Word and syllable languages.

Thoughts on the typological and diachronic relevance of a prosodic distinction

Peter Auer

Freiburg Institute for Advanced Studies (FRIAS)

Universität Freiburg

Road Map

1. Some words on the emergence of the distinction....

1.1. … as a phonological alternative to stress- and syllable-timing

1.2. … as a typological correction of the „preference laws for syllable structure"

2. Some words on the applicability of the distinction....

    2.1.   … in diachrony (and dialectology)

    2.2.   … in language contact

    2.3.   … in typology

    2.4.   … in language acquisition?

As far as is known, every language in the world is spoken with one kind of rhythm or with the other. In the one kind, known as a syllable-timed rhythm, the periodic recurrence of movement is supplied by the syllable-producing process: the chest pulses, and hence the syllables recur at equal intervals of time - they are isochronous. (...) In the other kind, known as a stress-timed rhythm, the periodic recurrence is supplied by the stress-producing process: the stress-pulses, and hence the stressed syllables, are isochronous. (...) When one of the two series of pulses is in isochronous succession, the other will not be. Thus in a syllable-timed rhythm, the stress-pulses are unevenly spaced, and in a stress-timed rhythm the chest-pulses are unevenly spaced." (Abercrombie 1967:96f, emphasis p.a.)

Roach 1982 applies Abercrombie's distinction to his language examples (syllable timed left, stress timed right):

| French	75.5	English	86
Telugu	66	Russian	77
Yoruba	81	Standard Arabic	76

Standard deviation (ms) of syllable duration

Roach 1982 applies Abercrombie's distinction to his language examples (syllable timed left, stress timed right):

French	617	English	1267
Telugu	870	Russian	917
Yoruba	726	Standard Arabic	874

Mean deviation of foot duration (ms) from predicted (additive) value
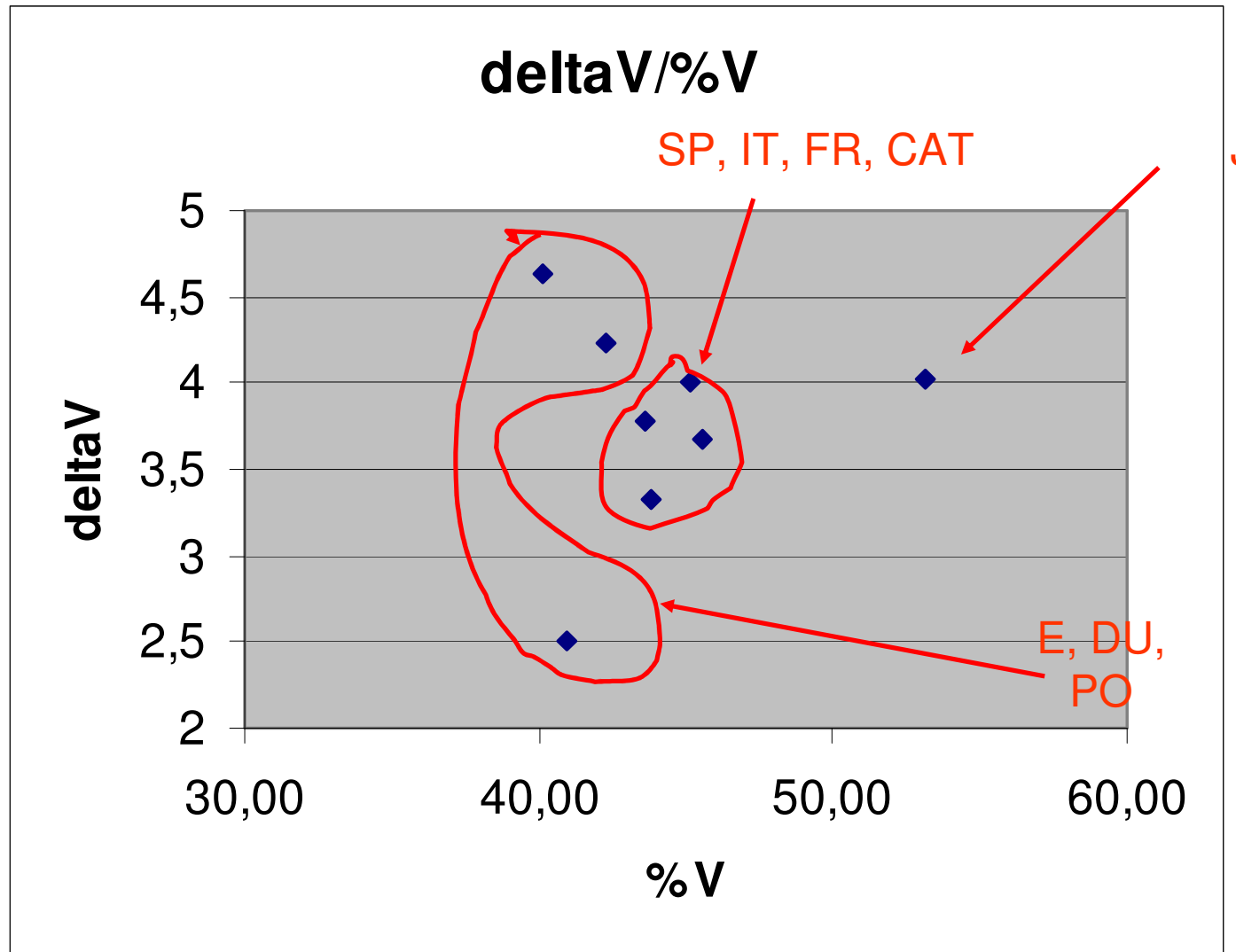
FRIAS
FREIBURG INSTITUTE FOR ADVANCED STUDIES
ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG

