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Conversation Repair and Acquired Hearing Impairment: A Preliminary Quantitative Clinical Study

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This report provides a quantitative summary of the initial findings in a series of investigations into the validity and reliability of repair behaviour recorded in free conversation in clinical settings between adults who have acquired hearing impairments (HIs) and their frequent communication partners (FCPs). Seven adults who have severe or greater acquired HIs (and who had subsequently been either fitted with hearing aids or undergone cochlear implantation) were audio-recorded undertaking a 20-minute free conversation in a quiet clinical setting with their chosen FCP. Transcriptions of the conversations were analysed for the occurrence of repair sequences following the Conversation Analysis (CA) model. A total of 735 completed repair sequences were identified across the seven conversations, the majority occurring within the same turn as the trouble source. No difference was noted in the frequency with which all but one trajectory was initiated by either the HI or FCP participants. Repairs initiated by the HI participant and repaired by the FCP in response to a trouble source in a previous turn by the FCP occurred significantly more often than the same sequence initiated by the FCPs. The results emphasise the usefulness of framing repair activity arising from acquired HI in the broader conversational act of repairing and the CA model.

Conversation difficulties are commonly reported by adults with acquired hearing impairment (HI) as a major source of disability or activity limitation arising from their losses (Tye-Murray, Purdy, & Woodworth, 1992). These difficulties manifest as disruptions to the flow of the conversation requiring effort to repair the breakdown and re-establish the interaction. Much research attention has been paid to the manner in which these conversation breakdowns are repaired, and various clinical and research methods have been used to assess these breakdown/repair sequences, including computer-based (Tye-Murray, 1991; Tye-Murray, Purdy, Woodworth, & Tyler, 1990) and video-based exercises (Gagne & Wylie, 1989; Marzolf, Stewart, Nerbonne, & Lehman, 1998), and closed-set sentence response tasks (Tye-Murray, Witt, Schum, & Sobaski, 1994). Alternative approaches to the assessment of these sequences include simulation exercises (Chelst, Tait, & Gallagher, 1990; Wilson, Hickson, & Worrall, 1998) and workbook tasks (Tye-Murray,

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1992). Analysis has also been conducted on recordings of free conversation both in the clinic (Caissie, Dawe, Donovan, Brooks, & MacDonald, 1998; Pichora-Fuller, Johnson, & Roodenburg, 1998) and in everyday settings (Caissie & Rockwell, 1994; Caissie & Wilson, 1995; Erber & Greer, 1973).

The focus of many of these reports has been on breakdown and repair arising from hearing impaired participants' mishearing or misperception of another's utterance. Caissie and Rockwell (1994) and Tye-Murray and Witt (1996) have questioned such individuals' abilities to recognise and respond to instances of conversational breakdown. It may be inferred from this research that all breakdowns require repair, and that the repair sequences attributed to participants with HI occur in isolation from other forms of repair.

These assumptions, however, are seen in a different light by the sociological approach known as Conversation Analysis (CA), which places occurrences of breakdown and repair into a broader context of conversational behaviour. CA propounds the view of repair as an interactional resource rather than as a source or site of error on behalf of one or other of the participants in a dyadic conversation (Sacks, Schegloff, & Jefferson, 1974; Schegloff, Jefferson, & Sacks, 1977). The CA paradigm is a useful method for detailed qualitative investigation of conversational behaviours, particularly repair, across different communication settings. The original research into repair was conducted on interactions involving adults without impairment, and repair was found to be a commonplace conversational activity (Schegloff, Jefferson, & Sacks, 1977). Subsequently, the CA methodology has been used to investigate conversation in neurogenic disorders such as aphasia (Ferguson, 1994; Milroy & Perkins, 1992) and Alzheimer's disease (Hamilton, 1994; Watson, Chenery, & Carter, 1998), and interaction in adult second language learning (Bremer, Roberts, Vasseur, Simonot, & Broeder, 1996; van Lier, 1988).

