The Role of [voice] and [spread] in German Obstruents

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Jessen & Ringen (2002) demonstrate that a [spread] analysis of German stops is empirically superior to the traditional [voice] analysis. They motivate constraints (a) requiring that obstruents at the right edge of prosodic words be [spread] (PW-R[sg]; see also Wiese 1996), (b) requiring that input [sg] be preserved on output correspondents (ID[sg]), and (c) prohibiting voiced spread glottis stops (*voi/sg; see also Davis & Cho 2003). According to this analysis, all German stops are voiceless; the contrast is between stops that are specified as [spread] and those that are not. The only voiced stops arise by (phonetic) passive voicing, which accounts for the (variable) voicing of inter-sonorant (non-[sg]) segments.

The purpose of this paper is to consider whether Jessen & Ringen's account can be extended to account for the voicing of German fricatives. German fricatives contrast for voice between sonorants, cf. *Gra*[s]~*Grä*[z]*er* 'grass sg., pl.' vs. *Fu*[s]~*Fu*[s]*e* 'foot sg., pl.'. Jessen (1998) (see also Vaux 1998) argues that, for fricative systems with two-way laryngeal contrasts, the contrast cannot be [spread] vs. its absence; rather, the most common contrast in fricatives is [voice] vs. [spread]. Thus, it would appear that although there are no underlying German stops specified for [voice], there are fricatives specified underlyingly as [voice].

The constraints assumed in Jessen & Ringen will correctly predict that all word-final fricatives are voiceless in German:

(1)

Gra/z/	*voi/sg	PW-R[sg]	ID[sg]	*voi	*sg	Fu/s/	*voi/sg	PW-R[sg]	ID[sg]	*voi	*sg
☞Gra[s^sg]					*	☞ Fu[s^sg]					*
Gra[z]		*!		*		Fu[z]		*!		*	
Gra[z^sg]	*!					Fu[s]		*!			

But this account does not explain the voicelessness of *all coda* fricatives in German, nor the fact that all voiceless fricatives are [sg] (c.f. Vaux 1998).

Given that stops in German are all voiceless (unless between sonorants), then the voicelessness of coda fricatives in clusters preceding stops (e.g., *kur*[v]*en* 'curve inf.' vs. *kur*[f]*te* '1sg & 3sg past') is accounted for by the interaction of the constraints assumed in Jessen & Ringen, with two additional, independently motivated constraints: (a) ID-preson-f , requiring that presonorant fricatives retain their input voice specification (c.f. Padgett 1995, Lombardi 1999, and Beckman 1998 for variations on presonorant faithfulness, and Jun 1995 for manner-sensitive faithfulness), and (b) FRIC-SG, requiring that fricatives be [sg] (Vaux 1998):

(2)

kur/v+t^sg/e	ID-preson-f	FRIC-[sg]	*voi/sg	PW-R[sg]	ID[sg]	*voi	*sg
☞ kur[f^sg t^sg]e							**
kur[vd]e		*!			*	**	
kur[vt^sg]e		*!				*	*
kur[vd^sg]e		*!	*				
kur/v/en							
kur[f^sg]en	*!						*
☞ kur[v]en		*				*	
kur[f]en	*!	*					

Rice (1994) and Tsuchida, Cohn & Kumada (2000) argue for analyses of Athapaskan and English, respectively, in which the stops contrast for [spread], but the contrast in fricatives involves [voice]. German is apparently similar to these languages in this respect. As we have shown, well-motivated OT constraints provide a straightforward analysis of this system.