

## THE LABIALISED SIBILANTS OF UBYKH (NORTH WEST CAUCASIAN)

In 1974 Christine Leroy and Catherine Paris published an article analysing “quelques sons de l’oubykh”, the aim of which was “aboutir à une description articulatoire des sons étudiés (description phonétique), mais elle [cette recherche — B.G.H.] doit aussi amener, au-delà de cette description, à la définition en termes articulatoires de ces mêmes sons du point de vue de leur statut de phonèmes (définition phonologique)” (p. 262). One of the problems was to establish the phonetic/phonological status of the two pairs (one voiced, one voiceless in each pair) of labialised sibilants existing in the language. The nature of the problem can be seen by comparing the relevant sections from the consonantal phoneme-charts as proposed for Ubykh by Dumézil (1959), Vogt (1963) and Kumaxov (1967), thus (from Leroy and Paris, pp. 259-261):

(a) *Dumézil*

		Simples	Palatalisées	Labialisées
Sifflantes	semi-occlusives	$\zeta c c'$		
	fricatives	$z s$		
Semi-Chuintantes	supérieures fricatives			$z^\circ s^\circ$
	inférieures semi-occlusives	$\zeta \dot{c} \dot{c}'$		$\zeta^\circ \dot{c}^\circ \dot{c}'^\circ$
	fricatives	$\dot{z} \dot{s}$		$\dot{z}^\circ \dot{s}^\circ$
Chuintantes	semi-occlusives	$\check{z} \check{c} \check{c}'$	$\check{z}' \check{c}' \check{c}''$	
	fricatives	$\check{z} \check{s}$	$\check{z}' \check{s}'$	

Where the word for ‘white’ =  $s^\circ a$  but ‘sea’ =  $s^\circ a$ .

*Note.* At the start of his article “Petite chronique des villages oubykhs” in BK XXXIX (1981) Dumézil says of the labialised palato-alveolar fricatives (as we have concluded the relevant segments to be) that: “les phonéticiens hésitent dans leurs interprétations: soit  $s z$ , soit  $\check{s} \check{z}$  labialisés: la première, celle de M<sup>me</sup> Catherine Paris, nous paraît la plus probable”. This statement appeared after I had communicated to Dumézil the opinion I have now argued for above. Clearly a confusion arose stemming from the differing transcription-systems that we employ: for Dumézil  $\check{s}$  and  $\check{z}$  represent *retroflex* fricatives, whereas I use these same graphs to represent palato-alveolar fricatives, sounds which Dumézil represents by the graphs  $\check{s}'$  and  $\check{z}'$ .

(b) *Vogt*

		Occlusives et mi-occlusives			Spirantes et fricatives	
		sonores	Sourdes Aspirées	Sourdes Glottalisées	sonores	sourdes
Dentales	labialisées				$z^{\text{h}}$	$s^{\text{h}}$
	simples	$\text{ʒ}$	$c$	$c^{\text{h}}$	$z$	$s$
Sifflantes	labialisées	$\text{ʒ}^{\text{o}}$	$c^{\text{o}}$	$c^{\text{o}^{\text{h}}}$	$z^{\text{o}}$	$s^{\text{o}}$
	apicales	$\text{ʒ}^{\text{h}}$	$\text{ç}$	$\text{ç}^{\text{h}}$	$z^{\text{h}}$	$s^{\text{h}}$
Chuintantes	simples	$\text{ʒ}^{\text{h}}$	$\text{ç}$	$\text{ç}^{\text{h}}$	$z^{\text{h}}$	$s^{\text{h}}$
	palatalisées	$\text{ʒ}^{\text{h}'}$	$\text{ç}^{\text{h}'}$	$\text{ç}^{\text{h}'^{\text{h}}}$	$z^{\text{h}'}$	$s^{\text{h}'}$

Here the word for 'white' =  $s^{\text{o}}a$ , but 'sea' =  $\text{ʒ}^{\text{o}}a$ .