deltaV/%V

Ramus/Nespor/Mehler 1999: rhythm as the interaction of proportion of vocalic intervals (%V) and standard deviation of vocalic intervals over a sentence (deltaV)
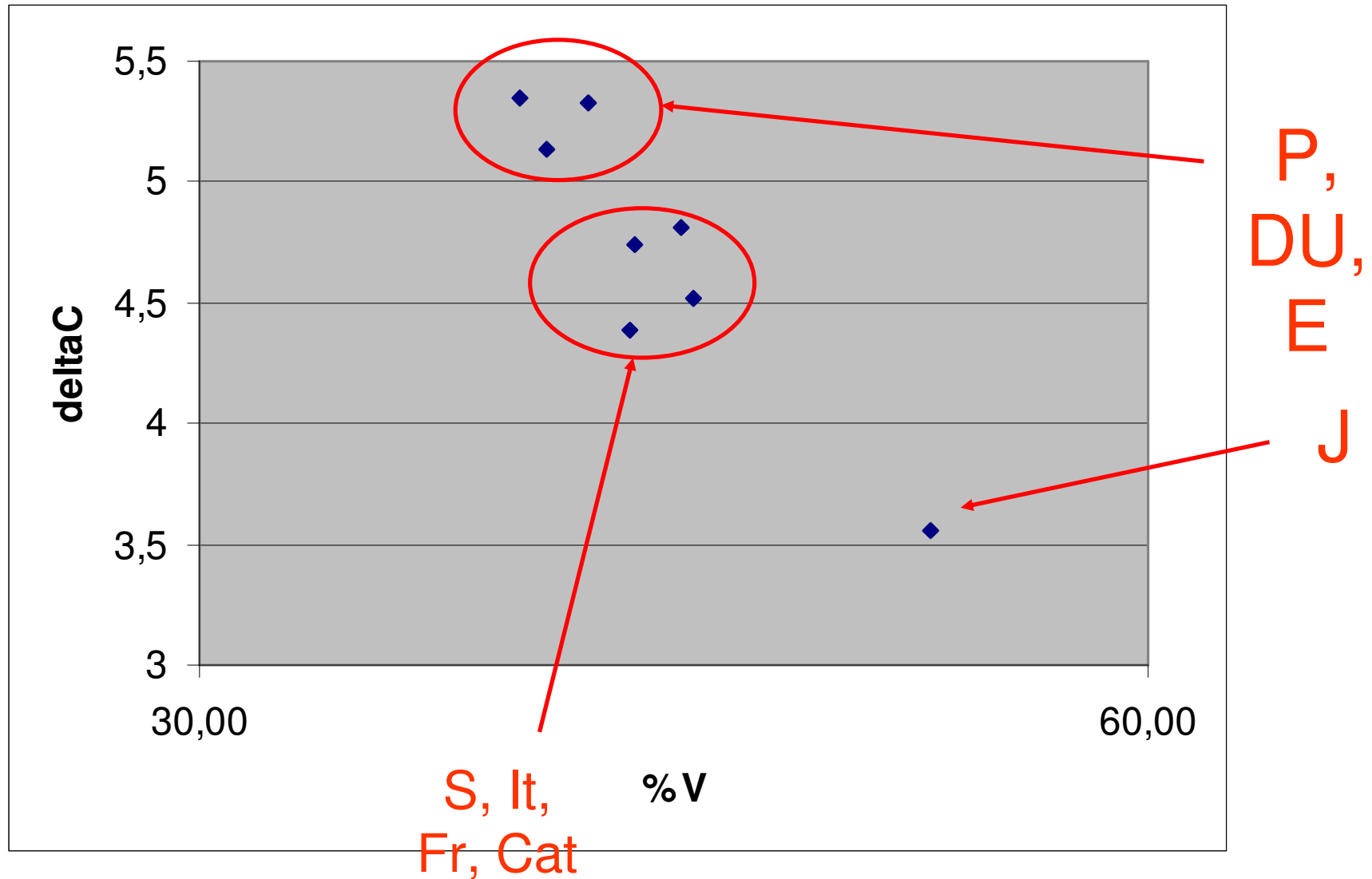
Ramus/Nespor/Mehler 1999: rhythm as the interaction of proportion of vocalic intervals (%V) and standard deviation of consonantal intervals over a sentence (deltaC)

