
SYSTEMS OF LATERAL SOUNDS AND PERCEPTION

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In the brief time we have at our disposal we wish to consider the nature of the distinctions found in languages rich in lateral sounds. Phonologies involving but one lateral and one retroflex can often be accommodated without any mention of laterality in the matrix of underlying distinctive features; e.g. by [\pm continuant], or the like. It has recently been suggested by workers in generative phonology that a feature of *laterality* be incorporated in the list of distinctive features from which human languages choose a repertory. Such a feature is clearly called for in certain languages; the question then arises whether further complexities are found in laterals or whether other well established features will account for the rest of the variety that may be found in a rich set of laterals.

Elaborate sets of laterals are attested in the Caucasus. These were studied by Troubetzkoy (BSL 23.184—204, 1922) at a time when not so much detail was available as is the case today; moreover, much of his argument was concerned to show the genetic correspondences, and to trace the proto-set of relevant obstruents, some of which seem to be surely non-lateral in origin (I would interpret the proto-set, on Troubetzkoy's evidence, as: * $\underset{\sim}{\text{f}}, l, x, x', xx$). Be that as it may, the richest Caucasus sets show at least 3 laterals, and none exceeds 5 (Avar-Andi and Arč'i). Though Ubykh has 3, the glottalized affricate $\underset{\sim}{\text{f}}$ ' occurs only in $p'\underset{\sim}{\text{f}}'\partial$ '4' and in Abzakh loans (Vogt, *Dictionnaire*, Oslo 1963, 18).

Basing ourselves on T. E. Gudava, *Konsonantizm andijskih jazykov* (Tbilisi 1964), we see that Andi has the maximal C system, and Akhvakh the maximum laterals; the latter presumably original for Andi:

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	<i>b</i>	<i>d</i>	<i>g</i>	<i>ẓ</i>	(<i>z</i>)	<i>ɣ</i>	<i>ω</i>		<i>b</i>	<i>d</i>	<i>g</i>	<i>ẓ</i>	<i>z</i>	<i>ɣ</i>	(<i>ω</i>)	
lax						<i>q̣</i>	<i>ḷ</i>					<i>k</i>	<i>č</i>	<i>c</i>	<i>q̣</i>	<i>ḷ</i>
asp	<i>p</i>	<i>t</i>	<i>k</i>	<i>č</i>	<i>c</i>				<i>p</i>	<i>t</i>						
tens						<i>q̣^o</i>	<i>ḷ^o</i>					<i>k^o</i>	<i>č^o</i>	<i>c^o</i>	<i>q̣^o</i>	<i>ḷ^o</i>
lax			<i>ḳ</i>			<i>q̣^o</i>	<i>ḷ^o</i>					<i>ḳ</i>	<i>č̣</i>	<i>c̣</i>	<i>q̣^o</i>	<i>ḷ^o</i>
chk		<i>ṭ</i>		<i>č̣</i>	<i>c̣</i>		<i>ʔ</i>		<i>ṭ</i>							(<i>ʔ</i>)
tens			<i>ḳ^o</i>			<i>q̣^o</i>	<i>ḷ^o</i>					<i>ḳ^o</i>	<i>č̣^o</i>	<i>c̣^o</i>	<i>q̣^o</i>	<i>ḷ^o</i>
lax						<i>x</i>	<i>ḷ^o</i>					<i>š</i>	<i>s</i>	<i>x</i>	<i>ḷ^o</i>	
spir			<i>x̣</i>	<i>ṣ̌</i>	<i>ṣ</i>		(<i>h^o</i>)	<i>ḥ</i>			<i>x̣</i>			(<i>h^o</i>)	<i>ḥ</i>	
tens						<i>x̣^o</i>	<i>ḷ^o</i>					<i>ṣ̌^o</i>	<i>ṣ^o</i>	<i>x̣^o</i>	<i>ḷ^o</i>	
	<i>m</i>	<i>n</i>			<i>r</i>	<i>l</i>			<i>m</i>	<i>n</i>				<i>r</i>	<i>l</i>	
	<i>w</i>	<i>j</i>							<i>w</i>	<i>j</i>						

Allowing for surface redundancies, I would posit for these the features [voice], [contin], [checked], [tense], [nas], [sonant]; the points of articulation seem to be accommodated most naturally as:

[—compact]	—labial	[+flat]]	(Note the corresponding poor rôle of flatness in Caucasus vowel systems.)
	—dental	[—flat]	
[+compact]	—velar	[—grave]	[—strident]
	—postvel.	[—lat]	
	—lateral	[+lat]	[+grave]
	—silibant	[—grave]	[+strident]
—shibilant	[+grave]		

Grouping by compactness associates those articulations rich/poor in continuance and tenseness; the pair *b/d* matches *m/n* and *w/j*. Grouping by laterality associates the genetic relations observed by Troubetzkoy (see above)—a welcome additional result.

