<LRH>Katie Ekberg et al.

<RRH>Conversation breakdowns in the audiology clinic

Research Report

Conversation breakdowns in the audiology clinic: the importance of mutual gaze

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Abstract

Background: Conversational breakdowns are a persistent concern for older adults with hearing impairment (HI). Previous studies in experimental settings have investigated potential causes of breakdowns in conversations with a person with HI, and effective strategies for repairing these breakdowns. However, little research has explored the causes of hearing-related communication breakdowns, and their repairs, in extended, naturally occurring conversations in a healthcare setting.

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Aims: To analyse systematically instances of clients' initiations of repair within video-recorded initial audiology appointments, and to examine the interactional environment in which they occurred.

Methods & Procedures: Participants included 26 audiologists and their older adult clients (aged 55+ years). Companions were present in 17 of the 63 appointments. Conversation analysis (CA) was used to examine the video-recorded audiology appointments with older adults with HI. The corpus was systematically analysed for all instances of 'other-initiated repair' by clients (initiation of repair targeting the prior speakers' turn). A collection of 51 instances of other-initiated repair were identified. These instances were analysed in detail for: (1) the interactional environment in which they occurred; (2) the strategy by which the client initiated repair; and (3) the strategies used by the audiologist to repair the communication breakdown.

Outcomes & Results: In 76% ($n = 39$) of the 51 cases of other-initiated repair from the client, there was a lack of mutual gaze between participants (i.e., either the audiologist or the client were looking away or facing in another direction during the prior turn). More specifically, many of these instances occurred when the audiologist was speaking to the client while multitasking. Audiologists used multiple-repair strategies in their responsive turn in an attempt to repair the communication breakdown efficiently.

Conclusions & Implications: These findings, from extended, naturally occurring conversations with older adults with HI in clinic settings, highlight the importance of face-to-face communication even in quiet one-to-one settings. Clinicians should remain aware of their movements and gaze when speaking to clients during appointments. The findings also provide further support for the importance of communication programs in hearing rehabilitation.

Keywords: hearing rehabilitation, conversation analysis, other-initiated repair, gaze, face-to-face communication, audiology

<A>What this paper adds

Conversational breakdowns are a persistent concern for older adults with HI. However, little research to date has explored the causes of communication breakdowns for people with HI in extended, naturally occurring conversations in a healthcare environment. In the majority of instances of a communication breakdown there was a lack of mutual gaze between

participants. More specifically, many of these instances occurred when the clinician was speaking to the client while multitasking. These findings highlight the importance of face-to-face communication for older adults with hearing impairment even in quiet one-to-one settings.

<A>Introduction

Conversational breakdowns occur when an individual has trouble with speaking, hearing or understanding a particular utterance (Schegloff *et al.* 1977). For people with a communication impairment, breakdowns in communication are a particularly consistent concern (e.g., Erber 1988, Lind *et al.* 2010a, Helasvuo *et al.* 2004, Wilkinson 2015, Laakso and Klippi 1999), which can have a significant impact on their everyday life activities and social relationships (Tye-Murray 2009).

This paper focuses on communication breakdowns that occur during conversations with older adults with hearing impairment (HI). With an ageing population, the prevalence of aged-related hearing loss is increasing. Many older adults who have another communication impairment (e.g., aphasia, dementia, Parkinson's disease) may also have HI, which can add to the linguistic deficits present (Rankin *et al.* 2014). Further, it has been noted that despite the different nature of communication impairments, the interactions of people with impairments such as dysarthria or aphasia recurrently display some similar features to interactions with people with HI, including how they manage repair in conversation (Wilkinson 2013). It is, therefore, important for health professionals, including speech-language therapists (SLTs), to consider the possible causes of hearing-related communication breakdowns, and how these can be effectively repaired or avoided when communicating with their clients.

Previous studies conducted under experimental settings have investigated potential causes of breakdowns in conversations with a person with HI, and effective strategies for repairing these breakdowns. These studies have typically involved using simulation exercises to measure communicative effectiveness. For example, the Profile of Communication Interactions (PCI) developed by Jordan *et al.* (1993) involved asking participants to engage in a 10-min conversation (with scripted questions), which was video-recorded and rated for the number and type of communicative breakdowns. This task was developed from the TOPICON conversational task (Erber 1988), which has also been used in later studies (e.g., Pichora-Fuller *et al.* 1998). Wilson *et al.* (1998) extended this tool by including a breakdown elicitation task where, during the conversation, the investigator used a variety of techniques

to attempt purposely to elicit communication breakdowns found that the three most common elicitations of breakdowns in a conversation with an older adult with hearing loss involved the speaker: (1) having his/her back to the recipient; (2) speaking with reduced volume; and (3) speaking with his/her head down.

Most experimental studies with people with HI have had a greater focus on how speakers repair the conversation when a breakdown occurs, including how people with HI initiate repair and how their conversational partners respond (Wilson *et al.* 1998, Jordan *et al.* 1993, Tye-Murray *et al.* 1995). These studies have found that a 'request for repetition' is the most popular strategy used by participants to attempt to rectify the problem with hearing. These requests can be either specific (e.g., 'where did you say you are going?') or non-specific (e.g., 'what?', 'huh?') (Caissie and Rockwell 1993, Lind *et al.* 2006). Other common repair initiators include non-verbal gestures (such as a shoulder shrug), or a candidate repeat of the prior turn for confirmation (Tye-Murray and Witt 1996) (e.g., 'you're going to the shop?'). When responding to such repair initiators, speakers typically repeat the prior turn, and may or may not provide additional information (Tye-Murray *et al.* 1995, Tye-Murray and Witt 1996, Lind *et al.* 2010a, Caissie and Rockwell 1993). Most of these previous studies examined communication breakdowns and repairs in brief 5–10-min conversations set up for the purposes of the experimental research study (Wilson *et al.* 1998, Erber 1988, Tye-Murray *et al.* 1995, Tye-Murray and Witt 1996). The few studies that have examined a more extended conversation (15–20 min) have been based on a case example, and have focused on conversations with the person with HI and their significant other (Caissie and Rockwell 1993, Lind *et al.* 2006, 2010a). Less research has focused on the causes of hearing-related communication breakdowns that occur within appointments with healthcare professionals.