Other than the phonetic model of stress/syllable-timing, which is based on timing (isochrony) alone, the, distinction between word and syllable languages (Donegan & Stampe 1983, Dauer 1983, Auer & Uhmann 1988) is

-Phonological instead of phonetic, i.e. not surface oriented

-Multi-parametric, i.e. it refers to a constellation of phonological parameters

-Gradual, i.e. languages/varieties may be more or less of a syllable- or word-language/variety

-Non-exhaustive, i.e. there may be more types than these two

General definition:

A word-language is one in which the prosodic domain of the phonological word is of central importance, a syllable-language is one in which the prosodic domain of the syllable is of central importance.

Importance = a maximum of phonological regularities make reference to the domain ("profile it")

A hypothesis:

Syllable-languages are phonologically less marked than word-languages.

Evidence: language change usually proceeds from syllable to word language structure

-First language acquisition starts on a syllable-basis even in the acquisition of a word-language

- only new varieties, emerging under „catastrophic" conditions (pidgins, creoles, koinai) are syllable varieties (which optimise perception)

	Yo	Te	Fr	Ar	En	Ru
Tone	+	-	-	-	-	-
Assimilation in clusters	X	+	+	+	+	+
Rules creating clusters or closed syllables	-	+	+	+	+	+
Shell complexity above CVC	-	-	+	+	+	+
Quantity distinctions in all syllables	+	+	X	(-)	-	X
Word accent	-	+	-	+	+	+
Grammatical function of accent	X	-	X	-	+	+
Rules to optimise CV-structure	+	+	+	?	Few	few
Reduced vowels in unaccented syllables	-	-	+	-	+	+
Sonority scale obeyed in clusters	X	+	+	-	-	-
Syllable division unambiguous	+	+	+	+	-	-
---						
possible syllable language features	9/9	7/11	5/9	2/9	0/11	0/10

The argument for a prosodic typology from a phonological perspective…

Vennemann's „head law" (1988):

A syllable had is the more preferred: (a) the closer the number of speech sounds in the head is to one, (b) the greater the Consonantal Strength value of the onset, and c) the more sharply the Consonantal Strength drops from the onset toward the Consonantal Strength of the following syllable nucleus.

This correctly describes…

(1) Late Latin → Italian

ple:&nu > pie&no (,full'), cla&ve > chia&ve (,key'), ne&bu&la > neb&la > neb&bia (,fog')

(2) Late Latin → Italian

Pa&du&a > Pa&do&va, vi&du&a > ve&do&va (,widow'), ru&i&na > ro&vi&na (,ruin')

(3) Sanskrit → Pāli:

sro&tas > so&ta (,stream'), svap&na > sop&pa (,sleep'), praj&nā > pañ&ñā (,knowledge') etc.

But not:

(1) MHG → NHG

hou&wen > hau&en (‚hit'), bu:&wen > bau&en (‚build'),
sæ&jen > sä&en (‚sow')

(2) Late Latin → Provencal etc.

vi&ta > vi&da, a&mi&ca > a&mi&ga, etc.

