



### PROPOSAL

*An onset/coda has a single unordered set of vocalic features.*

This exactly parallels what we find with laryngeals...

### Laryngeals

(Golston & Kehrein 2004)

No conflicting voi/asp/glott within a margin

$\bar{h}?$   $^h p'$  don't exist in onset/coda of any language

No pre/post contrasts within a margin

$^h p \sim p^h$  don't contrast in onset/coda of any language

$^? p \sim p'$  don't contrast in onset/coda of any language

No segment/cluster contrasts within a margin

$p^h \sim ph$  don't contrast in onset/coda of any language

$p' \sim p?$  don't contrast in onset/coda of any language

Simple (C) onsets and codas

have the same types of voi/asp/glott contrasts  
as Complex (CC, CCC) onsets and codas.

Adding more consonants doesn't add more contrasts.

$p^{h?}$   $p^{h1}$   $p^{h1}$  don't exist in ons/cod of any language

$^h pl \sim p^{h1} \sim pl^h \sim p^{h1h}$  don't contrast in ons/cod of any language

$pl^h \sim plh$  don't contrast in ons/cod of any language

*An onset/coda has a single unordered set of laryngeal features.*

### COMPLEX ONS/COD ARE VOCALICALLY SIMPLE

Languages allow up to 4 series of simple ons/cod

but up to only 2 series of complex ons/cod

The extra 'segments' clearly don't bring extra contrasts

### Simple onset and codas

Two series of vocalic onsets or codas

	plain	front	back	labial	front, labial	back, labial
<i>Polish, Russian, Lithuanian, Irish, Tundra Nenets, Kashmiri</i>	$p^{(v)}$	$p^j$				
<i>Nambakaengo, ...</i>	$p$					$p^w$
<i>Nootka, Kwakw'ala</i>	$k$					$k^w$

Three series of vocalic simple onsets or codas

	plain	front	back	labial	front, labial	back, labial
<i>Igbo</i>	$p, k, \eta$	$p^j$				$k^w, \eta^w$
<i>Margi, Kutep, Kom, Korean, Luganda, Kihhehe, Zoque</i>	$p$	$p^j$				$p^w$
<i>Lakkia, Hausa</i>	$k$	$k^j$				$k^w$
<i>Western Idoma</i>	$t, s, k$	$c, \int$				$k^w, \eta^w$
<i>Hausa</i>	$t, k, f$	$c, \beta, \int$				$k^w$
<i>Bura</i>	$p, t, k, n, m$	$c, \eta, m^j$				$p^w, k^w$
<i>Ubykh</i>	$q$	$q^j$		$q^b$		
<i>Scottish Gaelic, Northern Irish</i>	$n$	$n^j$	$n^y$			
<i>Marshallese</i>		$n^j$	$n^y$			$n^w$

### Simple onset and codas

Four series of vocalic simple onsets or codas

	plain	front	back	labial	front, labial	back, labial
<i>Mazatec, Campa</i>	t	tʰ	tʰ	tʰ		
<i>Twi (before front vowels)</i>	p	pʰ		pʰ	pʰ	
<i>Mandarin Chinese</i>	n	nʰ			nʰ	nʰ

### Complex onset and codas

Series of vocalized complex onsets

	plain	front	back	labial	front, labial	back, labial
<i>Lithuanian, Irish, Russian</i>	sʰ(ʷ)(v)	sʰʰ				
<i>Kashmiri</i>	mp	mʰpʰ				
<i>Kabardian</i>	pʰx tx pʰʒ tʰʒ			pʰxʰ tʰxʰ pʰʒʰ tʰʒʰ		
<i>Ab(ad)zakh (Adghe)</i>	sk sq sx sʒ			sʰkʰ sʰqʰ sʰxʰ sʰʒʰ		
<i>[do more of these]</i>						

So ‘simple’ and ‘complex’ onsets allow the same types and number of secondary vocalic articulations. This supports our claim that

*An onset/coda has a single unordered set of laryngeal features*

### NO CONFLICTING VOCALIC CONTRASTS

If we’re right that  
*an onset/coda has a single unordered set of vocalic features*

we should not find conflicting (front vs. back) vocalic features within the same onset/coda

\*jʷ because j is [front], w is [back]  
 \*pʷ because ʰ is [front], ʷ is [back]  
 \*pʷj because j is [front], ʷ is [back]  
 \*pʰjʷ because ʰ is [front], ʷ is [back]  
 etc.