The CA approach highlights the manner by which people conversing with each other achieve and maintain ongoing mutual understanding (such as is required for the purposes of a particular interaction). It is taken as commonplace in this model that participants in a conversation construct the content of their speaking turns with their audience in mind, labelled *recipient design* (Hutchby & Woofitt, 1998); however, despite this cooperative intent, moments arise when one or other participant recognises that the criterion of mutual ongoing understanding has been violated. At this point, the participant has the option of either instigating a repair to address the trouble that has arisen, or not doing so. Schegloff et al. (1977) indicate that repairs are not instigated in response to all instances of trouble. The initiation of a repair is a discretionary act by the person noting the occurrence of a trouble source. Once undertaken, however, it is common that all other conversation activity is put on hold until the trouble has been resolved. That is, there seems to be a strong imperative for the local resolution of misunderstandings (i.e., in the immediate vicinity of the trouble source) once they have been overtly noted in interaction. Schegloff et al. also suggested that attempts to repair trouble sources may follow different *trajectories* (i.e., different patterns of sequence) based on the turns in which the elements of the repair sequence are undertaken.

The identification of repair sequences and the allocation of each to a particular trajectory type has been a major focus of CA research into conversation breakdown, and it has been noted that participants show a preference for self-initiation and self-repair over other-initiation and other-repair. Further, it is noted that when trouble sources are addressed in the same turn (and therefore by the same speaker) there is a tendency for the repair initiator and repair to occur immediately following, and sometimes during, the utterance of the trouble source (Schegloff et al., 1977). We argue that these principles can be used to re-address or reframe important elements of the occurrence of repair sequences instigated by conversation participants who have acquired HI.

Thus, the primary research aim of this report was to apply the CA classification to samples of free conversation between participants familiar with each other when one has an acquired HI. Specifically, the primary research question in this preliminary investigation was whether repair sequences occur in quiet clinic settings between familiar conversation partners (FCPs), one of whom has an acquired HI. Should repair sequences occur, the question arises whether they follow the commonly held view that repair is initiated and undertaken at the first available opportunity following the trouble source. It was hypothesised that self-initiation and self-repair would occur more commonly than other-initiation and other-repair. Further, among self-initiated repairs, the most commonly occurring sequences would be those in which the repair initiator and repair are spoken immediately following the trouble source rather than later in the same turn. Finally, it was hypothesised that repairs initiated by the speaker with HI in response to a trouble source in the previous turn by the FCP would be more common than the same trajectory type initiated by the FCP.

METHOD

Participants

Purposeful sampling was used to select participants who recognised the occurrence of conversational difficulties in everyday interaction arising from their HI. Seven pairs of adult conversation partners participated in this study. One participant in each pair had an acquired HI of at least a severe degree in the better ear prior to either cochlear implantation (n = 5) or hearing aid fitting (n = 2) and noted daily conversational difficulties. All were native Australian English speakers, without histories of neurological problems. The 5 cochlear implantees were recruited from the cochlear implant program in the Flinders Medical Centre/Flinders University Department of Speech Pathology and Audiology. The 2 hearing aid users were recruited from audiological practices in suburban Adelaide.

Each HI participant conversed with his or her chosen FCP. The FCPs reported no HI, nor neurological history, and informal assessment identified no speech and/or language impairments. All were native English speakers, although in two dyads they were speakers of British English. Participant details are summarised in Table I.

Equipment and Recording

Each dyad was recorded on one occasion in a small well-lit clinic room in the Flinders Medical Centre Speech and Hearing clinic. Ambient noise levels in the clinic room were measured on two occasions over 10-minute periods at between 24.7 and 29.8 dB (A) slow with a peak reading of 43.8 dB (A) using a Bruel and Kjaer 2235 Precision sound level meter.

Participants sat at a small table directly across from each other (approximately 1 to 1.5 metres apart) and were encouraged to talk with each other as they would in their everyday conversation. They were informed that the topics of the conversation were of no consequence to the study and that they should feel free to talk about anything they wished. In order to minimise the likelihood of extended periods of silence should participants run out of conversation topics, a number of topic cards (Erber, 1996) were provided to stimulate conversation. Participants were encouraged to use these cards to prompt new topics should they feel the need.