(3) Late Latin → Romagnolo

do&mi&ni&ca > dmén&ga (‚Sunday'), hos&pi&ta&le >
zbdél, le&va&re > (a)l(&)vér (‚to lift')

(4) French → français avançé

peu&t être > ptêtre (‚perhaps'), pe&tit> ptit (‚little'),
che&min > chmin (‚way')

Applications of the model to language change (cf. Szczepaniak 2007):

→ genetically related languages which have developed into different types, such as Italian and Portuguese

Classical Latin → Late Latin („Vulgar Latin") already shows some typical syllable-to-word-language developments (intervocalic softening, loss of geminates, deletion of unstressed vowels particularly in trisyllabics of the type *tegula, masculus*); this process went further in Portuguese and was less pronounced in Italian:
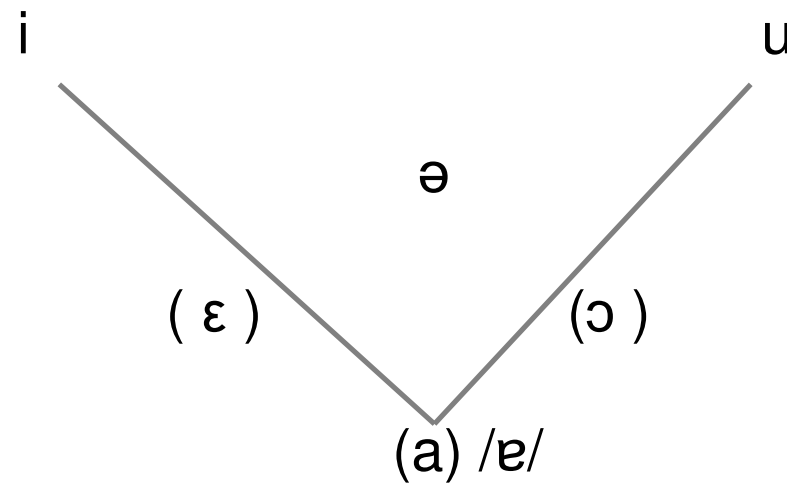
Stressed syllables in Late Latin, in std. Italian and Portuguese (without nasal vowels):
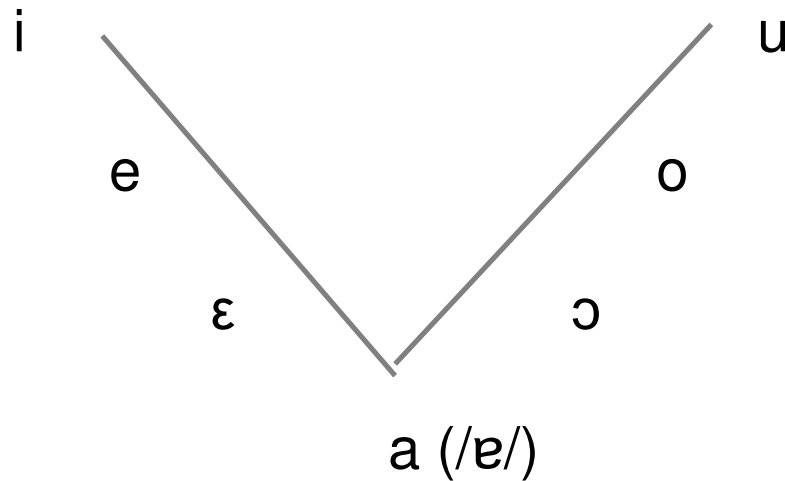
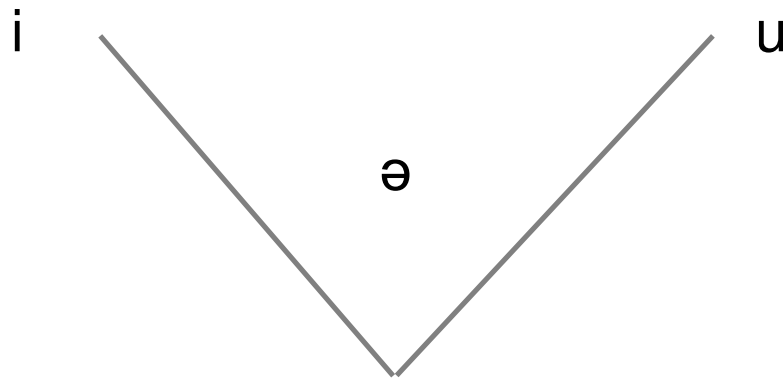unstressed syllables in Late Latin and in Italian:

