**Is a clear speech benefit obtained for speech produced by older adult talkers for younger and older adult listeners?**

Valerie Hazan & Outi Tuomainen

Speech Hearing and Phonetic Sciences, UCL, London, UK; v.hazan@ucl.ac.uk, o.tuomainen@ucl.ac.uk

### Introduction

- Our project has produced a corpus (elderLUCID) of spontaneous and read speech by older (OA) and younger adult (YA) talkers while interacting with a conversational partner in good and challenging conditions.
- We found that the ‘clear speech’ strategies used by talkers to maintain effective communication can vary with age and hearing status [1].
- Previous studies using ‘instructed’ clear speech have shown variations in the perceptual effect of clear speech adaptations in OA speech [2,3].

### Objectives

Using materials from the elderLUCID corpus, we ask:

- Is OA speech as intelligible as YA speech when heard in babble noise?
- Does the clear speech produced by OA talkers have the same perceptual benefit as that of YA talkers?
- Are there a listener-age and hearing-status effects on the intelligibility of OA and YA speech?

### Study 1: Adaptive listening test

#### Materials and Methods

- **Materials**
  - 816 sentences produced by 4 YA and 4 OA talkers in two conditions:
    - Read to partner, both hearing without interference (NORM sentences)
    - Read to partner who has a simulated hearing-loss [4] (CLEAR sentences)
- **Test procedure**
  - Adaptive procedure tracking SNR corresponding to 67% intelligibility
  - 4 sentence blocks (YA-NORM, YA-CLEAR, OA-NORM, OA-CLEAR)

#### Participants

- 24 YA, 28 OA with normal hearing (OANH, PTA 4FA < 25 dB) or mild age-related hearing loss (OAHL, PTA 4FA < 25 dB)

### Results

- **Talker effect (p<.001)**: YA voices more intelligible than OA voices.
- **Listener effect (p<.001)**: YA listeners could tolerate more severe SNRs than OA listeners.
- **Talker group * Speaking style (p<.001)**
  - OANH and OAHL voices did not differ
  - YA listeners (-8.1 dB) could tolerate more

### Study 2: Fixed-procedure listening test

#### Materials and Methods

- **Materials**
  - Samples of spontaneous speech (Diapix) for 10 YA, 10 OANH and 10 OAHL talkers (5F) produced in NORM and CLEAR conditions
  - Masker: 8-talker babble noise
- **Test procedure**
  - Fixed procedure with levels targeting equal intelligibility levels for YA-NORM speech (YA: -9 dB SNR, OANH: -7 dB SNR, OAHL: -4 dB SNR)
  - One block of 120 sentences

#### Participants

- 21 YA, 16 OANH, 19 OAHL

### Conclusion

- Is OA speech as intelligible as YA speech when heard in babble noise? **No**
- Does the clear speech produced by OA talkers have the same perceptual benefit as that of YA talkers? **Yes**
- Is there a listener-age and hearing-status effect on the intelligibility of OA and YA speech? **Yes**
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