

## Silent segments and prosodic dependency

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Phonological empty segments were first introduced for an analysis of a consonantal phenomenon in CV phonology (Clements and Keyser (1983)) and then extended to vocalic processes, as found in analyses of vowel-zero alternations in various languages such as Moroccan Arabic (Kaye (1990)), French (Charette (1991)) and English (Harris (1994)). Analyses employing empty nuclei are typically found in Licensing/Government-based Phonology (LGP; Kaye (1995)), Element Theory (ET; Harris (1994)) and Strict CV Phonology (Scheer (2004)).

In this framework, an empty nucleus is generally regarded as the representation of the most unmarked central vowel in a given vowel system: for example,  $\text{ə}$  in English (Kaye (1990), Charette (1991), Harris (2005)),  $i$  in Cilungu (Bickmore (2007)) and  $u$  in Japanese (Nasukawa (2005)). The theory, on the other hand, may allow an empty nucleus to be phonetically silent. In order to achieve this, LGP and ET assume some principles called Proper Government and the final-empty-nucleus parameter (Harris (1994)), which control phonetic interpretation of empty nuclei: an empty nucleus may be phonetically silent if it is properly governed by its following melodically-filled nucleus (Kaye (1990), Harris (1994)). Employing these principles, we can analyze the pattern of alternation between a weak vowel (e.g. schwa) and a silent vowel (zero), as seen in pronunciations such as bisyllabic [dəvniʁ] for *devenir* in French. However, the principles may be deemed to be controversial since they typically refer to precedence relations between nuclear positions, rather than on dependency relations between prosodic constituents to which most other principles refer in LGP and ET.

In this paper, I propose that an empty nucleus, which is grammatically legitimate, cannot manifest itself phonetically without any melodic properties in English. It is accomplished by (i) revising the phonological representation of a neutral vowel and (ii) appealing to dependency relations between prosodic constituents at the level of foot. As for (i), according to Backley (2011), the neutral vowel schwa in English is represented by not an empty nucleus but the presence of a sole [mass] (|A|). Given this, I assume that an empty nucleus is not interpreted phonetically. With respect to (ii), referring to dependency relations in prosody, we find that the nuclear position which fails to receive phonetic interpretation is prosodically weak (dependent) at the level of foot and therefore is hard to manifest itself as an audible vowel. Under the present discussion, we do not need to assume Proper Government and the final-empty-nucleus parameter that refer to precedence relations between nuclear positions. Eliminating these principles achieves a degree of theoretical restrictiveness and coherence.

## References

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