

# Insights from multimodal analysis on longitudinal interview data: the case of *I don't know*.

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# Background: Discourse markers

- Discourse markers (DMs): “linguistic items or expressions that have little or no referential meaning but serve multiple pragmatic functions in the interpersonal and textual domains of discourse.” (Pichler, 2009, p. 561)
- “DMs are most often said to constitute a functional category that is heterogeneous with respect to syntactic class” (Shourup, 1999, p. 234)
  - Adverbs: *actually, now, just*
  - Interjections: *gosh, oh*
  - Verbs: *say, look*
  - Clauses: *I mean, I don't know*
- Categorical multifunctionality (Aijmer, 2001)
  - Connection between function and phonetics (Bolinger, 1989; Bybee & Scheibman, 1999; Local, 2003; Pichler, 2007, 2009; Sankoff et al., 1997; cf. Schubotz et al., 2015)
  - Connection between function and gestures (Kendon, 2002, 2004; Debras, 2017; Pekarek Doelher et al., 2019, 2021)

# Background: L2 speakers and discourse markers (in oral production)

- Generally speaking
  - Less competent speakers use fewer DMs than more competent speakers (Fuller, 2003; Sankoff et al., 1997; Tavakoli & Uchihara, 2020)
  - L2 speakers may (over)rely on certain DMs (Fuller, 2003)
- DM use and a stay abroad
  - Significant increase in DM use after (even a short) stay abroad (Magliacane & Howard, 2019; Tavakoli, 2018)
  - Significant correlation between the use of DMs and contact with speakers in a target language environment (Hellerman & Vergun, 2007; Liao, 2009)

# Picking an accent, A Time 5 (AT5)

- \*A: and then after more british because i heard like more &er british way .
- \*INT2: uhuh@i .
- \*A: &=laughs so **i don 't know** so .
- \*INT2: i think you 're like most students .
- \*INT2: because <the> [//] you hear the different accents .
- \*A: &erm this [x 2] is impossible .
- \*INT2: yeah .
- \*A: to only pick one .
- \*A: so **i don 't know** .
- \*A: it just stick[\*] with me .
- \*A: what he said .
- \*A: but i don 't think .
- \*A: <this is> [///] <**i don 't know**> .
- \*A: **i [x 2] don 't know** if it 's really smart to say that but .



# Background: *I don't know*

- Frequently used by learners (De Cock, 2004) and native speakers (Baumgarten & House, 2010; Bybee & Scheibman, 1999)
  - Different pragmatic functions (see Aijmer, 2009; Beach & Metzger, 1997; Lindström, Maschler & Pekarek Doehler, 2016; Pekarek Doehler, 2016) including:
    - Floor holding
    - Topic closing
    - Prefacing
    - Refusing to continue the turn (= opting out of the interaction)
    - Hedging
    - Discourse planification / Speech management
    - *etc.*
  - L2 research:
    - Baumgarten and House (2010, p. 1198) observe that EFL speakers use *I don't know* primarily with a discourse planification function
    - Aijmer (2009, p. 165) identifies Topic closing/hedging as the most frequent function
- No consensus on the pragmatic functions of IDK, in L1 or in L2

# Background: *I don't know*

- Acoustic particularities
  - Among native speakers, observation that non-referential uses of *I don't know* tend to be phonetically reduced (Bybee & Scheibman, 1999; Bybee et al., 2016; Pichler, 2007, 2009; Scheibman, 2000; Sneed German, Leclercq, Edmonds, 2022)
  - Possible association with creaky voice to signal stance (Habasque, 2021)
- Associated postures/multimodal packages:
  - Turn-initial IDK + averted gaze to preface a dispreferred response (Pekarek Doehler et al., 2021)
  - Mouth shrug + IDK as an epistemic negation (Debras, 2017)
  - Crosslinguistic evidence of common form-function mappings with equivalents of IDK (Pekarek Doehler et al. 2021; chais pas: Pekarek Doehler, 2022, Debras, 2021)

# shrugging



- Shrugs : “compound enactments” (Streeck 2009)

- one or two lifted shoulder(s)
- forearm(s) supine
- flat hand(s) supine /palm up
- raised eyebrows
- head tilt
- pout/ mouth shrug

A combination of these components indexes a shrugging posture

Pragmatic motivation

Often used with IDK

## Function in interaction ?

attitudinal

affective

epistemic

common ground

Debras (2013, 2017)