Each conversation was audiotaped using a Marantz CP430 3-Head Stereo Cassette Recorder connected to a Sony ECM-MS957 digital stereo microphone. The microphone sat to the side of the table midway between participants. All recordings were made on Type II Chrome Dioxide audiotapes. The tape recording commenced immediately prior to the clinician leaving the room and all conversation recorded until the clinician re-entered the room was included for the purposes of transcription and analysis. Recordings varied in length between 21

TABLE I
Summary of Participant Details

Dyad Number	HI or FCP	Sex	Age (Yrs)	Relationship of FCP to HI	Hearing Device (ear)	Years device(s) used
1	HI	Female	70		C.Imp. (L)	9
	FCP	Male	19	Grandson		
2	HI	Male	57		C.Imp. (bilat.)	R = 9, L = 4
	FCP	Female	51	Spouse		
3	HI	Female	68		C.Imp. (R)	11
	FCP	Male	71	Spouse		
4	HI	Female	68		C.Imp. (L)	8
	FCP	Female	65	Friend		
5	HI	Female	80		C.Imp. (R)	4
	FCP	Female	72	Friend		
6	HI	Female	80		HA (bilat.)	R = 21, L = 27
	FCP	Female	71	Friend		
7	HI	Female	62		HA (bilat.)	R = 27, L = 32
	FCP	Male	65	Spouse		

Note: HI = hearing impaired participant, FCP = frequent communication partner, Left = L, Right = R, Bilateral = bilat, C.Imp = Cochlear implant, HA = Hearing aid(s)

minutes 10 seconds and 24 minutes 00 seconds.

For transcription purposes the audiotapes were digitised onto computer using Cool Edit Pro 1.2® software (Syntrillium Software Corporation, 1998). The Cool Edit Pro software allows an amplitude by time display which will show the entire recorded segment or which can be magnified to display the waveform over a period of less than a second. The program allows playback and/or measurement of periods of recording as brief as 0.001 sec. All transcription was conducted from the digitised recordings and was conducted according to current CA conventions for the transcription of conversation samples (Atkinson & Heritage, 1984; Cameron, 2001; Hutchby & Woffitt, 1998; Schegloff & Sacks, 1973).

Inter- and Intra-transcriber Reliability

Although the CA methodology promulgates the repeated analysis of data by a single analyst (Wootton, 1987), a clinical imperative exists to establish that transcription techniques are repeatable and reliable both within and between transcribers. In order to meet the imperatives of both theoretical perspectives, three of the seven conversations were used for an assessment of transcription reliability. Two transcribers (T1 and T2) worked on this task. The first conversation, Dyad 1, was used as a *consensus* recording. The initial full transcription of the audiotape by T1 was checked by T2 and any changes made and marked. T2's changes were checked in turn by T1 and subsequent changes were made and marked and so on until the transcribers agreed on a final text. Dyads 2 and 3 were used for the

assessment of inter- and intra-transcriber reliability. T1 transcribed Dyad 2 twice for the purposes of intra-transcriber reliability and T2 for inter-transcriber reliability, and the roles were reversed for the transcribing of Dyad 3. All inter- and intra-transcriber measures were found to be greater than 80% for word and word-like speech units for both dyads.

Analysis of Repair Behaviour

The CA approach to analysis of repair is underpinned by a model of conversational turn taking that breaks each participant's speaking turn into *turn constructional units* (TCUs) each separated by a *transition relevant place* (TRP). A TCU is a unit of talk that can stand as a full turn and which may be as brief and simple as a single word or as intricate as a main clause-subordinate clause complex (Ford & Thompson, 1996). A speaker's turn may be made up of one or more TCUs. TRPs are the points in conversation where participants negotiate turn taking and follow the completion of each TCU. In most instances, at these points, the current speaker self-selects (i.e., continues his/her turn); however, at certain TRPs participants negotiate to swap speaker/listener roles (Ford & Thompson, 1996). In summary, conversation is structured such that a speaker's turn is composed of TCUs interspersed by TRPs, and the next speaker begins his/her turn at a particular TRP when the role of speaker is given up or taken up by negotiation between participants.

The analysis of repair sequences under the CA model is based on identification of one or more of the four elements of a repair sequence, namely: trouble source (TS), repair initiator (RI), repair (R) and/or repair confirmation (RC). These elements are allocated to one or other participant role relative to the person speaking the utterance containing the TS. For instance, a repair behaviour attributed to the speaker of the TS is labelled as having arisen by *self* (i.e., the TS is addressed by the person who spoke it) and a behaviour attributed to the listener is labelled *other*. The turns in which these behaviours arise are numbered such that the turn containing the TS is considered the *first (or same) turn*, the subsequent turn opportunity taken up by the other participant is referred to as the *next turn*, and turns allocated from this point are numbered third turn, fourth turn and so on. The six broad classes of repair trajectory developed by Schegloff et al. (1977) and applied in the present study are as follows:

- self-initiated, self-repair occurring within the same TCU as the TS (labelled same turn SISR)
- self-initiated, self-repair occurring in the same turn as the TS but following a TRP (SISR @ TRP)
- self-initiated, self-repair occurring in the third turn after the TS (3rd turn SISR)
- other-initiated, self-repair (OISR)
- other-initiated, other-repair (OIOR)
- self-initiated, other-repair (SIOR).

