The Vicissitudes of Intelligible Segmental Pronunciation

George O’Neal

Niigata University & Waseda University, Japan
Segmental Repair (Pronunciation Repair)

1 Keita: (giggles) eh uh my eh my hobby is eh ice [hoke].
2 Yan: I- ice what exs- excuse me?
3 Keita: ah ice [hoke].
4 Yan: ice [hoke] wha- what is that?
5 Keita: andu:: skate {it} is skate=
6 Yan: {ah} =skate skate
7 Keita: hai yes skates and [hoke].
8 (0.3)
9 Yan: ah ['ha.ki] {oh}
10 Keita: {ah} yeah [haki] yes.
Outline

• Research Questions
• Corpus
• Analysis of the Corpus
• Discussion of Results
Research Questions

• What kinds of segmental repairs are there?
• How frequent are the different segmental repairs?
• What kinds of segmental adjustments are there?
• How frequent are the different segmental adjustments?
Corpus

• Japanese undergraduates (N = 62)
• Non-Japanese undergraduates (N = 4)
  • Chinese (N = 2)
  • Thai (N = 1)
  • Mongolian (N = 1)
• Length (6h & 50m)
• Repair Sequences (N = 66)
  • Non-segmental repair sequences (N = 38)
  • Segmental repair sequences (N = 28)
Reactive Segmental Repair  
(Brouwer, 2004; Matsumoto, 2011; O’Neal, 2015a, 2015b, 2015c, 2016, 2017)

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<td>Jia</td>
<td>since beijing- since ↑peking has a: [ʃʌb.wei].</td>
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<td>3</td>
<td>Mako</td>
<td>[ʃʌb.wei]?</td>
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<td>14</td>
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<td>[ʃə.wu]?</td>
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<td>[ʃʌb.wei].</td>
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<td>18</td>
<td>Mako</td>
<td>[ʃʌb.wei]?</td>
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<td>20</td>
<td>Jia</td>
<td>hm.</td>
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<tr>
<td>21</td>
<td>Mako</td>
<td>↑oh &gt;yeah yeah&lt; ah. &gt;I know I know&lt;.</td>
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</tbody>
</table>

First Trouble Source ➔ First Ratified Repair Candidate  
[ʃʌb.wei] ➔ [ʃʌb.wei]  
Quantification:  
One Reactive Repair  
One consonant modification
Preemptive Segmental Repair
(O’Neal, 2017)

• 9 Bumbyn I think it’s almost,
• 10 (0.6)
• 11 [θɹoʊ]
• 12 (1.0)
• 13 Mitsuhiro ah{: : ::}
• 14 Bumbyn {[[θɾuː]]. [θɾʊt].}
• 15 (0.2)
• 16 because
• 17 (0.2)
• 18 Mitsuhiro hm:
• 19 (0.1)
• 20 Bumbyn when you say japanese u::
• 21 (0.6)
• 22 your [θɾʊt].

First Trouble Source →
Last Repair
[θɾʊɾ] → [θɾʊɾt]

Quantification:
One Preemptive Repair
One consonant insertion
Reversion Segmental Repair

• 9 Zhan [fɪtʃ]? 
• 10 (0.5) 
• 11 Takeshi [fɪʃ]. 
• 12 Zhan ah [fɪʃ]= 
• 13 Takeshi = [fɪʃ]. 
• 14 (1.0) 
• 15 Zhan .hhh 
• 16 (0.6) 
• 17 Takeshi neve{r?} 
• 18 Zhan {no}::? 
• 19 (0.3) 
• 20 I never eat {[fɪʃ]} because,
Serendipitous Non-Segmental Repair

• 21  Atsuko  [u.'tʃi]?
• 22  Jia  [u.'tʃi].
• 23  (0.6)
• 24  [u.'tʃi]. [u.'tʃi].
• 25  (.)
• 26  macha no-
• 27  Atsuko  =↑[ɯ.dʐi].
• 28  (.)
• 29  Jia  >[ɯ.dʑi].<
• 30  Ryota  ↑ah::=
• 31  Atsuko  =ah ah ah ah yeah yeah. hn.

First Trouble Source ➔ Comparison Pronunciation
[u.'tʃi] ➔ [ɯ.dʑi]
Quantification:
One Serendipitous Repair
One vowel quality modification
One consonant modification
Results: Segmental Repair Sequences

- $\chi^2 (3, N = 28) = 19.14, p = 0.0003, \phi_c = 0.477.$

<table>
<thead>
<tr>
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<th>observed</th>
<th>expected</th>
<th>residual</th>
<th>standardized residual</th>
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<td>reactive</td>
<td>17</td>
<td>7</td>
<td>10</td>
<td>3.780*</td>
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<tr>
<td>preemption</td>
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<td>7</td>
<td>-3</td>
<td>-1.134</td>
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<tr>
<td>reversion</td>
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<td>7</td>
<td>-4</td>
<td>-1.512</td>
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<tr>
<td>serendipitous</td>
<td>4</td>
<td>7</td>
<td>-3</td>
<td>-1.134</td>
</tr>
</tbody>
</table>
Results: Segmental Adjustments

