

## Uncovering a consonant chain shift in Gujarati

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Chain shifts are not new to linguistics – the concept goes all the way back to the founding of the discipline in the west, soon after William Jones’ famous address of 1786 espousing the relations between Indian and Western languages. The formulation of Grimm’s Law, as it came to be known (pre-discovered perhaps by Rasmus Rask – see Fortson 2010:339), marked the beginnings of historical linguistics as linguistics. Grimm’s Law (formulated in 1822, as part of Grimm 1819-34) was, of course, set up as a series of correspondences, which evoked the phenomenon of systematic sound change in a catenatic sequence: Indo-European (or IE) /bh dh gh/ > Germanic (or Gmc) /b d g/, IE /b d g/ > Gmc /p t k/ and IE /p t k/ > Gmc /f θ h/. While Indo-Europeanists would today modify the details of these formulations, especially at a reconstructed phonetic-phonological level (see Hopper 1973, Fortson 2010:340), Grimm’s Law has nevertheless endured as an elegant set of statements. Work on chain shifts in their own right took off much later with the theoretical work of Martinet (1952), tied to the growth of a structural phonology. Work on push chains and drag chains focused on the forces of initiation, subsequent contiguity, and consequent shift. (It is said that lavatorial prudery of the times caused the term “pull chain” to be downplayed.) Modern work on English chain shifts has, in fact, focussed on its vowel systems, where much shifting is evident historically (the Great Vowel Shift) as well as in contemporary dialects (the Northern Cities Shift and the “Elsewhere” shift – also called the Canadian Shift, the California Shift, the Third Shift etc. – see Labov 1991, 2010, Eckert 1994). In South Africa there has been interest in an older Short Front Vowel Shift (Lass & Wright 1986) and in a more recent counter-shift, i.e., the Short Front Vowel Reverse Shift (Chevalier 2016, see also Bekker 2009). In all of these cases, the facts, individual sequences, timelines and existence of near-mergers, mergers and putative un-mergers make this a lively field of enquiry – see e.g., Lass (1992) on the Great Vowel Shift, and Becker (2019) on the “Elsewhere” shift.<sup>1</sup>

My current work has uncovered a consonantal chain shift in the Indo-Aryan language, Gujarati, that has been missed in descriptions of that language. This shift may be stated as follows:  $k, kh \rightarrow c, ch \rightarrow s, ś \rightarrow ḥ \ \& \ h \rightarrow \emptyset$ . In this philological notation  $c$  = IPA [tʃ] or perhaps even [cʃ],

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<sup>1</sup> By *un-merger* I refer to putative mergers such as the MEAT – MEET merger in 18<sup>th</sup> C Belfast English (amongst others), whose effects appear to have been subsequently undone. Labov (1994:36, 384-7) discusses these as mismatches between production and perception, arguing that what was previously taken as a merger was not necessarily so in terms of production, and hence in essence a near-merger.

$\acute{s}$  = IPA [ʃ],  $h$  = voiceless [h] and  $h$  = voiced [ɦ].<sup>2</sup> The arrow “→” rather than arrowhead “>” notation is meant to reflect the fact that, in chain shifts, phonemic distance between the shifted elements is usually maintained after the change (Martinet 1952). In other words,  $x \rightarrow y \rightarrow z$  indicates, in shorthand, that while  $x$  changes to  $y$ , it is not the same “output  $y$ ” that changes to  $z$ , but “earlier  $y$ ”, and phonemic distance is thus preserved<sup>3</sup>. More concretely, the changes given in (1) are set out in the formula relating earlier forms of the language (and the current standard) to the rural and non-standard varieties.

- (1) /k/ and /k<sup>h</sup>/ are often realised as [tʃ] and [tʃ<sup>h</sup>] respectively  
 /c/ and /ch/ are often realised as [s] (or sometimes as [ʃ])  
 /s/ (but not generally [ʃ]) is realised as a voiceless [h]  
 Voiced /ɦ/ is often realised as murmur on an adjacent vowel (notationally *ʌ*) or sometimes as zero.<sup>4</sup>

This might seem a rather startling sequence of changes to have been missed within the description of a language (even one as advanced as Cardona & Suthar 2003), but there are extenuating circumstances. Firstly, the main grammars of Gujarati focus on the standard language which does not participate in the shift. Secondly, the copious *Linguistic Survey of India* or *LSI* (Grierson ed. 1903-28, especially 1908), which *does* focus in detail on dialects with samples and commentary, was undertaken at a time when phonetic science was still developing. Work on chain shifts such as that of Martinet (1952, 1955) was decades into the future. In fact, all segments of the consonantal chain shift are described in the *LSI* but are treated as parts of miscellaneous lists of features differing from the standard written language. Grierson comes close to conceiving of them as part of an integrated chain but stops short of this. Likewise, the detailed work of Sampat (1973), whose comparative word list of three Gujarati dialects is an essential part of my database, was written under the influence of structural linguistics. While admirably clear and systematic, it is neither generative nor variationist, and misses the possibility of a chain shift. Thirdly, scholars working on related regional languages have noticed something similar, again without theorising their results (Allen 1957 on Rajasthani) or publishing their findings.<sup>5</sup>