# Background: gesture studies

- General tendency in gesture studies (adult data)
    - focus on **hand** gestures and their **referential** functions
    - some research on **gaze** in interaction (Kendon, 1967; Kosmala, 2023; Pekarek Doehler 2022; Rossano, 2012)
    - focus on gesture/prosody or gesture/discourse or gaze/discourse interface, rarely on gesture/prosody/discourse interface
  - Our research goals
    - include **multiple body articulators** (hands, head, upper body, facial expressions, gaze)
    - integrate **discourse, prosody, gaze and gesture** to account for the construction of meaning
- **multimodal analysis of spoken interaction**



# Research question

- From a methodological perspective, can the discursive functions of IDK be associated with multimodal and acoustic parameters?

→ Case study of a French learner of English over a 9-months stay-abroad in Ireland



# Method

- Data from the PROLINGSA (*Linguistic Progress during Study Abroad*) project (<https://www.ortolang.fr/market/corpora/prolingsa>)
  - Descriptive statistics and Multimodal Exploratory Analysis (MCA)
  - Qualitative analysis
- Exploratory research



# Participants

Oxford Quick Placement Test							
Participant	Gender	Age	L2s	L1	Pre-stay	Post-stay	Country
A	F	19	English + Italian	French	Lower intermediate	Upper intermediate	Ireland
C	F	18	English + Chinese	French	Lower intermediate	Upper intermediate	Ireland
M	F	19	English + Spanish	French	Advanced	Advanced	Ireland
N	M	19	English + Chinese	French	Advanced	Advanced	Ireland
Y	M	19	English + Arabic	French + Turkish	Advanced	Advanced	England



# Dataset under consideration

Session	Tasks
Time 1 (June 2018)	Semi-guided interview Oxford proficiency test Lex30
Time 2 (October 2018)	Semi-guided interview
Time 3 (February 2019)	Semi-guided interview
Time 4 (March 2019)	Semi-guided interview
Time 5 (June 2019)	Semi-guided interview Oxford proficiency test Lex30 Proficiency & motivation graphs



# Corpus characteristics

Participant	Session 1 (June 2018)		Session 2 (October 2018)		Session 3 (February 2019)		Session 4 (March 2019)		Session 5 (June 2019)		TOTAL
	length	# words	length	# words	length	# words	length	# words	length	# words	# words
<b>A</b>	27:00	1240	35:03	4008	24:38	2686	17:13	1837	34:16	3703	13,512
C	26:49	1093	26:40	1901	12:18	903	12:51	994	23:27	1219	6,118
M	18:34	1048	15:39	1380	13:47	1309	15:20	1433	20:51	1999	7,167
N	23:55	1318	44:24	4397	23:40	2038	22:12	2071	37:21	3394	13,232
Y	44:24	3490	56:11	6899	48:20	6418	43:48	4867	53:47	7107	28,790

# Data coding

## 1. Frequency

- # of all tokens of *I don't know*
- Referential status (lexical, DM)

# Picking an accent, A Time 5 (AT5)

\*A: and then after more british because i heard like more &er british way .

\*INT2: uhuh@i .

\*A: &=laughs so **i don 't know** so .

DM

\*INT2: i think you 're like most students .

\*INT2: because <the> [//] you hear the different accents .

\*A: &erm this [x 2] is impossible .

\*INT2: yeah .

\*A: to only pick one .

\*A: so **i don 't know** .

DM

\*A: it just stick[\*] with me .

\*A: what he said .

\*A: but i don 't think .

\*A: <this is> [///] <**i don 't know**> .

DM

\*A: **i [x 2] don 't know** if it 's really smart to say that but .

lexical



# Data coding

## 1. Frequency

- # of all tokens of *I don't know*
- Referential status (lexical, DM)

## 2. Acoustic analysis

- Observation of spectrograms using PRAAT for phonological reduction: binary variable based on median length (in ms) of the first consonant of *don't* and of the vowel of *don't*
- Voice quality (creaky, modal, mixed)

## 3. Multimodal analysis

- Shrug posture (shrug/no shrug)
- Gaze direction (averted / directed towards the interlocutor / towards an object)



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\*A: and then after more british because i heard like more &er british way .

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DM

\*INT2: i think you 're like most students .

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\*A: to only pick one .

DM

\*A: so **i don 't know** .

\*A: it just stick[\*] with me .