Outside of studies focused on people with HI, interactional repair has been a key area of research within the field of conversation analysis (CA) since the seminal paper by Schegloff *et al.* (1977). This research provides the underlying framework for how people (generally without a HI) typically attempt to repair conversational breakdowns in everyday interactions (for a review, see Kitzinger 2013). Repairs address all sorts of difficulties within talk (Schegloff *et al.* 1977). The problematic talk is referred to as a 'trouble-source' or the 'repairable'. Repair may be initiated by the speaker of the repairable turn (self-initiated repair) or the recipient (other-initiated repair). In the same way, the actual repair on the talk may get done by either the speaker (self-repair) or the recipient (other-repair). The practice of 'other-initiated repair' typically occurs when a recipient of a turn-at-talk has some trouble

with hearing, understanding, or contextualizing a prior turn (Schegloff 2007, Drew 1997). Recipients typically initiate repair in the next available turn slot. This then opens up a ‘repair sequence’ before the conversation is properly resumed. For example:

- Speaker A: Do you listen to music? (Trouble-source)
Speaker B: Pardon? (Repair initiation)
Speaker A: Do you listen to music? (Repair)
Speaker B: Oh, yes I do sometimes. (Response)

Repair initiations can take different forms, including: open class repair initiations (e.g., ‘huh?’, ‘pardon?’); category-constrained initiators (‘*wh-*’ questions, e.g., ‘Listen to what?’), a partial or full repeat of the trouble-source turn, or a candidate understanding of the trouble source turn (e.g., ‘You mean + possible understanding’) (Schegloff *et al.* 1977). These types of repair initiations have a natural ordering relative to their ‘strength’ or their capacity to locate the repairable in the prior turn (Schegloff *et al.* 1977). Open-class repair initiators are the ‘weakest’ type as they leave completely open what the repairable might be (see the example above), whereas candidate understandings are the ‘strongest’ repair initiator as they provide a possible understanding of the trouble source turn (e.g., ‘Did you say do I listen to music?’). Research has found that there is a general preference in conversation for the ‘weaker’ types of repair initiations (i.e., open-class) over stronger ones (Svennevig 2008). In response, the repair solution is usually fitted to the format of the repair initiation: ‘open class’ repair initiations are usually responded to with (modified) repeats (see above); category-specific interrogatives responded to with (modified) repeats of the relevant categorical term (e.g., Speaker A: ‘Do I listen to what?’, Speaker B: ‘Music’); and, repeats and candidate understandings are responded to by confirming or correcting the candidate, or by providing clarification (e.g., Speaker B: ‘Did you say do I listen to music?’, Speaker A: ‘Yes’) (Kitzinger 2013).

Within this robust body of research into repair in social interaction, there has been a growing body of research that has used CA to analyse repair sequences in interactions with people with communication impairments. These studies have found that repair sequences can take up a significant amount of the conversational time in interactions with people with a communication impairment, including aphasia (Wilkinson 2007, Helasvuoto *et al.* 2004, Laakso and Klippi 1999), dysarthria (Bloch and Wilkinson 2009), and Parkinson’s disease

(Saldert *et al.* 2014). In addition to repair being a more frequent occurrence in the conversation, repair sequences can also be prolonged as attempts at repair can sometimes lead to further misunderstandings (Bloch and Wilkinson 2009, Wilkinson 2015, Lindsay and Wilkinson 1999). In addition, CA studies of aphasic interaction have examined how both aphasic and non-aphasic speakers adapt their talk, including through the use of gesture (e.g., Wilkinson *et al.* 2003, 2010, Barnes 2013, Klippi 2014). This body of CA research has led to innovations in therapy, helping people with aphasia and their family members to adapt to aphasic conversation (Wilkinson 2006, 2015, Beeke *et al.* 2015).

Much less CA research, however, has focused on repair sequences in interactions with people with HI. Initial work in this area involved a collection of studies by Lind *et al.* examining conversations with people HI and their core conversation partners (Lind *et al.* 2004, 2006, 2010b, Lind 2013). This research found that people with HI initiate repair more frequently in conversation than their conversational partners without HI (Lind *et al.* 2004). Repair initiators were typically uttered by the person with HI in the immediate vicinity of the miscommunicated portion of the talk, even if this required an interruption (Lind *et al.* 2006). In response, when repairing their talk, conversation partners will often vary the prosodic delivery of their repeated turn (Lind *et al.* 2010a). For example, speakers may increase the loudness, pitch, and duration of their repair turn. A recent Finnish study has also analysed the interactions of two people with HI for non-vocal actions that can initiate repair, including gaze shifts, leaning forward, turning an ear towards the speaker, or frowning (Pajo and Klippi 2013).

