What corpora for discourse and aging studies ? From words to gestures (and conversely)

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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)

Freie Universität Berlin

24/04/2014

Plan

1. **Introduction: Language and aging**
2. The CorpAGEst project: Aim and research questions
3. Data collection: From lab conditions to the real life
4. Multimodal annotation: Empathy and language (inter)subjectivity
5. Conclusion

Aging today. Socio-economic context

> "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)

- Increasing life expectancy > EU's total population is gradually falling AND at the same time becoming much older (Berr *et al.*, 2012)
  - The number of **working-age** Europeans (<65 years) is expected to fall by 48 million between 2006 and 2050, whereas the **dependency ratio** is expected to double to 51% of the population by 2050
  - The number of **centenarians** (since 1995) doubles every ten years in the European countries with the best life expectancy at 65 years (France, Switzerland, Italy and Spain)

Trends in aging research

- Research in the area of aging has **strong social, cultural, and economic implications** (*EY 2012* and *Horizon 2020*)
  > Promotion of active aging at home by enabling an autonomous life in good health & solidarity between generations

  - Trend, from the end of the 1980s, that aims to identify the **potential of older people** to encourage their *successful aging* or *well-aging* (vs. decline in *agism*)
  - **Compensatory strategies** > certain stability, or even adaptive strategies and cognitive gain (Baltes & Baltes, 1990; Greenwood, 2007) **> See example intro**

- **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) = Consensual
  - The subjects' **syntactic competence** > simplification with age (Kemper et al., 2001), especially among very old people (>75 years) = Less consensual

Pragmatic competence of the elderly

- The pragmatic competence as the ability to use available **language resources** in a **contextually appropriate manner**

"Such resources include pragmatic strategies like directness and indirectness, routines, and a large range of linguistic forms which can intensify or soften communicative acts" (Kasper, 1997)

- Pragmatic language skills usually studied in the **Pathology of Aging** (Berrewaerts et al. 2003): Information processing efficiency, cohesion/coherence in discourse, narrative competence (e.g. OTV), conversational turn-taking and discourse structure, use of speech-acts and repair
- 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)

Communication with elderly people

What characteristics?

(ID code: ageDI1; Pseudo: Irène; Age: 95; Source: CorpAGEst 2013; Task 2 Socio-economic evolution; Time code: 00:00:45)

Communication with elderly people

What characteristics?

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 ?

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

(ID code: ageDI1; Pseudo: Irène; Age: 95; Source: CorpAGEst 2013; Task 2 Socio-economic evolution; Time code: 00:00:45)

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,…

(Harwood, 2007)

Table 4.1 Common Elements of Patronizing Speech

Element	*Definition and example*
Simplified grammar	Use of short sentences without multiple clauses. “Here’s your food. You can eat it. It is good.”
Simplified vocabulary	Use of short words rather than longer equivalents Saying *dog* instead of *Dalmatian*, or *big* instead of *enormous*.
Endearing terms	Calling someone “sweetie” or “love.”
Increased volume, reduced rate	Talking LOUDER and s-l-o-w-e-r!
High and variable pitch	Using a slightly squeaky voice style, and exaggerating the pitch variation in speech (a “sing-song” type speech style).
Use of repetition	Saying things over and over again. Repeating. Redundancy. Over and over again. The same thing. Repeated. Again. And again…
Use of baby-ish terms	Using words like *doggie* or *choo-choo* instead of *dog* or *train*: “Oh look at the cute little doggie, isn’t he a coochie-coochie-coo!”

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,…

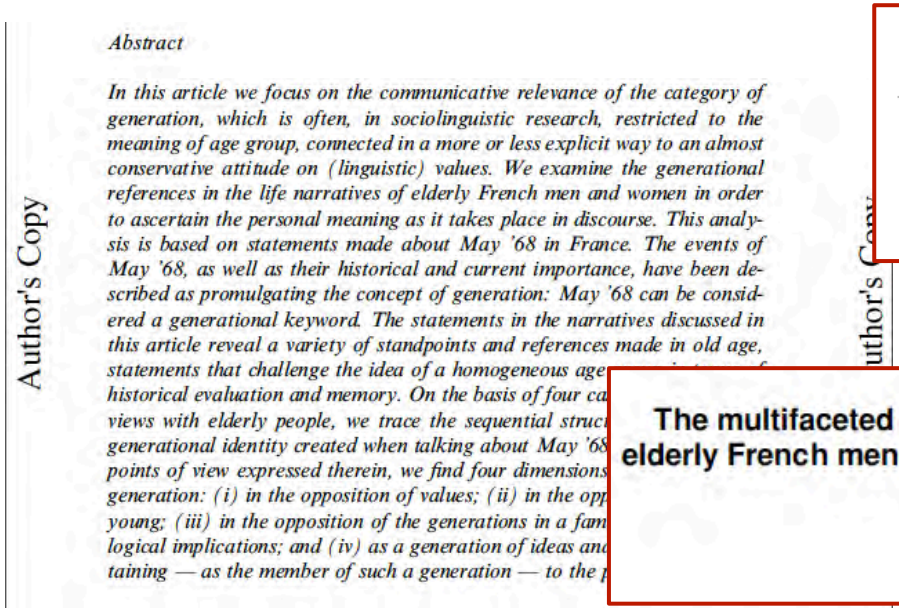
- Off-target verbosity (OTV) or off-target speech
  - Decrease in coherence together with an increase in amount of speech (loquaciousness) (Arbuckle et al., 2000)

