Glides and laryngeals as a structural class

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Phonological processes typically affect natural classes of sounds, with the members of such classes sharing some phonetic property to the exclusion of other sounds. Recent typological work shows that not all phonological classes are natural, however (Mielke 2008). This paper considers the class of glides and laryngeals, a combination of sounds which resists a straightforward characterization in terms of shared features. Adopting the framework of Element Theory (Harris & Lindsey 1995; Backley 2011), we argue that class behaviour of glides and laryngeals is due not to their having shared phonetic content, but shared phonological structure: glides and laryngeals contain a single element in their melodic structure. We conclude that phonological processes can be sensitive to the difference between simple and complex expressions.

Keywords: natural class, glides, laryngeals, melodic structure, Element Theory

1. Introduction

A fundamental observation in phonology is that sounds which trigger or undergo phonological processes typically pattern with other sounds. Sounds patterning together in this way are called a natural class, "a set of segments which recurrently participates as a class in phonological processes … [and] which shares some phonetic property or combination of properties to the exclusion of other sets of segments" (Ewen & Van der Hulst 2001: 6). An example is the class of nasals in English. Nasals in English trigger nasalization of a preceding vowel in the same syllable, and inside morphemes they share their place of articulation with a following stop (e.g. *wimper, winter* but **wi*[np]*er*).

Traditionally, natural class behaviour is formalized in terms of feature sharing (see e.g. Jakobson, Fant & Halle 1952; Chomsky & Halle 1968; Clements & Hume 1995, and many others). Thus, the class of nasals in English can be identified by the feature [+nasal], which nasals have to the exclusion of other, non-nasal sounds. Features like [+nasal] have two general functions. First, features (rather than

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sounds) are targeted by phonological processes. And second, features characterize classes of sounds in terms of shared phonetic properties. Sounds specified as [+nasal], for example, are produced with a lowered velum. The phonological patterning of English nasals is therefore phonetically natural.

Recent typological work shows that while most phonological processes target natural classes, there are also cases of "unnatural" class behaviour. Such cases involve classes of sounds that cannot be identified in terms of a feature or combination of features. P-Base (Mielke 2008), a database of phonological patterns of 628 languages, contains a fair number of potential examples – although, as Mielke points out, these require careful study before it can be concluded that a feature analysis falls short. One such study is Hall (2010), who considers four cases of apparently unnatural classes from P-Base, concluding that for each, an alternative feature-based analysis is available.

Our focus in this paper is on one particular unnatural class of sounds, that of glides (specifically, /j, w/) and laryngeals (/h, ʔ/). P-Base contains a number of languages in which glides and laryngeals pattern together. One is Slavey (Athabaskan), where /j, w, h, ʔ/ are deleted between vowels. Another is Ao (Sino-Tibetan), where the initial consonant in a medial CCC cluster is limited to any of /j, w, ʔ/ (Ao lacks /h/).

More generally, we observe two phenomena in which glides and laryngeals pattern together. The first is that the sounds are frequent epenthetic consonants.[1] According to Uffmann (2007), [j] and [w] are cross-linguistically unmarked hiatus breakers, with the choice between the two typically determined by the quality of the surrounding vowels. In Japanese, for example, vowel sequences whose second member is /a/ are broken up by [j] if the preceding vowel is front (1a), and by [w] if the preceding vowel is back (1b):

(1) Japanese glide epenthesis (Uffmann 2007: 458)

a.	si[j]awase	'happiness'
	mi[j]ai	'blind date'
	e[j]akon	'air-conditioning'
b.	gu[w]ai	'condition'
	hu[w]antai	'unstable'
	ko[w]ara	'koala'

1. The fact that glides and laryngeals are frequent epenthetic consonants is not an example of class behaviour, since it does not show the sounds jointly triggering or undergoing a phonological process. Our point is rather that their unmarked status as epenthetic consonants makes glides and laryngeals phonologically similar. We might think of /j, w, h, ʔ/ as a "class" from which languages preferably draw their epenthetic sounds – but this is not a class in the usual sense of the word.

P-Base contains 56 languages in which [ʔ] functions as an epenthetic consonant. One example is German, where [ʔ] is optionally inserted in word- and foot-initial position if no underlying consonant is present (see e.g. Hall 1992; Uffmann 2007). German has epenthesis of [ʔ] in the forms in (2a), but not in the initial position of unstressed syllables, as in (2b).