Even less work has focused on communication breakdowns with people with HI in a healthcare environment. The exception is a study by Skelt (2007, 2010, 2012) who has analysed interactions with people with HI and their family/friends ($n = 4$) or their audiologists ($n = 3$). This research found that there are several ways that hearing-related misunderstandings are dealt with in conversation with people with HI, including (1) repair; (2) allowing the misunderstanding to pass; and (3) closing down or disengaging from the sequence of interaction. Understanding checks were more likely to occur in the clinical interactions (Skelt 2012). Skelt also found that experienced, cooperative conversation partners often synchronize their talk with the availability of gaze by the person with HI, and often attempt to solicit gaze before they speak to minimize communication breakdowns (Skelt 2010). Given that many older people attending healthcare appointments may have a HI, it is important to further investigate repair sequences with people with HI in this

particular interactional environment. Doing so may help health professionals better understand how they can effectively communicate with clients with HI. Further, research in this area thus far has been based on interactions with a small number of speakers. This study will analyse repair sequences with people with HI across a larger data corpus.

The current study used CA systematically to analyse instances of clients' initiations of repair within a collection of 63 video-recorded, real-life appointments in the audiology clinic, and examined the interactional environment in which they occurred. Importantly, this corpus represents 'naturally occurring' data: the video-recordings are of conversations that would have taken place even if the research was not being conducted (Mondada 2013). This study thus aimed to contribute to previous research with findings from natural conversations with older adults with HI, audiologists, and their significant others. In particular, the study aimed to explore whether there were identifiable patterns of the causes of hearing trouble during these interactions. Further, as previous research in experimental settings has found that a lack of mutual gaze is a major contributor to communication breakdowns with people with HI, this study also aimed to examine these naturally occurring repair sequences in relation to participants' gaze and body position during the interaction.

<A>Method

Participants and procedure

Data used in this study were collected as part of a larger study, and detailed procedures are described elsewhere (Grenness *et al.* 2015a, 2015b). Participants included in this study were 26 audiologists working in adult rehabilitation clinics in Australia and 62 adult clients over the age of 55 (and their communication partners, if present; $n = 17$) who attended an audiology clinic for audiometric assessment and/or discussion of rehabilitation options where this discussion did not occur in the assessment consultation. Audiologists were recruited through professional networks and events, or via an invitation email from the audiological professional association. Once audiologist consent was obtained, clients who fit the inclusion criteria were contacted and invited to participate. Written consent was obtained before, or on the day of filming. The entire duration of the consultation was filmed without a researcher present. Filming was conducted using an Apple iPod touch or iPhone 4 on a mini tripod placed in an inconspicuous area of the consultation room.

Methodology for analysis

The video data were transcribed using the Jeffersonian transcription system (Jefferson 2004) (see appendix A), and included the conventions for multimodal transcription developed by Mondada (2014). The data were analysed using CA (Sidnell and Stivers 2012). CA is a micro-analytical approach to the study of naturally occurring interaction, which provides conventions for the analysis of talk as a vehicle for social action (Sidnell and Stivers 2012). CA analyses interaction sequentially, in other words it examines how interactants relate their conversational moves to the preceding context, and at the same time how their contributions make specific next moves expectable or relevant (Heritage and Maynard 2006). CA is also a well-established approach for studying communication in a range of healthcare settings (Pilnick *et al.* 2009, Drew *et al.* 2001, Heritage and Maynard 2006). This method has also been used in previous research of communication in audiology appointments (Ekberg *et al.* 2014a, 2014b, 2015). For the current analysis, the corpus was systematically analysed for all instances of other-initiated repair by clients. A collection of 51 instances of other-initiated repair were identified. Within this corpus, 47 repair sequences initiated by the person with HI targeted talk from the audiologist, and four targeted talk from an attending companion. This paper focused on the repair sequences between clients and audiologists, and these instances were analysed in detail for: (1) the interactional environment in which they occurred (i.e., the interaction of participants prior to the repair initiation); (2) the strategy in which the client initiated repair; and (3) the strategies used by the audiologist to repair the trouble.

<A>Results

The next two sections provide an overall summary of the results across the corpus, followed by a more in-depth analysis of four typical examples of the communication breakdowns and repairs that occurred.

Overall summary of the results

<C>Interactional environment of communication breakdown

The data were systematically analysed and coded for the interactional environment in which client initiations of repair occurred within the audiology appointments. Six different interactional environments were identified: (1) no mutual gaze between audiologist and client; (2) no mutual gaze in addition to speaking after a prolonged gap in conversation; (3) fast talk from the audiologist; (4) the trouble source turn involved complex grammar (Schegloff 2002); (5) repair was ostensibly initiated to target a trouble other than hearing,

e.g., repair can retrospectively be seen to target a trouble with understanding a jargon term used by the audiologist; and (6) the trouble source turn was spoken during overlapping talk. While these categories are not mutually exclusive interactional environments (e.g., a turn could have fast talk and involve complex grammar), in this corpus the only co-occurring environments found were a lack of mutual gaze and speaking after a long gap in the interaction. These interactional environments have thus been combined within the second category identified. Table 1 presents the frequency of occurrence for each interactional environment.

<tab 1>

These results indicated that in 76% ($n = 39$) of the cases of other-initiated repair from the client, there was a lack of mutual gaze between the participants (i.e., either the speaker or client was looking away or facing in another direction during the trouble source turn). More specifically, many of these instances occurred when the audiologist was speaking to the client while multitasking, including writing or reading notes, working on the computer, and handling testing equipment or hearing aids.

