Aspects of pronunciation across CEFR levels and some implications for language learning

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Overview

1. Pronunciation in L2 English
2. What makes the rhythm of a language?
3. A pilot study: data, annotation, results
4. Implications for language learning
1. Pronunciation in L2 English

• Pronunciation is a key part of *phonological competence*.
• It involves the acquisition and mastery of various components.
• Insufficient skill affects a learner’s *intelligibility* which is a main focus of communicative language teaching.
• It is also important for assessing language production.
What influences pronunciation?

Various factors:

• a learner’s overall linguistic proficiency
• cross-linguistic differences
• the nature of the language activity
• other social (external) and cognitive (internal) factors affect the production or reception of pronunciation
An under-researched area

- Existing studies focus on the *segmental* level of L2 phonology
  - e.g. the acquisition of the l/r distinction by Japanese and Chinese ESL learners (Bradlow 2008).

- We aim to focus on L2 prosodic development by:
  - identifying aspects of pronunciation that are important for specific CEFR levels ("criterial features")
  - using these aspects to describe different CEFR levels.

- ... so that we can describe the development of phonological structure in L2 learners.
The context: English Profile

- English Profile aims to:
  - understand what the CEFR actually means
  - investigate real learner English
  - develop RLDs for each CEFR level.

- This *pilot study* will help to develop resources that characterise levels of phonological language proficiency, to be used by ELT professionals in various ways.
Why do we need this research?

- There are various English Profile spoken data collections going on …
- … but not much research to date (an exception is Mike McCarthy’s work on fluency, see McCarthy 2011)

- Descriptions of speech features by CEFR level will enhance the existing findings on vocabulary, grammar and functions (see the EP booklet)…
- … and have wider implications for teaching and learning practices and materials.
2. What makes the RHYTHM of a language?

- Typically we distinguish stress-timed and syllable-timed languages
  - Stress-timed: time intervals between prominent syllables of roughly equal length
    - e.g. Dutch, English, German
  - Syllable-timed: successive syllables of roughly equal length
    - e.g. Czech, Italian, Spanish
Rhythm affected by:

- Amount of consonants and vowels in speech
- Length of consonants and vowels
- Accentuation
- Final syllable lengthening
<table>
<thead>
<tr>
<th>Stress-timed languages (English, German, Dutch)</th>
<th>Syllable-timed languages (Czech, Spanish, Italian, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘complex’ consonant clusters → High amount of Cs in speech</td>
<td>Almost only CV structures → Low amount of Cs in speech</td>
</tr>
<tr>
<td>Reduction of unstressed vowels</td>
<td>No reduction of unstressed vowels → Length of V longer</td>
</tr>
<tr>
<td>Final syllables lengthened</td>
<td>Final syllables almost same length as non-final syllables</td>
</tr>
<tr>
<td>Large durational difference between accented/unaccented syllables</td>
<td>Little durational difference between accented/unaccented syllables</td>
</tr>
</tbody>
</table>
What measures were used?

- A set of measures of phonological and prosodic proficiency that could be discriminatory or criterial properties of the different CEFR levels.

- These measures were applied to a small set of General English speaking tests (average candidates)
  - to explore whether the measures vary by L1 and level
  - to establish whether they are valid and robust measures.
Introducing Rhythm Metrics

- Developed to quantify cross-linguistic differences in rhythm
- Have been successfully applied to child speech, clinical speech, and L2 speech

<table>
<thead>
<tr>
<th>Rhythm metric</th>
<th>What it measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>% V</td>
<td>Proportion of vocalic material in speech</td>
</tr>
<tr>
<td>Varco-V &amp; Varco-C</td>
<td>Variability in V/C interval duration (StDev divided by mean)</td>
</tr>
<tr>
<td>nPVI-C</td>
<td>Variability in consonantal interval duration normalised for speaking rate</td>
</tr>
</tbody>
</table>
3. Pilot study: data

- Recordings from Cambridge English tests used for examiner training

<table>
<thead>
<tr>
<th>L1/Level</th>
<th>German</th>
<th>Korean</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2</td>
<td>x</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>B1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>C1</td>
<td>x</td>
<td>x</td>
<td>2</td>
</tr>
</tbody>
</table>

- 2 participants per language group per level
- Roughly 60 sec of speech per participant
Data annotation

- With Praat, a free speech analysis programme (Boersma & Weenink 2011)

- Inter-annotator agreement: 97%
  - the first file was annotated by all three researchers and a comparison of boundary placement was made
So, what did the pilot study reveal?