Examples of the six trajectory types are presented in Table II. Individual repair sequences were first identified in the transcribed texts by locating interruptions to the flow of the conversation in the form of either of the instigating elements of a repair sequence (i.e., the RI or R), the TS not always being observable. Subsequently, the six trajectories were grouped by the turns in which the RI and R occurred relative to the implied or observed TS.

In this study, same turn SISRs and SISRs@TRP were grouped together because for these two trajectories the three elements (i.e., the TS, RI and R) occur within a single turn at speaking and occur without prompting from the other participant. As such they were labelled *within-turn trajectories*. The other four sequences were grouped together as *across-turn trajectories*, requiring more than one speaker's turn for the TS, RI and R of the trajectory to be completed. In these across-turn trajectories, repairs were prompted and/or repaired by the participant not uttering the TS. Finally, each repair was classified by whether the HI or FCP was the speaker of the RI.

TABLE II

Examples and Definitions of Each of the Six Repair Trajectory Types (Schegloff et al., 1977) taken from Seven Conversations Involving HI Adults and their Chosen FCPs

Same turn Self-initiated Self-repair (Same turn SISR)

(Trouble source, repair initiator and/or repair all occurring in the same turn and within a single turn constructional unit)

Line	Participant	Repair Activity	Text
1	HI		um (2.8) are you still using your computers Darren↑
2			(0.8)
3	FCP	TS/RI/R	yeah mos- (1.0) sometimes * /kz/ I'm /no?/ at uni this year=
4	HI	RC[8]	=no↓
5	FCP		I'm not using it as much

(S1.D1.RD.001)

Self-initiated Self-repair at a Transition Relevant Place (SISR@TRP)

(Repair initiator and/or repair occurring in the same turn but in a turn constructional unit following the trouble source)

Line	Participant	Repair Activity	Text
1	FCP	TS/RI/R	I dunno * looks like a children's (1.2) playground * is it (0.3) *
2	FCP		like a day care centre for kids * (0.4) can you see it↑
3			(0.8)
4	HI	RC	I can see it yeah

(S1.D7.CB.017)

Third turn Self-initiated Self-repair (3rd turn SISR)

(Repair initiator and/or repair occurring in the next turn taken by the speaker of the trouble source)

Line	Participant	Repair Activity	Text
1	HI	TS	[and that was] (0.3) /Îm:/ Aitkin * I think its Mark Aitkin or
2	HI		something * = =from channel:: um
3	FCP		=I don't know=
		• • • •	
10	HI	RI/R	he's (0.3) he's got it
11	FCP	RC	[yeah]

(S1.D6.OJ.104)

Other-initiated Self-repair (OISR)

(Repair initiator occurring in the turn spoken by the other following the turn with the trouble source, and subsequently repaired by the speaker of the trouble source)

Line	Participant	Repair Activity	Text
1	FCP	TS	doesn't sound very profitable * I s'pose they make profit on the
2	FCP		coffee
			(0.3)
3	HI	RI	don't mumble * what↑
4			(0.9)
5	FCP	R	I said I guess they make a profit on the coffee even if they don't sell
6	FCP		the book
7	HI	RC	even if they don't sell the book * yeah

(S1.D7.CB.456)

TABLE II continued

Self-initiated Other-Repair (SIOR)

(Repair initiator occurring in the same turn as the trouble source and repaired by the other in a subsequent turn)

Line	Participant	Repair Activity	Text
1	HI	TS/RI	I think he's channel [its] either channel ten or nine
2	FCP		[nine]
3	FCP	R	nine
4	HI	RC	it could be nine [I think]
5	FCP		[yeah hm:]

(S1.D6.OJ.180)

Other-initiated Other-repair (OIOR)

