PROSODY IN A CONTRASTIVE LEARNER CORPUS

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OUTLINE

- Introduction

- 2 topics:
  - corpus ANGLISH (Tortel, A. - TIPA, 2008)
  - results of a study on English rhythm of French learners

- Conclusion & perspectives
Difficulties in acquiring English rhythm

- difficulties in acquiring English rhythm are due to several factors (Adams, 1979)
  - observation of the difficulties of L2 non native speakers of English:
    - insufficient durational difference between unstressed and stressed syllables
    - unstressed syllables are not reduced appropriately
    - misplaced stress
Can it be applied to a French speaker?

comfortable vs comfortable!

<table>
<thead>
<tr>
<th>comfortable</th>
<th>ble</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,13 ms</td>
<td></td>
</tr>
<tr>
<td>comfortable</td>
<td>ble</td>
</tr>
<tr>
<td>0,24 ms</td>
<td></td>
</tr>
</tbody>
</table>
Prosodic transfer

- Prosodic transfer from L1 to L2 (Jun, 2005:4)

“Finally, this book is also for language teachers, by comparing the intonational categories and their realizations in the target languages, they can pin down the sources of prosodic interference and transfer”.

Influence of L1 rhythm (French) on the rhythm of L2 (English)
ANGLISH

- **comparative database** of English spoken by:
  - natives of British English
  - French learners of English
- **63 speakers** recorded in an anechoic room (LPL)
- **3 groups**: - 23 natives of British English
  - 20 second or third-year French students of English at university
  - 20 French speakers, non specialists in English, workers, and desirous to improve their English
- **3 different tasks**:  
  - reading 4 passages (from EUROM1)  
  - repeating sentences after a native model  
  - speaking on a free subject for about two minutes (monologue)

**5.30 h of spoken English L1 & L2**
ANGLISH: design & advantages

• compensate for a lack of corpus in English L1 & L2 by French learners (freely distributed)

• can be used for different purposes of research

• contains:
  * diverse types of exercises
  * diverse levels of French learners

• good quality of recordings

• being under manual segmentation
  (IU, words, syllable, anacrusis and phonemes)

• is freely available on the CRDO website
  http://crdo.up.univ-aix.fr/
my sister is terrified of the dark
she absolutely refuses to go out alone at night she wants someone to
ANGLISH: extracts

- **Task 1: Reading**
  - FR1
  - GB

- **Task 2: Repeating sentences**
  - Model
  - FR1

- **Task 3: Monologue on a free subject**
  - FR1
  - FR2
  - GB
ANALYSES: ENGLISH RHYTHM

- **Study** → investigation of rhythmic parameters in the production of French learners of English and British native speakers

- **Purposes** → to examine the utility of recently-developed rhythm metrics of speech
  
  → to evaluate the **tendancy** of the rhythm productions of French learners of English

- **Final aim** → to search for acoustic prosodic criteria in order to develop an objective and automatic evaluation for the French students’ productions in English
METHOD: rhythm metrics

Metrics measure the degree of variability between vocalic & consonantal intervals durations

Metrics calculated with a PRAAT script (Daniel Hirst)
<table>
<thead>
<tr>
<th>METRICS USED</th>
<th>% V</th>
<th>sd (C,V)</th>
<th>rPVI (C,V)</th>
<th>nPVI (C,V)</th>
<th>Cv(C,V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% duration of vocalic intervals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard deviation of duration of cons. &amp; voc. intervals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raw index variability between duration of successive cons. &amp; voc. intervals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normalised index of variability between duration of successive cons. &amp; voc. intervals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coefficient of variation of duration of cons. &amp; voc. intervals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>take into account speech rate</td>
</tr>
</tbody>
</table>


MAIN HYPOTHESIS

- INTERLANGUAGE DISCRIMINATION
- INTERDIALECT DISCRIMINATION

IS L₁/L₂ DISCRIMINATION POSSIBLE?
Method: corpus

- The reading part of the corpus ANGLISH: 1.30 h

<table>
<thead>
<tr>
<th>V</th>
<th>C</th>
<th>V</th>
<th>C</th>
<th>V</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRU</td>
<td>ANA</td>
<td>NRU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cult</td>
<td>to</td>
<td>sleep</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>difficult</td>
<td>to</td>
<td>sleep</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

I've always found it difficult to sleep on long train journeys in Britain. I've always found it difficult to sleep on long train journeys in Britain for one thing I can never make...
THE RESULTS

the better the non native speakers’ productions and the closer to an English rhythmic structure the rhythm is, the closer to the native speakers the results would be.
L1 RHYTHM IMPACT ON L2 PRODUCTIONS?

HYPOTHESIS VALIDATED WITH NORMALISED METRICS

(nPVI_V, nPVI_C) – (cvV, cvC)
TO WHICH GROUP THE SPEAKERS BELONG TO?

AIM

Characterizing the different groups of speakers according to 3 levels:

- **FR₁**: learners with low level of English
- **FR₂**: students of English at university
- **GB**: native speakers
A THREE WAY CLASSIFICATION OF SPEAKERS
CONCLUSIONS

1. It is possible to discriminate L1 from L2 rhythmic productions and to see the influence of the mother language to the target language.

2. It is possible to classify the productions of the speakers into different levels.
• Work on spontaneous speech (monologues)

• Use of other metrics / methods

• Enlarge the study to ripen the evaluation

• Subjective evaluation/perception test of the productions
PERSPECTIVES: ANGLISH

- Improvement of the phonemic transcription
- Segmentation of the monologues
- Creation of FRANGLISH!
THANK YOU FOR YOUR ATTENTION