\*A: what he said .

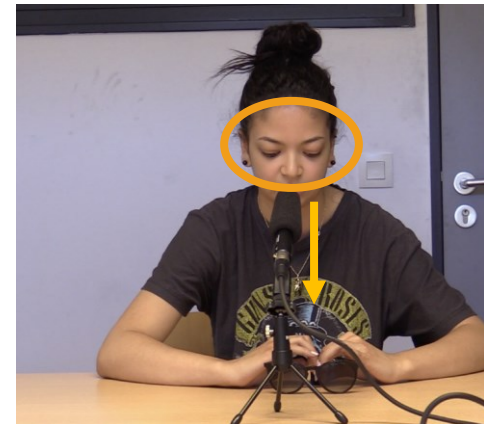
\*A: but i don 't think .

\*A: <this is> [///] <**i don 't know**> .

DM

\*A: **i [x 2] don 't know** if it 's really smart to say that but .

Lexical



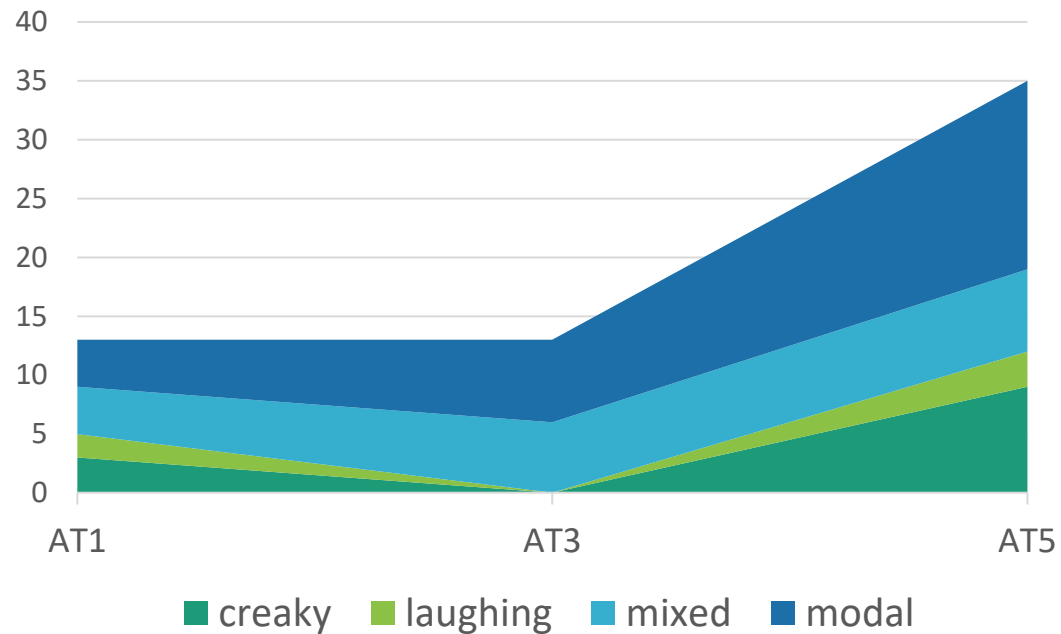
# Data analysis

- Frequency

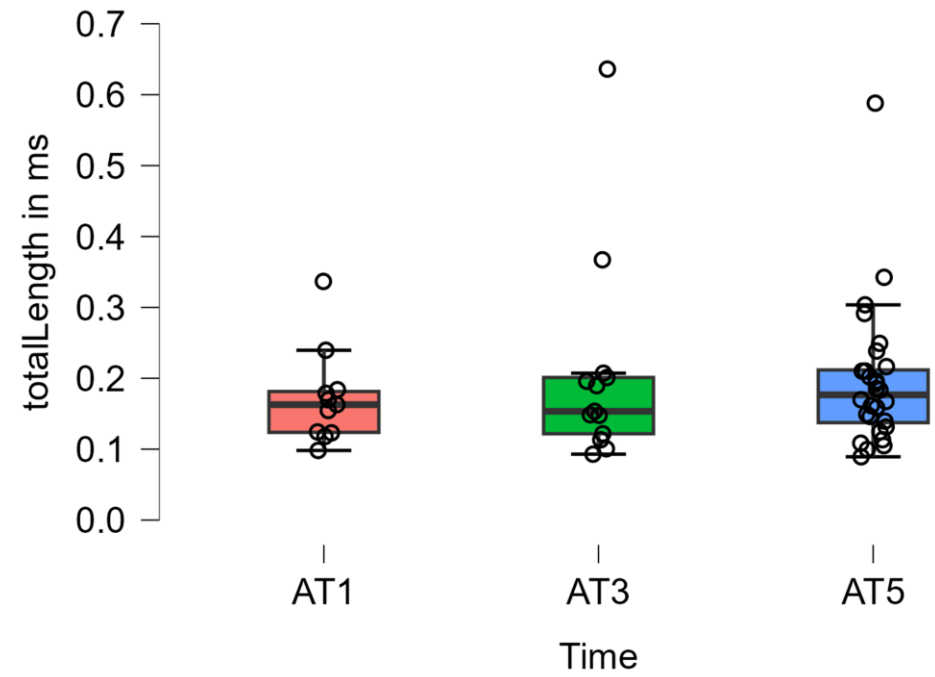
	DM	Lexical	Total
AT1	6	7	13
AT3	4	9	13
AT5	25	12	37
Total	35	28	63