- $\chi^2 (2, N = 41) = 21.85, p < 0.0001, \phi_c = 0.266.$

Table (6): Aggregate Segmental Adjustments in all Segmental Repair Sequences

<table>
<thead>
<tr>
<th></th>
<th>observed</th>
<th>expected</th>
<th>residual</th>
<th>standardized residual</th>
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</thead>
<tbody>
<tr>
<td>modifications</td>
<td>27</td>
<td>13.667</td>
<td>13.333</td>
<td>3.607*</td>
</tr>
<tr>
<td>deletions</td>
<td>3</td>
<td>13.667</td>
<td>-10.667</td>
<td>-2.885*</td>
</tr>
<tr>
<td>insertions</td>
<td>11</td>
<td>13.667</td>
<td>-2.667</td>
<td>-0.721</td>
</tr>
</tbody>
</table>
Discussion of Results

• Reactive segmental repair is the most frequent segmental repair in this corpus to a statistically significant degree.
  • Preemptive, Reversion, Serendipitous Non-Segmental Repairs = ns

• Segmental modifications are frequent and segmental deletions are rare to a statistically significant degree.
  • Insertion = ns

• Not all aspects of pronunciation that become relevant within the ELF interactions include segmentals from the phonemic categories of inner circle varieties of English.
  • the segmentals of [u.tʃi] are adjusted to [u.dʑi].
Implications

• Segmental Repair Analysis adds another window into intelligibility studies (Matsumoto 2011; O’Neal 2015c).

• Intelligibility breakdown is chiefly linked to segmental trouble sources (cf. Saito et al. 2017).

• Intelligibility breakdown not linked to suprasegmentals (cf. Hahn 2004).
Limitations

• Audio-only (Smotrova 2017)
• Other Segmental Adjustments: segmentation? Speed? (O’Neal 2016a)
• Segmental Repair = Catastrophic damage to intelligibility
• Only Japanese & 4 Non-Japanese: Other combinations = other results?
Thank you for listening!

ご静聴をありがとうございます！
References


Defining ELF

• The usage of English among speakers from different first language backgrounds, but:

• 1) not assumed any linguistic forms/behaviors are more likely (Jenks 2012; Mortensen 2013; Baird et al. 2014; Kennedy 2017; cf. Cogo and Dewey 2012).

• 2) neither precludes NSs, nor assumes that “shared non-nativeness” is made relevant (Baird et al. 2014; cf. Hülmbauer 2009).

• 3) does not specify that ELF is deviation NS varieties of English (Baird et al. 2014; cf. Cogo and Dewey 2012; Pitzl 2016).

• 4) assumes that the notion of speech community is inapplicable to ELF interactions (Pitzl 2016; Baird et al. 2014).

• 5) does not assume that only English is used during ELF interactions (Mortensen 2013; Jenkins 2015).
Conducting Research in ELF Intelligibility: ELF & Conversation Analysis & Statistical Analysis

• Any coding and quantification of interactional data automatically represents a reduction and simplification of complex human behavior, and will inevitably show a lack of sensitivity to turn design and sequential position.

• Schegloff (1993) states that, “we can be led seriously astray if we allow the possibility of quantitative studies to free us from the need to demonstrate the operation of what we take to be going on in singular fragments of talk” (p. 102).

• Schegloff (1993) claims that, “quantification is no substitute for analysis” (p. 114; see e.g., Steensig & Heinemann, 2015; Nishizaka, 2015).

• However, other CA researchers are more open to the possibility of quantification (see e.g., Stivers & Majid, 2007; Stivers, 2015).

• Stivers (2015) argues that, “when CA results are strong and the reach of the findings could be enhanced by quantitative methods, formal coding can easily be built on a strong CA foundation” (p. 16).
Why interaction-based pronunciation research?

• Experiments do not differentiate between intelligibility and acceptability (O’Neal & Matsumoto in submission)
  • Saito & Akiyama (2017)
  • Horgues & Scheuer (2014)
  • Saito & Lyster (2012)

• Interaction-based pronunciation research demonstrates that intelligibility is more important than comprehensibility
  • Matsumoto (2011)
  • O’Neal (2015, 2016, 2017)
Transintelligibility
O’Neal & Matsumoto, in submission

18 Bai yes. I know. haha.
19 (0.6)
20 [æbrɔd].
21 (0.4)
22 Misa hm:::=
23 Bai =actually its [æbrɔd].
24 (1.2)
25 Misa [ə]
26 (0.3)
27 Bai [æbrɔd].
28 (0.2)
29 Masahiro [ə][æbrɔd].

[eβrədəʊ] → [əbrəd]
[əbrɔd] → [æbrɔd]
[pəˈroʊd] → [æbrəd]
[pəˈbrəd] → [æbrəd]

Unintelligible → Intelligible???