(2) German [ʔ]-epenthesis (Uffmann 2007: 457)

a.	chaotisch	[kaˈʔoːtɪʃ]	'chaotic'
	Orkan	[ʔɔʀˈkaːn]	'hurricane'
	Oase	[ʔoˈaːzə]	'oasis'
b.	Chaos	[ˈkaɔs]	'chaos'

For discussion of the variability of this phenomenon, see Pompino-Marschall & Żygis (2011).[2]

P-Base contains a total of 19 languages in which [h] is epenthetic. Examples include Yavapai (Hokan), Slavey (Athabaskan) and Kisi (Bantu), where vowel-initial words receive a "prosthetic" [h]. Syllable-final epenthesis of [h] is found in the Abajero dialect of Guajiro (Arawakan), where [h] is inserted after final short stressed vowels.

(3) Abajero Guajiro [h]-epenthesis (Mansen & Mansen 1984: 15)

/kaʃi/	[kaˈʃih]	'moon'
/nyʃa/	[nyˈʃah]	'his blood'
/ma/	[ˈmah]	'earth, world' (*vs.* /maː/ [ˈmaː] 'with you')

Mansen & Mansen also observe that word-internal sequences of long vowels are predictably broken up by [w]. This includes such forms as *atpanaa[w]eechi* 'it will be rabbit', which suggests that in Guajiro, unlike in Japanese, the choice of [w] is not due to the quality of the surrounding vowels. Another example of final [h]-epenthesis is found in Jahai (Mon-Khmer). Burenhult (2001) notes that [j, w, h, ʔ] are added to vowel-final loans from Malay, since Jahai bans words ending in a vowel. It is not clear what conditions the choice between [j, w, h, ʔ], but it is striking that the set of epenthetic consonants comprises glides and laryngeals. A similar situation is found in Balochi (Indo-European), where [j, w, h] are epenthetic, with the choice depending on dialect (Rice 2007).

Second, glides and laryngeals are the types of consonants which are cross-linguistically most susceptible to nasalization (see Schourup 1973; Walker 2000).

2. A reviewer points out that the examples in (2) all involve epenthesis of [ʔ] in the context of low vowels. While epenthetic [ʔ] is not limited to low vowel contexts only, the corpus data in Pompino-Marschall & Żygis (2011) show that this is indeed the preferred context for [ʔ]-epenthesis in German. For discussion of the affinity between [ʔ] and low vowels, see Brunner & Żygis (2011).

Consider the following data from Warao, an isolate of Venezuela (Osborn 1966). In Warao, nasals trigger a process of progressive nasal harmony which targets vowels, glides and laryngeals, but is blocked by other consonants (4a). The forms in (4b) show that Warao also has underlying nasalized vowels, which, like nasals, trigger progressive nasal harmony.

(4) Warao nasal harmony (Osborn 1966)

a.	mõãũ	‘give it to him’
	mõãũpu	‘give them to him’
	inãw̃ãh̃ã	‘summer’
	mẽh̃õkohi	‘shadow’
b.	terẽ	‘it broke’
	tewẽke	‘kind of bird’
	ĩõ	‘turtle’
	õĩh̃õro	‘kind of tree’

The pattern in Warao is similar to that in Capanahua (Panoan) (Loos 1969). Capanahua has regressive nasal harmony and lacks underlying nasalized vowels, but the nasalization also targets vowels, glides and laryngeals, and is blocked by other consonants.

(5) Capanahua nasal harmony (Loos 1969)

ʧipõŋki	‘down river’	põj̃ãn	‘summer’
bĩmi	‘fruit’	ʧĩʔ̃ĩn	‘by fire’
h̃ãmawi	‘step on it’	warãn	‘squash’

In P-Base, Koromfé (Gur) is another language which limits consonant nasalization to glides and laryngeals. Mielke notes that /j, w, h/ surface as nasalized in the context of a following nasalized vowel (Koromfé lacks /ʔ/). The typological overview of nasal harmony in Walker (2000) contains additional examples of this type of nasalization.