i   u

e   o

ɛ   ɔ

a
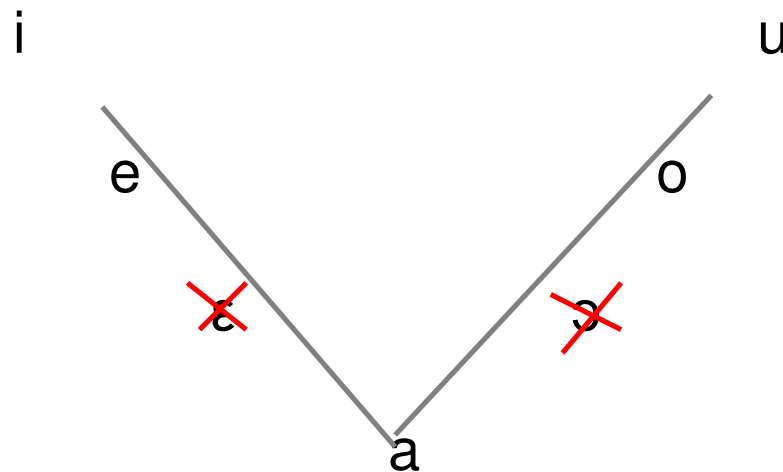
Pretonic unstressed syllables in Portuguese (without nasal vowels):

i   u

ə

(ɛ)   (ɔ)

(a) /ɐ/

Posttonic non-final unstressed syllables in Portuguese (without nasal vowels):

i ＼   ／ u
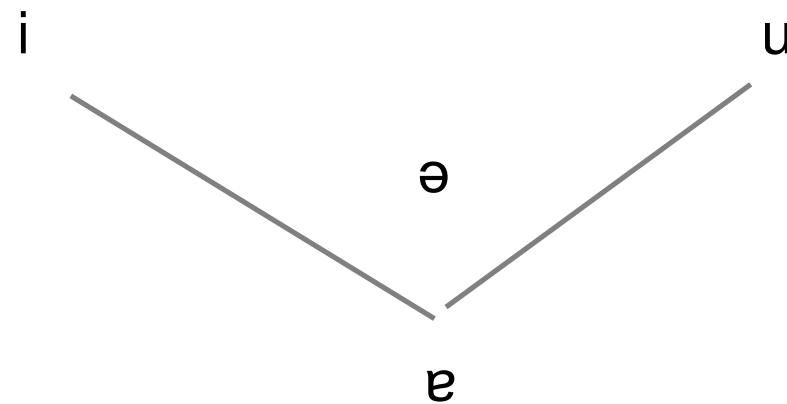   ＼   ／
             ə
         ＼   ／
          ＼ ／
           ∨

Posttonic final unstressed syllables in Portuguese (without nasal vowels):

i   u

ə

ɐ

In addition

- deletion of the unstressed schwa as in *belíssimo*, *fortemente*, *partes*, *cereja*, *entre*, *pedestal* in Portuguese

- Italian retains geminates, even between words!

- intervocalic sonorants are weakened to zero in Portuguese (as in lat/it *lana* ~ port. *lã*, lat. *coelum* ~ it. *cielo* ~ port. *céu*)

- there are more consonantal assimilations in Portuguese (as in /sj/ > /š/, cf. lat./it. *passione(m)* ~ port. *paixão*)

- despite the absence of the Late Latin diphthongisation in Portuguese (cf. it. *fuoco*/port. *fogo*), due to later diphthongisations, the number of diphthongs in the accent position is higher in Portuguese (fortition of the accent syllable → profiling of the phonological word) – cf. lat. *lectum* ~ it. ~ *letto* ~ port. *leito*

Applications of the model to language change/language contact: A strong hypothesis

While the transition from syllable-language to word-language is unmarked in language change, the transition from word-language to syllable-language only occurs – top/down processes of language planning and standardisation excluded - as a consequence of genetic non-transmission/ difficult communication (extensive migration, second language acquision, etc.)

The emergence of syllable-languages under ‚catastrophic' circumstances

→ Gastarbeiterdeutsch: L2 of a word-language has syllable-language features

→ Creoles with word-languages as lexifier languages make the lexicon compatible with that of a syllable-language

cf. West Indian Creoles

Final cluster reduction: *left, next, act > lɛf, nɛs, ɛk*

Initial cluster reduction: *start, scratch > ta:t, kratš*

Loss of schwa vowels: *matter > mata, woman > vuman*

Development of tonal accent systems (in Barbados and Guyana):

father (HL) ‚parent' vs. *Father* (LH) ‚clergyman'

Prosodic typology: word vs syllable languages (Auer 1993, 34 languages)

- Complexity of syllabic shell

- sonority hierarchy in the shell

- vowel harmony

- tone

- vowel epenthesis

- external sandhi = external sandhi?