(Repair initiator and/or repair occurring in the second or subsequent turn spoken by other)

Line	Participant	Repair Activity	Text
1	FCP	TS	that was hard luck * there were only a few days over
2	HI	R	four days over * (1.5) 'cause we went on our wedding anniversary
3	HI		((laugh))
4			(0.3)
5	FCP	RC	that's how you remember

(S1.D3.SA.477)

Note: Transcription conventions
- * transition relevant place
- (1.0) pause length (measured to 0.1 sec)
- [ ] overlapping speech
- = contiguous speech (i.e., no pause between turns)
- ↑ upward (e.g., questioning) inflection
- - incomplete or abrupt word ending
- / / phonetic transcription
- (( )) non speech vocalisation

RESULTS

Analysis of the seven 20-minute dyadic conversations was undertaken to address the primary research question of whether repair sequences occur in free conversations in clinic settings between adults who have acquired HI and their FCPs. Table III shows the number of repairs identified across conversations by trajectory and by speaker of the RI and indicates that instances of all six trajectory types were noted in this sample. In total, 738 repair sequences were noted across the seven dyads. Of these, three repair initiations remained unaddressed by either speaker and were omitted from further analysis, thus the total of completed sequences numbered 735. Of the completed sequences, the majority were same turn SISRs, comprising 535 of the 735 sequences or 72.8 % of the total, followed by OISRs (15.9 %) and SISRs@TRP (7.1 %).The remaining three trajectories made up only 31 of the total trajectories or 4.2 % of the sample. As multiple statistical analyses have been conducted on the data, the more stringent alpha level of .01 was set as the criterion for significance.

In order to address the hypothesis that speakers tend to undertake repair activity in as close proximity as possible to the TS, a distinction was drawn between repair sequences in which the RI and R arise in the same turn as the TS and those in which the RI and R occur in turns subsequent to the TS. The former were labelled within-turn trajectories and comprised same turn SISRs and SISRs@TRP trajectories. Repair sequences in which the RI and R occurred in turns subsequent to the turn containing the TS were labelled across-turn repairs (i.e., 3rd turn SISRs, OISR, SIOR and OIORs). Within-turn SISR trajectories (587/735 or 79.9%) were more frequently uttered than

across-turn trajectories (148/735 or 20.1%; Binomial test, one-tailed $z = 16.15$, $p < .01$). Further, of the within-turn SISR sequences, significantly more same turn repair sequences ($n = 535/587$ or 91.1 %) were uttered than SISRs@TRP ($n = 52/587$ or 8.9 %; Binomial test, one tailed $z = 19.9$, $p < .01$). Together these two results indicate that, in general, repair activity is undertaken at the first available opportunity following the TS. That is, it was more common that repairs were undertaken within the turn containing the TS than in subsequent turns and when addressed within a single turn, more common within the same TCU as the TS than in the TCU that followed.

When grouped by whether the speaker of the TS uttered the RI, self-initiated sequences (80.1%) significantly outnumbered other-initiated sequences (19.9%; Binomial test, one-tailed $z = 16.3$, $p < .01$). Similarly, instances of self-repair (706/735, or 96.1%) significantly outnumbered other-repair sequences (29/735, or 3.9%; Binomial test, one-tailed $z = 24.9$, $p < .01$). These results confirm the hypothesis that self-initiation and self-repair occur more commonly than other-initiation and other-repair.

In order to investigate the hypothesis that certain repair trajectories are more likely to be initiated by participants with HI, each trajectory was classified by whether the HI or the FCP was the speaker of the repair initiator. Same turn SISRs and SISRs@TRP were both equally likely to be produced by either participant (same turn SISRs: Binomial test, two-tailed $z = 1.9$, $p = .06$, *ns*; SISRs@TRP: Binomial test, two-tailed $z = 1.5$, $p = .14$, *ns*). Amongst the four across-turn trajectories, the low numbers and equal distribution between participants of initiation of 3rd turn SISRs and OIORs obviated statistical analysis. The SIOR trajectory was equally likely to be initiated by either participant (Binomial test, two-tailed $z = 0.0$, $p = .5$, *ns*). There was a difference, however, for OISRs, in that OISR sequences were initiated significantly more often by the HI participant than by the FCP (98/117 versus 19/117, Binomial test, one-tailed $z = 7.2$, $p < .01$). The uneven distribution of OISR trajectories by speaker of the RI indicates that the HI initiated these sequences significantly more often than the FCP, and is in support of previous research indicating that this is a commonly occurring across-turn trajectory type arising from the initiation of repair by adults who have acquired HI.