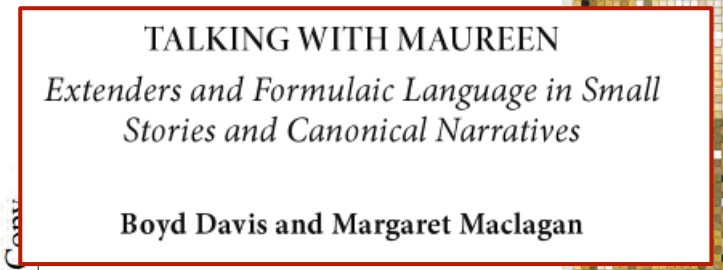
The Pragmatic Change Hypothesis

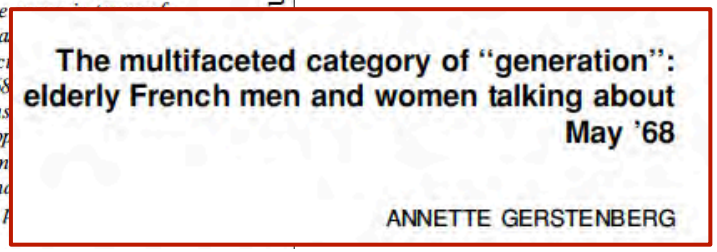
The age-associated increase in off-target verbosity would be context sensitive: the copious off-topic speech is considered to be an adaptive change in speech style designed to meet age-associated changes in communicative goals and social context (James *et al.*, 1998)

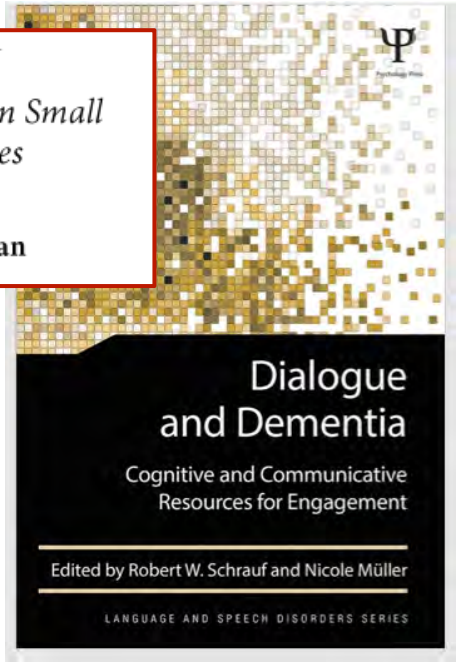
Corpora in aging studies

- Isolated studies grant a central role to the analysis of the transcription of **oral data** for studying the **language production** of **healthy** (and pathological) aged subjects (Hupet *et al.*, 1992)
  - See more **recent initiatives** (Lee *et al.*, 2009; Gerstenberg, 2009 > *LangAge* corpus; Davis & Maclagan, 2014 > *Carolina Conversations Collection*)









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The CorpAGEst Project (2013-2015)

CorpAGEst "A corpus-based multimodal approach to the pragmatic competence of the elderly"

Marie Curie Intra-European Fellowship (PIEF-GA-2012-328282)

◎ 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

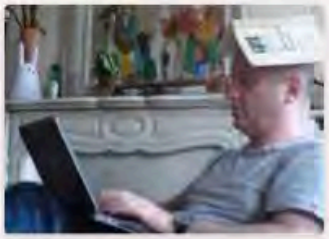
- Particular attention paid to the empathic ability, i.e. the ability to be in tune with others, to understand their point of view, and to interact with them

The CorpAGEst Team

corpagest.org

Catherine Bolly (main investigator): C. Bolly is postdoctoral researcher at the CNRS & UMR 7023 Structures Formelles du Langage (as a Marie Curie Fellow) and Scientific Research Worker at the Université catholique de Louvain (IL&C Institute, Valibel research center).

Her work takes a contextualist perspective on language, in which the corpus aims to reflect as objectively as possible authentic language use by the speakers/writers in a communicative situation. From a methodological point of view, C. Bolly developed a corpus-based approach in which a parametric and statistical method combines with a more functional approach. In her current research, she is interested in the empathic ability of the elderly's speech from a multimodal perspective (text, sound, and gesture). She is currently involved in several national and international projects and networks, such as the IRCOM Linguistic Consortium for Spoken and Multimodal Corpora (2011-2015), the Textlink project – which aims to develop a replicable model for the annotation of connectives at the European level (2013-2017, COST Action IS1312), and the interuniversity ARC project on Fluency and disfluency markers in spoken and sign language at the University of Louvain (2013-2017). She also participates in the interdisciplinary collaborative network Louvain4Ageing at the University of Louvain (since 2013) and regularly collaborates with the center Le Bien Vieillir ASBL in Namur (Belgium) – which is comprised of experts and practitioners working with the elderly.



Dominique Boutet (supervisor): D. Boutet obtained in 2002 a position as a lecturer at the Université d'Evry Val d'Essonne and at the same time joined the UMR 7023 Structures Formelles du Langage laboratory in the "Langues des Signes et Gestualité" team.

D. Boutet has been involved in many research projects, such as the CREAGEST project (ANR, 2008-2011), the GestuelScript project (French Ministry of Culture, 2010-2012), the COLAJE project within the Multimodality group (ANR, 2009-2012). He is currently the project leader of the CIGALE (*Capture et Interaction avec des Gestes Artistiques, Langagiers et Expressifs*) project, which is situated at the crossroads of research on capture, analysis and semantic/expressive investment of symbolic gesture.

The CorpAGEst Team

Temporary Research Assistant:

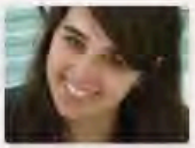
Anna Sáfár: A. Sáfár is Ph.D. student at the Center for Language Studies, Radboud University Nijmegen (The Netherlands). Her Ph.D. dissertation (to be defended in 2014) is about handedness among deaf signers. She collaborates in the gesture annotation task within the framework of the CorpAGEst project (March-May 2014).

Work experience students (by alphabetic order):

Delphine Belin: D. Belin is Master student at the University of Paris Ouest Nanterre La Défense (Master *Fonctionnements Linguistiques et Dysfonctionnements Langagiers*: *Diapason*) (France). She collaborates in the verbal transcription task within the framework of the CorpAGEst project (March-June 2014).

Séverine Gossiaux: S. Gossiaux is Master student at the Université catholique de Louvain (Belgium). She collaborates in the data collection, transcription and annotation tasks within the framework of the CorpAGEst project (September-December 2014).

Julie Kairet: J. Kairet is Master student at the Université catholique de Louvain (Belgium). She collaborates in the data collection, transcription and annotation tasks within the framework of the CorpAGEst project (September-December 2014).



