
Structural factors affecting the assignment of word stress in German

Timo B. Röttger^{1,2}, Ulrike Domahs³, Marion Grande² & Frank Domahs^{2,3}

¹University of Cologne, IfL // ²RWTH Aachen, Neurolinguistics // ³University of Marburg, Germanic Linguistics



CPMSP2 2010, Berlin



Background

- **„Consensus“:**

- German builds up trocheeic feet (cf. Jessen 1999 a.o.)
- „Three-syllable-window“ (cf. Giegerich 1985; Wiese 1996/2000)

Background: quantity-sensitive?

□ **Quantity-sensitive accounts**

- Word stress position depends on syllable weight of PU and F: Féry (1998); Giegerich (1985); Janßen (2003); Vennemann (1991)

□ **Quantity-insensitive accounts**

- Final trochee is regular: Eisenberg (1991); Kaltenbacher (1994); Wiese (1996/2000)

e. g. Salami, Bikini, Veranda etc.

[σ ' σ σ]

Background: quantity-sensitive?

- **Corpus analysis:**

- Fery (1998); Janßen (2003); Mengel (2000)

- **Pseudoword production study:** Janßen (2003):

- methodological shortcomings
- high variance
- APU complexity has a numerical but not significant impact on stress assignment

Pseudoword production: Questions

□ **Summary:**

- There is evidence for a quantity-sensitive German stress system
- A possible influence of APU-quantity has been ignored

□ **Questions:**

- To what extent does the rhyme structure of the last syllable predict the assignment of word stress position in German?
- Is the APU rhyme structure a relevant factor affecting the assignment of word stress in German?

Pseudoword production: Method

- **Participants:** 40 monolingual native German speakers
- **Material:** 120 test stimuli
 - Additionally 90 fillers (60 two-syllabic, 30 three-syllabic)
 - Phono- und graphotactically regular
 - Just full vowels (no <e>)
 - Between-subject-design

Pseudoword production: Method

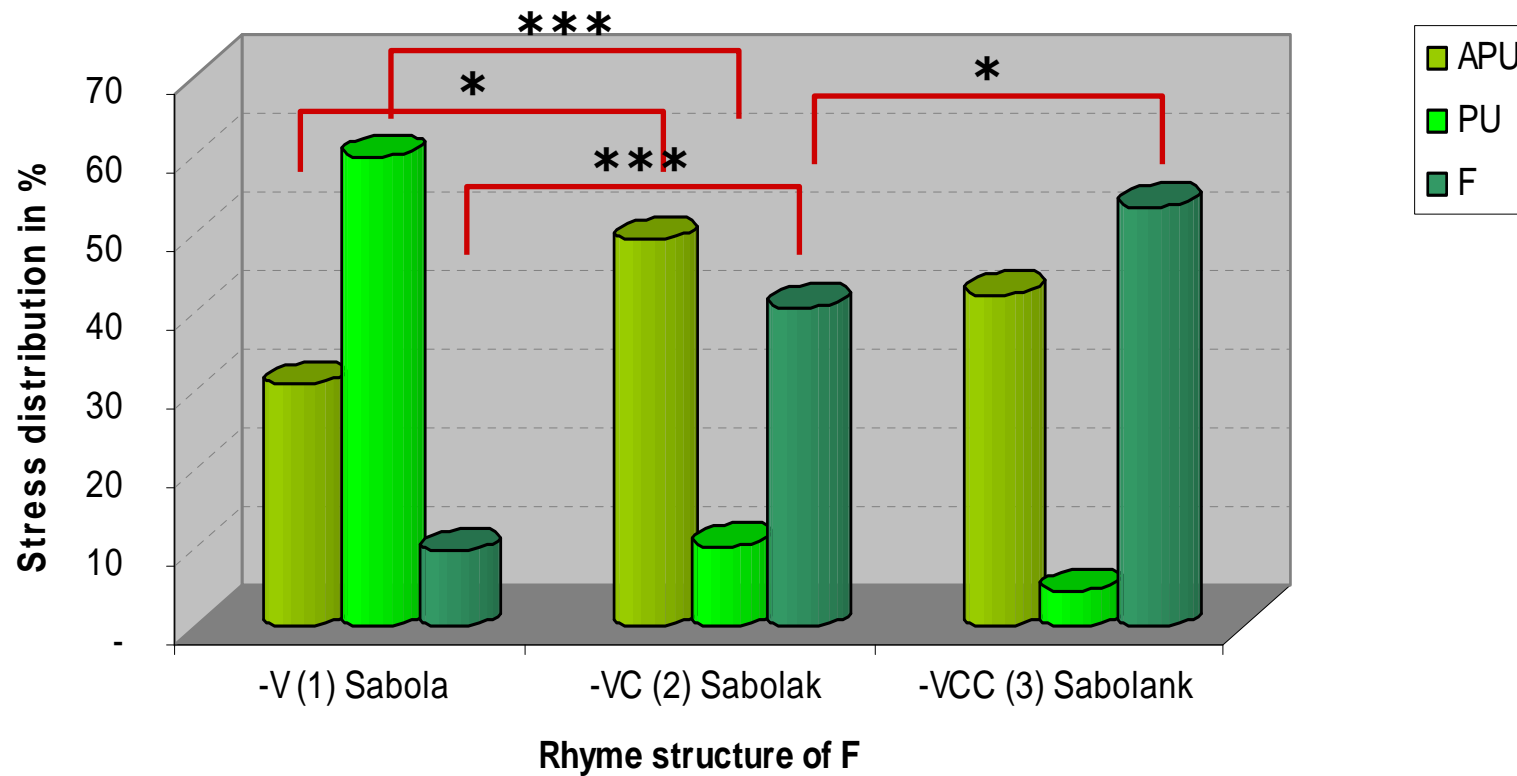
E.g. three conditions for the manipulation of final rhyme complexity:

- (1) CV.CV.**CV** „Sa.bo.**la**“
 - (2) CV.CV.**CVC** „Sa.bo.**lak**“
 - (3) CV.CV.**CVCC** „Sa.bo.**lank**“
-
- „Ich habe gehört, dass Peter **Sabola** gesagt hat.“
 - „I've heard that Peter has said **Sabola**.“

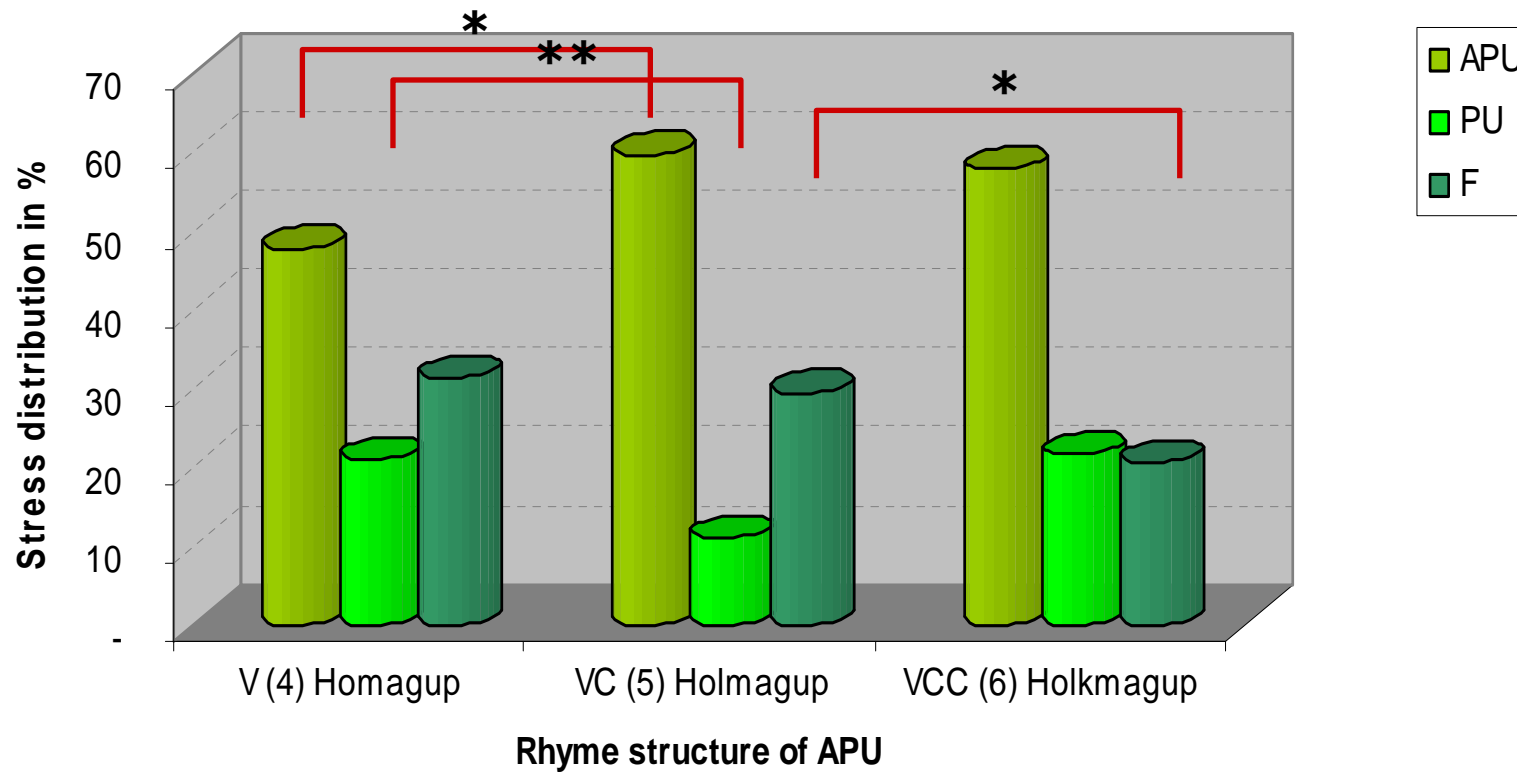
Pseudoword production: Method

- **Analysis:**
 - Spoken realizations have been recorded
 - Two persons transcribed them for main stress position
 - Items for which the transcribers disagreed have been excluded
(2,25% of the data)