DISCUSSION

This paper reports summary data from the first study of a larger research project into the

TABLE III
Instances of Repair across the Seven Conversations Classified by Trajectory Type

Repair trajectory type	Frequency of occurrence by speaker of RI		
	FCP	HI	TOTAL
Within-turn trajectories			
Within-TCU SISR	313	222	535
Across-TCU SISR	32	20	52
Across-turn trajectories			
3rd turn SISR	1	1	2
OISR	19	98	117
OIOR	4	4	8
SIOR	11	10	21
Unrepaired (RI^1 only)	0	3	3
TOTAL	380	358	738

Note: RI = Repair initiator, FCP = Frequent communication partner, HI = Hearing impaired participant.

reliability and validity of the clinical sampling of free conversation in the assessment of conversation repair arising in everyday interaction involving adults who have acquired HI and their FCPs. The primary purpose was to establish whether instances of repair would be found in conversations conducted in a clinical setting between these participants.

Analysis of the patterns of trajectories in the seven dyads resulted in a total of 735 completed repair sequences including instances of all six repair trajectory types reported in the sociolinguistic, clinical and educational literature. As hypothesised, the number and distribution of repair sequences indicates that repairs in interaction involving adults who have acquired HI is not limited to those initiated by the participant who is hearing impaired. All six trajectory types were found in these samples and instances of all were found to be initiated by both the FCP and the HI participants.

Distributional differences were noted in the frequency with which the OISR trajectory occurred. First, OISR was the most frequently occurring of the across-turn trajectories. Second, it was the only one of the six trajectory types not equally likely to have been initiated by either participant. HI participants initiated this more frequently than FCPs. This provides preliminary quantitative evidence for the relevance of the OISR to conversations involving HI participants. However, this result does not imply that all instances of the OISR initiated by the HI communicator arose as a result of mishearings. Schegloff (1992) draws the distinction between repair initiators addressing pragmatic meaning (i.e., in general, stating "I don't know what you intended") and those addressing linguistic content (i.e., in general, stating "I don't know what you meant"). By contrast, investigations of repair sequences arising in conversations in which HI adults participate have focused on the occurrence of a third type of repair, one in which *surface structure* mishearings occur (i.e., those in general, stating "I didn't hear what you said"; Caissie, Dawe, Donovan, Brooks, & MacDonald, 1998; Caissie & Rockwell, 1993; Pichora-Fuller, Johnson, & Roodenburg, 1998). A priori, there is no reason to suggest that either the HI participant or the FCP would be more likely to initiate repairs of either a pragmatic or linguistic nature. It remains to be seen whether analysis of RIs and the responses to them can distinguish between these three repair types (i.e., pragmatic, linguistic and surface structure) and whether the preponderance of OISR sequences in this sample initiated by the HI participant address surface structure TSs in contrast with pragmatic or linguistic ones.

It has long been suggested that participants in conversation display a preference for self-initiated over other-initiated repair and for self-repair over other-repair (Schegloff et al., 1977). These preferences were borne out in this sample of conversations for both HI and FCP participants, as the significant majority (79.9%) of the 735 trajectories were within-turn repair sequences. Further, a comparison of the proximity of the location of the RI and R following the TS indicated that amongst the 587 instances of within-turn SISRs, the vast majority of RI/R sequences arose within the same TCU as the TS. Only a small percentage of within-turn repairs were held over until subsequent TCUs. These two findings together support the assertion that there exists an imperative for repair to occur as immediately as possible following the occurrence of the TS. The relatively high proportion of same turn SISRs by contrast with SISRs@TRP initiated by both FCPs and HIs suggests that this preference for immediate attention to the instigation of repair was common to all participants regardless of their hearing status.