Alysson Lepeut: A. Lepeut is Master student at the Université catholique de Louvain (Belgium). She collaborates in the data collection and gesture annotation tasks (with a focus on gesture space) within the framework of the CorpAGEst project (August-October 2014).

Anaïs Thomas: A. Thomas is Master student at the University of Paris Ouest Nanterre La Défense (Master *Fonctionnements Linguistiques et Dysfonctionnements Langagiers*: *Diapason*) (France). Her Master thesis deals with the impact of individual variation on the elderly's gesture production and empathic ability (promoters: C. Bolly and A. Lacheret). She collaborates in the gesture annotation task within the framework of the CorpAGEst project (March-June 2014).

The CorpAGEst Project (2013-2015)

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Research questions?

① Can we consider, if any, the preferred recourse to gestural rather than to verbal language (or conversely) as an indicator of 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 function (e.g., *enfin* 'well' and open palms facing each others – see Ex. 1) or an interactive function (e.g., *non* 'no' and repeated side-turn of the head – see Ex. 2), reveal about the empathic ability of the very old people?

‘Potential’ expressive discourse marker and gesture unit (co-speech)

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)

‘Potential’ interactive discourse marker and gesture unit (co-speech)

(Age: 85; Source: CorpAGEst 2013; Task 1B: Self-perception of aging; Time code: 49:59:00)

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Words AND gestures

- **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

- **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)

- Several MM models: MUMIN and NOMCO (Nordic countries), Togog project (Germany), OTIM (France), Multimodalité ANR (France)

Data collection

Establishment and annotation of a novel corpus that is both representative of the target population (> very old healthy people) and the object of study (> the verbal and gestural pragmatic markers)

> Maximally interoperable principles, taking into account existing international standards

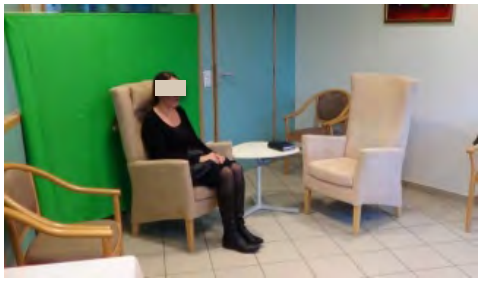
Recordings > taking pre- and post-processing into account

- 2 video signals (2 cameras) + 1 (or 2) sound signal(s)
- Formats compliant with the center's standards for long-term corpus storage
  - audio (digital recording, .wav, mono recording, frequency 44.000 > 22.050 Hz and 16 bits)
  - video (codec: H264 = AVCHD; .m2ts converted in MPEG4)

From lab to ecological data

‘Ecological-like’ interviews: a gradual view

① Non invasive/non obtrusive methodology ➲ Invasive/obtrusive methodology
② Naturally occurring data ➲ Elicited data
③ Spontaneous language ➲ Directed data
④ ‘Real’ data ➲ Primary data (sound, video) ➲ Secondary data (transcription, annotation)

❶ 

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Data and tasks

- 18 semi-directed face-to-face interviews
- 9 very old subject (mean age: 85; 8 women, 1 man)
- living at home (6 subjects) or in a residential home (3 subjects)
- healthy persons, that is, without any major injury or cognitive impairment

+ control corpus (4 subjects; 65-75 y.) and/or longitudinal corpus

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)
Task A Allocentric descriptive task with a focus on past events	**Task 1A - Milestones in aging:** 'After having identified them, describe some major steps of aging in your life'	**Task 2A - Milestones in progress:** 'Indicate major societal or technological changes that had an impact on the course of your life'	**Task 3A - Reminiscence from object:** 'Observe this familiar object and tell about what it makes you think about (picture, song, toy, food, etc.)'
Task B Self-centered explicative task with a focus on present-day life	**Task 1B - Self-perception of aging:** 'Explain your self-perception of aging at the present time'	**Task 2B - Self-perception of environment:** 'Explain how you feel in your everyday environment at the present time'	**Task 3B - Recent experience:** 'Explain one event or experience that recently happened to you'

Interview guide

CorpAGEst / Interview Guide

1er entretien (1A et 1B) : Entretien semi-dirigé en face à face (avec interviewer familier/proche)

Les essentiels à ne pas oublier:
- **Fiche signalétique (partie concernant l'interviewé) = DEBUT**
- **Le « clap » = DEBUT**
- **Demande de consentement oral = DEBUT**
- **Viser la spontanéité et le « naturel » de la conversation : il est crucial de ne PAS TROP orienter le discours des personnes interrogées (même si elles s'éloignent du thème de dépa… parler librement**

Déroulement chronologique de l'entretien :
- Remplir la fiche signalétique (partie concernant l'interviewé) pendant l'installation tec…
- « Clap » de lancement
- Demande de consentement oral
- Question de lancement
- Entretien : Tâche 1A + Tâche 1B
- Questions de clôture

▪ Tâche 1A : Commenter les étapes majeures de l'avancée en âge [20-30']

Objectif/Thème : Il s'agit d'explorer le « rapport à l'âge » tout au long du parcours de vie … particulier, d'identifier des âges-charnières ou des événements de vie qui l'ont amenée … qu'elle prenait de l'âge ou qu'elle entrait dans une autre étape de vie.

① Fiche signalétique à remplir (uniquement la partie qui concerne directe… interrogée): Remplir avec la personne la partie de la fiche signalétique qui la co…

Début de l'enregistrement – 1er entretien

② CLAP ! : « on tourne »

> Une fois la vidéo enclenchée et le son en train d'enregistrer, il faut frapper dans les mai… avant d'entamer l'entretien (pour pouvoir ensuite synchroniser les deux enregistrement… traitement des données)

③ Consentement éclairé oral:

Exemple de question pour obtenir le consentement verbal : "(Comme convenu lors de no… pourriez-vous svp me confirmer que vous êtes d'accord que ces entretiens soient … souhaiterais, avant de commencer, m'assurer que vous êtes d'accord sur le fait d'enregistre… ce bien le cas?".