Thus the laterals are specified as [+comp —strid +grv +lat ±contin ±checked ±tense], and [±obstruent] for the sonant. The laterals are thus here maximally specified consonants, but in no way systematically more divergent. Phonetically there are no unusual or unexpected articulations: Apart from tenseness (“gemina-tes”), we have [λ λ' l l].

On the Northwest Coast of North America, in such languages as Quileute and the Salish family, we similarly find proliferated laterals, and the need for a feature of laterality. But beyond that, laterals are simply consonants like any other articulation, and fit within the cadre of glottalization and spirancy that applies generally to these systems.

On comparative grounds it is easy to show that Early Albanian had three laterals, and as a matter of fact I have actually found them in the Arvanitika dialect of Mándra, in Greece: [l l' λ]. Phonetically, the set is unusual, velarized, palatalized, and palatal; the distinction between the last two is very hard to hear, and it is easy to see why all other Albanian dialects have changed the articulations or undergone mergers. But when we recall that Albanian has two retroflexes [r r̄], and nasals including [n ñ], we readily associate *l'* with *r̄*, and *λ* with *ñ*, by assigning them shared features, features that are in any case required.

Old Irish must have had 4 laterals (as it also had 4 nasals, apart from the labial nasals, and 4 retroflexes), but these were easily specified by the features of palatalization and tenseness that applied to all consonants in the language (except *h*). Modern Scottish Gaelic has lost the surface feature of palatalization; many dialects have drastically reduced the range of distinction in the laterals, as well as in other sounds. But in the dialects of Islay (Southern Argyll) I have found 5 distinctive laterals (and 5 nasals). Initially and finally in words there are only 4 distinctions (not directly reflecting in all cases the parent Old Irish state of affairs), but medially we find:

[mʷ ^o lɔx]	[mulɔx]	‘top’
[kø ^o lɔx]	[kolɔx]	‘rooster’
[ka ^o λɔx]	[kaλɔx]	‘old woman’
[ɟʷl:an]	[ɟʷLan]	‘carrying’
[kaλ:er]	[kaL'er]	‘candlestick’

These articulations are sometimes hard to hear, and it is particularly hard to match them naturally and correctly with the initial and final articulation ranges, which involve additional redundant features of affrication, tongue position, devoicing, etc., not found in medial position. But, unusual as the phonetics may be, the systematic relations are clear and, as it turns out, simple. The occurrence of glottalization here matches the phenomenon found throughout these dialects with consonants which we call non-tense when they are in intervocalic position. The range of palatality matches what we note elsewhere in the stops and nasals. Therefore we have, in summary:

	Velar	Palatal	Neither
Lax	l	λ	l
Tense	L	L'	

Unusually rich as these laterals are, they require for their specification nothing more than the system already requires. In fact, Islay seems not to include a separate feature of laterality as we find in the Caucasus and Northwest Coast cases. In Islay the laterals go with, and oppose symmetrically, the nasals.

DISCUSSION

Birnbaum:

If for some languages, such as the Caucasian languages, we can and, indeed, ought to set up a separate feature of laterality, could you give us some idea how such a feature should be defined in articulatory and/or acoustic terms?

Ad Birnbaum: In articulatory terms, all laterals which I have heard can be described more or less as they traditionally have been: By intensive approximation or contact between a mobile portion of the tongue (tip to root) and a region of the roof of the mouth (teeth to velum) such that explosion, friction, or harmonically resonant airstream finds its principal egress through at least one side. In this sense the abstract phonological feature I have discussed matches some simple articulatory parameter of production, and in this sense of perception. I have not yet had an opportunity to study spectrograms of these complex lateral systems. On various grounds I would not expect to find any single simple acoustic parameter common to all lateral instances, but I would be happy to be found wrong.