(c) *Kumaxov*

		Semi-occlusives (affriquées)			Spirantes	
		Sonores	Aspirées	Abruptives	Sonores	Aspirées
Dentales	simples	$\text{ʒ}$	$c$	$c^{\text{h}}$	$z$	$s$
	labialisées	$\text{ʒ}^{\text{o}}$	$c^{\text{o}}$	$c^{\text{o}^{\text{h}}}$	$z^{\text{h}}$	$s^{\text{h}}$
Alvéolaires	simples	$\text{ʒ}^{\text{h}}$	$\text{ç}$	$\text{ç}^{\text{h}}$	$z^{\text{h}}$	$s^{\text{h}}$
	palatalisées	$\text{ʒ}^{\text{h}'}$	$\text{ç}^{\text{h}'}$	$\text{ç}^{\text{h}'^{\text{h}}}$	$z^{\text{h}'}$	$s^{\text{h}'}$
Dento- alvéolaires	simples	$\text{ʒ}^{\text{h}}$	$\text{ç}$	$\text{ç}^{\text{h}}$	$z^{\text{h}}$	$s^{\text{h}}$
	labialisées				$z^{\text{o}}$	$s^{\text{o}}$

Here the word for 'white' =  $s^{\text{o}}a$ , but 'sea' =  $\text{ʒ}^{\text{o}}a$ .

Thus, for Dumézil, the fricative-pair represented by the voiceless member in the word for 'white' were 'stranded' insofar as they were viewed as having no plain counterparts (cf. Dumézil 1959, p. 12: "Il est tentant d'interpréter  $z^{\text{o}}$ ,  $s^{\text{o}}$  comme  $z^{\text{o}}$ ,  $s^{\text{o}}$  (sifflantes labialisées), mais il ne semble pas, malgré le sifflement qui se produit aisément quand ces phonèmes sont fortement articulés, que cette définition soit suffisante"), whereas the pair represented by the voiceless

member in the word for 'sea' stood as labialised counterparts of the 'semi-chuintantes simples'. For Vogt, on the other hand, the pair represented by the voiceless member in the word for 'white' are the labialised counterparts of the 'sifflantes simples', whilst the other pair represented by the voiceless member in the word for 'sea' are 'stranded' as labialised dentals. Finally, Kumaxov 'strands' neither pair — that represented by the voiceless member in the word for 'white' correlates with the non-labialised dento-alveolars, whilst the other pair are correlated with the non-labialised dentals (even if Kumaxov does his best to make these pairings opaque by his aberrant system of transcription). In the face of such discrepancies, Leroy and Paris seized the opportunity offered by two visits to Paris in 1968 and 1973 of the last fully competent speaker of the language, Dumézil's main informant, Tefvik Esenç, and took x-rays of him articulating the problematic segments. Their conclusions were summarised in a partial phoneme-chart on p. 286 of their article, of which the following is a section :

			Occlusives			Constictives	
			Sonores	Sourdes	Glottalisées	Sonores	Sourdes
Lamino-alvéolaires		Simple				z	s
		Labialisées				z <sup>o</sup>	s <sup>o</sup>
prépalatales	Pré-dorsales	Simple	ž	č	č'	ž	š
		Labialisées	ž <sup>o</sup>	č <sup>o</sup>	č <sup>oo</sup>	ž <sup>o</sup>	š <sup>o</sup>
	Apico-prépalatales	Simple (Rétroflexes)	ž	č	č'	ž	š
		Dorso-prépalatales	Palatalisées	ž'	č'	č' <sup>o</sup>	ž'

Where the word for 'white' = *s<sup>o</sup>a*, but 'sea' = *s<sup>o</sup>a*.

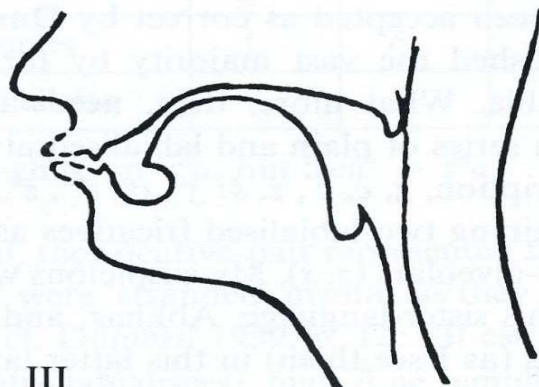
This analysis has now been accepted as correct by Dumézil (1975, p. 12), who has, of course, published the vast majority by far of all the Ubykh materials currently available. What more, then, needs to be said? Whilst agreeing that Ubykh has a series of plain and labialised alveolo-palatals (viz., in the conventional transcription, ž, č, č', ž, š: ž<sup>o</sup>, č<sup>o</sup>, č<sup>oo</sup>, ž<sup>o</sup>, š<sup>o</sup>), I disagree with the evaluation of the remaining two labialised fricatives as forming labialised counterparts to the lamino-alveolars (z, s). My suspicions were first aroused as a result of work on Ubykh's sister-language, Abkhaz, and I propose to begin by first discussing the facts (as I see them) in this latter language.