⑦ Idées de questions et relances (à utiliser librement, à l'identique ou « avec vos mots ») :

Thèmes	*Questions-clés*
Environnement et lieu de vie	- Avez-vous beaucoup déménagé durant votre vie ? - Etes-vous plutôt attachée à vos racines ou bien plutôt attirée par les voyages et la découverte de l'inconnu ? - Comment vous sentez-vous dans votre lieu de vie actuel ? Qu'est-ce qui vous plaît ou déplaît le plus ? - Si vous deviez l'imaginer, quel serait selon vous le lieu idéal pour « bien vieillir », c'est-à-dire le lieu qui vous ressemblerait et répondrait le plus à vos attentes ? Pour les retraités : Qu'est-ce qui a changé depuis l'âge de la retraite du point de vue de votre rythme de vie et de votre quotidien ? En maison de repos : - Qu'est- ce qui vous a amené à venir en maison de repos ? - Quels sont les avantages et désavantages de votre lieu de vie actuel par rapport à votre lieu de vie d'avant ? - Qu'est-ce qui vous manque le plus ? Qu'est-ce qui vous plaît le plus ? - Pensez-vous que l'arrivée en maison de repos ait eu un impact sur votre caractère ? Sur votre perception du monde et des autres ?
Relations familiales et sociales	- Préférez-vous généralement être seule ou bien en compagnie d'autres personnes ? - Quelles sont les relations qui comptent le plus pour vous aujourd'hui ? - Quel(s) rôle(s) pensez-vous avoir dans votre famille ? Quel(s) rôles aimeriez-vous avoir ? Pour les non-retraités : - Comment imaginez-vous votre vie sociale une fois que vous serez en âge d'être retraité(e) ? Envisagez-vous cela comme une période propice au repos, aux découvertes, aux voyages ? Pour les retraités : - Qu'est-ce qui a changé depuis l'âge de la retraite du point de vue de vos relations sociales et familiales ? Avez-vous plus de temps à leur consacrer ?

⑧ Questions de clôture et debriefing :
- Avez-vous quelque chose à ajouter ?
- Pour terminer, pouvez-vous me dire ce que vous a apporté la réalisation de cet/ces entretien(s) avec moi ?

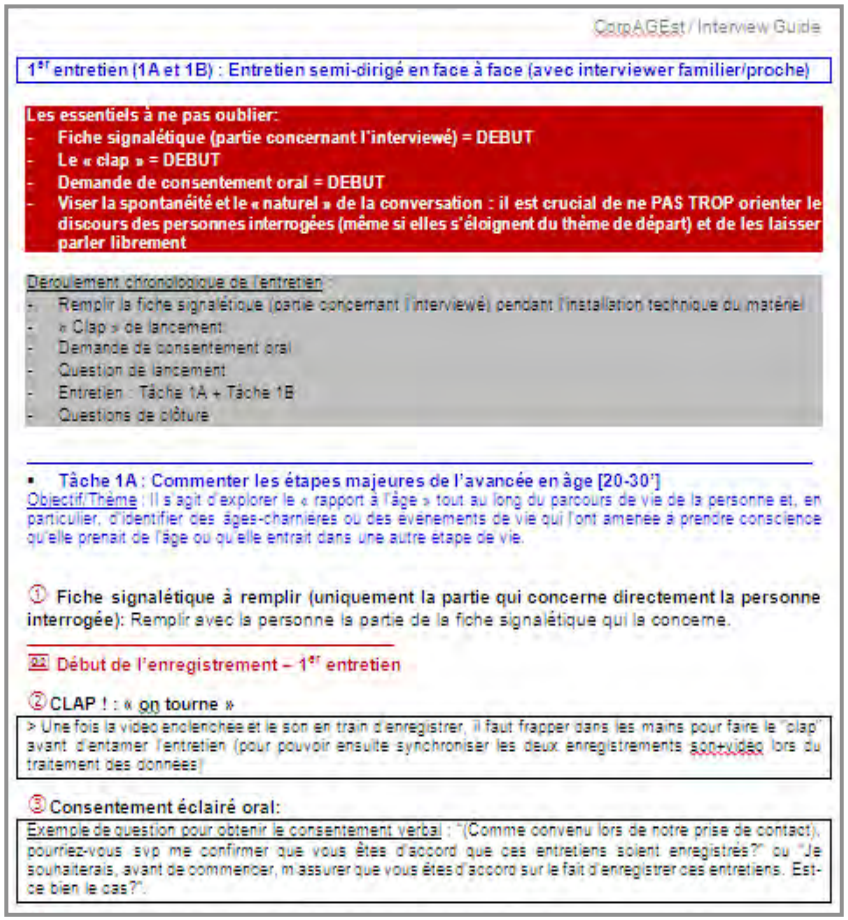
+ Remerciements

Fin de l'enregistrement – 2e entretien

⑨ Signature du consentement éclairé écrit (avec explication orale simultanée indispensable): Identification du cadre et des responsables scientifiques du projet, garantie de confidentialité, d'anonymat et du respect des droits de la personne. Ce consentement est signé en fin de 2e entretien, pour éviter que la connaissance précise de l'objet de la recherche n'ait une influence sur le comportement langagier des personnes interrogées (risque de biais méthodologique).

✓ **Interview guide** adapted from the interview procedure previously established for *Corpage* (Bolly, Masse & Meire, 2012)

Metadata



CorpAGEst / Interview Guide

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Déroulement chronologique de l'entretien :
- Remplir la fiche signalétique (partie concernant l'interviewé) pendant l'installation technique du matériel
- « Clap » de lancement
- Demande de consentement oral
- Question de lancement
- Entretien : Tâche 1A + Tâche 1B
- Questions de clôture

• Tâche 1A : Commenter les étapes majeures de l'avancée en âge [20-30']

Objectif/Thème : Il s'agit d'explorer le « rapport à l'âge » tout au long du parcours de vie de la personne et, en particulier, d'identifier des âges-charnières ou des événements de vie qui l'ont amenée à prendre conscience qu'elle prenait de l'âge ou qu'elle entrait dans une autre étape de vie.