# Acoustic analysis

## Voice quality with IDK

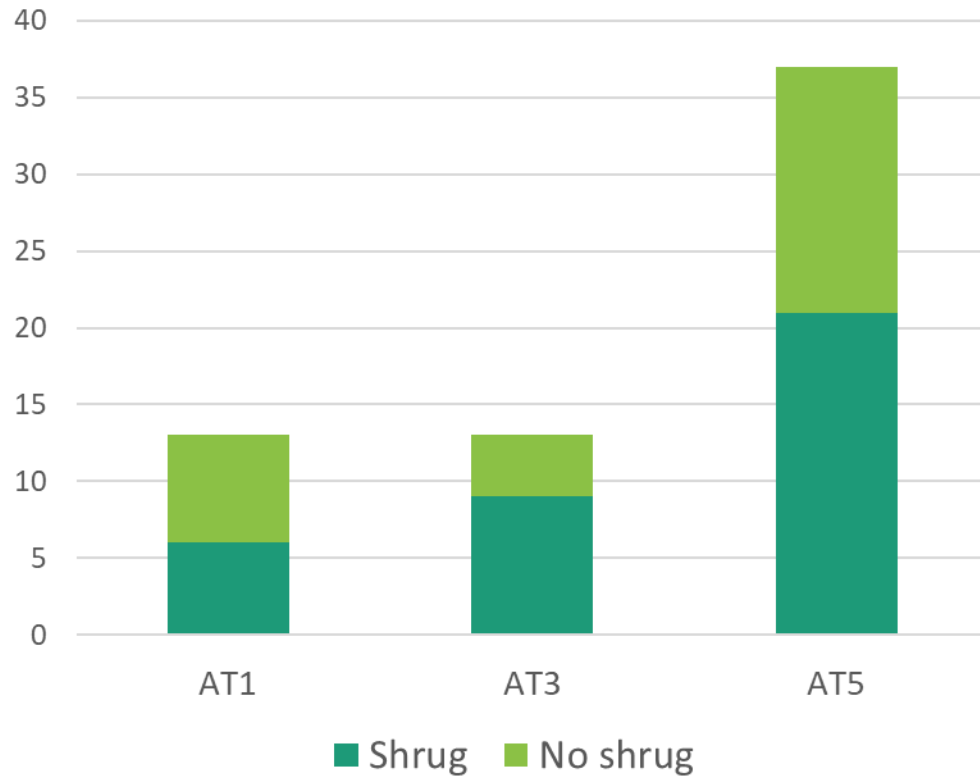


## Phonetic reduction (V + C) in ms