The chain shift under discussion can be discerned by comparing the colloquial forms in the regional dialects associated with lesser educated and less literate speakers with the standard Gujarati forms and those of Central Indo-Aryan languages like Hindi. The shift operates slightly differently by phonological environment and dialect. In particular, the first link (changes to  $k$  and  $kh$ ) operates only before front vowels and the semi-vowel  $y$ . Likewise  $c, ch \rightarrow \acute{s}$ , as far as the mechanisms of the chain shift are concerned, is restricted to the environment ‘before front

<sup>2</sup> I leave it open what the quality of  $c$  is. While scholars – perhaps influenced by English – often use [tʃ] here for the sound in Indian languages, in my speech I detect a difference between [tʃ] in English *chew* and Hindi *chū* [cʃu:] ‘to drip’.

<sup>3</sup> To clarify: In phonological notation  $x > y$  and  $y > z$  would hypothetically imply  $x > z$  (since  $y$  has the same phonetic value). The chain shift notation with  $\rightarrow$  precludes this possibility, emphasising the difference between resulting  $y$  and earlier  $y$ .

<sup>4</sup> In response to a reviewer’s query, let me emphasise that voiced [ɦ] plus a murmured vowel versus a murmured vowel alone are indeed perceptually differentiable. This is likely to relate to voice-onset-time and pitch differentiation, but for the time being is outside the scope of this paper.

<sup>5</sup> In this regard Suhnu Ram Sharma (p.c. 25 April 2022) points to the unpublished work of S.C. Sharma on Gade Lohar dialect related to Rajasthani and Bhili, which I have not been able to access.

vowels’ and only in some dialects.<sup>6</sup> The other changes are less constrained. It is necessary to differentiate three types of /h/ within the shift: voiced, voiceless and murmured (vowel) equivalents or even contrasts.



Map 1 – The four main dialects of Gujarati - © R. Mesthrie

I start by describing the changes evident in Surti, the dialect spoken by millions in and around the district of Surat (see Map 1). This is essentially the form of Gujarati used in Cape Town and was thus the beginning point of the enquiry that led to the uncovering of a chain shift in the matrilectal Gujarati dialects more generally. The three segments of the shift evinced by Surti are shown below in (2): *ch* → *s*; *s* → *h*; *h* → ∅. Illustrations are from word-initial position for ease of exposition; some allophonic variation in other positions would necessitate a more detailed set of comparisons.

(2)	<u>Std Gu</u>	<u>Surti</u>	
	<b>chə</b>	<b>sə</b>	‘six’
	<b>chasəṭh</b>	<b>sahēṭh</b>	‘sixty-six’
	<b>soni</b>	<b>ḥoni</b>	‘jeweller’
	<b>somwar</b>	<b>ḥomwar</b>	‘Monday’

<sup>6</sup> Borrowings in other positions may turn this allophone into a phoneme of its own.

<b>h</b> əjar	əjar	‘thousand’
<b>h</b> athi	athi	‘elephant’

The change of  $c \rightarrow s$  is better exemplified from Kathiawadi, which is also a dialect carried to parts of South Africa (but not Port Elizabeth/Gqeberha or Cape Town, where the Surti dialect predominates). Kathiawad is a large peninsula that forms the western part of Gujarat and is famous for the town of Porbander, the birthplace of M.K. Gandhi (see Map 1).

(3)	<u>Std Gu</u>	<u>Kathiawadi</u>	
	<b>ca</b>	<b>sa</b>	‘tea’
	<b>cuno</b>	<b>suno</b>	‘lime’

The changes  $k \rightarrow c$  and  $kh \rightarrow s$  occur in neither Surti nor Kathiawadi and are best exemplified from Charotari of the central Gujarati speaking area (see Map 1).<sup>7</sup>

(4)	<u>Std Gu</u>	<u>Charotari</u>	
	<b>keɭ</b>	<b>cer</b>	‘banana tree’
	<b>keɭlũ</b>	<b>ceɭlu</b>	‘how much’
	<b>khilo</b>	<b>sillo</b>	‘peg’
	<b>khedu</b>	<b>sedu</b>	‘farmer’

There are still more variants involved in different parts of the chain, such as an intermediate [s<sup>h</sup>] for the rule  $s \rightarrow h$  before non-front vowels in Kathiawadi. There are also parallel changes to the voiced equivalents of the  $s$ -shift, e.g.,  $g, gh \rightarrow j$  in some dialects where  $j = \text{IPA } [j]$  or perhaps [dʒ]. As with all chain shifts, many questions arise over issues pertaining to the relative chronology of the different phases, the catalyst of the shift (push chain, pull chain or something intermediate), phonemic distance versus mergers or near-mergers, as well as the relative roles of phonetic variation versus lexical diffusion (see Hock 1991:156-158). These raise larger questions about the relation of these changes to other Indo-Aryan languages and the history of Indo-Aryan. Only one theoretical point relating to this history will be raised here, and that is the matter of double shifts.