Phenomena of this kind pose a challenge to phonological theory. The problem is that it is unclear which feature combination identifies glides and laryngeals as a natural class. In Chomsky & Halle (1968), glides and laryngeals were specified as [+sonorant, −consonantal, −vocalic] (cf. also Odden 2005, who uses [−syllabic] instead of [−vocalic]), but this analysis was rejected in later work, which called into question the phonetic and phonological basis of the features involved (see Ladefoged 1971; Harris 1996 and Lombardi 2002, among many others). One problematic issue is that /j, w, h, ʔ/ are all produced with a supra-laryngeal configuration that is typical of approximants. However, features which refer to the absence of supra-laryngeal stricture – especially [sonorant], but in some approaches also [approximant] – normally also refer to voicing and/or airflow. For example, Clements

(1990: 293) defines [+approximant] sounds as being "produced with an oral tract stricture open enough so that airflow through it is turbulent only if it is voiceless". This definition is amenable to /j, w/ and perhaps also to /h/, but it cannot be extended to /ʔ/, whose key characteristic is the absence of airflow.

Recent versions of Feature Theory do not assume any overlap in the feature composition of glides and laryngeals. Rather, the standard approach is to treat /j, w/ as the non-nuclear counterparts of /i, u/, while /h, ʔ/ are treated as "defective" consonants, specified only for laryngeal features (see e.g. McCarthy 1988; Clements & Hume 1995). Much the same approach is taken in Element Theory; see Section 2.

The problem of finding a feature combination which identifies glides and laryngeals as a class leads us to pursue an alternative approach. Adopting the framework of Element Theory, we propose that class behaviour of glides and laryngeals does not involve shared phonetic content, but shared phonological structure. Section 2 outlines the main tenets of Element Theory. As we will see, this framework allows for a uniform interpretation of glides and laryngeals, in that these sounds all contain a single element in their melodic structure. Section 3 considers some implications of our proposal. Section 4 concludes.

2. Element Theory and the idea of a "structural class"

Element Theory (Harris & Lindsey 1995; Backley 2011) is an approach to segmental structure which assumes that the melodic structure of sounds consists of elements rather than traditional features. Elements are monovalent. They are defined in acoustic terms and represent linguistically informative modulations of a carrier signal (typically, the periodic sound produced by a neutrally open vocal tract) which functions as a base line on which elemental patterns are superimposed (on this, see also Harris 2006).

The version of Element Theory in Backley (2011) assumes a total of six elements. The "vowel elements" |A|, |I|, |U| represent spectral patterns which are roughly defined by the position of the first three formants of the corner vowels /a, i, u/. In isolation, |A|, |I|, |U| manifest themselves as /a, i, u/ (6a), while mid vowels like /e, o/ are compounds of |A| with |I| and |U| (6b).

(6) Melodic structure of vowels (Backley 2011)

a. *a* |A|
i |I|
u |U|

b. *e* |A, I|
   o |A, U|

(6a) illustrates an important assumption of Element Theory, which Harris & Lindsey (1995) call the "autonomous interpretation hypothesis". This concerns the idea that elements (unlike features) are phonetically interpretable in isolation. Autonomous interpretation establishes a relation between segmental complexity and markedness: the more elements a sound has in its representation, the more marked it is. Thus, the unmarked status of /a, i, u/ is reflected by their simple structure, while the relatively marked status of /e, o/ is reflected by their relatively complex structure.

In consonants, |A|, |I|, |U| correspond roughly to coronal, palatal, and labial/velar place.[3] The melodic structure of consonants involves a combination of |A|, |I|, |U| and the "consonant elements" |ʔ|, |L|, |H|. These are associated with the following general acoustic patterns:

(7) Consonant elements (Backley 2011)
|ʔ| abrupt and sustained drop in amplitude
|L| periodicity (voicing)
|H| aperiodicity (noise)

The specific interpretation of elements depends on the melodic expression in which they occur. For example, the combination |A, ʔ, L| is interpreted as a voiced coronal plosive /d/, with |A| denoting coronal place, |ʔ| complete closure (the acoustic result of which is a drop in amplitude), and |L| vocal cord vibration (the acoustic result of which is a periodic signal).

The melodic structure of sounds is motivated first and foremost by their phonological behaviour. Processes of lenition are particularly informative in this respect. Honeybone (2008) discusses a number of cross-linguistic lenition trajectories, the most common of which are given in (8).