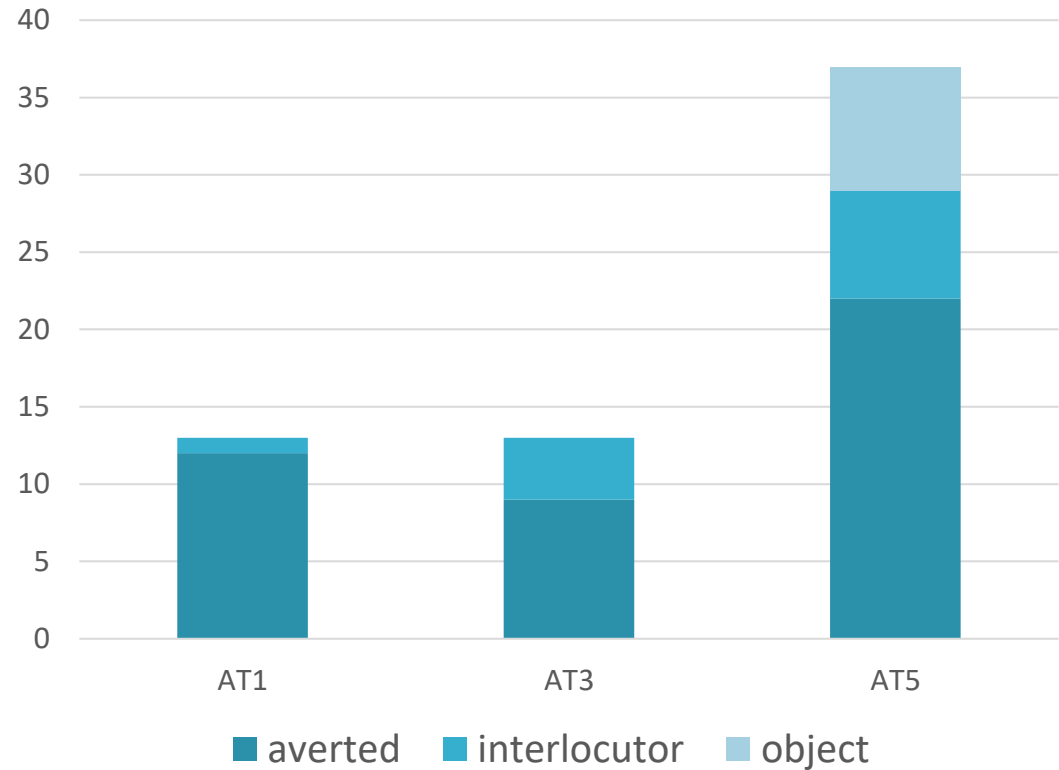


# Multimodal analysis

## Shrug posture with IDK

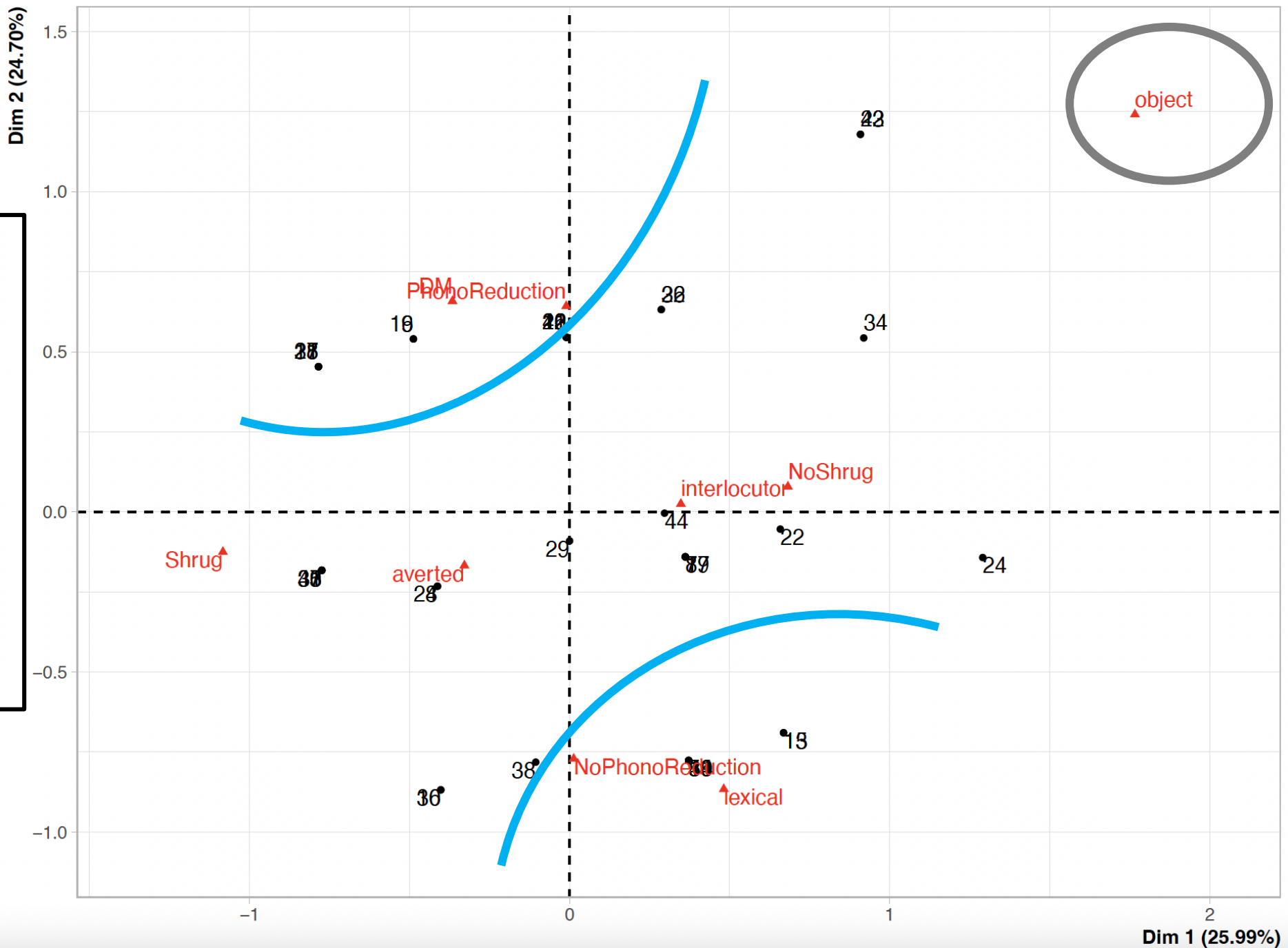


## Gaze direction with IDK