<C>*Client repair initiations*

In initiating repair, clients typically used an open-class format that left open the type of difficulty that the client had with the prior turn (Drew 1997). More specifically, the most common repair initiations from clients included apology-based formats such as ‘Sorry?’ or ‘Beg your pardon?’. Table 2 summarizes these results. Previous research by Robinson (2006) has found that apology-based formats communicate that the person initiating repair is claiming responsibility for the breakdown (i.e., it was due to their own personal trouble hearing or understanding the prior turn). Further, apology-based repair initiations enact a form of politeness (Brown and Levinson 1987) and are more common in institutional settings where there is an asymmetric relationship between the participants.

<tab 2>

In addition, clients’ repair initiations were often accompanied by bodily gestures such as raising their head to the speaker or leaning forward toward the speaker. The combination of the ‘open-class’ repair initiation with bodily gestures in these cases displayed an attempt by the client to gain greater mutual attention between speakers. Further, these bodily gestures were not evident with repair initiations that appeared to target a trouble with understanding or following overlapping talk.

<C>Speaker repairs

The strategies used by audiologists to repair their talk were also analysed. Audiologists most often produced a repeat of their trouble source turn, thus treating the client's repair initiation as a sign that the client had trouble hearing. As well as repeating their talk, audiologists typically used a combination of the following repair strategies: (1) redirecting their gaze to the client; (2) prosodic variation (including increase in loudness or change in pitch) (Lind *et al.* 2010a); (3) simplifying complex utterances (Schegloff 2002); (4) omitting 'dispensable' elements of the turn (Schegloff 2004); (5) replacing specialized terms; and (6) providing further explanation or expanding on an indexical (e.g., 'it') (Schegloff 2004). While it was variable which of these strategies were used by audiologists in their repair turns, in all but one case where mutual gaze had not been present during the trouble source turn, the speaker sought to meet the client's gaze within the repair turn. The use of this repair strategy provides evidence that the speakers themselves recurrently interpreted the lack of mutual gaze as the potential cause of the breakdown in conversation. Audiologists often used multiple-repair strategies within their repair turn. The speakers' use of multiple strategies displayed an attempt to make the repair turn both: (1) easier to hear; and (2) easier to understand, thus repairing the conversation in the most efficient way possible.

Data exemplars

The following section presents the CA analysis of 4 fragments that reflect typical examples from the data corpus. In Fragment (1), the audiologist is setting up the equipment to begin to the client's hearing test. In line 1, 'this one' refers to the bone conductor (i.e., headband that measures hearing ability of the inner ear) she is placing on the client's mastoid (region of the skull found directly behind the ear).

(1) [2-2 14:14]

A: *Just put this one behind your ear,
Mutual gaze-----

C: Mmhm.

A: *°Jus'° press the button every time you hear the b↑eep,*

Moves away from C to untangle wire of headphones-----

(0.4)

C: *Beg your pardon?*

Lifts head to A-

A: *Press the button <whenever you hear [a] beep.>*

Mutual gaze-----

C: [Oh]

C: °°okay°° ((clears throat))

At line 1, the audiologist provides an initial instruction to the client, which is acknowledged in line 2 ('mmhm'). Across this turn, the audiologist and client maintain mutual gaze at each other. The audiologist continues the next part of her instruction to the client at line 3. Across this turn, she moves away from the client, turning her back to untangle the wire of the bone conductor she has just placed on the client's head. The audiologist and client thus break their mutual gaze during this turn-at-talk. After a brief gap, the client initiates repair on the audiologist's prior turn ('Beg your pardon?', line 5). The client lifts her head to look directly at the audiologist during her repair initiation, thus displaying an attempt to meet the audiologist's gaze. In response, the audiologist turns back to the client and meets her gaze. She provides a repeat of her instruction, speaking more slowly. The audiologist thus uses two repair strategies in response to client's repair initiation. In redirecting her gaze at the client for her repair turn, the audiologist displays her recognition that this could be a potential cause of the conversation breakdown. The client then acknowledges the instruction ('Oh', 'Okay', lines 7-8).

Another example can be seen in Fragment (2) with a different audiologist and client. This fragment comes from the management phase of the appointment, during which the audiologist is asking the client a series of questions to understand in which activities the client might experience hearing difficulties.

(2) [18-2 13:41]

A: *And how often do you attend meetings?*

Looking down at paper & writing-----

(0.4)

C: *I beg your pardon?*

Leans forward-----

(0.3)

A: *How often do you attend meetings?>*

Mutual gaze-----

(0.6)

C: OH:: not very often at the moment.

A: Okay.

At line 1, the audiologist asks her question while simultaneously looking down at her notes and writing. The client initiates repair at line 3 ('I beg your pardon?'). The audiologist responds to the repair initiation by looking up and meeting the client's gaze. She provides a repeat of her turn, adding emphasis and speaking slower across the word 'meetings'. She thus utilizes several verbal and non-verbal repair strategies across the repeat of her turn (verbal: emphasis, change in tempo; non-verbal: meeting the client's gaze). Following the repeat with mutual gaze, the client provides an acknowledgement of the repeat (via the change-of-state token 'oh'), and then responds to the question (line 7).

The next example in Fragment (3) also comes from the management phase of the appointment, during the discussion about hearing aid styles:

(3) [18-2 39:24]

A: *(17.5)*

Looking at notes and then computer

A: *So you mentioned you didn't mi::nd if-*

Looking at computer-----

C: *Sorry?*

Leans forward

A: *You didn't MIND the size that +sits be[hind your ear?]*+

Mutual gaze-----

+gestures to ear-----+

C: [W[↑]ELL:] (0.5)

problee not.