1. Cross-language comparison of the measures (German, Korean, Spanish) …

2. … at two CEFR levels (B1 and B2)

3. (also Spanish at A2-C1 levels, not reported here)
Cross-language comparison of measures at B1 and B2 levels

Cross-linguistic differences, with:
- Highest Varco-C values for German
- Highest %V value for Spanish
- Reflect L1s
- Korean relatively low on both

Progress towards a NS reference point?
How does this compare to English L1?

- English Varco-C reference point much higher
- Only Spanish moves in right direction
- Others constant
- English %V comparable to German & Korean
- Spanish moves in right direction
To summarise so far …

- Cross-linguistic differences reflect L1s, with:
  - Highest *variability in consonant interval duration* for German.
  - Highest *proportion of vocalic material* for Spanish.
  - Korean relatively low on both measures.

- There is movement towards a NS ‘reference point’:
  - English *variability in consonant interval duration* much higher than all L1s.
  - Spanish speakers move in the right direction, other L1s constant across levels.
  - English *proportion vocalic material* comparable German/Korean.
  - Spanish moves in the right direction.
Points to bear in mind

- We are describing, NOT prescribing
  - So it does not matter that all of our sample did not move towards the NS reference point across levels
  - … we need to find out why this is

- We have begun to explore other measures
  - e.g. the duration of accented and un accented syllables
Towards a framework of criterial features of L2 spoken English

- This pilot study suggests we can develop a framework based on measures like the rhythm metrics analysed.

- The next step is to analyse how the learners realise syllable structures, accents and boundaries, to better understand the properties of L2 speech.

- Our findings show that these speech properties crucially depend on L1 background.
So what might a framework based on this research look like?

Warning – bare bones only!
<table>
<thead>
<tr>
<th>Level</th>
<th>Stress-timed</th>
<th>Syllable-timed</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>High amount of Cs</td>
<td>Low amount of Cs</td>
</tr>
<tr>
<td></td>
<td>Relatively low amount of Vs</td>
<td>Very high amount of Vs</td>
</tr>
<tr>
<td>B2</td>
<td>Amount of Cs as B1</td>
<td>Amount of C higher than B1 but still off target (slight progression)</td>
</tr>
<tr>
<td></td>
<td>Higher amount of Vs</td>
<td>Amount of Vs lower than B1 but still off target (slight progression)</td>
</tr>
</tbody>
</table>

**But what does this actually mean?**
4. Implications for language learning

- As language teachers we are concerned with both intelligibility and accuracy …
- … and should note **when**, **how** and **why** each is required of our learners.

- Understanding what learners of a specific L1 **can do** (in a **specific context** and with **particular constraints**) should inform L2 teaching
  - i.e. what structures or features we should explicitly teach, what we should encourage learners to notice and work on independently, etc.
Specific applications for English Profile

• We plan to develop *Can do statements* (i.e. describe what a learner can do) from these results …

• … so we can “road test” our findings with a wider sample of learners (more CEFR levels and L1s).

• These will inform *learning materials and classroom practices* directly, which can be specifically targeted to CEFR level and L1 background.
So what’s next?

• For this project:
  • Expand research with further L1s and more samples.
  • Extend measures to include e.g. syllable structures.
  • Explore more spontaneous or everyday speech from corpora.

• For English Profile:
  • Begin to form a framework of RLDs for pronunciation.
  • Explore how these interact with other linguistic features.
What’s next?

• For **you**:  
  • Read the EP booklet to find out more about initial findings.  
  • Join the English Profile Network.  
  • Consider contributing or collecting written or spoken data.
Thank you from the
EP Pronunciation Project Team:

Cambridge ESOL:
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University of Nottingham, UK: Mike McCarthy
References