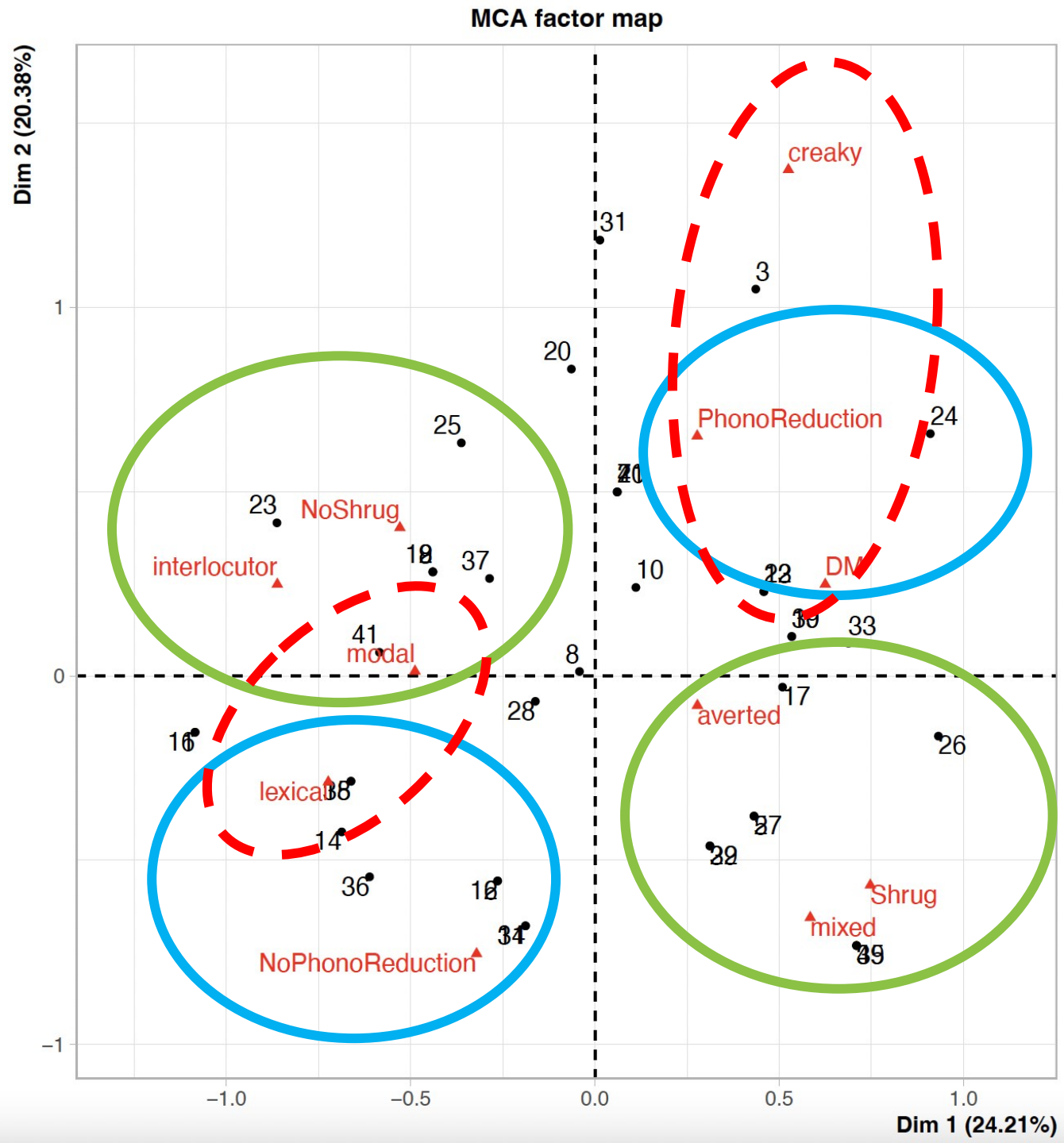
→ Multiple Correspondence Analysis (MCA) to uncover multimodal packages associated with the use of IDK

