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Silent segments
and
prosodic dependency

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Introduction
Introduction 1

• Schwa/zero alternation in English
• In Government Phonology, schwa is the phonetic manifestation of a featureless vowel.
• In English, the empty nucleus can be silent if it is followed by a melodically-filled nucleus.
• Proper Government, which is assumed to be for the phonetic manifestation of empty nuclei.
Introduction 2

• The representation of English schwa is not an empty nucleus. It is the phonetic manifestation of a single element |A|.

• Given this, this paper provides an alternative analysis of schwa/zero alternation in English by referring only to prosodic strength rather than to Proper Government.
The structure of this talk

• The notion of empty category in GP.
• how the phonetic manifestation of an empty nucleus is controlled by Proper Government.
• English schwa is the manifestation of element |A| rather than an empty nucleus.
• schwa/zero alternation will be analyzed as a case of weakening by referring to prosodic dependency.
Empty categories in phonology
Empty categories 1

The notion of empty category is found in some analyses of vowel-zero alternations in various languages such as Moroccan Arabic (Kaye (1990)), French (Charette (1991)), Polish (Gussmann and Kaye (1993)), English (Harris (1994)) and Japanese (Nasukawa (2005)).
Empty categories 2

• An empty nucleus is phonetically realized as a vowel. It is realized as the most unmarked vowel in a given system.

• In order to suppress empty nuclei phonetically, LGP and ET employ a principle called Empty Category Principle (Kaye (1990: 314)), which controls phonetic interpretation of empty nuclei.
Dependency and Proper Government
Two relational properties

• In LGP and ET, there exist two relational properties between units
  – Dependency (licensing): a head-modifier relation at all levels of phonological representation
  – Proper Government: a relation established between a melodically silent vowel and the following audible vowel.
Dependency

• In LGP, the notion of dependency plays an important role not only for melody but also prosody.

• In prosody, dependency relations are found between constituents such as nucleus, onset, and so on.

• On the other hand, melody shows dependency relations between elements within a segment.
Prosodic dependency

(1)

\[
\begin{array}{cccc}
C_1 & \rightarrow & V_1 & \rightarrow & C_2 & \rightarrow & V_2 & \rightarrow & C_3 & \rightarrow & V_3 \\
\text{Direct dep.} & & \text{Head} & & \text{Indirect dep.} & & \text{Direct dep.} & & \text{Indirect dep.} & & \text{Direct dep.}
\end{array}
\]

strong pos.
Melodic dependency

(2)
a. $|A| + |I| \rightarrow e$
b. $|A| + |I| \rightarrow \text{æ}$
c. Elements (Backley & Nasukawa 2010: 23-24)

- nucleus
  - $|I|$ front vowels
  - $|U|$ rounded vowels
  - $|A|$ non-high vowels

- onset
  - palatal, coronal POA
  - labial, velar POA
  - uvular, pharyngeal POA
(3) *fainəli* ‘finally’

(|E| stands for any element which forms of a segment)
(4) **Proper Government** (Kaye (1990), Harris (1994), Charette (1991))

a. a proper governor and its proper governee are adjacent at the level of nuclear projection,
b. a proper governor stands to the right of proper governee, and
c. a proper governor is not itself p-licensed.
   (+ the licensing nucleus must itself not be empty.)
(5) *fæm(ə)li* ‘family’

P-licensed by Proper Government

\[
\begin{array}{cccc}
C_1 & V_1 & C_2 & V_2 \\
/E/ & /E/ & /E/ & /E/ \\
\vdots & \vdots & \vdots & \vdots \\
f & æ & m(ə) & l \\
\end{array}
\]

(|E| stands for any element which forms of a segment)
The representation of English schwa
English schwa

(6) \[ V \]

\[ | \]

\[ |A| \]

\[ \emptyset \]

(Backley (2011); Onuma (2011))
Vowel reduction to schwa

(7)

a. e ~ ə

segment [seg'ment]_{V} ~ [seg'mənt]_{N}
academic ~ academy [ækə'demɪk] ~ [ə'kædəmɪ]

b. æ ~ ə

addict ['ædɪkt]_{N} ~ [ə'dɪkt]_{V}
magic ~ magician ['mædʒɪk] ~ [mədʒɪʃən]

c. æ̆ ~ ə

subject ['səbdʒekt]_{N} ~ [səb'dʒekt]_{V}
production ~ product [prə'dʌkʃən] ~ [prədəkt]
Vowel reduction to other vowels

(8)

a. \( \ddashv \sim \ddashv \)
   
   decrease  \( [\text{\'\text{d}i\text{\'kri\text{\'s}}}]_N \sim [\text{\'d}k\text{\'ri\text{\'s}}]_V \)
   
   regress  \( [\text{\'ri\text{\'gres}}]_N \sim [\text{\'r}\text{\'gres}]_V \)

a. \( \ddashv \sim \ddashv \)
   
   beauty \( \sim \) beautician  \( [\text{\'bju\text{\'ti}}] \sim [\text{bju\text{\'t}\text{\'\text{e}n}}] \)
5

Schwa deletion
Schwa deletion

(9) a. separate, temperature, elaborate, factory, boundary, licorice, chocolate, mystery, reference, quandary, awfully
b. misery, every, surgery, century, nursery, camera, treasury, prisoner, decimal, definite, opener, desolate, especially, finally, family, pedaling, javelin, general, marginal, company, personal, national

(Harris 1994)
Schwa deletion

(10) ?/* rocket_ing, ball_oting, mon_itor,
     opac_ity, gossip_ing, men_acing,
     brack_eting
(11)  

a. C V C α son. (=9)  

b. C V Cα obs. (=10)
An analysis of schwa deletion
(12) *faĩnǝli* ‘finally’
(13) *fainli* ‘finally’

\[
\begin{array}{c}
\text{schwa deletion} \\
\text{an extreme form of weakening}
\end{array}
\]
Summary

• This paper has discussed the distribution of English schwa in terms of prosodic dependency.

• The mechanism of schwa deletion of English is an instance of weakening; the loss of |A| element in prosodically-weak position.
References 1


References 2