Pseudoword production: Results



Pseudoword production: Results



Discussion

- **Main tendencies** (not more likely than ~60%):

F-rhyme	example	stress distribution		
		APU	PU	F
-V	Sa.bo.la	30,8%	59,6%	9,6%
-VC	Sa.bo.lak	54,6%	15,6%	29,5%
-VCC	Sa.bo.lank	42,1%	4,6%	53,3%

Discussion

□ **Minor effects**

- F (-VC) vs. (-VCC) increases the propability of F stress
- APU (-V) vs. (-VC) increases the propability of APU stress
- APU (-VC) vs. (-VCC) decreases the propability of F stress

Discussion

- German stress assignment is to some extent quantity-sensitive
- Some structural factors affect stress assignment more than others

General discussion

General (cross-linguistic) observations

- High variance (cf. for Dutch, English and German: Ernestus & Neijt 2008; Janßen 2003; Tappeiner et al. 2007)
- Interaction of different structural factors (cf. for Dutch and German: Janßen 2003; for Spanish: Face 2000)
- No categorial, but gradual tendencies
- Probabilistic correlations of lexical patterns and production data
- **Analogy** driven stress assignment (cf. for Spanish: Aske 1996; for English: Guion et al. 2003; for German: Schindler 1994)

General discussion

A psycholinguistic model of stress assignment has to...

- assign „frequent“ and „less frequent“ stress patterns correctly
(**generalisations** vs. „**exceptions**“/**minor generalisations**)
- allow for **interaction** of different structural factors
- be dynamic enough to allow for **inter-speaker variance**
- assign gradual tendencies **probabilistically** to novel contexts
- allow for **analogy** driven stress assignment

References

- Aske, J. 1990. Disembodied rules versus patterns in the lexicon. In Hall, K., Koenig, J.-P., Meacham, M., Reinman, S., & Sutton, L. A. (eds.) *Proceedings of the sixteenth annual meeting of the Berkeley Linguistics Society*, Berkeley, Berkeley Linguistic Society, pp. 30-45.
- Eisenberg, P. 1991. Syllabische Struktur und Wortakzent: Prinzipien der Prosodik deutscher Wörter. *Zeitschrift für Sprachwissenschaft* 10: 37-64.
- Ernestus, M., and Neijt, A. 2008. Word length and the location of primary word stress in Dutch, German, and English. *Linguistics* 46(3): 507-540.
- Face, T. L. 2000. The role of syllable weight in the perception of Spanish stress. In Campos, H., Herburger, E., & Alfonso, M.-F. (eds.) *Hispanic Linguistics at the Turn of the Millennium*. Somerville, MA: Cascadilla Press. 1-13.
- Féry, C. 1998. German word stress in Optimality Theory. *Journal of Comparative Germanic Linguistics* 2: 101-142.
- Giegerich, H. 1985. *Metrical Phonology and Phonological Structure: German and English*. Cambridge: Cambridge University Press.
- Guion S. G., J. J. Clark, T. Harada & R. P. Wayland. 2003. Factors affecting stress placement for english nonwords include syllabic structure, lexical class, and stress patterns of phonologically similar words. *Language and Speech* 46(4). 403-427.
- Janßen [Domahs], U. 2003. *Untersuchungen zum Wortakzent im Deutschen und Niederländischen*. PhD thesis, University of Duesseldorf. Available (March 2008) at <http://deposit.d-nb.de/cgi-bin/dokserv?idn=972217770>.
- Jessen, M. 1999. German. In Harry van der Hulst (ed.), *Word prosodic systems in the languages of Europe*, 515-545. Berlin: de Gruyter.
- Kaltenbacher, E. 1994. Typologische Aspekte des Wortakzents: Zum Zusammenhang von Akzentposition und Silbengewicht im Arabischen und Deutschen. *Zeitschrift für Sprachwissenschaft* 13. 20-55.
- Mengel, A. 2000. *Deutscher Wortakzent. Symbole, Signale*. Norderstadt: Books on Demand Gmbh.
- Schindler, W. 1994. Analogische Wortakzentvergabe im Deutschen. *Sprachtypologie und Universalienforschung* 47:4, 355-370.
- Tappeiner, E., U. Domahs & F. Domahs. 2007. Wortakzent im Sprachkontakt Deutsch - Italienisch. *Zeitschrift für Dialektologie und Linguistik* 74(2/3). 266-291.
- Vennemann, T. 1991. Syllable structure and syllable cut prosodies in Modern Standard German. In P. M. Bertinetto, M. Kenstowicz & M. Loporcaro (eds.), *Certamen Phonologicum II: Papers from the Cortona Phonology Meeting 1990*, 211-245. Torino: Rosenberg and Sellier.
- Wiese, R. 1996/2000. *The phonology of German*. Oxford: Oxford University Press.