Within the North West Caucasian family, apart from in Ubykh itself, two series of labialised sibilants occur only in some of the Abkhaz(-Abaza) dialects.

However, within the literary dialect of Abkhaz (viz. the southern dialect, Abžui), there is only the one series, which is recognised by native Caucasian commentators to be the labialised counterparts of the plain palato-alveolar spirants (Arsta: and Č'k'adua, 1966, p. 28), and hence they are symbolised as  $ž^o$ ,  $š^o$  (= IPA [ $ʒ^w$ ] and [ $ʃ^w$ ]) (Lomtatidze 1967 and 1977); although Dumézil (1967), Spruit (1983) and Starreveld (1983) transcribe these segments as  $z^o$  and  $s^o$ , Dumézil does add the disclaimer (p. 9): "Ce ne sont peut-être pas proprement des sifflantes labialisées". In my own grammar of Abkhaz (1979) I unreservedly agree with the native Caucasian view and place the labialised sibilants within the palato-alveolar series. Regarding the three labialised affricates, I agree with Colarusso (1975, p. 201) that they lack non-labialised counterparts, and I regard them as a defective series of labialised alveolo-palatals ( $ʃ^o$ ,  $č^o$ ,  $č'^o$ ). The phonetically more complex northern dialect of Abkhaz, Bzyp, then fills out this defective series by adding the two labialised spirants and all five non-labialised counterparts, thus:  $ʒ$ ,  $č$ ,  $č'$ ,  $ž$ ,  $š$ :  $ʒ^o$ ,  $č^o$ ,  $č'^o$ ,  $ž^o$ ,  $š^o$ . Here I diverge from the native Caucasian view, according to which the Abžui-type labialised affricates are ranged (in all dialects) with the lamino-alveolar affricates ( $ʃ$ ,  $c$ ,  $c'$ ), leaving the seven additional Bzyp segments in a series of their own.

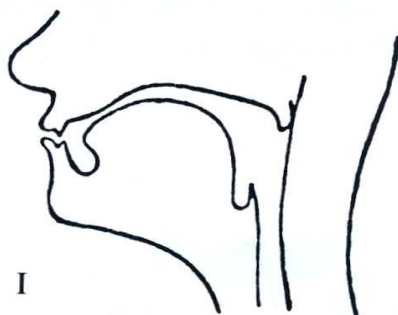
The similarity (vis-à-vis the segments under examination) should now be apparent for Bzyp and Ubykh, as has indeed been noted before by, for example, Bγαžba (1964, p. 31). And this state of affairs is surely not accidental given that Ubykh and Bzyp were immediate neighbours prior to the emigration of the entire Ubykh nation from the Caucasus in 1864. The question, therefore, arises as to whether the two labialised spirants that Leroy and Paris symbolise as  $z^o$ ,  $s^o$  might not in reality be the labialised counterparts of the palato-alveolars (Leroy and Paris' "dorso-prépalatales palatalisées")? And this is, in fact, the reform I wish to propose below.