The ability of speakers to *frame* their turns with their current communication partner in mind, particularly in light of their shared knowledge, has been a central tenet in explaining the success of everyday conversation in the CA paradigm (Bublitz, 1988). In the clinical literature it has been suggested that skilled FCPs conversing with HI interlocutors may be identified by their ability to

process their own utterances "on-line" to address potential sites or sources of breakdown as they arise (Erber & Lind, 1994). Reinterpreted in terms of CA theory, the skilled FCP may bring an extra dimension of recipient design into their turns. Alongside the framing of utterances with respect to pragmatic meaning and referential content, the FCP may also address potential surface structure problems with the HI in mind. Therefore, it might be expected that both participants are equally likely to address pragmatic and linguistic issues. However, the FCP, aware of the needs of his/her communication partner, has the additional focus on the clarity of the surface structure in response to the increased potential for mishearings by the HI. In this case the number of instances of within-turn SISRs initiated by the FCP might be expected to be greater than those instigated by the HI participant. No such quantitative difference was noted in these conversational samples. The distributional evidence in this paper supports the view that familiarity with conversation partners may present as on-line processing, and thus the occurrence of within-turn SISRs, in the conversational behaviour of *either* participant's turns. However, further qualitative investigation may shed light on differences between the HI and the FCP in the nature of within-turn trajectories.

Although this study provides some interesting insights into conversation behaviour between people with HI and their FCPs the results here are limited by several factors. The seven conversation dyads who each undertook the research task were purposefully selected, based primarily on reported conversation difficulties in everyday interaction. While this study investigated the patterns of conversation repair as they may be influenced by acquired HI, these effects must be considered amongst the possible effects on conversation of age (Mackenzie, 2000; Stafford & Bayer, 1993), gender (Henley & Kramarae, 1991; Holmes, 1995) and intergenerational talk (Barbato, Graham, & Perse, 2003). Further, the importance of gestural and other visual cues in everyday conversation has been widely reported (Bavelas, Coates, & Johnson, 2002; Kendon, 1994); however, no formal assessment of vision assessment was conducted. It was noted that no repair initiators in any of the seven dyads made overt reference to vision as a basis for misunderstanding or misperception in repair sequences; however, it remains for later analysis to investigate the patterns of eye contact, gesture and body language on the conduct of repair sequences.

The fact that participants had at least a severe or greater loss in the better ear may have had some effect on the likelihood of repairs occurring in relatively quiet surrounds of the clinic. Further, the relatively conducive nature of the recording setting (e.g., quiet environment, familiar communicators and conversation as the focus of the task) may have influenced the number and outcome of the repairs observed. Conversations are often recorded in clinical settings in which it is the primary task. This is in contrast to real-life conversations when attention is divided, and physical proximity and eye contact may vary throughout the interaction. Research in clinical settings has indicated that background noise levels and talker familiarity of talkers will influence the quantity and quality of repair activity (Pichora-Fuller, Johnson, & Roodenberg, 1998; Tye-Murray, Witt, & Schum, 1995).

CONCLUSION

Conversation disability arising from acquired HI has been the focus of a substantial body of research in recent years (Erber, 2002; Tye-Murray, 1998). Much of the analysis of the repair sequences in past reports has focused on instances of trouble arising in a turn spoken by the FCP, subsequently initiated by the HI participant and repaired by the FCP. In CA parlance this is referred to as other-initiated self-repair (OISR) in which the HI initiates the sequence. The findings presented in this paper cast these occurrences in the broader view of the number, type and person initiating the repair sequences arising in such conversations.

This preliminary report focuses on a summary of interactional events occurring across a small number of conversations involving adults who have acquired HI. It is clear that such information must be accompanied by more detailed qualitative analysis for the full picture of these activities to appear. Proponents of the CA approach emphasise the context sensitivity of conversational behaviour and its irreducibility to quantitative analysis (see Schegloff, 1993). However, the clinical imperative remains to develop a reliable and repeatable assessment and analytic tool of these behaviours for rehabilitation purposes. The long-term aim of this project is to address the reliability and validity of clinical assessment of conversation repair behaviours. It seems that a subtle balance must be struck between the interpretive methods of CA inquiry on the one hand and an inductive clinically-driven methodology on the other.

Future research also needs to clarify whether the patterns of repair behaviour observed in clinic settings reliably reflect everyday conversational repair behaviour. Until these matters have been established, the increasingly common practice of undertaking clinical recordings is of uncertain use. Should the link be made between clinic samples and everyday conversation behaviour, it still remains to investigate the effects on conversation repair activity of the manipulation of variables such as background noise, conversation partner familiarity and conversation task.

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