Jeanne – … et anorexique je ne parvenais pas à le retenir / j’ai / alors je pense à quelque ch/ je pensais à anus (rires) / comme c’est quand même le tube digestif hein qui est en bas (rires) et ça va depuis lors je n’oublie plus (rires) et encore l’autre jour aussi un mot / tiens je ne sais p/ tu vois / si / j’ai / j’oublie certains mots / ’fin / je retombe dessus après hein…

(ID code: ageJM1; Pseudo: Jeanne; Age: 90; Source: Corpage 2012; Task 1 Line life; Time code: 1:13:10)
“In half a century, the number of nonagenarians and/or centenarians has dramatically increased, particularly due to the increase in life expectancy at old age. However, **successful aging is more important than longevity**. All along their life, people can act to preserve their health, their physical and mental abilities as well as their autonomy.”

(Berr et al., 2012: 281)

- **Trends in aging research**
  - From the end of the 1980s, focus on the potential of older people to encourage their **successful aging or aging-well** (vs. decline)
  - **Compensatory strategies** > certain stability, or even adaptive strategies and cognitive gain (Baltes & Baltes, 1990; Greenwood, 2007)

- **Language competence in normal aging** resists relatively well to age-related changes (Mathey & Postal, 2008)
  - Deficits mainly affect the access to the **lexicon** (Juncos-Rabadan et al., 2010) and the **syntactic competence** (simplification with age, see Kemper et al., 2001) especially among very old people (>75 years)
Communication and aging

Changes observed in the communication mode by/with elderly people

- Accommodation Communication Theory: “when people interact they adjust their speech, their vocal patterns and their gestures, to accommodate to others”
  - Overaccommodation: Patronizing talk, Elderspeak, secondary baby talk,…

- Speech + Gestures (“avant”, “conduire”)
- Syntactic oversimplification (“jamais eu le permis”)
- Vocalization of silent [ə] (“on vous reconnaît”)
- Slow speech delivery
- Repetitions

Pseudo: Irène; Age: 95; Source: CorpAGEst 2013; Task 2 Socio-economic evolution; Time code: 00:00:45

Inès: …et quels moyens de transport vous utilisez vous / quand avant
Irène: moi ?
Inès: oui
Irène: ah !
Inès: vous saviez conduire ?
Irène: non
Inès: non jamais eu le permis ?
Communication and aging

Changes observed in the communication mode by/with elderly people

- **Accommodation Communication Theory**: “when people interact they adjust their speech, their vocal patterns and their gestures, to accommodate to others”
  - Overaccommodation: Patronizing talk, Elderspeak, secondary baby talk,…

- **Off-target verbosity (OTV) or off-target speech**
  - Decrease in coherence together with an increase in amount of speech (loquaciousness) (Arbuckle et al., 2000)

**The Pragmatic Change Hypothesis**

The age-associated increase in off-target verbosity would be context sensitive: the copious off-topic speech is considered to be an adaptive change in speech style designed to meet age-associated changes in communicative goals and social context (James et al., 1998)
Pragmatics, corpora and aging research

- The pragmatic competence as the ability to use available language resources in a contextually appropriate manner (Kasper, 1997)
  - Pragmatic language skills have usually been studied in the Pathology of Aging (Berrewaerts et al. 2003)
  - Surprisingly, only very little attention has been paid to date to the study of pragmatic competence of very old healthy people (>75 years) from the angle of language production in real-world settings (Hamilton, 2001; Bolly, 2011; Bolly & Sandoz, 2012; Sandoz, 2014)

- Corpus linguistics and the ‘technological revolution’: Growing power of computational systems and electronic bodies of text (from 1980’s) (Sinclair, 1991; McEnery &Wilson, 1996; Kennedy, 1998)
  - Sampling, representativeness, homogeneity
  - Machine readability: corpus annotation to save time and guarantee replicability

- Corpus and aging studies... very few studies (see Hupet et al., 1992)
  - Recent initiatives in pathology (Lee, 2012; Davis & Maclagan, 2014 > Carolina Conversations Collection)
  - ... and normal aging (Gerstenberg, 2009 > LangAge corpus; CLARE research group, 2014)
The CorpAGEEst Project (2013-2015)