Prior to the audiologist's turn at line 2, there is gap in the conversation (17.5 s) while the audiologist looks at her notes and then at hearing aid styles on the computer. During this time, the speakers are not looking at each other. When the audiologist starts speaking at line 2, she is still looking at the computer. The client cuts the audiologist off mid-turn to initiate repair ('Sorry?', line 3). The audiologist repairs her talk by turning to face the client and restarting her turn. She also emphasizes and speaks with raised volume across the key word 'mind' in her repair turn (line 4). Following this repeat, produced with mutual gaze, the client responds to the audiologist's question (lines 5–6).

Fragment (4) (again from a different appointment) demonstrates that even a lack of mutual gaze across only part of a turn can also lead to a repair initiation from the client. This fragment occurs during the management phase, with the same goal-setting question as seen in Fragment (2).

(4) [11-4 5:40]

A: *DO YOU GO TO ANY CLU:BS o:r any groups*

Looking down and writing-----

or any meetings?

Looks up at C---

(.)

C: *Beg your pardon?*

Leans forward---

A: *DO YOU GO TO ANY MEETI:NGS OR <CLUB> at the [moment?]*

Mutual gaze. Leans forward-----

C: [Na::h] not
really.

Across the initial part of the audiologist's turn at line 1, she is looking down at the desk and writing notes. She looks up at the client towards the end of her turn to produce the third, and final element of her list of group activities ('or any meetings?', line 2). The client initiates repair at line 4 ('Beg your pardon?'), and leans forward toward the audiologist. In response, the audiologist repairs her talk by meeting the client's gaze, leaning forward toward him, and repeating her question with a raised voice across most of the turn. Again, the audiologist has thus drawn upon both non-verbal and verbal strategies to aid the hearing of her repeated turn (verbal: raising volume; non-verbal: meeting client's gaze, leaning forward). The client then responds to the question at lines 6–7, displaying his understanding of the turn. It is interesting that the client initiated repair despite the audiologist speaking with a raised voice in their initial turn. This example suggests that clients may need mutual gaze even when the speaker is talking more loudly than their usual volume.

<A>Discussion

This study investigated repair sequences in a corpus of 63 video-recorded initial audiology appointments between audiologists and older adults with HI. The findings in this paper have demonstrated that a lack of mutual gaze is a significant factor contributing to conversational breakdowns within interactions in audiological consultations. Previous studies in hearing research have identified that vision plays an important part in speech perception in all

individuals [AQ4] (Cotton 1935, [AQ5] Arnold and Hill 2001, [AQ6] Reisberg et al. 1987, Tye-Murray 2009); but particularly for those who are hearing impaired [AQ7] (Erber 1975, Tye-Murray 2009). Older adults with hearing loss have typically been found to attend to speech information that is available on the face of the talker [AQ7] (Erber 1975), including facial movements and mouth shapes [AQ8] (Erber 2002). More specifically, the results of a previous experimental study where the investigator used a variety of techniques to attempt to purposely elicit communication breakdowns with someone with HI found that three of the four most common methods all involved a lack of mutual gaze between the participants (including: back to participant; speaking with head down; and hand obscuring mouth) (Wilson et al. 1998). The current study has provided further evidence from naturally occurring conversations in the audiology clinic to support these findings on the importance of face-to-face communication for older adults with HI. In addition, it highlights that mutual gaze can be an important factor for effective communication even in quiet one-to-one settings.

In the instances when there was no mutual gaze between participants, clients were likely to accompany their repair initiation with gestures such as raising their head to the speaker or leaning forward toward the speaker. These gestures were not present with repair initiations that were analysed as targeting a trouble of understanding or appropriateness of the prior turn. These types of gestures, therefore, appear to provide an indication to speakers of a trouble source turn that the recipient has had specific trouble with *hearing* the prior turn. In the majority of cases, audiologists responded by attempting to meet the client's gaze in their repair turn.

This study also makes a contribution to conversation analytic research of repair. Within CA research, there has been few known studies examining the organization of gaze with initiations of repair (Egbert 1996, Skelt 2010). A German study found that the German '*bitte?*' ('pardon?') was exclusively used to initiate repair when there was no mutual gaze between the participants (Egbert 1996). While we did not find that a particular word selection was used in the absence of mutual gaze in this Australian-English corpus, we did find, more broadly, that the majority of repair initiations in this setting occurred in an interactional environment of no mutual gaze. Skelt (2010) has shown how communication partners experienced at interacting with a person with HI often time their talk to coincide with the availability of their partner's gaze, and will sometimes use gaze-soliciting strategies to secure the person with HI's gaze before speaking. The findings from this study show support for this

type of adaptation in interactions with people with HI, as it demonstrates evidence for the frequency of repair initiations when mutual gaze is not present. Further, the findings indicate the value in analysing the gestures that accompany repair sequences (in face-to-face interactions when video-recorded data is available), as they can provide important indications for how speakers display and understand the type of trouble being targeted.

