

A corpus of spontaneous dialogues in L2 English by French and Japanese L1 speakers for automated assessment of fluency

Sylvain Coulange, Takayuki Konishi, Mariko Sugahara, Tsuneo Kato

► To cite this version:

Sylvain Coulange, Takayuki Konishi, Mariko Sugahara, Tsuneo Kato. A corpus of spontaneous dialogues in L2 English by French and Japanese L1 speakers for automated assessment of fluency. 6th International Symposium on Learner Corpus Studies in Asia and the World (LCSAW6), Feb 2024, Kobe, Japan. 2024. hal-04666131

HAL Id: hal-04666131 https://hal.science/hal-04666131v1

Submitted on 2 Aug 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers. L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.





A corpus of spontaneous dialogues in L2 English by French and Japanese L1 speakers for automated assessment of fluency

Sylvain COULANGE^{1,2}, Takayuki KONISHI³, Tsuneo KATO², Mariko SUGAHARA², Solange ROSSATO¹, Monica MASPERI¹

¹ Grenoble Alpes Univ.: ² Doshisha Univ.: ³ Waseda Univ.

Context:

- CAPT tools rarely deal with spontaneous speech, and even more rarely with speech in real discussion situation.
- Lack of L2 spontaneous speech corpus.
- Lack of speech in peer dialogue situations.

Creation of a speech corpus:

- 2- or 3-student role play type argumentative discussion on a contentious topic.
- Different topics were used, such as security cameras, animal testing, the use of technology in classrooms, part-time jobs...
- Each candidate assumed a specific given role, either advocating for or against the subject.
- 2~5 minutes of preparation before the talk.
- Objective: negotiate, exchange viewpoints, and eventually work towards a compromise.

Processing Pipeline

- We released an open-source automated processing pipeline specifically design for processing multi-speaker spontaneous L2 English speech. [3]
- The processing steps are as follows:
- Speech detection and neural speaker diarization (Pyannote)
- ASR & word-level alignment (whisperx) Morphosyntactic analysis (SpaCy)
- Localisation of pauses with POS context and constituency analysis (Benepar)
- Syllable nuclei detection [4]
- Syllabic parameter extraction (intonation, intensity, duration ; speaker norm.)
- Comparison of prosodic shape of words with a reference dictionary
- Insight of a TextGrid output

finance par IDEX Université Grenoble Alpes



Data Available for Academic Research

CLES French-L1 corpus CLES



- 128 speakers
- French as mother tongue: 93% (other: Albanese, Arabic, Chinese, Georgian, Indonesian, Latvian, Persian, Spanish, Ukrainian)
- 48% F, 52% M
- 62 groups (3-speaker: 4, 2-speaker: 58)
- Proficiency: B1~B2
- Speech duration: 10 hours (mean 9'35", min 5'12", max 14'30")





00 000

00 000

to say that the use P of P

000

 Pauses are categorized into inter-clause, inter-phrase and intra-phrase pauses, along with POS context, syntactic depth and nb. of words of adjacent constituents.





Pipeline Evaluation

References:

- [1] CLES official website:
- [2] Coulange, S., Fries, M.-H., Masperi, M., Rossato, R. (submitted). A corpus of spontaneous L2 English speech for real-situation speaking assessment. Proceedings of the 2024 Joint International Conference of Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024), 20-25 May, Torino,
- [3] Coulange, S., Kato, T., Rossato, R., Masperi, M. (in press). Enhancing Language Learners'Comprehensibility through Automated Analysis of Pause Positions and Syllable Prominence. In Mairano, P. & Schwab, S (eds.) Languages, Special Issue "Speech Analysis and Tools in L2 Pronunciation Acquisitio
- [4] De Jong, N. H., Pacilly, J., Heeren, W. (2021) "Praat scripts to measure speed fluency and breakdown fluency in speech automatically." Assessment in Education: Principles, Policy & Practice, 28. 456-476

This research is supported by Kakenhi 1°23H00648,n°20K13145 and n°22K00627





- Qata available for academic research: coordination-nationale@certification-cles.t **Pause Position Analysis**