Aim?
In response to socio-economic concerns in aging, the main objective is to establish a profiling of the verbal and nonverbal pragmatic competence of healthy very old people in their natural environment
- Particular attention paid to the empathic ability, i.e. the ability to be in tune with others, to understand their point of view, and to interact with them

Research questions?
① Can we consider the preferred recourse to gestural rather than to verbal language (or conversely) as an adaptive strategy used by the very old people to compensate for a change in his/her communication behavior?
② What can (inter)subjective discourse markers and gestures, which have an expressive or an interactive function (e.g., *enfin* ‘well’, *tu vois* ‘you see’, shrugging the shoulders, addressed gaze), reveal about the empathic ability of the very old people?
‘Potential’ expressive discourse marker and gesture unit (co-speech)

Multimodal approach
- speech, facial displays, gaze, hand/body gestures

The multimodal approach adopted seeks to understand language interaction in its globality, by questioning the way in which the various language and gestural dimensions interact to make sense in real-world settings

Language = socially and temporally situated + embodied phenomena (NOT logocentric) (Mondada, 2006, 2007)

ageMM1: C’est Robert? Je ne sais plus. **Enfin**, ils sont nés là! (rires)
(Age: 85; Source: CorpAGEst 2012; Task 1A: Milestones in aging; Time code: 30:15:20)
Data and tasks

Corpage (audio) [2012] *
2.5 M words / 180 hrs. audio / 212 interviews
106 very old p. (> 75 y.) living at home
Without major cognitive impairment

Each interview has been replicated twice and subdivided into two subtasks:

<table>
<thead>
<tr>
<th>Task Type</th>
<th>Interview N°1 * (with a familiar person)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task A</strong></td>
<td><strong>Task 1A - Milestones in aging:</strong> ‘After having identified them, describe some major steps of aging in your life’</td>
</tr>
<tr>
<td>Descriptive task with a focus on past events</td>
<td></td>
</tr>
<tr>
<td><strong>Task B</strong></td>
<td><strong>Task 1B - Self-perception of aging:</strong> ‘Explain your self-perception of aging at the present time’</td>
</tr>
<tr>
<td>Explicative task with a focus on present-day life</td>
<td></td>
</tr>
</tbody>
</table>
# Data and tasks

**Corpage (audio) [2012] *  
2.5 M words / 180 hrs. audio / 212 interviews  
106 very old p. (> 75 y.) living at home  
Without major cognitive impairment**

**CorpAGEst (audio + video) [2013- ] **  
250.000 words / 16.8 hrs. audio/video / 18 interv.  
9 very old p. (> 75 y.) living at home or in residential home  
Without major cognitive impairment

Each interview has been replicated twice and subdivided into two subtasks:

| Task Type | Interview N°1 */**  
with a familiar person | Interview N°2 **  
with an unknown person | Interview N°3 **  
(repeated every year) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Task A - Descriptive task with a focus on past events</td>
<td>Task 1A - Milestones in aging: ‘After having identified them, describe some major steps of aging in your life’</td>
<td>Task 2A - Milestones in progress: ‘Indicate major societal or technological changes that had an impact on the course of your life’</td>
<td>Task 3A - Reminiscence from object: ‘Observe this familiar object and tell about what it makes you think about (picture, song, toy, food, etc.)’</td>
</tr>
<tr>
<td>Task B - Explicative task with a focus on present-day life</td>
<td>Task 1B - Self-perception of aging: ‘Explain your self-perception of aging at the present time’</td>
<td>Task 2B - Self-perception of environment: ‘Explain how you feel in your everyday environment at the present time’</td>
<td>Task 3B - Recent experience: ‘Explain one event or experience that recently happened to you’</td>
</tr>
</tbody>
</table>
Annotation principles

Some principles for the **verbal mode**

- Functional analysis + More objective description of DMs => Linguistic and cotextual parameters (MDMA Working Group)
- Transcription standards > Valibel center (Praat)
- Primary oral data semi-automatically aligned on the sound signal (EasyAlign program)
- Annotations (ELAN software)

Some principles for the **nonverbal mode**

- Sampling > 15’ per interview (3*5’)
- Functional analysis + More objective description of gestures => Physical and physiological parameters (McNeill, 1992; Bressem & Ladewig 2011)
- Parameters’ annotation independently from the sound signal to avoid interpretive bias in the semiotics of gesture (Bressem, 2008)
Conclusion

Annotated data will be especially useful for the social sciences where large corpora are being used more and more to support new insights, in a way which was not imaginable few years ago.