Another key finding of this study was that, in this environment, speakers will utilize multiple strategies in the next turn to attempt to repair their own troublesome talk. These strategies included making lexical, prosodic, and gestural (e.g., gaze) modifications to their turn. This finding builds on the work by [Curl and Drew \(2008\)](#) and [Lind et al. \(2010a\)](#), who found that speakers sometimes make prosodic variations in their repetition repair turns. Our findings highlight the broad spectrum of repair strategies that can be used when providing a (modified) repeat, and demonstrate that speakers often do not rely on just one method for repairing their talk. However, it should be acknowledged that the audiologists in this study are likely to have a higher awareness of the problems associated with speaking to someone with HI than average speaker. This finding also has implications for conversation analytic research. [Svennevig \(2008\)](#) identified that speakers will sometimes pre-empt that an open, hearing repair initiation is targeting a problem of understanding or acceptability, and take a ‘short cut’ by addressing this issue in their repair turn. In doing so, they are able to repair the problem more efficiently, and allow the conversation to progress. This study adds to this research by showing that trouble source speakers will also sometimes use multiple-repair strategies within the same turn in order to make their turn easier to hear and/or understand. Again, this practice shows a preference for progressivity in conversation ([Schegloff 1979](#), [Stivers and Robinson 2006](#)), with speakers attempting to resolve the trouble in the most efficient way possible.

Implications for clinical practice

Results of this analysis have important clinical implications for health professionals in communicating with HI clients. Within an ageing population, it is likely that many older clients seen by various health professionals will have some level of HI. These findings suggest that health professionals may need increased awareness of their movements and gaze when speaking to clients during appointments. If health professionals speak to clients while multitasking (including writing notes, working on the computer, handling equipment) it appears likely that a breakdown in conversation could occur.

If conversation breakdowns do occur, health professionals could use these moments as a way to demonstrate to the client the importance of mutual gaze and distance for effective communication. These moments could also be used as valuable education for companions who are present in the appointment (which is encouraged as part of family-centred practice). Health professionals could use conversation breakdowns in the appointments to highlight some of the effective strategies that communication partners can utilize in everyday interactions with the client to help prevent, and repair, breakdowns. Noticing conversation breakdowns when they occur could also facilitate discussions about the types of difficulties the client and their communication partners might experience in their everyday interactions. Further, these findings highlight the potential value of including training for health professionals of some core skills for adapting their talk when interacting with clients with HI within education and staff development programs. If health professionals have a greater awareness of typical causes of communication breakdowns for people with HI, and adapt their talk accordingly, clinical appointments are likely to progress more smoothly, and be more enjoyable for the person with HI.

The findings from this study also emphasize the importance of communication training programmes, such as the Active Communication Education (ACE) programme (Hickson *et al.* 2007), for people with HI and their core communication partners. The findings highlight that many communication breakdowns occur in naturally occurring interaction when there is no face-to-face communication or the speaker is talking at a distance from the person with HI. If these communication breakdowns occur in the audiology clinic with audiologists who have a high level of awareness of communication difficulties for people with HI, it is likely that even more would occur in interactions outside the clinic. It would, therefore, be valuable for clients and their families to participate in communication programs to overcome some of these potential issues.

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<A>Appendix A: Jeffersonian transcription system

This list represents the most widely used transcription symbols used in this study. For a more comprehensive list, see [Jefferson \(2004\)](#).

(.)	Micro-pause: less than 0.1 s
(0.2), (2.6)	Examples of timed pauses
↑word	Onset of noticeable pitch rise
↓word	Onset of noticeable pitch fall
A: word [word	Square brackets aligned across adjacent lines denote the start of
B: [word	overlapping talk.
.	Falling vocal pitch
?	Rising vocal pitch
.hhh	In-breath
hhh	Out-breath
wo(h)rd	Within-speech aspirations
wor-	A sharp cut-off
wo:rd	Colons show that the speaker has stretched the preceding sound
(words)	A guess at what might have been said if unclear
()	Unclear talk
A: word=	The equals sign shows that there is no discernible pause
B: =word	between two speakers' turns
<u>word</u>	Vocal emphasis
WORD	Talk pronounced loudly in comparison with surrounding talk
°word°	Talk between "degree signs" is quieter than surrounding talk
>word word<	Talk between inward arrows is delivered faster than surrounding talk
<word word>	Talk between outward arrows is delivered slower than surrounding talk
→	Analyst's signal of a significant line
((sniff))	Transcriber's effort at representing something difficult, or impossible,
to write phonetically	
£word£	Words spoken with smiley voice

<<t/s Set names in caps and scaps as per usual style>>

<A>**References**

- BARNES, S., 2013, Proper noun anomia in conversation: a description of how a man with chronic anomia constructed referencing turns. *Aphasiology*, **27**, 1–19.
- BEEKE, S., BECKLEY, F., JOHNSON, F., HEILEMANN, C., EDWARDS, S., MAXIM, J. and BEST, W., 2015, Conversation focused aphasia therapy: Investigating the adoption of strategies by people with agrammatism. *Aphasiology*, **29**, 355–377.
- BLOCH, S. and WILKINSON, R., 2009, Acquired dysarthria in conversation: identifying sources of understandability problems. *International Journal of Language and Communication Disorders*, **44**, 769–783.
- BROWN, P. and LEVINSON, S. C., 1987, *Politeness: Some Universals in Language Usage*, vol. 4 (Cambridge: Cambridge University Press).
- CAISSIE, R. and ROCKWELL, E., 1993, A videotape analysis procedure for assessing conversational fluency in hearing-impaired adults. *Ear and Hearing*, **14**, 202–209.
- CURL, T. and DREW, P., 2008, Contingency and action: a comparison of two forms of requesting. *Research on Language and Social Interaction*, **41**, 129–153.
- DREW, P., 1997, ‘Open’ class repair initiators in response to sequential sources of troubles in conversation. *Journal of Pragmatics*, **28**, 69–101.
- DREW, P., CHATWIN, J. and COLLINS, S., 2001, Conversation analysis: a method for research into interactions between patients and health-care professionals. *Health Expectations*, **4**, 58–70.
- EGBERT, M., 1996, Context-sensitivity in conversation: eye gaze and the German repair initiator *bitte*? *Language in Society*, **25**, 587–612.
- EKBERG, K., GRENNES, C. and HICKSON, L., 2014a, Addressing patients’ psychosocial concerns regarding hearing aids within audiology appointments for older adults. *American Journal of Audiology*, **23**, 337–350.
- EKBERG, K., MEYER, C., SCARINCI, N., GRENNES, C. and HICKSON, L., 2014b, Disagreements between clients and family members regarding clients’ hearing and rehabilitation within audiology appointments for older adults. *Journal of Interactional Research in Communication Disorders*, **5**, 217–244.
- EKBERG, K., MEYER, C., SCARINCI, N., GRENNES, C. and HICKSON, L., 2015, Family member involvement in audiology appointments with older people with hearing impairment. *International Journal of Audiology*, **54**, 70–76.
- ERBER, N. P., 1988, *Communication Therapy for Hearing Impaired Adults* (Abbotsfield, VIC: Clavis).