Even if consideration is restricted to Leroy and Paris' x-ray drawings, it is not immediately obvious that the labialised segment represented in their drawing III



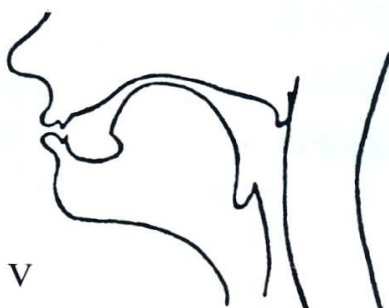
III

is to be paired, as they argue, with the lamino-alveolar [s] seen in their drawing I



I

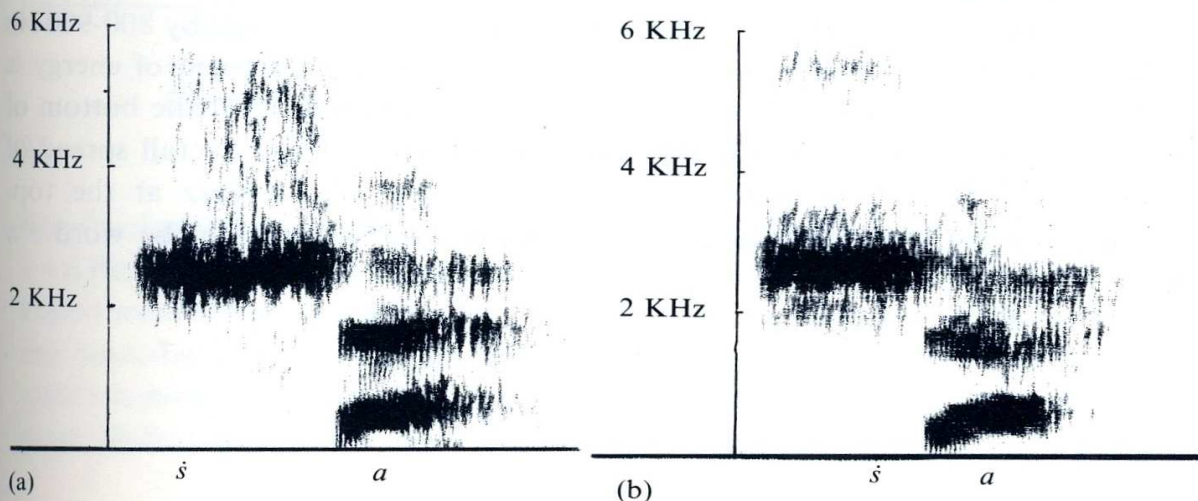
rather than with the dorso-(pre)palatal [ʃ] (= Leroy and Paris' *š'*), as I wish to argue, seen in their drawing V