(8)

	Phonological context	Lenition trajectory								
a.	Initial	*p, t, k*	>	*f, s, x*	>	*h*	>	Ø		
b.	Final	*p, t, k*	>	*ʔ*	>	Ø				
c.	Intervocalic	*p, t, k*	>	*b, d, g*	>	*β, ð, ɣ*	>	*w, j*	>	Ø

Element Theory provides a unified account of lenition phenomena (e.g. spirantization, vocalization, debuccalization) in terms of the deletion of elements from the

3. The spectral pattern of |U| is associated with an enlarged oral cavity, which is a property of both back and rounded vowels. In Backley's approach, headed |U̲| represents labials, while non-headed |U| represents velars. In this paper we ignore the issue of headedness.

affected sound, resulting in a loss of complexity.[4] For example, on the assumption that the melodic structure of /p/ is |U, ʔ, H| (Backley 2011: 128–130), with |U| denoting labial place, |ʔ| complete closure and |H| oral release (if |ʔ| is present; if not, |H| denotes friction), we predict a number of possible weakening effects:

(9)	a.	*p*	|U, ʔ, H| >	*f*	|U, H|	>	*w*	|U|
	b.	*p*	|U, ʔ, H| >	*f*	|U, H|	>	*h*	|H|
	c.	*p*	|U, ʔ, H| >	*p˺*	|U, ʔ|	>	*ʔ*	|ʔ|

(9a) shows a development in which *p* is spirantized to *f* (formalized by the loss of |ʔ|), and *f* is in turn vocalized to *w* (formalized by the loss of |H|). This leaves behind a single vowel element |U|, which in non-nuclear position is interpreted as [w]. In (9b), the spirantized reflex of *p* is debuccalized to *h* (formalized by the loss of |U|). This leaves behind a single consonant element |H|, which is interpreted as [h]. (9c) shows a development in which *p* first loses its oral release (a common change in final position) and subsequently loses its oral place. This leaves behind a single consonant element |ʔ|, which is interpreted as a glottal stop.

For our purposes, the key observation that can be made from (9a–c) is that the members of the class of glides and laryngeals represent the pre-final stage of the lenition trajectories in (8). What makes the sounds similar to each other is not their phonetic content, but rather that they all consist of a single element. Glides and laryngeals therefore form a "structural" rather than a natural class: their melodic structure has just one element.

3. Some implications of our proposal

The general point which emerges from our investigation of glides and laryngeals is that phonological processes can be sensitive to the difference between simple (having one element) and complex (having more than one element) expressions. This is in itself not a new observation. The difference is well established in the domain of vowels, although it is seldom made explicit.[5] For instance, in languages

4. This is not immediately obvious for intervocalic voicing, which appears to "add" voicing to a sound, and which we ignore here. For discussion, see Harris (2006, 2009) and Botma & Van 't Veer (2013).

5. There is of course abundant evidence that the phonology is sensitive to the difference between simple and complex structures. Consider for example the difference between heavy and light rhymes, or, in Element Theory, the interpretation of sonority in terms of relative segmental complexity. However, in this paper we are concerned with a different kind of complexity, viz. with the *number* of elements in a melodic expression.

with "centrifugal" vowel reduction, unstressed vowels display a subset of the contrasts found in stressed vowels. One such language is Belorusian (Crosswhite 2001), where /a, i, u, e, o/ occur in stressed syllables, while unstressed syllables are restricted to /a, i, u/. For example, the data in (10) show that /e, o/ in stressed syllables (10a) reduce to [a] in unstressed syllables (10b).

(10) Belorusian vowel reduction (Crosswhite 2001)

a.	ˈnoɣi	'legs'
	ˈkol	'pole-NOM'
	ˈʃept	'whisper'
	ˈreki	'rivers'
b.	naˈɣa	'leg'
	kaˈla	'pole-GEN'
	ʃapˈtatsʲ	'to whisper'
	raˈka	'river'

In Element Theory, this restriction can be analyzed in terms of a ban on complex expressions in unstressed nuclei – a reflection of the reduced "licensing potential" of such positions (see e.g. Harris 1994, 1997). Belorusian mid vowels lose |I| and |U| in weak positions, so that only |A| remains. There are also languages which impose restrictions on |A| in weak positions, for example Nivkh (see Shiraishi & Botma 2017).