MCA factor map



- Variables:
- Phonological reduction
  - Pragmatic function (DM/Lexical)
  - Gaze direction (averted/interlocutor/object)
  - Shrug position (yes/no)

- Variables:
- Phonological reduction
  - Pragmatic function (DM/Lexical)
  - Gaze direction (averted/interlocutor/object)
  - Shrug position (yes/no)
  - Voice quality (modal, mixed, creaky)



# Qualitative analysis

- MCA gives us hypotheses
- Qualitative analysis to help us identify the different pragmatic functions associated with IDK
- AT1 line 287

*\*A: &hum i mean &heu i don 't know maybe ten .*





# An example of DM

- AT1 line 287

\*A: &hum i mean &heu i don 't know



Averted gaze (7.01 seconds)

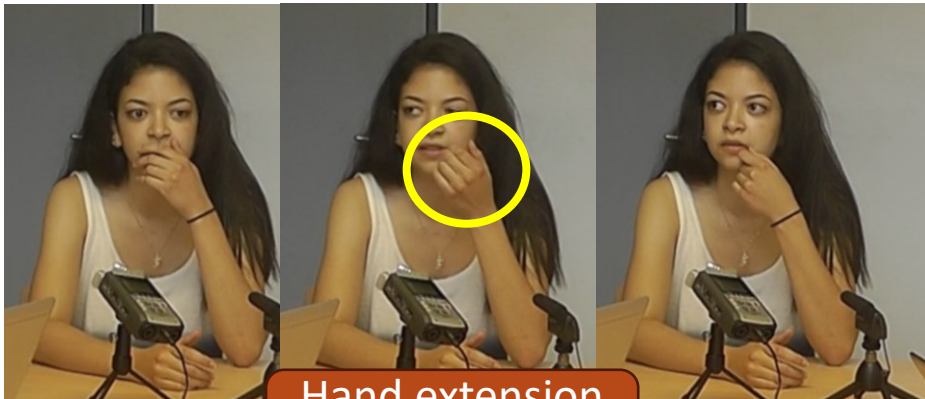
Mouth shrug

Raised eyebrows

Self-adaptor

\*A: maybe

ten .



Hand extension  
(Palm-up)

# An example of DM

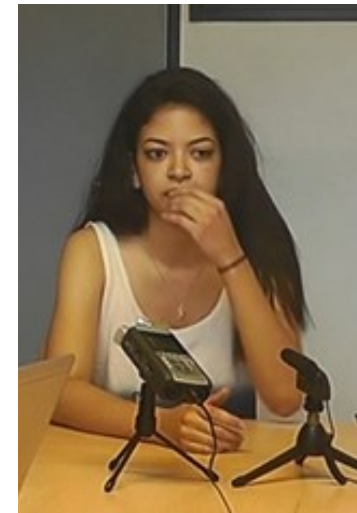
- AT1 line 287

*\*A: &hum i mean &heu i don 't know maybe ten .*

- DM
- Complex shrug (mouth shrug, palm up, raised eyebrows)
- Averted gaze
- Phonological contour: fall
- Creaky voice

→ Discourse analysis: approximator

→ Multimodal analysis: discourse planification



# Discussion & conclusion

- From a methodological perspective, can the discursive functions of IDK be defined through multimodal parameters?

