

Parkinson's Disease: A French corpus collected using MonPaGe protocol

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Main project

Parkinson's Disease (PD)

- **Characterizing Parkinsonian speech is challenging** because the associated speech disorders:
 - are multiple,
 - vary across stages of the disease,
 - degenerate over time,
 - may be diversely affected by treatment.
- **How to describe speech atypicalities in PD?**
 - Primary speech disorders vs. Individual coping strategies

PD project at UMONS

V.Delvaux, V.Roland, K.Huet, M.Piccaluga & B.Harmegnies, UMONS

- Large collection of data
 - Multidimensional acoustic study + multiple non-speech indicators
- Aim #1 Individual patient profiles :
 - We examine the *relationships* between several acoustic indicators for given individuals/subgroups of patients and analyse the results in relation with non-speech indicators (respiratory function, motor skills // communication skills, quality of life)
 - Speech protocol: MonPaGe
- Aim#2 Phonetic flexibility :
 - We study how/to what extent the ability of individuals to adapt their speech productions to the multiple constraints imposed by the communication situation is preserved in PD patients
 - Speech protocol: customized (laboratory protocols)

MonPaGe

V.Delvaux (Mons), C.Fougeron (Paris), L.Ménard (Montreal), M.Laganaro (Geneva)

- A collaborative project involving phoneticians, psycholinguists and speech pathologists from **Mons** (Belgium), **Montreal** (Canada), **Paris** (France) & **Geneva** (Switzerland)
- **A computerized speech screening protocol for French-speaking patients**
- Primarily designed for clinical practice with patients presenting signs of speech motor disorders (with possible extensions)
- **Set of reference values on 400 Healthy Adults (MonPaGe_HA database)**

Cécile Fougeron, Veronique Delvaux, Lucie Ménard and Marina Laganaro, 2018. The MonPaGe_HA Database for the Documentation of Spoken French Throughout Adulthood, Proceedings of the Eleventh International Conference on Language Resources and Evaluation (**LREC 2018**), European Language Resources Association eds.
- **Validation on 80 patients affected by various motor speech disorders**

Marina Laganaro, Cécile Fougeron, Michaela Pernon, Nathalie Levêque, Stéphanie Borel, Maryll Fournet, Sabina Catalano Chiuvé, Ursula Lopez, Roland Trouville, Lucie Ménard, Pierre R. Burkhard, Frédéric Assal & Véronique Delvaux (2021). Sensitivity and specificity of an acoustic- and perceptual-based tool for assessing motor speech disorders in French: the MonPaGe-screening protocol, **Clinical Linguistics & Phonetics**, DOI: 10.1080/02699206.2020.1865460

MonPaGe

- 8 modules and associated tasks aimed at assessing:

Intelligibility, articulatory precision, coarticulatory patterns, expressive and linguistic prosody, speech/articulation rate and fluency, voice quality and pneumo-phonatory control.

Module	Task
Intelligibility	Production of target words (from minimal pairs) in carrier sentences
Articulation	Repetition of pseudowords of varying phonetico-phonological complexity
Prosody	Production of fully voiced sentences in assertive vs. interrogative form
DDK	Production of 7 oral diadochokinemes of various structures
Week	Production of automated series of the days of the week
Text	Reading of a French text of 188 words
Pneumo-phonatory control	Production of sustained /a/, production of "heho" calls at 4 distinct levels of intensity
Picture	Picture description task

Corpus to be shared

- Acoustic data collected using MonPaGe
 - = 100 French-speaking healthy participants (already recorded) from Belgium, aged 18-90
 - + *100 Parkinsonian participants*
 - *13 already recorded*
 - *40 to be recorded by June 2021*
 - *As diverse a sample as possible (age, years since diagnosis, stage of the disease, comorbidity, etc.)*

***In 2019 (Utrecht) we said:
"We are at crossroads..."***



Crossroads...

2019

- Mainly acoustic (vs. aerodynamic, articulatory: US, EGG, etc.)
- Mainly control speakers
- Basic consent forms (with a general clause allowing for 'further use' of the data, for educational and research purpose)
- Local ethics committee

Vs.

- **Pathological** and paediatric participants
- video + invasive **articulatory** instruments
- new ethics (medical?) committee
- new **procedures** for consent forms, aim: to archive & share
- No Clarin center in Southern Belgium... Flanders? France ?

Jan 2021



"Confidentialité et gestion des données

Dans les travaux et supports pédagogiques produits à partir de cette recherche, vous ne serez **jamais identifié(e)** par votre nom/prénom/initiales, mais par un code aléatoire (p.ex. Sujet 34). Les enregistrements audio et vidéo et leurs transcriptions seront traités afin de réduire au maximum les informations permettant de vous identifier (p.ex. visage flouté, bruitage des noms propres).

Les données personnelles éventuellement collectées (nom, prénom, etc.) seront dissociées des autres données (enregistrements, données instrumentales) ("**pseudonymisation**") et seul le chercheur responsable aura accès à la clé permettant de les associer. Cette clé sera détruite avant une éventuelle mise à disposition des données à des chercheurs non associés au Service de Métrologie et Sciences du Langage de l'Université de Mons.

Tous les matériaux de la recherche (incluant les données pseudonymisées et enregistrements) seront conservés **de manière sécurisée** grâce à l'infrastructure fournie par l'Université de Mons.

Dans l'intérêt public, ces matériaux pourront éventuellement être mis à disposition d'autres chercheurs n'ayant pas directement participé à la présente recherche. Dans ce cas, un **accès restreint** sera supervisé par une infrastructure sécurisée répondant aux standards européens les plus élevés en termes de gestion de données de recherche et d'accès authentifié à celles-ci (p.ex. plateforme CLARIN)."

In the public interest, these materials may possibly be made available to other researchers who have not directly participated in this research. In this case, restricted access will be supervised by a secure infrastructure meeting the highest European standards in terms of research data management and authenticated access to it (e.g. CLARIN platform). "