Consonant epenthesis is splitting

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This paper proposes a novel theory of consonant epentesis where the operation of insertion does not exist. The addition of a segment on the surface results from *splitting,* where an input segment breaks into two output segments (Hayes, 1990; Selkirk, 1990; Struijke, 2000). In this theory, the quality of inserted consonants can only be influenced by phonological processes which are otherwise active in a given language. I argue that this result is highly desirable: unlike other theories, the splitting theory limits possible epenthetic segments to only those attested ones.

Data. The support for the splitting theory comes from the way epenthesis interacts with other processes. Epenthetic consonants can be affected by processes and restrictions which are otherwise active in the language as a whole. For example, Faroese [w] regularly alternates with [ʋ] after non-high vowels, and the alternation is also manifested in epenthetic glides (Anderson, 1969, 1972; Thráinsson *et al.*, 2004; Árnason, 2011). In Woleaian the general restriction on high vowel + glide sequences also restricts consonant epenthesis (Sohn, 1971, 1975; Sohn & Tawerilmang, 1976). In Cuzco Quechua the consonant inserted word-initially alternates between [ʔ] and [h] according to the general laryngeal co-occurrence restrictions of the language (Rowe, 1950; Carenko, 1975; Cushihuamán, 1976; Parker & Weber, 1996; Parker, 1997).

However, there are no cases where universally common processes influence the epenthetic consonants while not being active in the language as a whole. For example, there are no cases where the epenthetic consonants are required to be voiced between vowels while underlying consonants are not. This observation is surprising because standard insertion accounts of epenthesis in Optimality Theory predict that such situations should occur (see below for demonstration).

The splitting theory of epenthesis accounts for the observations above. If an underlying segment breaks in two, both parts are still related to the input segment. Consequently, epenthetic segments are subject to the same processes and restrictions as underlying segments because they *are* underlying. Apparent counterexamples to this claim (e.g. segmental markedness, place assimilation) are shown to be due to faithfulness effects.

Analysis. Within the splitting theory, each segment in the output of splitting bears a correspondence relation to its input source, and therefore it is protected by Input-Output IDENT-F constraints. As a result, the consonants inserted next to vowels will be complete copies of the vowel, i.e. homorganic glides, if the IDENT constraints are highest ranked. Any departure from this faithful situation is possible only if the IDENT-IO-F constraints are dominated. Hence the non-faithful epenthetic consonants may arise only in languages where there are otherwise active featural alternations that change them.

One of the most common alternations affecting epenthetic glides is the change to laryngeal consonants [ʔ h] due to dispreference for low glides or to the preference for having laryngeals at edges of prosodic constituents (Blevins, 2007; Yu, 2011). The tableau in (1) illustrates the analysis of a common pattern where homorganic glides are used to resolve hiatus after a high vowel while glottal stop is inserted after a low vowel (e.g. Malay (Durand, 1987; Zaharani, 2001 among others); Farsi (Naderi & Van Oostendorp, 2011)). The faithfulness constraint INTEGRITY prohibits splitting (McCarthy & Prince, 1995). The indices are used to indicate IO correspondence. The constraint *LoGLD disprefers low glides. Glottal stop insertion violates the constraint IDENT-place by changing the place of the input vowel

that splits.

(1) Glottal stop insertion next to low vowels within the splitting theory

a. /ti₁a₂/	ONS	ID-place	INTEGR
☞ ti₁j₁a₂			*
ti₁a₂	*!		
ti₁ʔ₁a₂		*!	*

b. /ta₁a₂/	ONS	*LO-GLD	ID-place	INTEGR
☞ ta₁ʔ₁a₂			*	*
ta₁a₂	*!			
ta₁ɰ₁a₂		*!		*

By generalizing the constraint families mentioned in (1) above, the splitting theory accounts for other attested cases of laryngeal insertion, and for the common pattern of complementarity between inserted laryngeals and glides. Finally, the alternations between glides and laryngeals may only happen to derived glides, while the underlying (consonantal) glides can create an apparent contrast on the surface (Levi, 2004, 2008). Thus a language illustrated in (1) could maintain a surface contrast between [aʔa] and [aja]. I will show that many other cases of insertion (e.g. [t], [n], [ŋ], [ɹ]) can be reanalyzed either as splitting or as deletion.

Alternatives. Many restrictive theories of epenthesis (cf. Vaux, 2001; Blevins, 2008) share the assumption that inserted consonants are not protected by faithfulness constraints (Lombardi, 2002; de Lacy, 2006; Rice, 2007). Consequently, the inserted consonants should show the effects of universally common processes, even if these processes are not otherwise active in a given language (McCarthy & Prince, 1994). To illustrate, let us consider the theory of epenthesis in de Lacy (2006), augmented with a constraint banning intervocalic voiceless obstruents - *VTV. In this theory the place markedness constraint *PTK prefers glottal segments while the constraint AGREE-place prefers epenthetic glides (symbolized by 'G' below). The continuants are penalized by the constraint *CONT. The high ranking of the intervocalic voicing constraint predicts epenthesis of [d], which is unattested. This prediction holds even in languages which do not have intervocalic voicing otherwise (2)b.

(2) Epenthetic [d] as an effect of intervocalic voicing

a. /tVV/	ONS	*CONT	*VTV	*PTK	AGR-PL	DEP
☞ tVdV				**	*	*
tVV	*!			*		
tVʔV			*!	*	*	*
tVGV		*!		**		

b. /tVtV/	ID-VOI	*VTV
☞ tVtV		*
tVdV	*!	

More impossible patterns of this sort can be constructed based on other common processes (e.g. lenition, palatalization etc). These pathological predictions also arise in other existing approaches to epenthesis (Kitto & de Lacy, 1999; Rubach, 2000; Kawahara, 2003; Uffmann, 2007a; b; Steriade, 2008).

Conclusion. Splitting theory accounts for the observation that the inserted consonants can only be subject to processes and restrictions which are otherwise active in a given language. This observation is problematic for other existing theories of epenthesis. Within the splitting theory epenthesis can only serve as an indirect diagnostic for markedness. The emergence of the unmarked is restricted, but not abandoned in the proposed approach.