Paradigms, perception, prosody, and palatals:
Toward a comprehensive account of the
origins and spread of the High German consonant shift

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Recent work has established...

that the High German Consonant Shift (HGCS) was carried through first in intervocalic singletons after short stressed vowels:

p, t, k > pf, ts, kx / V̆__V

This state of the shift – with extension to word-final position after short vowels – is preserved in the modern dialect of **Wermelskirchen**.

By OHG times ...

the HGCS had been extended:

- for (nearly) **<u>all</u>** dialects and places of articulation to:

    - word-final position (as in Wermelskirchen)

    - position after long vowels (intervocalic and word-final)

- for **<u>some</u>** dialects and places of articulation to:

    - post-consonantal position

    - geminates

    - word-initial position

Origins of HGCS

We agree with Iverson and Salmons (2006) and others on the following key points:

The well-known Germanic preference for bimoraic stressed syllables (Prokosch's Law) was a key motivation for the original shift to affricates in the V̆__V environment.

The place bias (t > p > k) seen in other environments in OHG and modern dialects was operative from the very beginnings of the shift.

 Front – especially high front – vowels often trigger affrication, and the shift may thus have begun in the environment: V̆__V[+front].

Extension of the HGCS

This talk focuses on the **extension** of the HGCS beyond its V̆___V origins to the various environments in which it is found in OHG and most modern High German dialects.

Our larger project addresses both the **how** and the **why** of this far-reaching extension.

Today's talk focuses on the **why**.

Why does the HGCS spread beyond the V̆__V environment where it was prosodically motivated, eliminating all alternations and greatly simplifying the pattern of distribution?

A "drive to reduce allomorphy"?

"The drive to reduce intraparadigmatic variation, or allomorphy, is among the strongest forces in language change (cf., e.g., Kiparsky 1971), and is seen here as the progenitor of the extension of the High German shift from a strictly prosodically determined core change to one triggered [...] by paradigmatic or morphophonemic factors as well" (Davis, Iverson, and Salmons 1999:197).

But this notion of a supposedly universal "drive to reduce [...] allomorphy" has not held up well to recent scrutiny (Bybee and Newman 1995, Albright 2005, Hill 2007, Garrett 2008, etc.), and Iverson and Salmons endorse a very different view in more recent work (2004):

"**widespread analogy takes place only when learners are unable any longer to make viable phonological generalizations**" (78).

"**analogy only becomes active on a large scale under acquisitional crisis conditions**" (106).

Compare Dresher 2000:

"levelling of vowel quantity [...] in Middle English nominal paradigms [...] occurred in response to a situation that was phonologically and morphologically incoherent. [...] if the preceding account is correct, wholesale levelling occurs only as a response to a crisis" (60).

But...

this is not quite right either, consider:

Canadian raising (Joos 1942)

"allophonic" leveling of split-æ alternation: *pad–padding* (Trager 1940)

ŋ~ŋg distribution in present-day English (Garrett and Blevins 2008)

Other examples in Steriade (2000)

Apparently...

paradigm leveling can sometimes be the first step in the breakdown of a previously exceptionless pattern of phonological distribution/alternation.

Leveling as a <u>synchronic</u> phenomenon

"paradigm levelling [...] represents the systematic generalization of one allomorph to positions where it is phonologically unjustified or unexpected, as a means of satisfying a P[aradigm] U[niformity] condition" (Steriade 2000).

Our position

Morphological regularity can indeed sometimes trump phonological regularity (Kiparsky 2000)

BUT: morphological regularity cannot be reduced to "Paradigm Uniformity"; rather it is a matter of "system congruity" (Wurzel 1984).

System-congruous alternations are unlikely to be leveled (especially if they are also phonologically regular)

HGCS alternations in strong verb paradigms

The alternations between shifted (after short vowels) and unshifted (after long vowels) *p, t, k* in strong verbs of classes I and II would have

had an **exact parallel** in pre-OHG in the much older Verner's Law alternations: *h~g, s~r, d~t*, which were still largely intact in these strong verb classes in OHG.

Real and hypothetical stem-final consonant alternations in OHG class-I strong verbs:

rīsan 'fall' ⁺smītan 'smear'	Verner's Law alternation	Hypothetical HGCS alternation
Inf.	rīsan	⁺smītan
3 sg. pres. indic.	rīsit	⁺smītit
1/3 sg. pret. indic.	reis	⁺smeit
2 sg. pret. indic.	riri	⁺smizi
1/3 pl. pret. indic.	rirum	⁺smizum
1/3 sg. pret. subj.	riri	⁺smizi
pret. partic.	giriran	gismizan

Retention of stem-final consonant alternations in OHG Cl. I & II strong verbs

~92 Cl. I & II verbs in OHG	VL	HGCS
Verbs subject to alternation	25	35
No evidence	3	0?
Alternation fully intact	18	0
Variable leveling	3	0
Complete leveling	1	35

VL alternation completely leveled **only** in *fliohan*, where leveling is attributed to avoidance of homophony with corresponding forms of *fliogan*.

