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Multiple repair sequences in everyday conversations involving people with Parkinson's Disease

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Keywords:	Parkinson's disease, conversation analysis, dysarthria, Multiple repair

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Manuscripts

Review Only

What this paper adds*What is already known on this subject?*

The hypokinetic dysarthria associated with Parkinson's Disease (PD) causes speech intelligibility problems, which people with PD (PwPD) report, impact negatively on their experiences of everyday interactional participation. There is a lack of knowledge regarding the specific nature of these difficulties. Previous conversation analytic (CA) studies, focussing on other types of dysarthria, have revealed valuable information about what happens when everyday conversations are disrupted by the need for repair and have also touched on the phenomenon of multiple repair, where more than one attempt is made by a conversation partner to resolve a trouble source.

What this paper adds

This CA study examines instances of multiple repair in everyday conversations between PwPD and their conversation partner (CPs), shedding light on the methods used by CPs to initiate repair and the ordering of the repair initiators used. This leads to a proposal for an intervention, which, following further development, could enable SLTs to target the use of participation focussed communication strategies.

Abstract

Background

Features of dysarthria associated with Parkinson's Disease (PD), such as low volume, variable rate of speech and increased pauses, impact speaker intelligibility. Those affected report restricted interactional participation, although this area is under explored.

Aims

The aim of this study was to examine naturally-occurring instances of problems with intelligibility that resulted in multiple attempts at repair in order to consider repair initiation strategies that might restrict or enhance participation.

Methods and procedures

Thirteen people with PD video-recorded over 10 hours of informal conversation data, in the home setting, involving familiar conversation partners (CPs). Using a conversation analytic approach, and drawing on an existing typology of repair initiators (RIs) for everyday talk-in-interaction, and their relative power to locate a turn's repairable element, the design and ordering of RIs used by CPs was addressed, alongside their local consequences.

Outcomes and results

CPs tended to increase the specificity of their RIs in line with the existing typology, progressing from open class forms (e.g. 'mm?') to more specific forms (e.g. questions/partial repeats). Repeated open class RIs (OCRIs) were used where PD speakers' self-repair attempts provided limited information. Sometimes however, specificity was increased too soon, before enough syntactic knowledge was gleaned, which resulted in an extended repair sequence.

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3 Where one OCRI followed another, the second always took a different form; lexically
4
5 or in terms of prosodic/non-verbal features. RI forms not described in the existing
6
7 typology were also identified, such as 'prompts to modify speech' (e.g. 'Speak
8
9 louder') and repeating/rephrasing the original First pair part (FPP, e.g. question), and
10
11 their effectiveness examined.
12

13 *Conclusions and implications*

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15 First steps are presented towards the design of a communication intervention
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17 promoting the efficient resolution of repair to moderate social withdrawal and
18
19 increase participation for this client group. Future research will need to explore the
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21 feasibility and acceptability of such a resource.
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Background

Parkinson's Disease and communication

Around 70% of people with Parkinson's Disease (PD) experience 'hypokinetic' dysarthria (Hartelius and Svensson, 1994) the clinical features of which include reduced vocal volume and intonation, imprecise articulation, speech initiation difficulties and variable rate (Duffy, 2005). This can greatly impact on speech intelligibility.

People with PD (PwPD) report that participation in everyday conversations is restricted (Miller et al., 2006), yet research into everyday 'outside the clinic' communication is limited and speech and language therapists (SLTs) lack resources to help improve participation for this client group (Griffiths et al., 2011). Moreover, the psychological and social impact of dysarthria, irrespective of the underlying neurological condition, has remained under researched despite a growing awareness amongst researchers and practitioners in the field that such issues have a core relevance to theoretical and clinical frameworks, clinical resources and outcome measures (Bloch et al., 2011). Future research on developing and evaluating assessments and interventions therefore needs to address barriers to social participation (Bloch et al., 2011). This research should focus on what happens for people outside the clinical setting, and should not focus purely on the person with dysarthria – as Walshe and Miller have argued, 'there is much to be done on listener education' (2011:202).