① **Fiche signalétique à remplir (uniquement la partie qui concerne directement la personne interrogée)**: Remplir avec la personne la partie de la fiche signalétique qui la concerne.

Début de l'enregistrement – 1er entretien

②CLAP ! : « on tourne »

> Une fois la vidéo enclenchée et le son en train d'enregistrer, il faut frapper dans les mains pour faire le "clap" avant d'entamer l'entretien (pour pouvoir ensuite synchroniser les deux enregistrements son+vidéo lors du traitement des données)

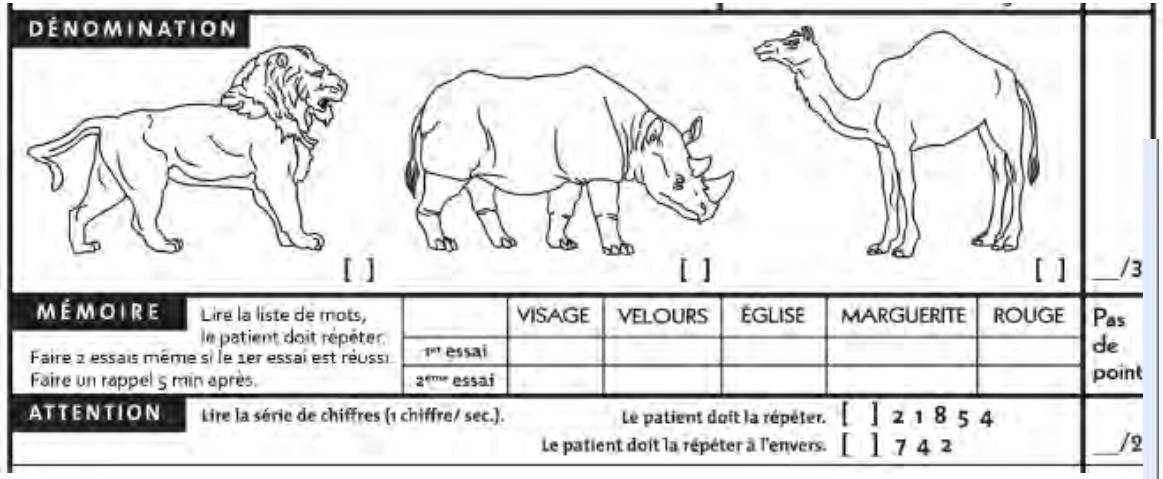
③Consentement éclairé oral:

Exemple de question pour obtenir le consentement verbal : "(Comme convenu lors de notre prise de contact), pourriez-vous svp me confirmer que vous êtes d'accord que ces entretiens soient enregistrés?" ou "Je souhaiterais, avant de commencer, m'assurer que vous êtes d'accord sur le fait d'enregistrer ces entretiens. Est-ce bien le cas?".

- ✓ **Interview guide** adapted from the interview procedure previously established for *Corpage* (Bolly, Masse & Meire, 2012)
- ✓ **Design of tasks**
- ✓ Informed **consent** (spoken/written)
- ✓ Writing of **data card** (for anonymized metadata), giving information about
  - Interaction situation (duration, level of formality, etc.)
  - Interviewer/interviewee (age, sex, education, profession, mother tongue, geographic origin, living environment, social tie between interlocutors, level of subjective health, etc.)

Psychometric evaluation of cognition

The Montreal Cognitive Assessment test (MoCA)



DÉNOMINATION

[ ] [ ] [ ] /3

MÉMOIRE Lire la liste de mots, le patient doit répéter. Faire 2 essais même si le 1er essai est réussi. Faire un rappel 5 min après.

	VISAGE	VELOURS	ÉGLISE	MARGUERITE	ROUGE	Pas de point
1er essai						
2ème essai						

ATTENTION Lire la série de chiffres (1 chiffre/ sec.).

Le patient doit la répéter. [ ] 2 1 8 5 4

Le patient doit la répéter à l'envers. [ ] 7 4 2 /2

www.mocatest.org

Normal ≥ 26 / 30

TOTAL /30

Ajouter 1 point si scolarité ≤ 12 ans

MoCA Items Average scores

	NC		MCI		AD	
	AVG	SD	AVG	SD	AVG	SD
Trails	0.87	0.34	0.56	0.50	0.27	0.45
Cube	0.71	0.46	0.46	0.50	0.25	0.43
Clock	2.65	0.65	2.16	0.82	1.56	0.98
Naming	2.88	0.36	2.64	0.58	2.19	0.82
Memory	3.73	1.27	1.17	1.47	0.52	1.03
Digit span	1.82	0.44	1.83	0.43	1.49	0.62
Letter A	0.97	0.18	0.93	0.26	0.67	0.47
Serial 7	2.89	0.41	2.65	0.65	1.82	1.12
Sentence rep	1.83	0.37	1.49	0.71	1.37	0.80
Fluency F	0.87	0.34	0.71	0.45	0.32	0.47
Abstraction	1.83	0.43	1.43	0.68	0.99	0.80
Orientation	5.99	0.11	5.52	0.84	3.92	1.73
Total *	27.37	2.20	22.12	3.11	16.16	4.81

SD=Standard Deviation. AVG=Average
*Total is adjusted for education

Nasreddine ZS, Phillips NA, Bédirian V, Charbonneau S, Whitehead V, Collin I, Cummings JL, Chertkow H.
The Montreal Cognitive Assessment (MoCA©):
A Brief Screening Tool For Mild Cognitive Impairment. J Am Geriatr Soc 53:695–699, 2005.

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Psychometric evaluation of empathy

French version of the Interpersonal Reactivity Index (F-IRI) for the assessment of empathy

(Gilet *et al.* 2012)

Questionnaire

28 items using 5-point scales

1 = does not describe me well

5 = describes me very well

Sub-scales

4 sub-scales, each with 7 items

① Fantasy

② Perspective-taking

③ Empathic concern

④ Personal distress

Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement

0008-400X/12/$12.00 DOI: 10.1037/a0030425

Assessing Dispositional Empathy in Adults:
A French Validation of the Interpersonal Reactivity Index (IRI)

Anne-Laure Gilet
University of Nantes

Nathalie Mella
University of Geneva

Joseph Studer
University of Geneva and Lausanne University Hospital

Daniel Grühn
North Carolina State University

Gisela Labouvie-Vief
University of Geneva

Échelle de réponse :

1 ---------- 2 ---------- 3 ---------- 4 ---------- 5

Ne me décrit pas vraiment — **Me décrit très bien**

☐ 1. J'imagine et songe assez régulièrement aux choses qui pourraient m'arriver.

