

The tune drives the text – how intonation triggers vowel emergence

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Cross-linguistic research has shown that there are different kinds of inserted vowels (e.g. Harms 1976, Levin 1987, Hall 2006). Based on detailed cross-linguistic surveys, Hall (2006) proposes two distinct typological categories: Epenthetic vowels (EV) and intrusive vowels (IV). While EVs phonologically interact with other aspects of the system like *bona fide* vowels, IVs are thought to be phonetic artefacts of the articulatory timing, often referred to as “open transitions” (Bloomfield 1933) or “excrecent vowels” (Levin 1987) which do not interact with phonological alternations, syllable structure or word prosodic processes. Hall acknowledges that “[a] vowel sound that originated as intrusive may be reanalysed over time as a segmental vowel, either epenthetic or underlying.” (2006: 35), opening up a diachronic perspective. Blevins and Pawley (2010) challenged Hall’s two-way distinction by pointing out that diachronic developments can lead to elements with mixed properties and/or properties not captured by Hall’s typology. They further point out that an element’s behaviour is often affected by higher prosodic mechanisms and that unravelling these mechanisms is crucial for our understanding of the evolution of vowel emergence. Unfortunately, there is little research on the interaction between higher prosodic aspects of sound systems and segmental alternations (but see Cole & Hualde 2013). This paper is concerned with how higher prosodic structure can pave an evolutionary way for the phonologisation of vowels.

For every word or phrase spoken, speakers select one intonation contour over other possible ones in order to convey pragmatic functions such as sentence modality. The traditional assumption is that the intonation (tune) and the words (text) are independent of each other, such that any one intonation contour can be produced on different phrases, regardless of the number and nature of the segments they are made up of (e.g. Bolinger 1957, Pierrehumbert 1980). This independence can be compromised, however, if the segments do not afford the time required for the execution of a particular pitch movement, especially in the case of complex tunes that typically require more time than simple ones for their execution. Such cases can lead to phonetic adjustments in the duration of segments, making them longer, to allow the complex contour to be fully realized (e.g. Grice Savino, & Refice 1997, Frota 2002, Prieto & Ortega-Llebaria 2009).

Recent speech production studies have uncovered an alternative adjustment strategy (Grice et al. 2015a, b, Roettger, 2017): If the lexical material available for realizing an intonation contour is scarce, a new vocalic element can be inserted to allow the contour to be fully realised.

This paper will (a) distil the typological literature on tune-text interactions in genetically unrelated languages demonstrating different degrees to which inserted vowels are relevant prosodic elements that fulfil tune-text requirements; (b) present detailed production studies on Tashlhiyt Berber and Bari Italian demonstrating the correlation between higher prosodic structure and vowel insertion synchronically; and (c) argue for an diachronic pathway for the emergence of vowels triggered by intonational needs.

We hope to convince the audience that at least certain aspects of sound systems can be better understood when taking higher prosodic levels of linguistic organisation into account and that the functional pressure imposed by intonational meaning can trigger the evolution of vowels.

References

- Blevins, J., & Pawley, A. (2010). Typological implications of Kalam predictable vowels. *Phonology* 27(01): 1-44.
- Bloomfield, Leonard (1933). *Language*. New York: Holt.
- Bolinger, D. L. M. (1957). *Interrogative Structures of American English*. University of Alabama Press.
- Cole, J., & Hualde, J. (2013). Prosodic structure in sound change. *Studies in South Asian, historical, and Indo-European linguistics: A Festschrift in honor of Hans Henrich Hock on the occasion of his 75th birthday*, 28-45.
- Frota, S. (2002). Tonal association and target alignment in European Portuguese nuclear falls. In C. Gussenhoven, & N. Warner (eds.), *Papers in Laboratory Phonology VII* (pp. 387-418), Berlin: Mouton de Gruyter.
- Grice, M., Roettger, T. B., & Ridouane, R. (2015). Tonal association in Tashlhiyt Berber: Evidence from polar questions and contrastive statements. *Phonology* 32: 241-266.
- Grice, M., Savino, M., Caffo, A., & Roettger, T. B. (2015) The tune drives the text – Schwa in consonant-final loanwords in Italian. *Proceedings of 18th International Congress of Phonetic Sciences*, Glasgow, Scotland.
- Grice, M., Savino, M., Refice, M. 1997. The intonation of questions in Bari Italian: do speakers replicate their spontaneous speech when reading? *PHONUS*, 3, *Institut fuer Phonetik/Phonologie, Univ. des Saarlandes, Saarbruecken*, 1-7.
- Hall, N. (2006). Cross-linguistic patterns of vowel intrusion. *Phonology* 23: 387-429.
- Harms, R. T. (1976). The segmentalization of Finnish ‘nonrules’. *Texas Linguistic Forum* 5: 73-88.
- Levin, J. (1987). Between epenthetic and excrescent vowels. *Proceedings of the West Coast Conference on Formal Linguistics* 6: 187-201.
- Pierrehumbert J. B. (1980). *The phonetics and phonology of English intonation*. Ph.D. dissertation, Cambridge, MA: MIT Press.
- Prieto, P., & Ortega-Llebaria, M. (2009). Do complex pitch gestures induce syllable lengthening in Catalan and Spanish? In M. Vigário, S. Frota, & M. J. Freitas (eds.), *Phonetics and Phonology: Interactions and Interrelations* (pp. 51-70), Amsterdam: John Benjamins.
- Roettger, Timo B. (2017). *Tonal Placement in Tashlhiyt Berber – How an Intonation System Accommodates to Adverse Phonological Environments* (Studies in Laboratory Phonology). Berlin: Language Science Press.