There has been a recent emergence of a social interaction research approach to dysarthria associated with conditions other than PD. Everyday communication outside the clinical setting has been explored, notably in the conversation analytic

1
2
3 work of Bloch and Wilkinson (e.g. 2004, 2011) on Motor Neurone Disease (MND),
4 leading to speculation by some that this approach might provide a step towards
5 extending an understanding of participation (O'Halloran and Larkins, 2008; Hartelius
6 and Miller, 2011).
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10 11 ***Repair in conversation and dysarthria***

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14 Studies of everyday interaction in dysarthria to date have revealed important
15 information about what happens when progression in conversation is impeded by the
16 need for 'repair'. Repair is described as the range of practices available to speakers
17 for resolving troubles with speaking hearing, understanding (Schegloff et al., 1977)
18 or acceptability (Schegloff, 2007). Researchers often refer to a problematic segment
19 of talk as the 'trouble source' or the 'repairable'. Studies of ordinary conversation
20 have revealed that when a potential trouble source arises, unless passed over, a
21 repair sequence typically unfolds in two stages. First, repair initiation occurs,
22 whereby the need for repair is initiated by the speaker of the trouble source (self-
23 initiation of repair) or another speaker (other-initiation (OI) of repair). Second, the
24 repair outcome - a 'solution or abandonment of the problem' (Schegloff, 2000) - the
25 solution being carried out by 'self' or 'other'.
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40 Repair plays an important role in maintaining 'intersubjectivity', or shared
41 understanding, between co-participants in conversation. Every turn at talk displays
42 understanding of the previous turn (Heritage, 1984). When understanding is
43 potentially at stake, the 'machinery' of repair can operate to restore, as quickly as
44 possible, the intersubjectivity that is the basis of collaborative action (Schegloff,
45 1992).
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54 Studies examining repair in dysarthria, have so far mainly involved participants with
55 MND (e.g. Bloch, 2005, 2011; Bloch and Wilkinson, 2004, 2009) and Multiple
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3 Sclerosis (e.g. Rutter 2009; Bloch and Wilkinson, 2011). These neurological
4
5 conditions are associated with 'mixed' dysarthria, which is qualitatively different from
6
7 hypokinetic dysarthria and can have a variety of features depending where in the
8
9 motor system the depletion of motor neurones (MND) or the demyelination of nerves
10
11 (MS) has occurred. For example, the speech of a person with advanced MND, where
12
13 there is damage throughout the motor system, might be effortful and slow, with vocal
14
15 straining and hypernasality. When speech is affected in MS there can be a
16
17 combination of features caused by excess muscle tone and incoordination (e.g.
18
19 excess and equal stress on syllables).
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21

22
23 In addition, Clarke and Wilkinson (2008) have examined repair patterns in
24
25 conversations involving children with cerebral palsy (CP) and severe dysarthria, who
26
27 use augmentative and alternative communication (AAC) systems as their primary
28
29 mode of communication. In this type of research the focus is on how the use of a
30
31 communication system, rather than the speech impairment, impacts on conversation.
32
33 Alternatively, some studies have examined interaction for dysarthric speakers with
34
35 MND who use AAC as an adjunct to speech (e.g. Bloch and Wilkinson, 2004, 2009).
36
37 Amongst the findings of such studies, conversationalists have been shown to
38
39 collaborate to resolve a trouble source or avoid trouble. For example, in order to
40
41 avoid the need for repair, an utterance may be collaboratively produced by two or
42
43 more speakers, sometimes in idiosyncratic ways. Bloch (2005) identified a naturally
44
45 developed strategy reducing the need for too much repair:
46
47

- 48 a. The dysarthric speaker produces an incomplete turn of talk, then pauses
- 49
- 50 b. The recipient repeats back the utterance with flat intonation (i.e. not to initiate
- 51
- 52 repair but as a checking/display of understanding device)
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- 54
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- 56 c. The dysarthric speaker completes the turn
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3 This efficient system is also seen when the dysarthric speaker self-repairs using
4 spelling aloud.
5

