

The phonetic interpretation of empty categories in phonology

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In generative grammar, the notion of empty categories has played an important role not only in syntax but also in phonology. Phonological empty categories were first introduced in CV phonology (Clements & Keyser 1983), where empty onsets were proposed to analyze the phenomenon of *h*-aspire in French. The notion of empty categories was thereafter extended to nucleus positions, as found in analyses of vowel-zero alternations in various languages such as Moroccan Arabic (Kaye 1990), French (Charette 1991), Polish (Gussmann & Kaye 1993), English (Harris 1994) and Japanese (Nasukawa 2005). Analyses employing empty nuclei are typically found in frameworks such as Licensing/Government-based Phonology (Kaye, Lowenstamm & Vergnaud 1990, Kaye 1995), Element Theory (Harris 1994, 1997, 2005; Harris & Lindsey 2000) and Strict CV Phonology (Lowenstamm 1996, Scheer 1998, 2004).

Among the frameworks mentioned above, there is a noteworthy difference between empty onsets and empty nuclei in terms of phonetic interpretability of featureless positions. It is generally assumed that the former type of empty category could participate in some phonological processes but not manifests itself phonetically; positions in the latter type (featureless nuclei) may be phonetically realized as a vowel. An empty nucleus is deemed to be realised as the most neutral vowel in a given vocal space: for example, *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 empty nuclei to be phonetically silent. In order to suppress empty nuclei phonetically, Element Theory and Licensing/Government-based Phonology employ a principle called Proper Government, which controls 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). Few papers discuss the difference between empty onsets and nuclei in terms of phonetic interpretability (cf. Nasukawa 2010).

This paper argues that featureless nuclei, like empty onsets, may not be interpreted phonetically (Clements & Keyser 1983). Given this, we need to consider the phonological representation of a neutral vowel which has been regarded as the phonetic manifestation of an empty nucleus in Government Phonology and Element Theory. A claim to respond this is found in Backley (2009), where the neutral vowel schwa in English is the phonetic manifestation of a particular feature rather than an featureless nucleus. Analyzing the alternation between full vowels and schwa in English, we encounter the fact that low and mid vowels -- which include feature [mass] (|A|) -- tend to alternate with schwa as compared with those high vowels which consist of only [dip] (|I|) or [rump] (|U|), it is claimed that

English schwa is represented by not an empty nucleus but the presence of a sole [mass] (|A|).

The present discussion does not turn down the notion of empty categories immediately in phonological representation, since they are closely to do with the prosodic structure with principles such as Onset Licensing and Inter-nuclear Licensing, as discussed in Harris (1994) and Scheer (2004). Here, we conclude that an empty nucleus, which is grammatically legitimate, cannot manifest itself phonetically without any melodic properties.

Disallowing featureless nuclei to be phonetically realized bears a consequence that there is no need to refer to Proper government and Final-empty-nucleus parameter (Harris 1994, 1997) that prescribe the interpretability of empty nuclei. Eliminating these principles achieves a degree of theoretical restrictiveness and coherence since they are principles which typically refer to precedence relations between (nuclear) positions, rather on dependency relations in prosodic structure to which most other principles refer. Under the present discussion that an empty nucleus does not have its corresponding phonetic exponence, we do not need to assume the linearity-sensitive principles in order to explain phonological processes.

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