Dialect contact...

undoubtedly contributed greatly to creating conditions conducive to the extension of the HGCS.

Compare the Northern Cities leveling of the various split-*a* patterns found on the U.S. East Coast...

"The native-born settlers moving into New York State came from a variety of dialect areas [...] these settlers would have a variety of different and incompatible short-a systems [...]. The end result in western New York State was none of these, but the general raised short-a pattern of the NCS.

  This general raising pattern appears to be the type of simplification that often occurs in situations of radical dialect mixture [...]. In such a situation, it is not unusual for different conditioning factors, sub-categories and sub-rules to disappear in favor of the simplest possible treatment" (Labov et al. 2006:214).

But...

the recent literature does not characterize the original HGCS pattern as a complex one of "different conditioning factors, sub-categories and sub-rules" but rather as a maximally straightforward and transparent pattern of "complementary distribution" (Davis 2008:211) that would also have found some morphological support in the existing Verner's Law alternations in strong verb paradigms.

Such a pattern should be stable and resistant to leveling, even if it is subject to widespread "diffusion" as opposed to "transmission" (Labov 2007).

We argue...

1. the fact that the HGCS did spread beyond the V̆__V environment to post-long-vowel and later (for some dialects and places of articulation) post-consonantal, geminate, and word-initial positions strongly suggests that the early pattern was somehow much **messier** than the portrayal in the recent literature.

2. Perceptual confusability and phonological ambiguity play a pervasive role in analogical change that is rarely recognized in traditional approaches.

   The prime suspect: **palatal environments**

Palatal Environments

Consonants flanked by hi or mid front vowels or reflexes of the palatal glide (j, i, e), e.g., *chind*, *sekil*, *unsih*.

Also include phonetically umlauted low and back vowels raised by following i/j, e.g., *chuninga*, *chumig*.

What do spellings from the OHG manuscript editions reveal about the progression of the HGCS across morphological categories and the interacting roles that prosody, phonetics, and analogy played in the spread of the shift from its core environment after short stressed vowels?

The Most Useful OHG Data

come from Frk. texts where the HGCS had not spread to all environments of the three places of articulation.

focus on the shift of /k/ because:

- /t/ was fully shifted in most texts and in virtually all environments;

- /p/ was relatively infrequent compared to /t/ and /k/; and

- /k/ showed palatalization orthographically.

Our Data...

Surveys of two of the largest Old Frankish manuscripts, focusing on /k/.

1. The East Frankish OHG translation of Tatian's prose Gospel harmony, S. Gall, 2nd quarter 9th c.

2. The Rhine/S. Rhine Frankish poetic Gospel book by Otfrid von Weißenburg, 3rd quarter 9th c.

Our Data cont...

3. Surveys of a selection of OHG minor manuscripts:

   9 Frk. Texts: Mid. Frk. Trier Capitulary; Rh.Fr. Confessions from Lorsch, Pfalz, Mainz, & Reichenau; Psalm translation, Weißenburg Catechism, the Fulda and Würzburg confessions.

   3 Bav. Texts: Weßobrunn credo and confession II, Weßobrunn prayer, and the Muspilli.

   Alem. Text: St. Gall Paternoster & Credo.

Our Data cont...

- All data were collected from the Titus database in conjunction with reference to actual manuscript images in cases of ambiguity.

- Minor manuscripts were culled for *all occurrences* of singleton and geminate pre-OHG *p, *t, *k in all environments.

- Major manuscripts were searched for *all forms* of ~65 common words containing *k in any environment.

- Consonants were then categorized as falling into 1 (or more) of 10 phonological environments.

The Role of

Geminates

Geminates

WGmc. Consonant gemination was completed prior to the affricate stage of the HGCS.

WGmc. gemination of consonants by *j affected a large number of consonants in some of the most common morphological categories: ja-stem, jō-stem, jan- and jōn-stem nouns and adjectives, and the jan-stem class 1 weak verbs.

→ large influx of geminates in common paradigms where they alternated with singletons.

