Cider apples and jeder Abend: the interplay of /r/-sandhi and word-initial glottalisation in English-accented German

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The aim of the present study is to investigate word-final /r/ and word-initial glottalisation in English-accented German and in English in relationship to phrasing and focus. This is the first study on the interplay between external sandhi and glottalisation in relationship to prosodic structure, comparing native and non-native language, carried out by means of ultrasound tongue-imaging.

In Southern British English word-final /r/ is usually not articulated, unless it is followed by a vowel-initial word [3]. Glottalisation of word-initial vowels is frequent in German [5], while it is less frequent in English and mostly motivated by phrasing or prominence [4]. Some scholars argue that glottalisation can block external sandhi, however, a study of English /l/ found that glottalisation of vowel-initial words could co-occur with different amounts of sandhi [6]. The interplay between external-sandhi, glottalisation and prosodic boundaries therefore demands explicit study.

Regarding transfer into the L2, Czech and German learners of English transfer their frequent word-initial glottalisation in their native languages into their English productions [1]. The transfer of external sandhi in the interlanguage has been seldom investigated and with conflicting results, however “the study of external sandhi in L2 raises the question of what exactly it is that is being carried over (or not), and thus has the potential to shed light on questions of phonological and phonetic representation and speech processing” [7, p.290].

In order to investigate /r/-sandhi and glottalisation in English-accented German, we recorded four native English speakers with German as L2 and six German native speakers with simultaneous tongue-ultrasound and audio recordings. The speakers read English and German sentences, which were answers to questions and contained two-word sequences: word 1 ending with /r/, /n/, or /i/, and word 2 starting with a low vowel, e.g. cider apples and jeder Abend (every evening in German) for the final /r/ condition. Between the two words there was either a phrase boundary or not, and word 2 was either accented or not, thus obtaining four possible sentence types by varying phrasing and focus.

Following hypotheses were formulated: a) glottalisations can overlap with /r/-sandhi, and phrase boundaries, not glottalisations, block sandhi, b) /r/-sandhi is most frequent in phrase-medial position and before deaccented words, while glottalisations are most frequent at phrase boundaries and before accented words, and c) transfer of glottalisation and sandhi occurs from the native to the non-native language.

The analysis of L1 English and L2 German data found so far /r/-sandhi only in L1 English in the phrase-medial condition with word 2 deaccented. In the other L1 English prosodic conditions and in L2 German no /r/-sandhi occurrences were found. Figures 1 and 2 (overleaf) show the tongue contours by a female English native speaker, from which it can be seen that in the L2 German phrase-medial deaccented condition and in the L1 English phrase-boundary deaccented condition no /r/ was articulated. It was also found that tongue tip height is similar for /r/-sandhi targets and final /n/ targets.

No overlapping of /r/-sandhi and glottalisation was encountered so far. Word-initial glottalisation is more frequent in L2 German than in L1 English. Most glottalisations are found at phrase boundaries and before accented words, as hypothesised.

So far, /r/-sandhi occurs only in phrase-medial deaccented condition in L1 English, all other final /r/ conditions present a glottalisation. Therefore, it is still an open question if phrasing (or
focus) or glottalisation blocks sandhi.

The absence of sandhi in L2 German and the more frequent glottalisations in L2 German than in L1 English support the *word integrity constraint* in the interlanguage suggested by [2], which “treats every word as a separate unit and prevents the articulatory synchronization of sounds belonging to different words” [2, p. 19].

We plan to record further English speakers and also to extend the analysis to the German native speakers’ recordings, thus investigating L1 German and L2 English as well.