☐ 2. J'éprouve souvent de la sollicitude et me sens préoccupé(e) pour les personnes ayant moins de chance que moi.

☐ 3. Je trouve parfois difficile de voir les choses du point de vue de quelqu'un d'autre.

☐ 4. Il m'arrive de ne pas être désolé(e) pour les gens qui ont des problèmes.

☐ 5. Je me laisse vraiment prendre par les sentiments ressentis par les personnages d'un roman.

☐ 6. Dans les situations d'urgence, je me sens inquièt(e) et mal à l'aise.

The CorpAGEst data

TOTAL: 16,8 hrs audio-video recordings / 9 speakers (mean age: 85) / 18 interviews

Cocoon	Recording	hh:mm:ss	Speaker	Pseudo	Age	Birth	Sex	Educa-tion	Cognition (Moca)	Empathy (F-IRI %)
BOC_0001	ageLL1r-1	1:13:41	ageLL1	Louise	79	1933	F	12	26	66,43
BOC_0002	ageLL1r-2	1:14:25			79					
BOC_0003	ageSM1r-1	0:51:14	ageSM1	Marie-Thérèse	89	1924	F	9	23	57,86
BOC_0004	ageSM1r-2	0:58:38			89					
BOC_0005	ageDA1r-1	0:59:07	ageDA1	Albertine	84	1929	F	14	29	61,43
BOC_0006	ageDA1r-2	0:52:41			84					
BOC_0007	ageBN1r-1	1:01:14	ageBN1	Nadine	75	1938	F	12	29	63,57
BOC_0008	ageBN1r-2	0:49:02			75					
BOC_0009	ageAE1r-1	0:41:35	ageAE1	Emile	86	1927	M	15	30	55,00
BOC_0010	ageAE1r-2	0:47:00			86					
BOC_0011	ageBM1r-1	0:59:02	ageBM1	Anne-Marie	82	1932	F	12	28	61,43
BOC_0012	ageBM1r-2	0:50:36			82					
BOC_0013	ageTL1r-1	0:49:56	ageTL1	Lucie	92	1920	F	6	n.a.	n.a.
BOC_0014	ageTL1r-2	0:12:47			92					
BOC_0015	ageMM1r-1	1:20:40	ageMM1	Marie-Louise	84	1928	F	12	23	71,43
BOC_0016	ageMM1r-2	0:57:06			84					
BOC_0017	ageDI1r-1	1:25:34	ageDI1	Irène	94	1919	F	8	13	75,71
BOC_0018	ageDI1r-2	0:51:14			95					

Data storage, filing and (open) access

Archival of the corpus primary data (sound and video) and the metadata:
deposit of the corpus data in a resource center, in a long-term storage format
> Freely available for professors, researchers, aging specialists and practitioners

CoCoON "COllections de COrpus Oraux Numériques"

http://cocoon.tge-adonis.fr/exist/crdo/

[Une archive ouverte où les] ressources sont entreposées dans un serveur qui en assure un stockage sécurisé, et qui en permet l'accès. Une description de chaque document vient alors enrichir un catalogue qui permettra de faire connaître leur existence à tous et surtout de pouvoir les retrouver parmi l'ensemble des autres documents. (…) Le choix des descripteurs utilisé est inspiré par les choix faits dans la communauté OLAC (Open Language Archives Community).

Bolly, C. (in progress). *CorpAGEst. Multimodal corpus for the elderly's language*. F.R.S.-FNRS & Université catholique de Louvain (Valibel – Discours et Variation), CNRS & UMR7023 (Structures Formelles du Langage). Soon available in Cocoon.

Bolly, C., Masse, M. & Meire, Ph. (2012). *Corpage. Reference corpus for the elderly's language*. Louvain-la-Neuve, Université catholique de Louvain (Valibel – Discours et variation & Psychological Sciences Research Institute), Belgium.

CorpAGEst = 250.000 words / 16.8 hrs. audiovideo / 18 interv.
9 very old p. (> 75 y.) living at home or in residential home
Without major cognitive impairment

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

Plan

1. Introduction: Language and aging
2. The CorpAGEst project: Aim and research questions
3. Data collection: From lab conditions to the real life
4. **Multimodal annotation: Empathy and language (inter)subjectivity**
5. Conclusion

Empathic ability and gestures of the elderly

An ‘ecological-like’ approach to the pragmatic competence
and, more specifically, to the empathic ability
of very old healthy people (> 75 y.)

Empathic ability & aging

It is accepted that the healthy subjects’ advancing age may be accompanied by a loss of empathic ability (age-related deficits in ToM, in perspective-taking, and in cognitive empathy) liable to affect their capacity for successful social interaction (Bailey & Henry, 2008, Kemp *et al.* 2011)

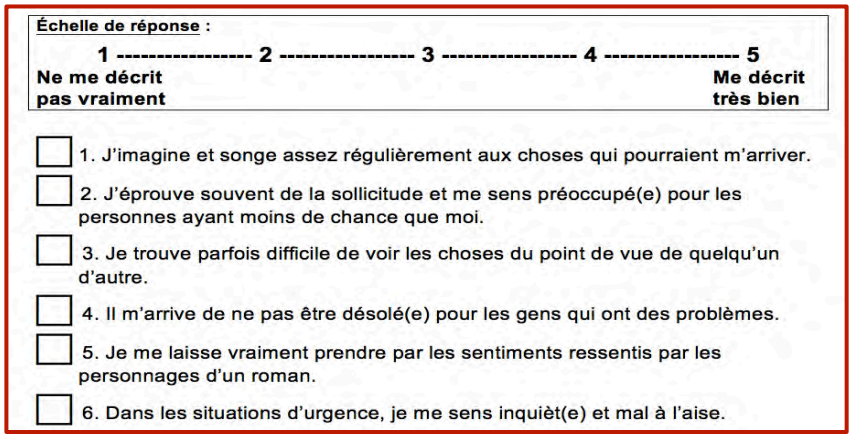
Nonverbal communication & aging

- Nonverbal language resources are recognized as a major conveyance of emotional expressivity and interactivity in the (aging) subject (Magai, 2008)
- Decrease in the frequency of use of representational gestures (Feyereisen & Havard, 1999) + increase in beats among older people
  - Proportion of gestures produced is task-sensitive
  - Developmental perspective: a greater mastery of verbal competence at earlier stages > functional specialization of beats in later life