- phonological allomorphs to enhance syllable structure

- vowel deletion in unstressed position

- consonant/consonant assimilation

- cluster simplification

- existence of word stress

- predictability of word stress

- function of word stress

- reduction of full vowels in non-ictus position/different vowels in ictus/non-ictus

- word-related processes and phonotactics

- syllable-related processes and phonotactics
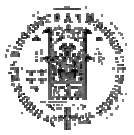
- inventory traits

Results – examples:

„Tone and (tentatively) vowel harmony negatively correlate with syllable shell complexity: No tone language (not even a restricted one) in the sample has a syllable structure exceeding CC…C with strong restrictions on the syllable-final and/or the syllable-initial consonant; and no language with a shell structure exceeding C…CC has vowel harmony.

„No language with an overall reduction of the vocalic system in non-accented syllables has even a marginal system of vowel harmony or tone. No language with even a marginal system of tone or vowel harmony shows more than peripheral accent-dependent reduction."

„Shell complexity positively correlates with word-related processes/phonotactics, but negatively with syllable-related processes/phonotactics."

	Processes phonotactics	syllable structure rules	vowel reduction	accent	tone	shell complexity
prototype	S	S			S	L
Yoruba	S				S	L
Amo	S	S			S	L
Navaho	S	S			S	L
Eskimo	S					L
Mundari	S	S				L
Vietnamese	S				S	L
Fijian		S				L
Basque	S/W	S/W		(+)		M
Japanese	S	S	(+)		(W)	L
Hausa	S	(W)	(+)		S	L
Toba_Batak	S	S		+		L
Mandarin	S		(+)	+	(S)	L
Quechua	S	S	(+)	+		L

Processes	phonotactics	syllable structure rules	vowel reduction	accent	tone	shell complexity
Korean	S	S/W	(+)	+		M
Yidiɲ	S/W					M
Nimboran	S/W	S/W	+	+		M
French	S/W	S/W	(+)			H
Turkish	W	S/W		(+)		M
Telugu	W	W		(+)		L
Khalkha	W	S/W		+		L
Asmat	W					L
Uzbek	W	S/W	+	(+)		M
Tamang	W				W	L
Nama	W	S/W			W	M
ǃxóõ	W				W	M

Processes	phonotactics	syllable structure rules	vowel reduction	accent	tone	shell complexity
Toda	W	S/W	(+)	+		H
Diegueño	W	S/W	+	+		M
Tzeltal	W	W		+		H
Klamath	W	S/W		+		H
Gaelic	W	S/W	+	+		H
Russian	W	S/W	+	+		H
Circassian	W	W	+	(+)		H
Arabic	W	W	(+)	+		H
English	W	W	+	+		H
prototype	**W**	**W**	**+**	**+**	**or W**	**H**

A further application: first language acquisition

Mehler et al. (1996) find that infants can distinguish between stress- and syllable-timed languages (in both directions)

But: in the acquisition of a word-language, children start with structures that optimise the syllable and do not profile the word

bu:&mɪ (~ [blu:mə] ‚flower')

- optimises CV syllables

- treats stressed and unstressed syllables alike

A further application: first language acquisition

Mehler et al. (1996) find that infants can distinguish between stress- and syllable-timed languages (in both directions)

But: in the acquisition of a word-language, children start with structures that optimise the syllable and do not profile the word

ʔa&nɪ (~ [švants] ‚tail')

- avoids complex onsets

- avoids codas

A further application: first language acquisition

Mehler et al. (1996) find that infants can distinguish between stress- and syllable-timed languages (in both directions)

But: in the acquisition of a word-language, children start with structures that optimise the syllable and do not profile the word

… but rather use syllable-based reduplication (a typical feature of syllable languages):

 ma&ma < mund ‚mouth'

A further application: first language acquisition

Mehler et al. (1996) find that infants can distinguish between stress- and syllable-timed languages (in both directions)

But: in the acquisition of a word-language, children start with structures that optimise the syllable and do not profile the word

and only later acquire trochaic feet while still avoiding complex syllables:

fi&də (< [fliːgə], ‚fly')

So why not describe language acquisition in German or other word languages as the acquisition of word language features on the basis of a syllable language starting point?

Road Map

1. Some words on the emergence of the distinction….

1.1. … as a phonological alternative to stress- and syllable-timing

1.2. … as a typological correction of the „preference laws for syllable structure"

2. Some words on the applicability of the distinction….

    2.1. … in diachrony (and dialectology)

    2.2. … in language contact

    2.3. … in typology

    2.4.   … in language acquisition?

    THE END