# Conclusion

- Our case study sheds light on the need to take into account multimodal cues in the analysis of verbal behaviour.
- Our exploratory analysis MCA is a first step in the description of the multimodal patterns associated with IDK for an L2 learner.
- We observe certain clusters which illuminate the way DM and lexical IDK are used by participant A.
  - No shrug/gaze towards the interlocutor/modal voice
  - Shrug/averted gaze/mixed voice
  - Creaky voice/phonological reduction/DM
- However, the MCA does not provide fine-grained answers to the question of the discourse functions of IDK.
- Qualitative analysis
- More data needed (more participants, more interviews, in L1 and L2)

Thank you! Merci!

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\*A: what i 'm doing with the master . •1271464\_1273085•  
\*A: and after i think . •1273160\_1274227•  
\*A: i 'm gonna apply for some . •1274227\_1277050•  
\*A: they call it missions .  
\*INT2: okay . •1277295\_1277743•  
\*A: some of these .  
\*A: so maybe **i don 't know** . •1277508\_1280068•  
\*A: i thought like . •1280089\_1280431•  
\*A: maybe &w it would be interesting to go to italy now . •1280537\_1283536•  
\*INT2: uhuh@i . •1283557\_1284058•  
\*A: &erm i saw there the few missions &erm with the immigrants there . •1284250\_1288501•  
\*INT2: okay yeah of course . •1288629\_1289749•  
\*A: because like it 's a big issue there &erm or maybe new caledonia  
also . •1289024\_1294043•  
\*A: because i wanted to go back there . •1294118\_1296016•  
\*A: because i 'm[\*] born there .  
\*A: but **i don 't know** the place . •1295910\_1298395•  
\*INT2: uhuh@i . •1298416\_1299014•  
\*A: &er after there 's &er south africa also . •1299131\_1302071•  
\*INT2: uhuh@i . •1302082\_1302391•  
\*A: because i know . •1302413\_1302893•  
\*A: they speak english . •1302861\_1303863•  
\*A: they speak &er yeah some kind of language . •1303906\_1306914•  
\*A: **i don 't know** also but . •1306946\_1308077•  
\*INT2: afrikaans .  
\*INT2: uhuh@i . •1308077\_1308365•  
\*A: yeah &=laughs &erm but maybe because i know someone . •1308460\_1313281•  
\*A: who used to live there . •1313292\_1314625•  
\*A: i mean . •1314977\_1315521•  
\*INT2: okay . •1315148\_1315414•  
\*A: so i [x 2] **don 't know** exactly yet . •1315775\_1318069•

## • Future plans, AT5





# Syntactic Distribution of IDK

	<b>Complex Clause #</b>	<b>Simple Clause #</b>	<b>Total IDK #</b>
<b>A</b>	<b>21</b>	<b>42</b>	<b>63</b>
AT1	4	9	13
AT3	10	3	13
AT5	7	30	37

# Examples: Discourse management functions

\*A: i think .

\*A: there so [x 2] much more to see .

\*A: so for now i [x 2] guess .

\*A: i [x 2] just go abroad .

\*A: this is more .

\*INT2:uhuh@i .

\*A: &erm **i don 't know** .

Prefacing

Stance

\*A: it 's more attractive to me .

\*INT2:okay .



# Examples: Interaction management functions

\*A: maybe little bit but like not so much .

\*INT2: &hmm okay .

\*INT1: that 's a kind of plateau but quite high .

\*INT2: yeah .

\*A: &phh yeah .

\*INT2: yeah . %com: &=laugh .

\*A: **i don 't know** .

\*INT2: <that> [/] that 's great <this is> [/] this is your perception yeah?



Opting out

No identifiable  
discourse function



# Picking an accent, A Time 5 (AT5)



\*A: and then after more british because i heard like more &er british way .

\*INT2: uhuh@i .

\*A: &=laughs so

**i don 't know so .**

DM



Object manipulation / adaptor  
Averted gaze

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- \*INT2: because <the> [//] you hear the different accents .
- \*A: &erm this [x 2] is impossible .
- \*INT2: yeah .
- \*A: to only pick one .



So I don't know.

DM

Object manipulation / adaptor  
Averted gaze