Timing and intonation evidence for a definition of Swiss German as a syllable language

?

many questions – some answers

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Blitzt s z Zug?

bl̥ɪtstststsʊːg̊

Is there lightning in Zug?

Overview

- Differences between word and syllable languages
- Phonetic correlates of phonological differences
- Difference postulated between standard German and Swiss German dialects
- Swiss German as a syllable language – Swiss German as a syllable language?
- Concepts for a phonetic evidence
  - Timing
  - Intonation
- Conclusion

Differences between word and syllable languages

	word languages	syllable languages
syllable structure	variable and complex – with distinction depending on stress	CV
syllable boundary	variable syllable boundary	fixed syllable boundary
sonority hierarchy	often disregarded	respected
vocalism	different in stressed and non stressed syllables	little differences in stressed and non stressed syllables
phonotactics	word delimiting markers, allophones depending on position	no allophones depending on position
epenthesis	to optimizing the word boundaries	to optimizing the syllable structure
vowel elision	result in complex syllables strengthens the word boundaries	optimalization of syllable structure at word boundaries
geminates	only at morpheme boundaries	+
sandhi	internal	external
reanalysis	irregular	following syllabic principles

Differences between word and syllable languages

	word languages	syllable languages
syllable structure depending on stress	difference of heavy syllables and light syllable	no difference of stressed and non stressed syllables
stress attribution	lexicalized	rule based
stress	one stressed syllable / word	stress on phrase level (no word stress)
compression	of syllables within a foot	of segments within a syllable
isochrony	stress level	syllable level
reduction	qualitative and quantitative reduction of non-accented syllables	reduction to optimizing the syllable structure
increase of the speech rate results in	qualitative and quantitative reduction of vowels in non accented syllables	
-> phonological processes	on word level to strengthen the word boundaries	on syllable level beyond the word boundary

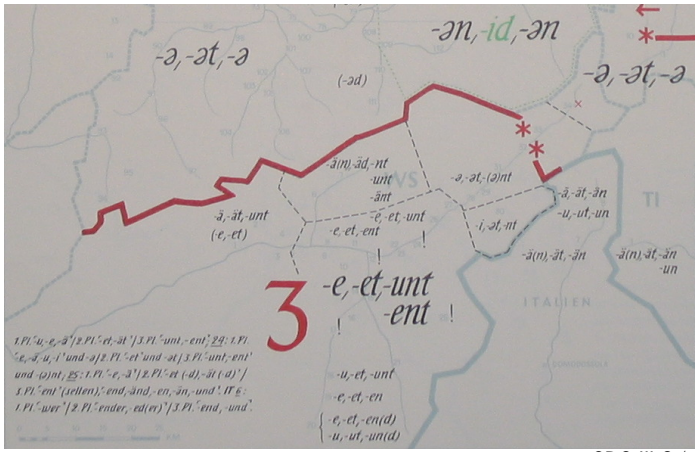
Segments phonotactics prosody

	phonetic prosodic affects
syllable structure	different relation of vowels and consonants more consonants in word languages difference in loudness succession
sonority hierarchy	durational effect on the syllabification in utterences -> effect of position within a syllable on duration
vocalism	durational effect of different set of vowels in stressed and unstressed syllables
phonotactics	different allophones may have different intrinsic duration (voiced and unvoiced obstruents have different intrinsic duration)
epenthesis vowel elision	optimize the word/syllable structure: Different temporal succession
geminates	geminates are intrinsically longer than simple consonants
sandhi	different sounds have different intrinsic duration

Swiss German as syllable language

	Standard German	Swiss German dialects	
syllable structure	gəʃpɛnst gəʃtrɪkt peːtɐ tyːʁə hʊndə das	kʃpæŋʃt kʃtrɪkxt peːtər tyːr hʏnd̥ ds / s	
	zaːgn̩	z̥æg̊ə	
sonority hierarchy	gəʃpɛnst gəʃtrɪkt	kʃpæŋʃt kʃtrɪkxt	kʃpæŋʃt kʃtrɪkxt
vocalism	gʁoːsə maxən/maxn̩ naːmə	ə groːsːi taˈbælːə maxːə/-a/-æ/-u	
phonotactics	aɪn ʔaːbn̩t / ʔaːbəndə dɛn bɪlt / bɪldɐ	ə.naː.b̥ə / æː.b̥ə əs b̥ɪld̥ / b̥ɪld̥ər	