- GRENNESS, C., HICKSON, L., LAPLANTE-LÉVESQUE, A., MEYER, C. and DAVIDSON, B., 2015a, Communication patterns in audiological history-taking: audiologists, patients and their companions. *Ear and Hearing*, **36**, 191–204.
- GRENNESS, C., HICKSON, L., LAPLANTE-LÉVESQUE, A., MEYER, C. and DAVIDSON, B., 2015b, The nature of communication throughout diagnosis and management planning in initial audiology rehabilitation consultations. *Journal of the American Academy of Audiology*, **26**, 36–50.
- HELASVUO, M.-L., LAAKSO, M. and SORJONEN, M.-L., 2004, Searching for words: syntactic and sequential construction of word search in conversations of Finnish speakers with aphasia. *Research on Language and Social Interaction*, **37**, 1–37.
- HERITAGE, J. and MAYNARD, D. W., 2006, *Communication in Medical Care: Interaction between Primary Care* (Cambridge: Cambridge University Press).
- HICKSON, L., WORRALL, L. and SCARINCI, N., 2007, A randomized controlled trial evaluating the Active Communication Education program for older people with hearing impairment. *Ear and Hearing*, **28**, 212–230.
- JEFFERSON, G., 2004, Glossary of transcript symbols with an introduction. In G. Lerner (ed.), *Conversation Analysis: Studies from the First Generation*. (Philadelphia, PA: John Benjamins), pp. 13–23.
- JORDAN, F. E., WORRALL, L., HICKSON, L. and DODD, B. J., 1993, The evaluation of intervention programmes for communicatively impaired elderly people. *European Journal of Disorders of Communication*, **28**, 63–85.
- KITZINGER, C., 2013, Repair. In J. Sidnell and T. Stivers (eds), *The Handbook of Conversation Analysis* (Chichester: Blackwell), pp. 229–256.
- KLIPPI, A., 2014, Pointing as an embodied practice in aphasic interaction. *Aphasiology*, **29**, 337–354.
- LAAKSO, M. and KLIPPI, A., 1999, A closer look at the ‘hint and guess’ sequences in aphasic conversation. *Aphasiology*, **13**, 345–363.
- LIND, C., 2013, Conversation repair: ecological validity of outcome measures in acquired hearing impairment. *Cochlear Implant International*, **14**(Suppl. 4), 48–51.
- LIND, C., CAMPBELL, K., DAVEY, A., RODGERS, L., SEIPOLT, C. and AKINS, C., 2010a, Some prosodic characteristics of repeated talk following conversation repair requests by adults with hearing impairment. *Seminars in Hearing*, **31**, 127–139.

- LIND, C., HICKSON, L. and ERBER, N., 2004, Conversation repair and acquired hearing impairment: a preliminary quantitative clinical study. *Australian and New Zealand Journal of Audiology*, **26**, 40–52.
- LIND, C., HICKSON, L. and ERBER, N., 2006, Conversation repair and adult cochlear implantation: a qualitative case study. *Cochlear Implant International*, **7**, 33–48.
- LIND, C., HICKSON, L. and ERBER, N., 2010b, Who said what? Sampling conversation-repair behavior involving adults with acquired hearing impairment. *Seminars in Hearing*, **31**, 104–115.
- LINDSAY, J. and WILKINSON, R., 1999, Repair sequences in aphasic talk: a comparison of aphasic-speech and language therapist and aphasic-spouse conversations. *Aphasiology*, **13**, 305–325.
- MONDADA, L., 2013, The conversation analytic approach to data collection. In J. Sidnell and T. Stivers (eds), *The Handbook of Conversation Analysis* (Chichester: Wiley-Blackwell), pp. 32–56.
- MONDADA, L., 2014, *Conventions for Multimodal Transcription* [online] (available at: https://franz.unibas.ch/fileadmin/franz/user_upload/redaktion/Mondada_conv_multimodality.pdf) (accessed on 7 April 2016).
- PAJO, K. and KLIPPI, A., 2013, Hearing impaired recipients' non-vocal action sets as a resource for collaboration in conversation. *Journal of Pragmatics*, **55**, 162–179.
- PICHORA-FULLER, M. K., JOHNSON, C. E. and ROODENBURG, K. E., 1998, The discrepancy between hearing impairment and handicap in the elderly: balancing transaction and interaction in conversation. *Journal of Applied Communication Research*, **26**, 99–119.
- PILNICK, A., HINDMARSH, J. and GILL, V. T., 2009, Beyond doctor and patient: developments in the study of healthcare interactions. *Sociology of Health and Illness*, **31**, 787–802.
- RANKIN, E., NEWTON, C., PARKER, A. and BRUCE, C., 2014, Hearing loss and auditory processing ability in people with aphasia. *Aphasiology*, **28**, 576–595.
- ROBINSON, J., 2006, Managing trouble responsibility and relationships during conversational repair. *Communication Monographs*, **73**, 137–161.
- SALDERT, C., FERM, U. and BLOCH, S., 2014, Semantic trouble sources and their repair in conversations affected by Parkinson's disease. *International Journal of Language and Communication Disorders*, **49**, 710–721.