Cognitive and affective empathy

- Davis' empathy (Interpersonal Reactivity Index – IRI) includes both **cognitive and affective** components, as they are "set of constructs, related in that they all concern responsivity to others but are also clearly discriminable from each other" (Davis, 1983: 113)

- **Fantasy:** "the tendency to imaginatively transpose oneself into fictional situations"
- **Perspective-taking:** "the tendency to spontaneously adopt the psychological view of others in everyday life"
- **Empathic concern:** "the tendency to experience feelings of sympathy or compassion for unfortunate others"
- **Personal distress:** "tendency to experience distress or discomfort in response to extreme distress in others" (Davis, 1994: 55-57)



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Definition of discourse markers

◎ **What are discourse (or pragmatic) markers?** (Brinton, 1996; Hansen, 1998; Aijmer, 2013)

"A pragmatic marker is defined as
❶ a **phonologically short item**
❷ that is **not syntactically connected** to the rest of the clause (i.e., is parenthetical),
❸ and has **little or no referential meaning**
❹ but serves **pragmatic or procedural purposes**" (Brinton, 2008: 1)

- DMs "function as **instructions** from the speaker to the hearer on how to integrate the host unit into a coherent mental representation of the discourse" (Hansen 1998: 75)
- **Metalinguistic** use of pragmatic markers "in that they can connect to the speaker or addressee, provide information about the attitude of the communicator, introduce assumptions, or provide information about the context of interpretation" (Brinton 2008: 5)

  > DMs act as comments on the content/form of the linguistic utterance itself

Functions of discourse markers

◎ Referential, textual, or interpersonal function

Particular attention paid to their **interpersonal/(inter)subjective** function
(Fitzmaurice, 2004; Kärkkaïnen, 2006)

- the **expressive/subjective function** (speaker-oriented), conveying the speaker's attitude, feelings, epistemic stance, "back-channels" signals of understanding and continued attention, etc. (e.g., *mm, euh, ma foi, bon, (en)fin, franchement, il me semble, je pense*)

- the **interactive/intersubjective function** (addressee-oriented), that helps to achieve cooperation, to create shared values or intimacy between speaker and addressee (appealing to the addressee, confirming shared or common knowledge, checking or expressing understanding, requesting confirmation, saving face (politeness), etc.) (e.g., *tu vois (ce que je veux dire), tu sais, hein, d'accord, n'est-ce pas?*)

Annotating discourse markers

◎ Multimodal corpus annotation systems

Dialogue corpus annotation systems (Bunt *et al.*, 2010) still only marginally concern discourse markers

- The annotation model for speakers' utterances in spoken dialogue (Heeman & Allen, 1999)
  - YES: agreement markers (*e.g., okay, mm*), conjunctions (e.g., *and*, *but*), adverbs (e.g., *now*) and interjections (e.g., *oh*, *well*)
  - NO: complex (e.g., *by the way*, *you know*) and verb-based DMs (e.g., *wait*, *see*)
- The connector annotation section in Colletta *et al.* (2009, 2010)
  - discourse structuring markers (e.g., *d'abord* 'first'), logical operators (e.g., *parce que* 'because'), argumentative (e.g., *quand même* 'still') and reformulation markers (e.g., *autrement dit* 'in other words', *je veux dire* 'I mean')

BUT… lack in exhaustivity and no in-depth justifications regarding the inclusion and exclusion of certain categories of DMs

Annotating discourse markers

MDMA Working group (UCL)
Bolly (with Ciabarri, Crible, Degand & Uygur-Distexhe)

Method for the identification and annotation of **discourse markers** in spontaneous speech (French)

- Syntax, semantics, context (cooccurr., pauses), functions

① Identification of **all potential** DMs in sample of spontaneous speech, no discussion of disagreements
② Extraction of **all types (*vs.* tokens)** from 10.000 words balanced corpus (FR-BE)
③ Manual coding of random sample of **200 tokens** of potential discourse markers
④ Parameter and statistical analysis
> Predictive (more salient) parameters? How do they cluster?
⑤ Development of the annotation scheme
⑥ Training on corpus data

European COST Action
TextLink - Structuring Discourse in Multilingual Europe

Aims at facilitating European multilingualism by improving **discourse annotation procedure** in a cross-lingual perspective

Multi-level and multimodal annotation

Multi-level, uni- and multimodal annotations

Modality	Level of annotation
Facial displays	Eyebrows
	Eyes
	Gaze
	Mouth
Gesture	Head
	Trunk
	Shoulders
	Arms
	Legs
	Feet
	Hands
Speech	Glose/Ortho/Transcript
	Words segmentation and alignment
	Pragmatic markers annotation

"Potential" gesture units
From non-conventionalized to conventionalized gesture units
(cf. Kendon's continuum)

① Representational gestures: deictic, iconic or metaphoric (+ pragmatic?)

② Non-representational gestures, which are traditionally recognized to fulfill a stressing or punctuating function in interaction (+ gesticulation?)
- e.g., motor movements, beats and (self-)adaptors, such as nose-picking or scratching on the body

③ Gestures having a weakened representational function = ?