Swiss German as syllable language



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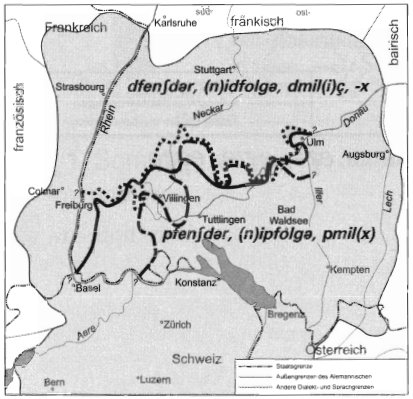
Swiss German as syllable language

	Standard German	Swiss German dialects
epenthesis (ʔ, n, r ...) and elision	aɪ̯n hʊnt aɪ̯n ʔa:bn̩t dɛn ʔapfl̩ gɛʁnə ʔe:e̯ gɪi:bt (ʔ)i:e̯ ʔaɪn gəʃɛŋk	ə.hʊnd̯ ə.na:.b̯ə d̯ə.rœ.pfʊ̯ gæ:rən > gæ:rə ær gɪ.tər͡əs kʃæŋkx
geminates	fa:tɐ ʃvɪmən afə	fat:ər ʃvɪm:ə af:ə (⇔ afə)
sandhi	nɪçt.fi:l di: fraʊ̯	nɪ.pfɪl pfroʊ̯
stress	tu'nɛl fi'le: mili'tɛ:e̯ mat^{h}ema't^{h}i:k	'tunel 'file 'militɛ:r (VS) 'matematik



Karte 3b 'die Fenster', 'nicht folgen', 'die Milch'

die Fenster: *dfenʃdər* vs. *pfenʃdər*

nicht folgen: *(n)idfolgə* vs. *(n)ipfolgə*

die Milch: *dmil(i)ç, -x* vs *pmil(x)*

Nübling, Damaris und Renate Schrambke (2004): "Silben- versus akzentsprachliche Züge in germanischen Sprachen und im Alemannischen". In: Glaser, Elvira et al. (Hg.): *Alemannisch im Sprachvergleich. Beiträge zur 14. Arbeitstagung für alemannische Dialektologie in Männedorf (Zürich) vom 16. - 18.9.2002. Stuttgart: Franz Steiner: 312.*

Prosodic differences

Prosodic differences

Arvaniti, Amalia (2009): "Rhythm, Timing and the Timing of Rhythm". *Phonetica 66: 46–63.*

Low, Ling E. E., Esther Grabe, and Francis Nolan (2000): "Quantitative characterizations of speech rhythm: Syllable-timing in Singapore English". *Language and Speech 43 (4): 377–401.*

Ramus, Franck, Marina Nespor ,and Jacques Mehler (1999): "Correlates of linguistic rhythm in the speech signal". *Cognition 72: 1–28.*

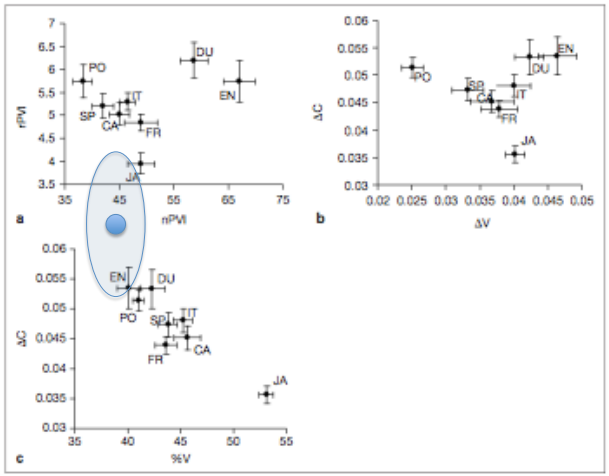
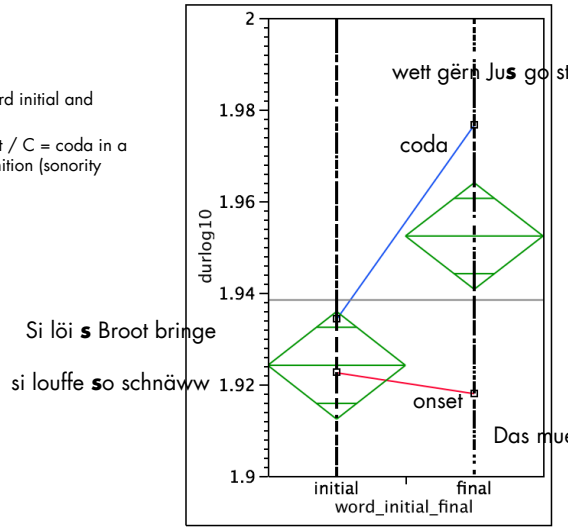


Fig. 1. PVI scores (**a**), $\Delta V - \Delta C$ scores (**b**) for the corpus of Ramus et al. [1999], as presented in Ramus [2002], and $\%V - \Delta C$ scores for the same corpus (**c**), as presented in Ramus et al. [1999]. CA = Catalan, DU = Dutch, EN = English, FR = French, IT = Italian, JA = Japanese, PO = Polish, SP = Spanish. Reproduced from Ramus [2002] and Ramus et al. [1999], with permission.