Chain shifts are not generally susceptible to ‘overshoot’ since the distance between phonemes is usually retained after a shift. In this regard Martinet (1955:4) speaks of a “margin of security” within the “field of dispersion” (see Labov 1994:218). However, the Gujarati dialect data does give quite a few counter-examples, in which one dialect exhibits a double shift compared to the standard and (sometimes) to the other dialects. The overall schema  $k, kh \rightarrow c, ch \rightarrow s \rightarrow h$ , &  $h \rightarrow \emptyset$  gives five possibilities for double shifts: (a)  $k, kh \rightarrow s$ ; (b)  $c, ch \rightarrow h$ ; and (c)  $s \rightarrow \emptyset$ . Of these, three are attested:  $kh \rightarrow s, c \rightarrow h$  and  $s \rightarrow \emptyset$  (but not  $k \rightarrow s$  or  $ch \rightarrow h$ ). The double shifts are given in (5) and illustrated in (6).

- (5) (a) The correspondence Std  $kh =$  dialect  $s$  occurs in 5 of 6 examples in Sampat’s (1973) data for Charotari, e.g. *set* ‘field’ and *orsan* ‘acquaintance’ where Surti and the standard have  $kh$  forms. We may hypothesize an intermediate form  $ch$  at some

<sup>7</sup> The  $kh > s$  is a double shift, as discussed below, presumably via an intermediate  $ch$  and even [ts<sup>h</sup>] as recorded in Grierson (1908:394).

stage in Charotari. Evidence for the intermediate *ch* in fact can be found in Grierson (1908), who records *chetar* in Kathiawadi (p.426) and Pattani (p. 413). The question of whether this is really a double shift in Charotari of *kh* → *ch* → *s* is taken up below.

- (b) The change *c* → *h* (bypassing *s*) turns up in Kathiawadi and Charotari, but with only one (frequently occurring) verb root *hal* ‘walk, go’, where the other dialects and the standard have *cal-*. Evidence of an intermediate form *sal* ‘he goes’ can be found in Pattani – Grierson (1908:330).
- (c) The change *s* → *∅* (bypassing intermediate *h*) is also attested. With numerals the change of final *s* → *h* ~ *∅* is particularly prolific. This is a consequence of bases 10, 20, 30, etc. coming after the numerals 1 to 9 (in say 31, 32... 39) and ending in *s* in the standard. The *s* becomes expectedly *h* in dialects like Charotari, but *∅* in Surti and Kathiawadi. Examples showing the double shift in Surti and Kathiawadi follow.

(6)	<u>Std Gujarati</u>	<u>Surti</u>	<u>Charotari</u>	<u>Kathiawadi</u>	<u>Gloss</u>
	<u>Final Std <i>s</i> and dialect <i>∅</i> – <i>h</i> – <i>∅</i> correspondences</u>				
	tewis	ṭewi	tewiḥ	tewi	‘23’
	pistalis	pistali	pistariḥ	pistali	‘45’
	upawas	əpwa	əpwaḥ	əpwaḥ	‘fast’ (n.)

The loss of *h* in final position with compound numerals may be linked with frequency and fast speech, combining with phonetic naturalness. However, this will not explain their retention in Charotari.

An explanation for the double shifts lies in the long history from pre-classical Sanskrit to Sanskrit and thence to colloquial developments in the Prakrits and their descendants. The alternation between *kh* and *ch* goes back to developments from Sanskrit *kṣ*, which Masica (1991:201) describes as one of the oldest Indo-Aryan assimilations “loosely stated to be to (*c*)*ch* in the northwest and southwest and to (*k*)*kh* elsewhere, albeit with much mutual borrowing”. Thus Sanskrit *kṣetr* ‘field’ has reflexes like *khet* in Hindi and Standard Gujarati, but shows developments of Prakrit *chetra* in the neighbouring language Marathi (*śet*) and Charotari dialect (*setar*). Surti and Kathiawadi have *khetar*, showing *kh* forms. The double shift is thus explained (and obviated) by positing different underlying forms for Charotari (*ch* which undergoes a single shift to *s*) based on one Prakrit variant, and Surti (*kh* which remains unshifted), while Kathiawadi wavers between *kh* and *ch* as underlying form of different words in this historical set, showing lexical diffusion that has been arrested.

The change *ch* > *s* is, in fact, also taken up in Marathi, Bengali and Assamese (Beames 1871:218). We may add Rajasthani (Allen 1957, Grierson 1908), Bhili (Grierson 1907) and Sinhala (Masica 1991:459). These sources confirm that the change of earlier *s* > *h* is also a feature of these languages, to which may be added northwest languages like Sindhi, Panjabi and Kashmiri. However, the change *h* > *∅* seems to be limited to Gujarati dialects and Bhili, a closely-related language.

These considerations suggest that the *s*-shift would appear to be straightforwardly a push chain, having roots in the history of Indo-Aryan, and brought to fruition in Gujarati dialects, albeit in slightly different forms. The choice of what would become different underlying forms is a complex matter, which we must leave for future investigations. Whether there is also some role for other substrate influences for speakers of Dravidian and Austro-Asiatic languages via bilingualism and even language shift also remains to be investigated.

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