Orthography and phonologically broad transcription sometimes suggest such things:

	apparent	actual
<i>Zoque</i>	wy	βʰ
<i>Lakkia</i>	jw	ɥ
<i>Abkhaz</i>	jʷ	ɥ
<i>Klamath</i>	wj	wʰ.j

but a closer reading of the phonetic details shows otherwise.

‘The cluster wy is actualized as an unrounded bilabial spirant with the tongue in palatal position.’  
(Wonderly 1953:107)

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'The cluster wy is actualized as an unrounded bilabial spirant with the tongue in palatal position.'  
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	apparent	actual
<i>Zoque</i>	wy	$\beta^j$
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<i>Abkhaz</i>	j <sup>w</sup>	ɥ
<i>Klamath</i>	wj	w <sup>u</sup> .j

'w est une labialisation, j une palatalisation'  
(Haudricourt 1967:169: fn 1.).

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'The symbol ɥ represents a labial plus palatal semivowel, exactly like the initial French sound of *huit*.'  
(Catford 1977: 291)

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[w] is syllabic (realized as [w<sup>u</sup>])  
(Barker 1964)

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So, the *actual* onsets/codas we find are compatible with a *single unordered set of vocalic features*

	apparent	actual	
<i>Zoque</i>	wy	β <sup>j</sup>	{lab front}
<i>Lakkia</i>	jw	ɥ	{lab front}
<i>Abkhaz</i>	j <sup>w</sup>	ɥ	{lab front}
<i>Klamath</i>	wj	w.j	{lab} {front}

### NO PRE/POST CONTRASTS

If we're right that  
an onset/coda has a *single unordered set of vocalic features*

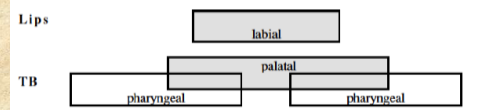
we should not find pre/post contrasts within an onset/coda

<sup>i</sup>p ~ p<sup>i</sup>    j<sup>p</sup> ~ p<sup>j</sup>    <sup>i</sup>pt ~ p<sup>i</sup>t ~ p<sup>l</sup>t ~ p<sup>l</sup>t<sup>i</sup>  
<sup>ɥ</sup>p ~ p<sup>ɥ</sup>    u<sup>p</sup> ~ p<sup>u</sup>    <sup>ɥ</sup>pt ~ p<sup>ɥ</sup>t ~ p<sup>l</sup>t<sup>ɥ</sup> ~ p<sup>l</sup>t<sup>ɥ</sup>

and despite a lot of variation, no such contrasts occur

In Russian palatalization can slop over the primary constriction in intervocalic position:

consonantal and vocalic gestures of [a<sup>l</sup>p<sup>l</sup>a] (Kochetov 1999:182)



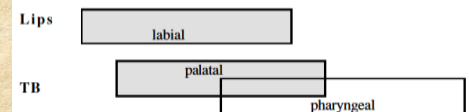
and word-finally:

consonantal and vocalic gestures of [a<sup>l</sup>p<sup>l</sup>] (Kochetov 1999:182)



but follows the primary constriction word-initially:

consonantal and vocalic gestures of [p<sup>l</sup>a] (Kochetov 1999:182)



The timing differences are allophonic, *not* contrastive.

Similarly for timing differences in languages like  
Hupa (Gordon 2001)  
Marshallese (Choi 1992)

Most languages have only post-, apparently:

Irish (we think: Jaye?)

Lithuanian (we think)

and some have only pre-:

Estonian (Lehiste 1965, Asu & Teras 2009)

Higi ('Kamwe', Mohrlang 1972)

Whatever the details, the timing is *not* contrastive.

The same goes for languages with complex onsets/codas

Irish complex onsets (Ní Chiosáin 1999:555ff)

	plain	palatalised
stop+l:	pl bl tl dl kl gl	pʲl bʲl tʲl dʲl kʲl gʲl
stop+r:	pr br tr dr kr gr	pʲr bʲr tʲr dʲr kʲr gʲr
stop+N:	tn kn gn	kʲnʲ gʲnʲ
N+C:	mr mn	-
fricative+C:	fl fr sp st sk sl sr sn sm	fʲl fʲr sʲp sʲt sʲk sʲl sʲr sʲn sʲm
s+stop+liquid:	spr spl str skr skl	sʲpʲl sʲpʲr sʲtʲr sʲkʲr sʲkʲl

Phonetic palatalization throughout complex onsets,  
curtailed before labials.

