Positional faithfulness in stem-final position in German

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Some structural positions appear to be linked to a larger potential for contrast than others, motivating the concept of positional faithfulness (Beckman 1998). Neutralization patterns accordingly help identify the positions in question, thereby shedding light on the relevant structures and on possible reasons for what makes positions conducive to contrast. Empirically, the identification of positional faithfulness is often hampered by competing analyses in terms of positional markedness. For instance, Final Devoicing in German is often analysed with reference to a constraint against voiced obstruents in codas, but could alternatively be analysed in terms of positional faithfulness with respect to syllable onsets.

The data presented below unequivocally indicate positional faithfulness to the stem-final position in German (see A). The relevant stems appear to be determined by stripping particular suffixes from words (see B) The question of what makes these morphological positions conducive to contrast is open. Reference to perceptibility scales and their effect on cue recoverability (Steriade 1997) appear not be relevant here.

A **Positional faithfulness in stem-final position**

German exhibits regular contrasts between vowels which are phonetically tense and long versus their lax and short counterparts (cf. /ˈk[oː]mɑ/ <Koma> 'coma' vs . /ˈk[ɔ]mɑ/ <Komma> 'comma'). It is well-known that this contrast is confined to stressed syllables (Moulton 1962), supporting the familiar positional faithfulness to prominent positions.

(1)a.	/tsyˈkl[oː]p/ <Zyklop> : /gɑˈl[ɔ]p/ <Galopp>	b.	/ˈbɔsk[ɔ]p/ <Boskop>	*/ˈbɔsk[o(ː)]p/

In addition there are numerous neutralization contexts referring to syllable structure, such that necessarily closed syllables can only have lax vowels /ˈv[ɔ]lgɑ/ <Wolga> (*/ˈv[oː]lgɑ/) and necessarily open syllables can only have tense vowels (ˈb[oː]ɑ <Boa> (*/ˈb[ɔ]ɑ/). Potential contrast as in /ˈk[oː]mɑ/ : /ˈk[ɔ]mɑ/ indicates the possible ambisyllabic organization of the intervocalic consonant, to satisfy the positional faithfulness constraint (as well as higher-ranking markedness constraints confining the distribution of tense versus lax vowels with respect to syllable structure. The neutralization to only tense vowels before plosive+liquid clusters as in (2b) indicates that the organization of such clusters as complex onsets, whose initial member cannot be organized ambisyllabically in German.

(2)a.	/ˈk[oː]mɑ/ <Koma> : /ˈk[ɔ]mɑ/ <Komma>	b.	/ˈ[oː]kʀɑ/ <Okra>	*/ˈ[ɔ]kʀɑ/

Consider now various cases of potential contrast in stem-final position, marked by "|"|, involving intervocalic /st/(3a), /ps/, /ks/ (4a), /s/ (5a), /tʃ/ (6a), as opposed to the neutralization to lax vowels in these phonological contexts when no stem-boundary follows:

(3)a.	/ˈv[ɛ]st|ə/ <Weste> : /ˈg[eː]st|ə/ <Geste>	b	/ˈp[ɛ]sto/ <Pesto>	*/ˈp[eː]sto/
(4)a.	/ˈv[a]ks|ən/ <wachsen> : /ˈʃt[ɑː]ks|ən/ <staksen>	b	/ˈt[a]ksi/ <Taxi>	*/ˈt[ɑː]ksi/
(5)a.	/ˈʀ[ʊ]s|ə/ <Russe> : /ˈb[uː]s|ə/ <Buße>	b	/ˈb[ʊ]saʀd/ <Bussard>	*/ˈb[uː]sard/
(6)a.	/ˈp[a]tʃ|ə/ <Patsche> : /ˈbʀ[ɑː]tʃ|ə/ <Bratsche>	b	/ˈm[a]tʃo/ <Macho>	*/ˈm[ɑː]tʃo/

The unmarked prosodic organization for all of the intervocalic consonants in (3) - (6) is to close the preceding syllable, which accounts for the neutralization to lax vowels in the cases in (b). In the cases in (a), positional faithfulness makes its force felt, forcing the organization of the following consonants strictly in onset position after the tense vowel (e.g. /ˈv[ɛ]s.tə/ : /ˈg[eː].stə/). Here a positional markedness analysis is ruled out because markedness generally favors complex onsets before full vowels, as in (2b), as opposed to banning such onsets before /ə/ (simplexes such as */ˈ[oː].kʀə/ appear to be ungrammatical in German).

B Determining stem-final positions

A study of the potential contrast patterns as in (3) - (6) indicates that the relevant right stem boundaries are determined by stripping final /ə/, /(ə)n/, and /əʀ/ of all words (as well as regular productive suffixes). These endings are those which generally "disappear" in word formation with unstressed suffixes (e.g. /ˈzyd|ən/ + /lɪç/ => /ˈ zyd|lɪç/ <südlich>).