/s/

Duration of **/s/**at word initial and final position

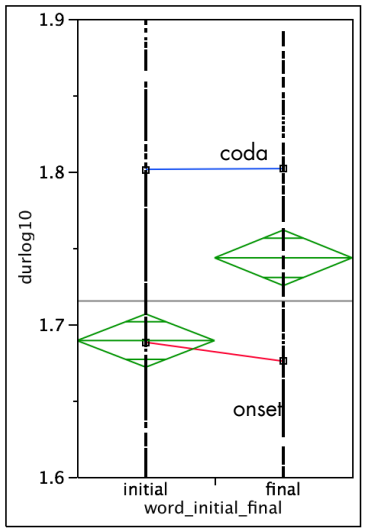
Matchcode O = onset / C = coda in a phonetic syllable defnition (sonority hierarchy)



/n/

Duration of **/n/**at word initial and final position

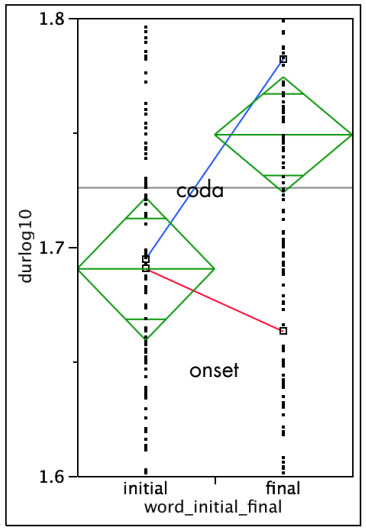
Matchcode O = onset / C = coda in a phonetic syllable defnition (sonority hierarchy)



/l/

Duration of **/l/**at word initial and final position

Matchcode O = onset / C = coda in a phonetic syllable defnition (sonority hierarchy)



Intonation

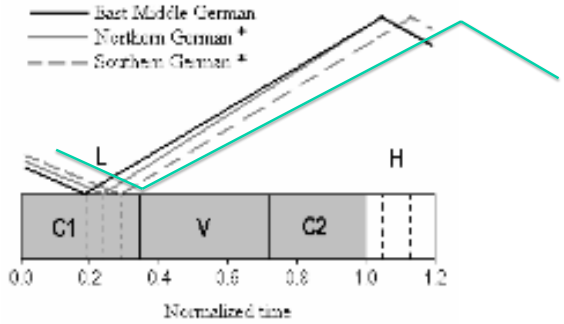


Figure 5: *Schematic representation of the L and H alignment. Data of varieties indicated by * are taken from [2].*

Kleber, Felicitas und Tamara Rathcke (2008): "More on the "segmental anchoring" of prenuclear rises: Evidence from East Middle German". In: *Speech Prosody 2008. Aix en Provence: 123–126. (http://aune.lpl.univ-aix.fr/sp2008/papers/sp08_123.pdf)*

Conclusion

- Swiss German has some aspects that characterizes it a syllable language
  - phonotactics (no word delimiting allophones)
  - less distinction of vocalism in stressed and unstresed syllables than standard German
  - Swiss German shows geminates
  - resyllabification and sandhi phenomena are common
  - the phonologic differences are reflected in the temporal domain
  - intonation shows tendencies to a reduction of the distinction of stressed and unstressed syllables

Conclusion

- For some aspects Swiss German tends to a word language
  - Syllable structure in the onset is very complex (in the coda it is relatively simple)
  - words without vowels (proclitic articles *d s ds dr)* may be interpreted as strenghening word boundaries
- Glottal stop of standard German is not only a word delimiting aspect but as well a syllable profiling feature

Conclusion

- We do not talk in isolated words but in utterances. In distinguishing word and syllable languages we must analyze connected speech.
- The definition of the syllable, as well as the definition of the word, must be made clear.
- Extrasyllabic consonants are problematic for an analysis of connected speech. I postulate a purely phonetic definition following the sonority hierarchy; that includes the definition syllabic consonants as nuclei.
- Phonetic reflexes of different aspects of word and syllable languages are worth looking at. Phonetic evidence may strengthen a phonologic typologic distinction.