- This project will open up new prospects
  - Developing enriched pragmatic and multimodal annotation systems to study language
  - Enrichment of the discussion of the concrete strategies to be implemented to improve the care for very old people and their so-called ‘well-aging’
  - Provision of a reference multimodal corpus of the language in healthy very old people that may serve for further comparative studies (e.g., early detection of dementia)

- The knowledge acquired will be transferable to other disciplines (our wish!)
  - Psychology > “Does anxiety have an impact on the elderly’s pragmatic competence”
  - Sociolinguistics > “To what extent does the everyday environment of older people have an impact on their successful aging?”
  - Computer sciences > “To what extent can pragmatic verbal/gestural phenomena be processed automatically?” (NLP, motion capture, accelerometry, etc.)
  - Health sciences > “What is the impact of medication on the pragmatic competence of very old healthy people?”
Thanks to them all...

http://corpagest.org
Some links to learn more on the project:

- CorpAGEst blog: [http://corpagest.org](http://corpagest.org)
- CLARE Corpora for Language and Aging Research: [http://wikis.fu-berlin.de/display/clare/HOME](http://wikis.fu-berlin.de/display/clare/HOME) (under constr.)

How to cite the corpora?

- Bolly, Catherine (2013- ). *CorpAGEst. Multimodal corpus for the elderly's language*. F.R.S.-FNRS and Université catholique de Louvain, CNRS & UMR7023 (Structures Formelles du Langage)
- Bolly, Catherine, Masse, Marie & Philippe Meire (2012). *Corpage. Reference corpus for the elderly’s language*. Louvain-la-Neuve, Université catholique de Louvain (Valibel - Discours et variation and Psychological Sciences Research Institute)

Any questions? [catherine.bolly@uclouvain.be](mailto:catherine.bolly@uclouvain.be) or [catherine.bolly@sfl.cnrs.fr](mailto:catherine.bolly@sfl.cnrs.fr)


Selected communications on the project:

- "What corpora for discourse and aging studies ? From words to gestures (and conversely)". Research Seminar (Org.: A. Gerstenberg), 23 April 2014, Freie Universität de Berlin, Berlin (Germany)
- "Discourse and aging" (Hamilton, 2001) and "Language and (inter)subjectivity in normal aging" (Bolly, 2012). Journal Club de Gérontologie et Gériatrie & Aging Research Group (IRSS) (Org.: B. Boland, I. De Brauwer), 2 April 2014, Université catholique de Louvain, Woluwé-St-Lambert (Belgium)
- "Des gestes et des mots pour dire la vieillesse". Research Seminar of the UMR 7023 Structures Formelles du Langage (Org.: P. Cabredo Hofherr, E. Soare), 24 March2014, Université de Paris 8, Paris (France)
- “Understanding the elderly’s everyday language: A mutually enriching dialogue between research and society” (with V. Charlot), Annual VALS/ASLA Conference: *What is the relevance of linguistic research for society? Questioning the notion of “impact”*, 13 May 2013, University of Basel, Basel (Switzerland)
- “Ecological corpora and economy of tools. The multimodal CorpAGEst corpus” (with D. Boutet), International Conference *Corpus Linguistics: How to bind concepts, technique and application?*, 14-15 December 2012, Université Bordeaux 3 - EA TELEM - CLLE-ERSSâB, Bordeaux (France)
- “Language and (inter)subjectivity in normal aging. A corpus-based multimodal approach to the empathic ability of very old people”, Poster presented at the *Xlème Colloque International sur le Vieillissement Cognitif (JEV 2012)*, 25-26 June 2012, Tours (France)
- “Vieillissement langagier: Une revue systématique de la littérature scientifique” (with M. Sandoz), Research Seminar at the *Institute for Language & Communication (IL&C)*, 8 May 2012, Université catholique de Louvain, Louvain-la-Neuve (Belgium)