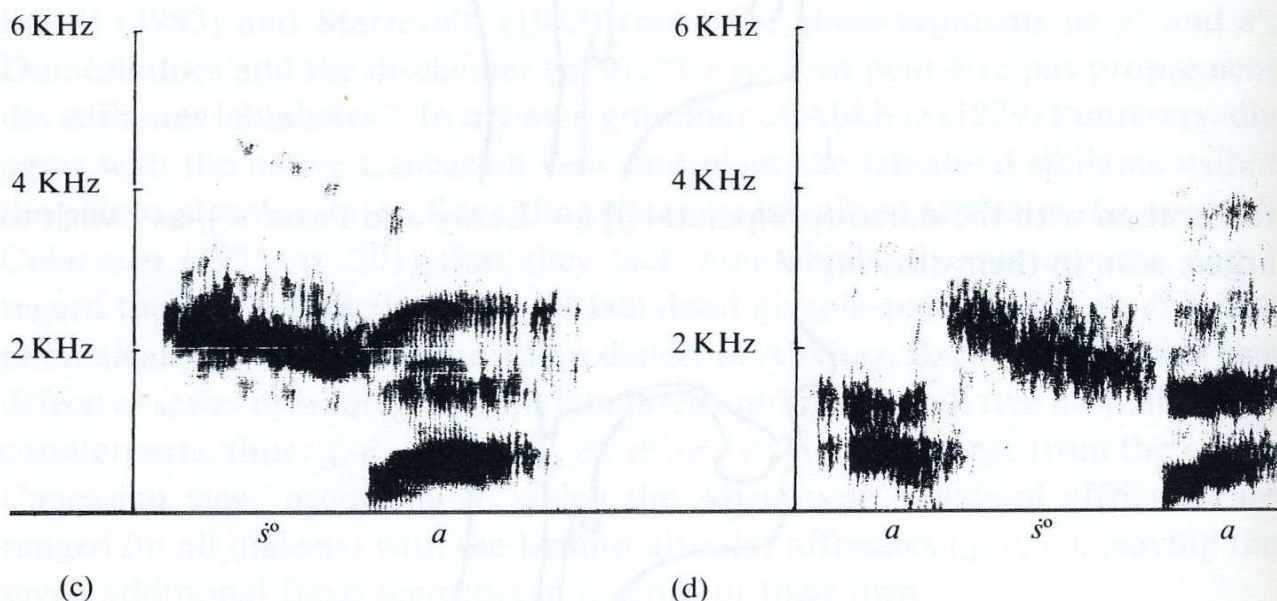
V

But other evidence is available in the form of the spectrograms that I made in Cambridge based on materials that I was fortunate enough to be able to record with Tevfik Esenç himself during a trip to Turkey in 1974 — it does, however, have to be admitted that the recordings were not exactly made under ideal conditions nor on the best of equipment.

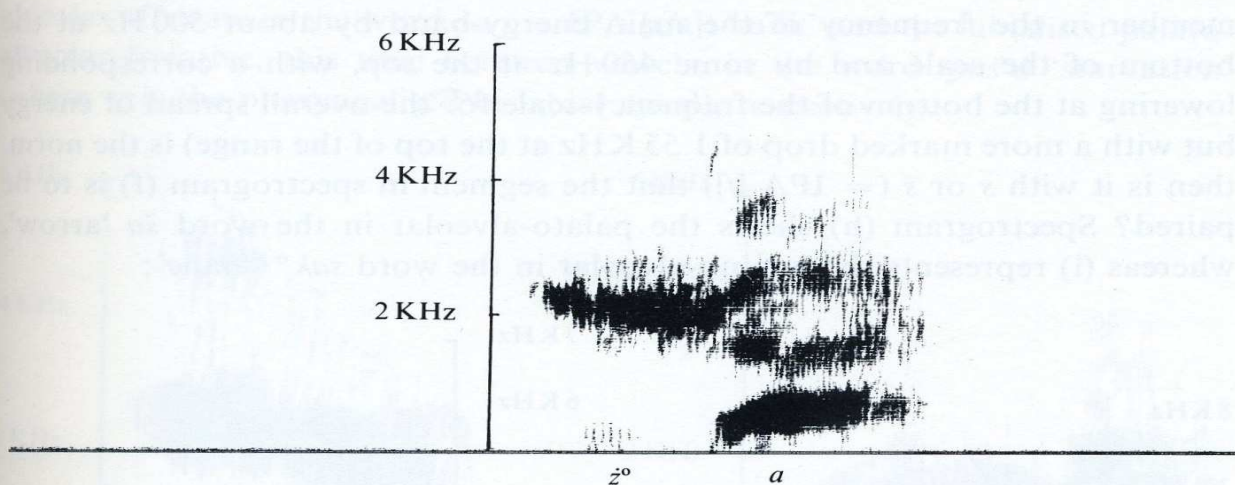
Let us take first the plain and labialised voiceless alveolo-palatals (Leroy and Paris' "prédorso-prépalatales") to see how the labialised segment differs from the plain. The first two spectrograms (a) and (b) are of separate articulations of the word *ša* 'three', where /a/ will be the open vowel-phoneme throughout:



Both reveal a strong band of energy between 2 KHz and 2.5 KHz, with weaker energy distributed from 1.8 KHz to 6 KHz. Spectrograms (c) and (d) illustrate the labialised counterpart. Both shew the word  $s^{\circ}a$  'white', but in (d) there is an extra initial  $a$ -vowel:

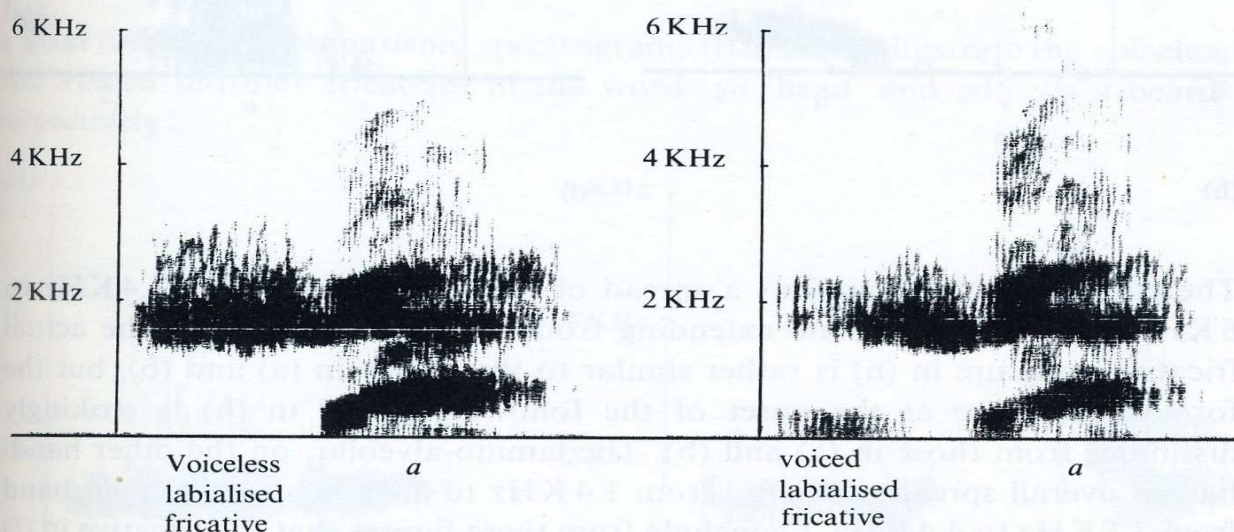


Both reveal that the energy falls from a higher to a lower frequency-band during the articulation of the fricative — at the onset, energy is spread from 1.6 KHz to 5.1 KHz in (c), with the peak between 2 KHz and 2.8 KHz, and from 1.4 KHz to 5.2 KHz in (d), with the peak between 2 KHz and 2.7 KHz; at the off-set, the spread is from 1.2 KHz to 4.4 KHz in (c), with the peak between 1.6 KHz and 2.1 KHz, and from 1.2 KHz to 4.5 KHz in (d), with the peak between 1.4 KHz and 2 KHz. Thus, the main band of energy at the onset of the labialised segment has its lowest point at the same frequency as the non-labialised segment and its highest point some 200-300 Hz above the corresponding point in its non-labialised counterpart, though the overall spread of energy is lower by 200-400 Hz at the bottom end of the scale and by 800-900 Hz at the top end. At the off-set, on the other hand, the main band of energy is lower than that of the non-labialised segment by 400-600 Hz at the bottom of the scale and by 400-500 Hz at the top; the lowering of the overall spread of energy is by 600 Hz at the bottom end and by 1.5-1.6 KHz at the top. Spectrogram (e) shews the voiced counterpart to  $s^{\circ}$  as seen in the word  $z^{\circ}a$  'sky'.



(e)

Let us now take the spectrogram for the other labialised spirant — (f) shows the voiceless fricative in the word for 'year', and (g) shows the voiced counterpart in the word for 'osier':