6
7 This steadily expanding research into the effects on interaction in different types of
8 dysarthria has made a unique contribution to knowledge by revealing patterns of
9 repair that differ from those found in ordinary conversation and indeed other types of
10 communication disability. Exploring the success or otherwise of repair practices in
11 communication disability can be useful in providing therapy targeted at the problems
12 people encounter on a daily basis.
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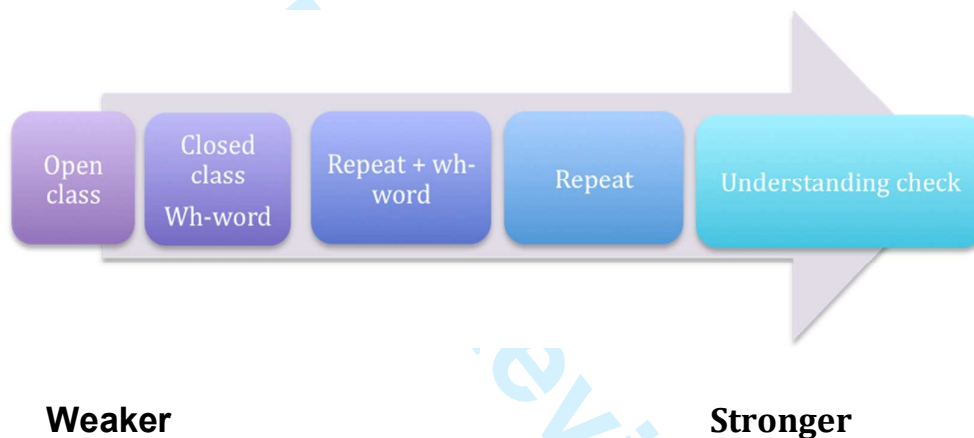
15
16 These benefits have now begun to extend to the study of repair in conversations
17 disrupted by a speaker's hypokinetic dysarthria. Griffiths et al (2012) found that
18 speakers with PD often find their turns at talk being subject to overlap by other
19 parties, which can lead to the need for repair, or alternately, to the PwPD's turns
20 being effectively deleted from the interaction. The authors suggest that characteristic
21 features of PD communication, such as speech initiation difficulty, low vocal volume
22 and cognitive impairment result in a potential vulnerability to being 'talked over'.
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36 ***Multiple repair***

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38 Some of this previous work on repair in dysarthria has touched on the issue of
39 'multiple repair', whereby more than one repair initiator (RI) is needed to resolve a
40 single trouble source (Schegloff et al.,1977). Bloch and Wilkinson (2004, 2009,
41 2011), have already described some specific ways in which 'extended repair
42 sequences' can arise and how they get resolved. As multiple repair sequences
43 present an intensified threat to participation in conversation, however, it would be
44 valuable to understand yet further how these unfold in relation to what might be
45 expected in ordinary conversation.
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Based on studies of everyday talk between non-communication impaired speakers, (Schegloff et al., 1977) developed a typology showing how OI can be more or less helpful to the speaker of the repairable utterance in locating which element of that utterance is problematic. This is important for ensuring that repair is achieved as quickly as possible. Types of RIs have a 'natural ordering' based on their relative power to enable the 'repairee' in this respect (Schegloff et al., 1977).

Figure 1: Typology of OI forms (Schegloff et al.,1977)



At the weak end of the spectrum are open class repair initiators (OCRIs) such as 'pardon?' and 'mm?', which indicate some kind of trouble, but do not locate a specific repairable element of the utterance. More powerful would be a closed class RI using a question word like 'who?' (indicating trouble with a person referent); 'where?', (indicating trouble with a place referent) and so on. 'What?', can be either an open class or closed class RI depending on whether used to display a general problem with hearing, or to locate a problematic noun phrase ('the what?'). Moving along the continuum, framing a question word with a repeat of an element of the repairable utterance ('You went to the what?') provides more power. Repair can also be initiated by repeating an element without a question word ('You went to the lido?') and finally by using a direct understanding check: 'Do you mean the outdoor