OHG Class i Weak Verbs

Infin	WGmc *thak-jan > thecken~decken 'to cover'			
Pres indic	Sg. 1	theck(i)u	Pl. 1	theckemēs
	2	thekis	2	thecket
	3	thekit	3	theckent
Pres subj	Sg. 1	thecke	Pl. 1	theckēm
	2	theckēs(t)	2	theckēt
	3	theckēt	3	theckēn
Imper	Sg. 2	theki		
	Pl. 1	theckemēs		
	Pl. 2	thecket		
Pres ppl		theckenti		
Pret indic	Sg. 1	thakta	Pl. 1	thaktum
	2	thaktōs(t)	2	thaktut
	3	thakta	3	thaktun
Pret subj	Sg. 1	thakti	Pl. 1	thaktīm
	2	thaktīs(t)	2	thaktīt
	3	thakti	3	thaktīn
Pret ppl		githekit		

WGmc. Geminates < *j

WGmc. consonants were palatalized and slightly affricated through coarticulation of the consonant with the following palatal glide *j: *satjan > sett^{j}an > sett$^{s(j)}$an (Denton & Davis 2009).

The prosodic preference for heavy stressed syllables (Prokosh's Law) caused these articulations to be stretched over a syllable boundary so that their closures fell in the coda of the preceding syllable and their releases fell in the onset of the following syllable: satjan > set.t^{s}an (Denton 2007).

Geminates: the palatal

Reflexes of the *j gemination trigger were retained into OHG.

WGmc. geminates from *j remained affricated.

The huge influx of these geminates changed the phonological landscape of WGmc., adding new geminates to the inventory and making many formerly light stressed syllables heavy.

The new geminate-singleton alternations in these paradigms invited confusion, reanalysis, and leveling.

Geminates: non-palatal

West Germanic consonants geminated by the other triggers /r, l, w/, were not palatalized (though also affected by coarticulation with following sonorants).

Pre-WGmc. geminates (usually resulting from total assimilation) also had no palatal component.

Palatalized and non-palatalized geminates behaved differently in the HGCS of Frk.

V̄__V and palatal environments in Cl. IV/V strong verbs

mëʒʒan 'measure'	Indic.	Subj.
3 sg. pres.	miʒʒit	mëʒʒe
3 pl. pres.	mëʒʒant	mëʒʒēn
1/3 sg. pret.	maʒ	māʒi
2 sg. pret.	māʒi	māʒīs
1 pl. pret.	māʒum	māʒīm
2 pl. pret.	māʒut	māʒīt
3 pl. pret.	māʒun	māʒīn
pret. partic.	gimëʒʒan	

V̄__V and palatal environments in Cl. I/II strong verbs

smīʒan 'smear'	Indic.	Subj.
1st sg. pres.	smīʒu	smīʒe
2nd sg. pres.	smīʒist	smīʒēs
3 sg. pres.	smīʒit	smīʒe
3 pl. pres.	smīʒant	smīʒēn
1/3 sg. pret.	smeiʒ	smiʒʒi
2 sg. pret.	smiʒʒi	smiʒʒīs
1 pl. pret.	smiʒʒum	smiʒʒīm
pret. partic.	gismiʒʒan	

We propose...

that it was both the slightly affricated and palatalized WGmc. j-geminates and the singletons in palatal environments (which were also somewhat palatalized) that were the initial phonetic seeds of the HGCS.

We furthermore argue that palatal environments remained a crucial facilitator of the spread of the HGCS to every environment beyond the core of the shift.

(Singletons in palatal environments were found in alternation with geminates in categories with ja-formatives, but also wherever a palatal-initial suffix followed.)

Consonants in OHG data

Postvocalic Singletons: Shift of /k/complete

/V̆___V   machon, bibrihhit, kirichun

/V___]$_{word}$ sprach, mih, thih

/Vː ___   bleiche, rich-, firslichen

Beyond these environments, surrounding palatals facilitate shift. Virtually all texts show:

- shift of j-geminates,

- shift of some other geminates and post-consonantal singletons in *palatal environments*.

Consonants in OHG data

Word-initial position:

Partial shift of /k/ in some Frk. texts, but usually only in *palatal environments*, including

those resulting from i-umlaut of a following vowel.

This is the extent of shift in Frankish texts.

In Upper German texts shift is further generalized to non-palatal environments.

Conclusions

1. Whereas prosody and palatals had both been instrumental in the inception of the shift, it was the palatal environments alone that facilitated every stage of its extension—from post-long-vowel C's through post-consonantal and geminate environments to word-initial position in Frankish dialects.

2. Ambiguity of unshifted consonants in palatal environments – combined with a bewildering variety of patterns of alternation – set the stage for leveling within paradigms and ultimately for extension of the shift beyond the bounds of those paradigms.

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