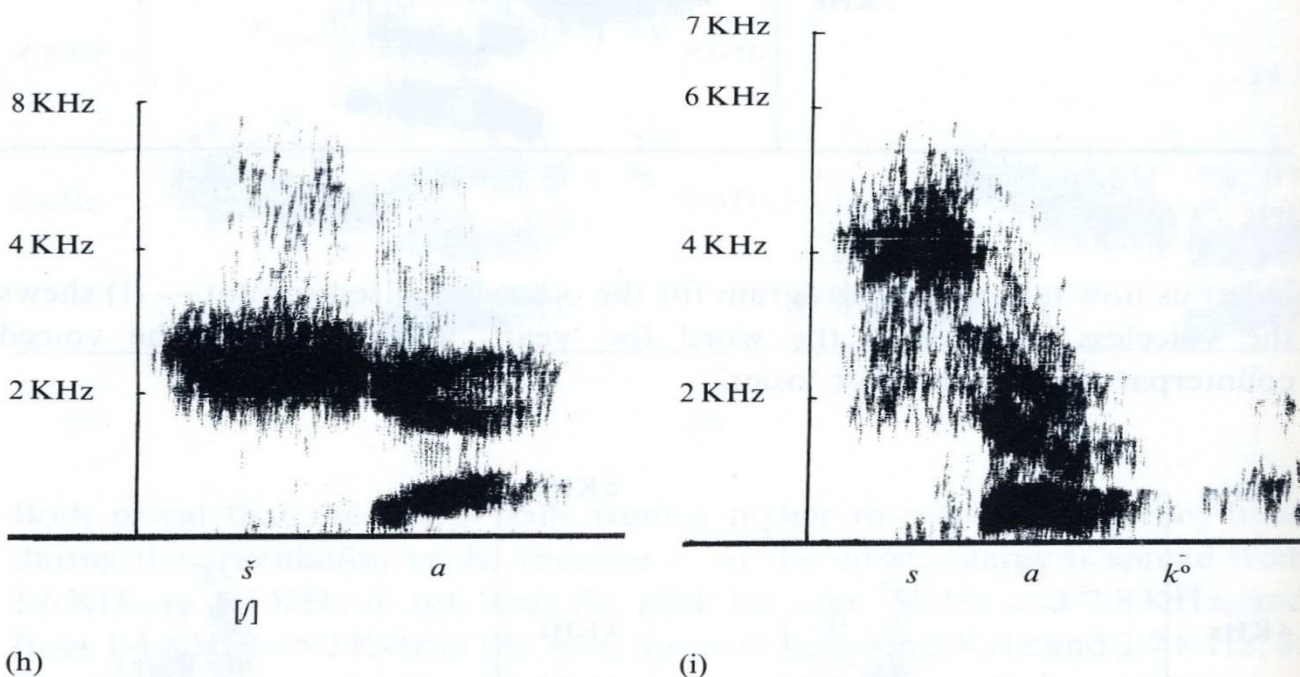


(f)

(g)

The frictional energy in the voiceless member ranges between 1.1 KHz and 3.4 KHz, with the main band concentrated between 1.4 KHz and 2.1 KHz; the voiced member reveals a similar pattern, with less intense friction — as in (e), the voice-band does not extend throughout the articulation. And so, the question now to be asked is: if the relationship established above between a plain sibilant and its labialised counterpart (namely, lowering for the labialised

member in the frequency of the main energy-band by about 500 Hz at the bottom of the scale and by some 450 Hz at the top, with a corresponding lowering at the bottom of the frequency-scale for the overall spread of energy but with a more marked drop of 1.55 KHz at the top of the range) is the norm, then is it with *s* or *š* (= IPA [ʃ]) that the segment in spectrogram (f) is to be paired? Spectrogram (h) shows the palato-alveolar in the word *ša* 'arrow', whereas (i) represents the lamino-alveolar in the word *sak*<sup>o</sup> 'mane':