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3 swimming pool?' RIs often perform this type of check by offering a candidate solution
4
5 to the trouble, either in combination with another RI or alone: 'What? The pool?'
6
7 (Sidnell, 2010). Along with the initiation form, intonation plays a crucial part in
8
9 alerting the repairer to the precise nature of the trouble.
10

11 Schegloff et al (1977) acknowledge that the typology is not an exhaustive list of RI
12
13 types and their use is not simply a matter of choice (Schegloff, 1987), but is based
14
15 on a range of interactional circumstances. It is often the case that OCRIs indicate a
16
17 general problem with hearing; a recipient being unable to hear enough of the
18
19 repairable turn to provide a stronger form. However, they can also indicate problems
20
21 in interpreting the action a speaker means to accomplish; a serious question versus
22
23 a joke for instance (Sidnell, 2010). It is important also to recognise that the use of a
24
25 RI does not necessarily provide an insight into cognitive state, including the user's
26
27 motivations for selecting specific forms (Drew, 1997).
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31 As well as looking at multiple repair sequences in terms of the specificity of RIs,
32
33 some authors have described an ordering of RIs based on how they present the type
34
35 of trouble source to its speaker. For instance, where there is a problem with the
36
37 acceptability of a turn, recipients tend to start by indicating a problem of hearing or
38
39 understanding, as this is less socially complicated and gives the speaker the
40
41 opportunity to address what was unacceptable within the next turn (Pomerantz,
42
43 1984; Schegloff, 2007). Whilst this provides some insight, in conversations involving
44
45 people with PD, recent research suggests that open class is by far the most frequent
46
47 type of repair initiation used (Griffiths, 2013). This suggests that in conversations
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49 involving people with dysarthria, recipients of disordered speech do not exhibit the
50
51 same order of preference organisation. Where intelligibility of speech is a problem,
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3 recipients often have limited information from which to construct anything other than
4
5 an OCRI.
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7 Multiple repair sequences have also been addressed in the aphasia literature. For
8
9 example, Perkins et al (1999) observed that the strength of RIs used initially,
10
11 determined the length of the resulting repair sequence in conversations between
12
13 speakers with aphasia and their conversation partners (CPs). Weak, open class RIs
14
15 resulted in more protracted repair sequences. The authors demonstrated that how
16
17 and when repair initiation is used is significant in shaping the repair sequence
18
19 overall, but after the first RI, did not address the ordering of subsequent forms.
20
21 Despite this interest in multiple repair and communication disability, to the authors'
22
23 knowledge, there have been no studies addressing the ordering of RIs by CPs in
24
25 such sequences, or consideration of whether these operate hierarchically. This kind
26
27 of information could inform CPs about 'what to try and in what order' to resolve a
28
29 repair situation most efficiently.
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34 **Aims**

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36 This study was part of a wider research project aiming to identify threats to
37
38 participation and strategies used to manage participation in conversations. The focus
39
40 of the current paper is to examine instances of speech intelligibility problems
41
42 resulting in multiple attempts at repair and to identify strategies for managing this
43
44 kind of heightened threat to participation. A further aim is to generate ideas for the
45
46 development of clinical interventions targeting participation for this client group.
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50 **Methods and procedures**

51 *Data Collection*

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53 Following NHS ethical approval, speech and language therapists (SLTs) and PD
54
55 Nurse Specialists across four NHS Health Trusts, recruited 13 participants with PD.
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3 Background information for each of the 13 participants is presented in Table 1.
4
5 Pseudonyms have been used to protect participant confidentiality.
6

7
8 In order to better describe the sample, during a home visit, the first author (who is a
9
10 SLT) carried out several clinical assessments. These included a measure of overall
11
12 disease severity; the Hoehn and Yahr (1967) disability rating scale. This allocates
13
14 stages from 1 to 5 to indicate the relative level of disability, with stage one
15
16 representing mild symptoms and stage five indicating that the patient may need
17
18 constant nursing care. The Frenchay Dysarthria Assessment Edition 2 (FDA-2)
19
20 (Enderby and Palmer, 2008) was also used.
21