P-Base contains a number of cases of class behaviour of /a, i, u/. For example, in Kuvi (Dravidian), /a, i, u/ are realized as [e] when preceding the suffix *-eri*/*-esi*, and they are deleted when preceding the suffix *-ku*. In the same contexts, /e, o/ remain unchanged. Similarly, in Sacapultec (Mayan), /a, i, u/ are realized as [o, e, ʌ] when preceding /ʔe(ː)/ and /ʔo(ː)/, while /e, o/ again remain unaffected. It might be argued that the difference between these processes and the class behaviour of glides and laryngeals is that /a, i, u/ are also phonetically similar, in that they are all vowels. However, notice that this similarity is not represented in terms of a shared element. This suggests to us that, like glides and laryngeals, /a, i, u/ form a structural rather than a natural class.

Another issue that is raised by our proposal concerns the demarcation of the class of glides in Element Theory. Backley's interpretation of /j, w/ is essentially the same as that in recent versions of Feature Theory, in that the sounds are treated as the non-nuclear counterparts of /i, u/. Evidence for this comes, among other things, from vowel – glide alternations of the kind in Kimatuumbi (Bantu) (Odden 1996).

(11) Kimatuumbi vowel – glide alternations (Odden 1996)

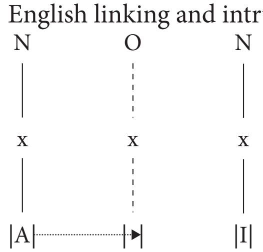
a.	/i-ula/	[juːla]	'frogs'
	/i-taːbua/	[itaːbwa]	'books'

b. /u-a-teleke/ [waːteleke] 'you should cook'
/u-teliːke/ [uteliːke] 'you cooked'

These alternations suggest that we are dealing with prefixes which consist of |I| (11a) and |U| (11b), and whose realization depends on whether they are syllabified as onset or as nucleus.

Given this, the question is whether there is also a non-nuclear counterpart for the low vowel /a/. Backley (2011: 168) proposes that the sound in question is /r/, arguing that rhotics, while phonetically extremely diverse, "show a remarkable unity in their phonological behaviour". Backley discusses a number of cases which suggest a phonological relation between low vowels and rhotics. One is the phenomenon of linking and intrusive *r* as observed in some varieties of English. Linking *r* involves the occurrence of an etymological [ɹ] between two vowels, the first of which is low, e.g. *Walte*[ɹ] *is*. Intrusive *r* is a non-etymological [ɹ] in the same context, e.g. *Anna*[ɹ] *is*.[6] Backley treats the two as the result of a single process of glide formation. The fact that [ɹ] occurs after a low vowel suggests that the vowel's |A| element in the nucleus (N) spreads to the following onset (O), where it is phonetically interpreted as [ɹ]. This is shown in (12), where we assume with Backley that English /ə/ is specified for |A|, and /ɪ/ for |I|.[7]

(12) English linking and intrusive *r* (Backley 2011: 172)



(e.g. *Walte*[ɹ] *is, Anna*[ɹ] *is*)

Backley points out that glide formation of [ɹ] parallels that of [j] and [w], as in *fly* [j]*away* and *go* [w]*away*, which involves spreading of |I| and |U| from high-front and high-back vowels, respectively. English varieties with linking and intrusive *r* therefore provide evidence that the non-nuclear interpretations of the vowel elements are [j, w, ɹ].

For our purposes, the important issue is whether we also find evidence of /j, w, r/ functioning as a class. Cross-linguistic evidence suggests that this is

6. There is a great deal of variation in the way in which *r*-intrusion operates. See Sóskuthy (2013) for a recent discussion.

7. Further support for the presence of |A| in schwa comes from the lowering and centring diphthongs which emerged in the wake of historical *r*-loss, in words like *near* [nɪə] and *fair* [fɛə].

indeed the case. In Eastern Kayah Li (Sino-Tibetan), /j, w, r/ are the only consonants which can co-occur with a preceding voiceless aspirated plosive (Solnit 1997). In Campidanian Sardinian, the C_2 position in onsets is limited to /j, w, r/ (Bolognesi 1998). The same holds for intervocalic onset clusters in Icelandic (e.g. Gussmann 2002). Stressed vowels in Icelandic are long in open syllables (13a), before single word-final consonants (13b), before clusters consisting of /p, t, k, s/ followed by any of /j, v, r/ (13c), but not before other clusters (13d). The sound traditionally transcribed as /v/ is phonetically [ʋ] (cf. Árnason 2011: 106), and we suggest that it patterns as a glide rather than as a voiced fricative (see also Botma & Grijzenhout 2018).