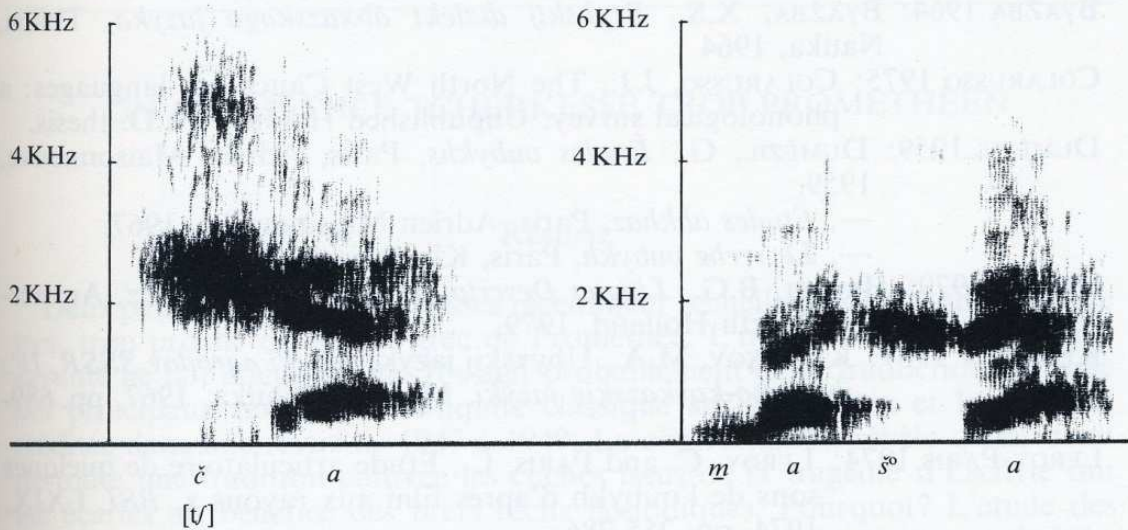


The palato-alveolar manifests a spread of frictional energy from 1.4 KHz to 6 KHz, with the main band extending from 1.9 KHz to 3 KHz — the actual fricative-structure in (h) is rather similar to those seen in (a) and (b), but the formant-structure at the onset of the following vowel in (h) is strikingly dissimilar from those in (a) and (b). The lamino-alveolar, on the other hand, has an overall spread of energy from 1.4 KHz to 5.8 KHz, with a main band from 3.5 KHz to 4.4 KHz. I conclude from these figures that the fricative in (f) stands in virtually the same relation to that in (h) as the fricative in (c) does to those of (a) and (b), even if there is no pronounced shift downwards in frequency actually during the articulation of the fricative. Note also how the formant-structure for the onset of the vowel in (f) and (g) parallels the pattern alluded to above for spectrogram (h). This means that the fricatives in (f) and (g) must surely be the labialised counterparts of the palato-alveolars and will thus be correctly transcribed as *š*<sup>o</sup> (= IPA [ʃ<sup>w</sup>]) and *ž*<sup>o</sup> (= IPA [ʒ<sup>w</sup>]) respectively.

Spectrograms (j) and (k) illustrate the contrast between the voiceless palato-



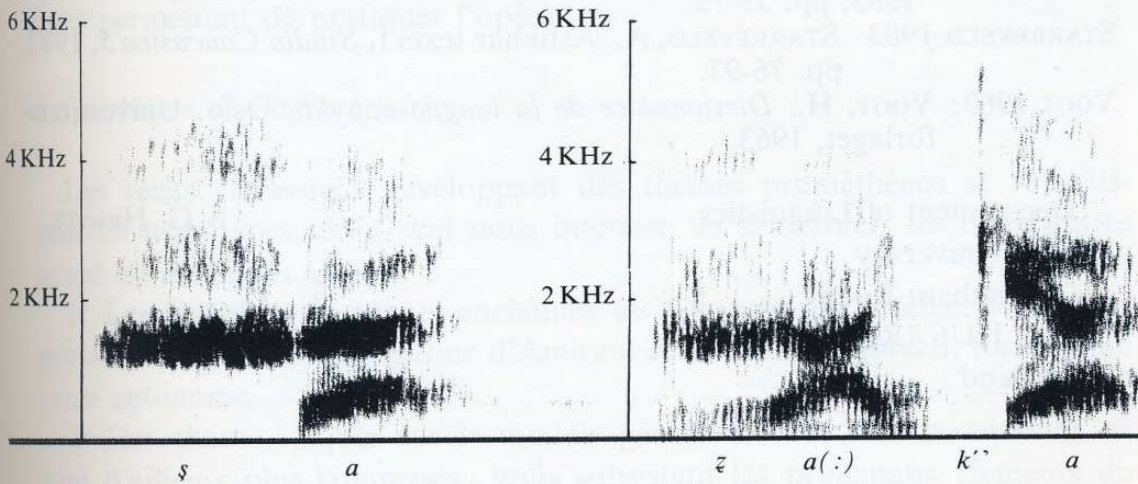
alveolar affricate in the word *ča* (= IPA [tʃa]) 'milk' and the labialised palato-alveolar fricative, this time between vowels, in the word *mas<sup>o</sup>á* 'starvation' (where *m* is the pharyngalised bi-labial nasal), respectively:



(j)

(k)

And finally, for comparison, spectrograms (l) and (m) illustrate the voiceless and voiced retroflex fricatives in the words *ša* 'head' and *za(:)k'á* 'beard' respectively:



(l)

(m)

[The spectrographic evidence adduced above for the two voiceless labialised sibilant-shibilants *s<sup>o</sup>* and *š<sup>o</sup>* may be compared with that obtained by Vogt and Fintoft, as described in Vogt (1963, p. 17)].

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