22
23 Participants were then given training in how to video-record everyday conversation
24
25 with their familiar conversation partners (CPs) in the home setting over a period of
26
27 two weeks.
28

29 *Analytic Process*

30
31 The video data was transcribed and analysed according to the principles of
32
33 Conversation Analysis (CA). The first stage of analysis involved becoming familiar
34
35 with the video data through repeated viewings and initial verbatim transcription of the
36
37 entire data set. Next, a full CA transcription of sections of the data took place, using
38
39 the Jefferson (2004) system of transcription, taking account of prosodic features,
40
41 simultaneous talk and (where of interest) non-verbal features.
42
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44
45 Data transcription and analysis took place using Transana software version 2.30
46
47 (Woods and Fassnacht, 2008). This allows a researcher to work with large amounts
48
49 of video data, use CA transcription conventions, measure pause durations and
50
51 organize clips into meaningful categories and collections as analysis proceeds.
52

53
54 Transcription acts as a major 'noticing device', making it possible to attend to details
55
56 of the interaction that would not be apparent to the ordinary listener (Ten Have,
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1
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3 2007). During the data-driven analytic process, which relies on close and minute
4 scrutiny of sequences of dialogue, across-case instances of multiple repair, defined
5 as a sequence in which more than one repair initiator (RI) is used to attempt to
6 resolve that single trouble source were identified. These were examined in the
7 manner of a comprehensive data treatment (Ten Have, 2007), with distinctive and
8 shared features extrapolated. Instances that appeared to differ from the emerging
9 pattern in terms of their design or positioning (deviant cases) were examined for
10 what they could reveal about the integrity of the on-going analysis or the interactional
11 consequences for the participants of deviation from a rule.
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23 'Data sessions' (Sidnell 2010: 29) were held, whereby data extracts and emerging
24 insights were presented to a local group of independent CA researchers for critical
25 inspection, thus enhancing the reliability of the analysis.
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29

30 **Outcomes and results**

31
32 This section will cover participant data along with the conversation analytic findings.
33
34 Table 1 presents some background information regarding the participants.
35
36 Pseudonyms are used throughout. The FDA-2 intelligibility in word and sentence
37 reading aloud totals were combined to form a percentage score for each participant.
38
39 The FDA-2 'Intelligibility in conversation' ratings range from a: 'No abnormality' to e:
40 'Totally unintelligible'. A rating of 'b-c' represents intelligibility falling between the
41 descriptors b: 'Speech abnormal but intelligible – occasionally has to repeat' and c:
42 'Speech severely distorted, can be understood half the time. Very often has to
43 repeat'.
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Table 1: Background participant information

Participant	Age	Years since diagnosis	Main conversation partner in recordings	Hoehn and Yahr rating	FDA-2 'Intelligibility in reading aloud' (%)	FDA-2 'Intelligibility in conversation' rating
David	65	7	Fiona (daughter)	3	40	b-c
Peter	75	9.5	Jenny (wife)	3	80	a-b
Sally	72	19	John (husband)	4	80	b
Harry	84	7	Joan (wife)	4	60	b-c
Arnie	79	3.5	Betty (wife)	3	80	a-b
Will	64	20	Julie (wife)	3	80	b-c
Tom	86	6	James (son)	3	80	b
Doug	76	5	Lottie (wife)	3	80	a
Greg	65	14	Rosie (wife)	4	Not available#	c
Graham	77	5	Anne (wife)	2	80	a-b
Jack	72	13	Molly (wife)	3	60	b-c
Clive	70	8	Irene (wife)	2	60	b-c
Lily	82	18	Sahir (husband)	5	Not available#	b-c

In total, the participants collected 635 minutes (10 and a half hours) of video data. 29 multiple repair sequences were identified. 18 of these were found in Harry's data. Interestingly, Harry's conversation partner, Joan, has a hearing impairment, exacerbating the difficulties caused by his reduced speech intelligibility. Of these 18, 15 sequences included 2 RIs and 3 sequences included 3 RIs. Most other multiple repair sequences identified contained 2 or 3 RIs.