Functions of coverbal gestures

- Colletta *et al.* (2009) attribute **4 functions** to coverbal gestures (hand gestures and head movements, facial mimics, posture changes, body movements, eye contact)
  - **Reference function: ‘**deictic’ (e.g., pointing to an object with the hand) or ‘representational’ (e.g., the abstract representation of verbalized referents)
  - **Expressive function:** ‘performative’ (e.g., nodding the head to support a positive answer) or ‘framing’ (e.g., opening the eyes wide to indicate surprise)
  - **Structuring function:** ‘stressing’ of verbal units (syllable, word, breath group) (e.g., repeated beats on a stressed syllable) or ‘demarcation’ between verbal units (clause, utterance, turn in speaking, discussion) (e.g., a brief hand gesture accompanying a connector)
  - **Interactive function** (see also Bavelas & Gerwing, 2011): regulation and synchronization of verbal activities (e.g., the gestures accompanying a gaze towards the interlocutor)

Functions of coverbal gestures

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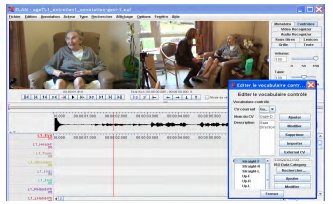
The (inter)subjective function of gestures?

Clusters of multi-level and multi-modal parameters!

Debras, C. (2013). L'expression multimodale du positionnement interactionnel (*multimodal stance-taking*): Étude d'un corpus oral vidéo de discussions sur l'environnement en anglais britannique. Thèse de doctorat, Sorbonne Nouvelle - Paris 3

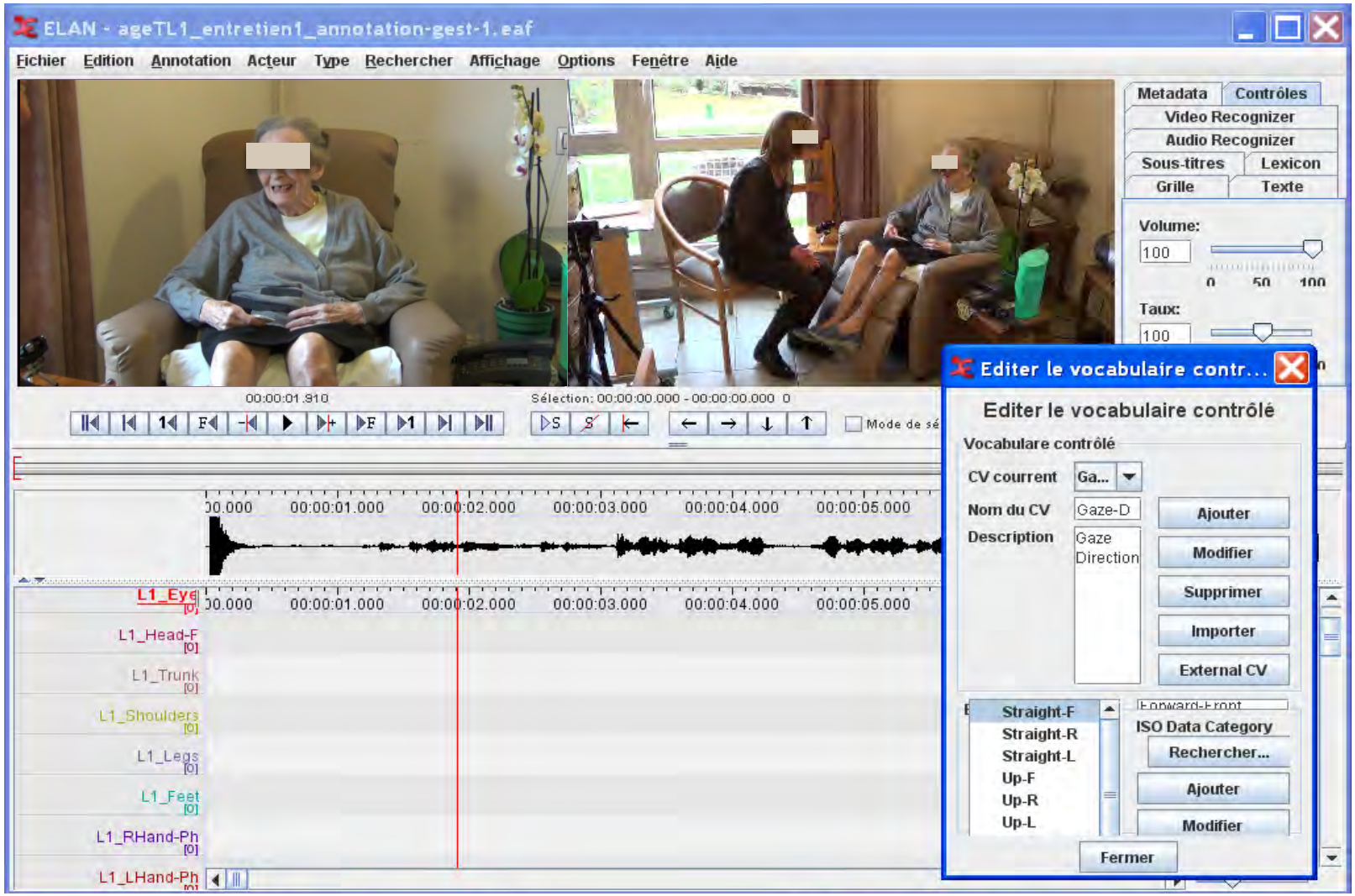
Multimodal pragmatic annotation



- Some principles adopted for the **verbal mode**
  - Functional analysis + More objective description of DMs on the basis of linguistic and cotextual parameters (MDMA Working Group)
  - Transcription standards adopted for the oral component from the Valibel center
  - Primary oral data semi-automatically aligned on the sound signal by means of the EasyAlign program

- Some principles adopted for the **nonverbal mode**
  - Sampling > 10' per interview (2*5')
  - Functional analysis + More objective description of gestures on the basis of physical and physiological parameters (McNeill, 1992; Bressem & Ladewig 2011)
  - Parametric annotation (vs. functional) made independently from the sound and verbal signal to avoid any interpretive bias in the semiotics of gesture (cf. Bressem, 2008)

Multimodal pragmatic annotation



Plan

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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 phenomena be processed automatically?"
  - Health sciences > "What is the impact of medication on the pragmatic competence of very old healthy people?"

Thanks to them all…

http://corpagest.org