- SCHEGLOFF, E., 1979, The relevance of repair to syntax-for-conversation. In T. Givon (ed.), *Syntax and Semantics 12: Discourse and Syntax* (New York, NY: Academic Press), pp. 261–286.
- SCHEGLOFF, E., 2002, Overwrought utterances: complex sentences in a different sense. In J. Bybee and M. Noonan (eds), *Complex Sentences in Grammar and Discourse: Essays in Honor of Sandra A. Thompson* (Amsterdam: John Benjamins), pp. 321–336.
- SCHEGLOFF, E., 2004, On dispensability. *Research on Language and Social Interaction*, **37**, 95–149.
- SCHEGLOFF, E., 2007, *Sequence Organization in Interaction* (New York, NY: Cambridge University Press).
- SCHEGLOFF, E., JEFFERSON, G. and SACKS, H., 1977, The preference for self-correction in the organization of repair in conversation. *Language*, **53**, 361–382.
- SIDNELL, J. and STIVERS, T., 2012, *Handbook of Conversation Analysis* (Boston, MA: Wiley-Blackwell).
- SKELT, L., 2007, Damage control: closing problematic sequences in hearing-impaired interaction. *Australian Review of Applied Linguistics* [special issue: Language as Action: Australian Studies in Conversation Analysis], **30**, 34.1–34.15.
- SKELT, L., 2010, ‘Are you looking at me?’ The influence of gaze on frequent conversation partners’ management of interaction with adults with acquired hearing impairment. *Seminars in Hearing*, **31**, 116–126.
- SKELT, L., 2012, Dealing with misunderstandings: the sensitivity of repair in hearing impaired conversation. In M. Egbert and A. Deppermann (eds), *Hearing Aids Communication* (Mannheim: Gesprächsforschung), pp. 56–66.
- STIVERS, T. and ROBINSON, J., 2006, A preference for progressivity in interaction. *Language in Society*, **35**, 367–392.
- SVENNEVIG, J., 2008, Trying the easiest solution first in other-initiation of repair. *Journal of Pragmatics*, **40**, 333–348.
- [AQ9] TYE-MURRAY, N., 2009, *Foundations of Aural Rehabilitation: Children, Adults, and their Family Members* (Delmare).
- TYE-MURRAY, N. and WITT, S. A., 1996, Conversational moves and conversational styles of adult cochlear-implant users. *Journal of the Academy of Rehabilitative Audiology*, **29**, 11–25.

- TYE-MURRAY, N., WITT, S. A. and SCHUM, L., 1995, Effects of talker familiarity on communication breakdown in conversations with adult cochlear-implant users. *Ear and Hearing*, **16**, 459–469.
- WILKINSON, R., 2006, Applying conversation analysis to aphasic talk: from investigation to intervention. *Revue française de linguistique appliquée*, **11**, 99–110.
- WILKINSON, R., 2007, Managing linguistic incompetence as a delicate issue in aphasic talk-in-interaction: on the use of laughter in prolonged repair sequences. *Journal of Pragmatics*, **39**, 542–569.
- WILKINSON, R., 2013, Conversation analytic investigations of dysarthria and hearing impairment: the impact of motor and sensory impairments on social interaction. *Journal of Interactional Research in Communication Disorders*, **4**, 1–26.
- WILKINSON, R., 2015, Conversation and aphasia: advances in analysis and intervention. *Aphasiology*, **29**, 257–268.
- WILKINSON, R., BEEKE, S. and MAXIM, J., 2003, Adapting to conversation: on the use of linguistic resources by speakers with fluent aphasia in the construction of turns at talk. In C. Goodwin (ed.), *Conversation and Brain Damage* (New York, NY: Oxford University Press), pp. 59–89.
- WILKINSON, R., BEEKE, S. and MAXIM, J., 2010, Formulating actions and events with limited linguistic resources: enactment and iconicity in agrammatic aphasic talk. *Research on Language and Social Interaction*, **43**, 57–84.
- WILSON, J., HICKSON, L. and WORRALL, L., 1998, Use of communication strategies by adults with hearing impairment. *Asia Pacific Journal of Speech, Language and Hearing*, **3**, 29–41.

Table 1. Summary of interactional environments in which clients initiated repair

Cause	Frequency	%
No mutual gaze	32	63
No mutual gaze plus first turn after prolonged gap	7	14
<i>Total no mutual gaze</i>	39	76
Fast talk	2	4

Complex grammar ('overwrought utterance')	2	4
Understanding trouble/inapposite prior	7	14
Overlapping talk	1	2
Total	51	100

Table 2. Key types of repair initiations by clients

Type	Example	Frequency	%
Open class	<i>What/Huh/Hey/Hm?</i>	11	22
Apology-based open class	<i>Sorry/Pardon/Beg your pardon?</i>	35	69
Category specific	<i>A little what?</i> <i>Do I what?</i>	5	10
Total		51	100

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