*Timing is allophonic, not contrastive.*

Russian complex onsets (Kochetov 1999: 195-197; Chew 2003: 358ff)

	plain	palatalised
stop+l:	pl bl (dl?) kl gl	pʲl bʲl dʲl kʲl gʲl
stop+r:	pr br tr dr kr gr	pʲr bʲr tʲr dʲr kʲr gʲr
stop+N:	pn dn kn	pʲnʲ dʲnʲ kʲnʲ
C+fricative	dv, sf	dʲvʲ sʲfʲ
fricative+C:	fp ft sp st zd sk sl	fʲpʲ fʲtʲ sʲpʲ sʲtʲ zʲdʲ sʲkʲʲ sʲlʲ
s+stop+liquid:	spr str	(sprʲʲʲ) strʲ

Phonetic palatalization towards the end of clusters,  
but 'regressive assimilation' with different types of clusters  
*Timing is allophonic, not contrastive.*

'Whether palatalization extends over both consonants or begins in the middle of the cluster depends on the extent to which the two consonants are articulatorily linked in other respects. The more linked the two consonants, the more likely it is that palatalization will extend throughout the cluster. There is variation, and the trend is very much towards losing assimilation.'

(Timberlake 2004:61)

So no language contrasts pre- and post-,  
in simple or in complex onsets/codas,

suggesting again that

*An onset/coda has a single unordered set of vocalic features.*

## NO SEGMENT/CLUSTER CONTRASTS

Distinctions like the following seem to be merely orthographic:

pʲ ~ pj      pʲʲ ~ pʲtj  
pʲʲ ~ pʲtj      pʲʲʲ ~ pʲtjʲ

Authors will sometimes argue for one or the other, but no language clearly contrasts them.

### PROBLEM?

Russian has minimal pairs like

[p<sup>l</sup>otr] 'Peter'      [pjot] 'drinks'  
 [P<sup>l</sup>ot] 'ice(nom)'      [P<sup>l</sup>jot] 'pours'

Possible solution: palatals in onset vs. nucleus

(p<sup>l</sup>)otr 'Peter'      p(jo)t 'drinks'  
 (P<sup>l</sup>)ot 'ice(nom)'      (P<sup>l</sup>)(jo)t 'pours'

### CONFIRMATION?

Which of the following words *rhyme* (if any)?

- [P<sup>l</sup>ot] 'ice (nom)'      (P<sup>l</sup>)ot 'ice(nom)'
- [P<sup>l</sup>jot] 'pours'      (P<sup>l</sup>)(jo)t 'pours'
- [pjot] 'drinks'      p(jo)t 'drinks'

“to me all the words rhyme, however, 'pours' and 'drinks' are identical rhymes, whereas 'ice' is a little bit different” (Gulmira Moldalievana, p.c.)

### CONCLUSION

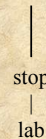
Secondary articulations (lab/pal/vel) seem to come one set per ons/nuc, not one set per segment.

Ditto for laryngeal articulation (voi/asp/glott).

Licensing secondary and laryngeal articulations *prosodically* rather than segmentally explodes the traditional segment, leaving only seglets (place-manner pairings) in their place.

### Bottlebrush onsets

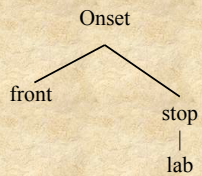
Onset



[p]

lab, stop are linked = seglet

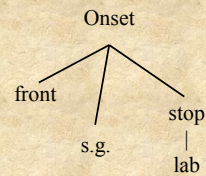
### Bottlebrush onsets



[p<sup>l</sup>, pj, <sup>l</sup>p, jp]

[front] phonologically unordered w.r.t. p-seglet

### Bottlebrush onsets



(p)<sup>hj</sup> = [p<sup>hj</sup>, <sup>h</sup>p<sup>j</sup>, <sup>j</sup>p<sup>h</sup>, phj, hpj, jph ...]

[front], [s.g.] phonologically unordered w.r.t. p-seglet

