pattern A
Vále – Valentína
Fránce – Francésca
Féde – Federíca

(23) Anchoring to the stressed syllable: ANCHOR-V_{stress}: Italian disyllabic hypocoristics, Pattern B
Césca – Francésca
Bérto - Robérto
Nóra – Eleonóra

When TRUNC anchors to *both* the first and the stressed syllable (Alber&Lappe, in prep.)

(24) Southern Italian vocatives: from first syllable to stressed vowel (Alber 2007)

Truncated name	Source name
Bá	Bár.ba.ra
Car.mé	Car.mé.la
An.to.né	An.to.nél.la

(25) Anchoring dominates the SRCs

/Bárbara/	MAX-IO	ANCHOR-σ_1	ANCHOR-V_{stress}	SRCσ^2	MAX-BT
☞ a. Bá					rbara
b. Bár.ba				*!	ra
/Carméla/					
a. Ca			*!		rmela
☞ b. Car.mé				*	la
c. Car.mé.la				**!	
/Antonélla/					
a. An			*!		tonella
b. An.to			*!	*	nella
☞ c. An.to.né				**	lla
d. An.ton.nél.la				***!	

Prediction: whenever TRUNC morphemes are variable in size, the variability depends on the dominant position of ANCHOR constraints.

4. Conclusions

TRUNC templates are feet:

- the disyllabic template can be analysed as a single foot emerging from the pressure of metrical constraints.
- the monosyllabic template – since TRUNCs are free-standing words - has to correspond to a foot as well (assuming that a PrWd consists of a least one foot).

However
- default maximal feet: because of the pressure of MAX-BT, the feet observed in truncation tend to be maximal, hence do not necessarily correspond to *wellformed* feet
- submaximal feet: arise under the pressure of additional markedness constraints
- wellformed feet: among these markedness constraints, there may be constraints on *foot wellformedness*, hence the wellformed foot can be found among TRUNC templates and foot-wellformedness constraints can be identified.

And
- atemplatic truncation: whenever we find TRUNCs which are neither disyllabic nor monosyllabic we expect truncation to be atemplatic. In this case the size of TRUNC is predicted to be the result of ANCHOR constraints.

Direct conclusions w.r.t. the properties of foot-structure:
- ternary feet do not exist: no productive 3 syllable TRUNCs
- degenerate feet do exist (cf. 3.3 above)
- the asymmetric foot-inventory of Prince (1990), Hayes (1995) has been confirmed by (LH) iambs truncation pattern B in Central Alaskan Yupik and (H), (LL) trochees in Japanese Rustic Girl's names.

[2] Violations of SRCσ are counted here in number of syllables outside of the first syllable – but the number of violations obviously depends on the exact definition of the constraints assumed to make part of SRCσ.

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