(13) Icelandic metrical vowel lengthening (Gussmann 2002)

a.	bú	[ˈpuː]	'estate'
	gulur	[ˈkʏːlʏr]	'yellow'
b.	sök	[ˈsøːk]	'fault'
	ís	[ˈiːs]	'ice'
c.	nepja	[ˈnɛːpja]	'cold weather'
	gresja	[ˈkrɛːsja]	'prairie'
	vökva	[ˈʋøːkʋa]	'to water'
	sötr	[ˈsøːtr]	'slurping'
d.	sigla	[ˈsikla]	'to sail'
	efla	[ˈɛpla]	'to strengthen'
	epli	[ˈɛhplɪ]	'apple'
	vakna	[ˈʋahkna]	'to wake up'

The fact that the clusters in (13c) are preceded by a long vowel suggests that they are syllabified as onsets, with /j, v, r/ (but not e.g. /l, n/) occurring in the C_2 position.[8]

The more challenging question is whether there is also evidence for class behaviour of /j, w, r/ with /h, ʔ/. P-Base does not contain any examples of this, but we believe that there is nothing which rules out this class in principle. For example, the hierarchy of consonant nasalization in Walker (2000) predicts the possibility of a language in which nasal harmony targets glides and laryngeals, including /r/. It is also worth noting that [r], like [j, w, h, ʔ], functions as an epenthetic consonant. In addition to the English data considered above, epenthesis of rhotics is found in e.g. Southern Tati (Yar-Shater 1969), Fyem (Nettle 1998), and Bavarian German (Uffmann 2007).[9]

8. Gussmann (2002) argues that the vowel lengthening contexts can be unified if single word-final consonants occupy the onset position of an empty-headed syllable.

9. Our focus here is on cases in which epenthesis is driven purely by syllabification. In such cases, we expect to find a preference for [j, w, h, ʔ], and also for [ɹ] (on the assumption that [ɹ] is

Steriade (2008) argues that [j, w, h, ʔ] are unmarked epenthetic consonants because their co-articulatory effect on neighbouring vowels is minimal. The same can be said for epenthetic [ɹ], whose acoustic quality is close to schwa, and which typically emerges in the context of a schwa or another low vowel. Steriade's interpretation of glides and laryngeals as "sounds which make a minimal phonetic contribution" is similar to our element-based interpretation. Since glides and laryngeals have only a single element in their melodic structure, their modulation involves only a relatively minor deviation from the base line set by the carrier signal. We could say, in fact, that it is this property which makes glides and laryngeals acoustically similar – but in our approach this is expressed not by the *kind*, but by the *number* of elements specifying these sounds. Glides and laryngeals form a structural class, not a natural class.

4. Summary and discussion

This paper has provided an analysis of the class behaviour of glides and laryngeals. This class presents a challenge to phonological theory because its members resist a characterization in terms of shared phonetic features. Adopting the framework of Element Theory, we have proposed an alternative approach in which glides and laryngeals are identified as a "structural class". The members of this class contain a single element in their melodic structure – a representation that is supported by the observation that glides and laryngeals form the pre-final stage of cross-linguistically common lenition trajectories. The observation that glides and laryngeals pattern together suggests that phonological processes can be sensitive to the difference between simple and complex expressions. Additional evidence for this comes from processes in which the canonical vowels /a, i, u/ – another structural class – pattern together to the exclusion of other, more complex vowels.

Evidence for class behaviour comes in two types: dynamic (sounds jointly triggering some phonological process) and static (sounds jointly undergoing some phonological process, or being subject to some distributional restriction). The class behaviour of glides and laryngeals considered in this paper falls into the latter category. That we should find static evidence is perhaps not surprising, given that melodic complexity is a known factor in determining the distribution of sounds

specified for |A| only). There are also cases where epenthesis applies as the result of analogy or rule reversal. This is arguably also the case for [ɹ] in English, though note that in Backley's approach the diachronic origin of linking and intrusive *r* is essentially irrelevant – synchronically, both simply involve spreading of |A|. Epenthesis of [ɹ] in Southern Tati and Fyem does not seem to be result of rule reversal, although further research is needed to corroborate this.

in strong and weak positions (see e.g. Harris 1997). From this perspective, the parallel distribution of glides and laryngeals provides further support for the link between “simple” sounds and weak positions.[10] Further research must determine whether there is also dynamic evidence for the class of glides and laryngeals.

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