More cases like (3)

a.	/ˈ[ɔ]stən/ <Osten> : /[o:]stəʀn/ <Ostern>	b.	/niˈʀ[ɔ]stɑ/ <Nirosta>	*/niˈʀ[o:]stɑ/
	/ˈl[ɪ]st/ <List> : /ˈb[i:]st/ <Biest>		/'b[ɪ]stʊm/ <Bistum>	*/'b[i:]stʊm/
	/ˈkʀ[ʊ]stə/ <Kruste> : /ˈp[u:]stə/ <Puste>		/ˈp[ʊ]stɑ/ <Pußta>	*/ˈp[u:]stɑ/
	/ˈl[ʊ]st/ <Lust> : /ˈv[u:]st/ <Wust>		/ˈm[ʊ]staŋ/ <Mustang>	*/ˈm[u:]staŋ/
	/ˈfl[ʏ]stern/ <flüstern> : /ˈd[y:]ster/ <düster>		/'ks[ʏ]stʊs/ <Xystus>	*/'ks[y:]stʊs/
	/ˈʀ[a]stəʀ/ <Raster> : /ˈm[ɑ:]stəʀ/ <Master>		/ˈp[a]stɑ/ <Pasta>	*/ˈp[ɑ:]stɑ/
	/ˈʀ[a]st/ <Rast> : /ˈk[ɑ:]st/ <Cast>		/kɑˈn[a]stɑ/ <Canasta>	*/ˈb[ɑ:]stɑ/

More cases like (4)

a.	/ˈkl[ɛ]ks/ <Klecks> : /k[e:]ks/ <Keks>	b.	/ˈpl[ɛ]ksi/ <Plexi>	*/ˈpl[e:]ksi/
	/ˈz[ɛ]psən/ <Sepsen> : /kʀ[e:]psən/ <krepsen>		/ˈp[ɛ]psi/ <Pepsi>	*/ˈp[e:]psi/
	/ˈb[ɔ]ks/ <Box> : /k[o:]ks/ <Koks>		/ˈd[ɪ]ksi/ <Dixie>	*/ˈd[i:]ksi
	/ˈkn[ɪ]psən/ <knipsen> : /ˈp[i:]psən/ <piepsen>		/kɑˈl[ɪ]pso/ <Calypso>	*/kɑˈl[i:]pso/
	/ˈʃ[ʊ]psən/ <schupsen> : /ˈp[u:]psən/ <pupsen>		/ˈ[ʏ]psiˌlɔn/ <Ypsilon>	*/ˈ[y:]psiˌlɔn/

More cases like (5)

a.	/ˈb[ʊ]s/ <Bus> : /ˈf[u:]s/ <Fuß>	b.	/ˈdeg[ʊ]sɑ/ <DEGUSSA>	*/ˈdeg[u:]sɑ/
	/ˈfl[ɔ]sə/ <Flosse> : /s[o:]sə/ <Soße>		/ˈop[ɔ]sʊm/ <Opossum>	*/ˈop[o:]sʊm/
	/pʀoˈt^{s}[ɛ]s/ <Prozess> : /gəˈf[æ:]s/ <Gefäß>		/ɛsˈpʀ[ɛ]so/ <Espresso>	*/ɛsˈpʀ[e:]so/
	/ˈk[ɪ]sən/ <Kissen> : /ˈʃl[i:]sən/ <schließen>		/'m[ɪ]sɑ/ <Missa>	*/'m[i:]sɑ/
	/ˈtʃ[ʏ]s/ <tschüss> : /ˈz[y:]s/ <süß>		/ˈl[ʏ]sɑ/ <Lyssa>	*/ˈl[y:]sɑ/
	/ˈg[a]sə/ <Gasse> : /ˈʃtʀ[ɑ:]sə/ <Straße>		/ˈl[a]so/ <Lasso>	*/ˈl[ɑ:]so/

More cases like (6)

a.	/ˈgl[ɪ]tʃən / <glitschen> : /ˈkv[i:]tʃən/ <quietschen>	b.	/ˈl[ɪ]tʃi/ <Lychee>	*/ˈl[i:]tʃi /
	/ˈkv[ɛ]tʃən / <quetschen> : /ˈgʀ[æ:]tʃən/ <grätschen>		/ɛnˈd[ɛ]tʃɑ/ <Endecha>	*/ɛnˈd[e:]tʃɑ/
	/ˈl[ʊ]tʃən / <lutschen> : /ˈkn[u:]tʃən/ <knutschen>		/mɑhɑˈʀ[a]tʃɑ/ <Maharadscha>	/mɑhɑˈʀ[ɑ:]tʃɑ/

References:

Beckman, Jill (1998): Positional Faithfulness. *Ph.D. Dissertation*. University of Massachusetts. Amherst.

Moulton, William G. (1962): *The sounds of English and German*. Chicago: Chicago University Press.

Steriade, Donca (1997): *Phonetics in Phonology. The Case of Laryngeal Neutralization*. University of California Los Angeles.