There were 3 notably longer sequences: 2 in Greg's data and one in Sally's, consisting of 5, 10 and 13 RIs. Of the 29 multiple repair sequences identified, 22 started with the initial use of an OCRI. This would be expected both as a tendency in ordinary conversation to start with the least socially challenging type of RI and also because the problem is frequently due to reduced intelligibility. Quite often the listener has little to go on in order to base a more specific RI. The shorter sequences involving two and three RIs will be examined first to look for patterns.

Consideration will then be given to one of three extended multiple repair sequences with analysis of the features that contribute to its increased length.

Sequences involving two or three RIs

Table 2 shows how the 23 multiple repair sequences involving two or three RIs were structured.

Table 2: Structure of the multiple repair sequences involving two or three repair initiators (RIs)

Number of RIs used	Structure (number of sequences with this structure)
Two RIs	OCRI → Repeat + 'wh'- word (8)
	OCRI → OCRI (5)
	OCRI → Direct prompt to modify speech (2)
	OCRI → Understanding check (1)
	Closed class → Understanding check (1)
	Repeat + 'wh'-word → Closed class (1)
	DEVIANT CASE
	Repeat + 'wh" word → Repeat (1)
Three RIs	Understanding check → Understanding check → Understanding check (1)
	OCRI → Repeat + 'wh'-word → Repeat + 'wh'- word (1)
	OCRI → Repeat + 'wh-word' → Repeat (1)
	OCRI → Understanding check → Understanding check (1)
	Repeat → Understanding check → Understanding check (1)

Overall, where multiple repair occurred, CPs used RIs in order of increasing specificity and strength, from left to right, as set out in the model proposed by Schegloff et al (1977). There is one deviant case, which will be examined shortly, in which specificity was decreased rather than increased. It was also observed that once CPs have enough information to attempt an understanding check, this form may be repeated until repair is resolved.

The most common type of multiple-stage repair initiation in the data is open class moving to a repetition of part of the repairable with a question word, as shown in Extract 1. A glossary of CA transcription conventions (based on Jefferson, 2004) is provided in Appendix A, Table 3, and a sketch showing the positioning of the participants will accompany each extract. For ease of reading, the PD speaker's name will be marked with an asterisk in each extract introduction.

Extract 1

Harry: Christmas cake

01:16 – 01:36



Figure 2: Harry* is on the on the left

1 Joan: I hope ↑it be alright in that o↓ven, becos I've not- I've done not

- 1
2
3 2 done christmas cakes in that oven. before,
4
5 3 (0.7)
6 4 Harry: (usually)
7
8 5 Joan: → mm,
9
10 6 Harry: (>usually you don't burn ↑any↓thing<)
11
12 7 (0.6)
13
14 8 Joan: → I what,
15
16 9 Harry: us↓ually you don't burn em,
17
18 10 Joan: ↑well. yes, f- for ordinary. coo↑king ↓stuff, but I du↑nno ↓about er (0.6)
19
20 11 christ↑mas ↓cake,
21

22
23 Joan has been telling Harry* about her plans to make a Christmas cake. In lines 1-2
24 she expresses concern that she hasn't made one before using their current oven. At
25 line 4 Harry's utterance is unclear which leads to Joan using an OCRI 'mm', at line 5.
26
27 Harry's utterance at line 6 is delivered at a fast rate but Joan now has enough
28 information to increase the strength of her repair initiation. Her 'I what' (line 8)
29 displays to Harry that she understands he is commenting on something to do with
30 her. The 'I' is a repeat of Harry's 'you' and her 'what' requests a repeat of the verb
31 phrase. Harry then produces a phonetically modified repeat (marked pitch change on
32 'usually') with shortened linguistic structure ('anything' becomes 'em') and the
33 sequence progresses with no further repair initiation.
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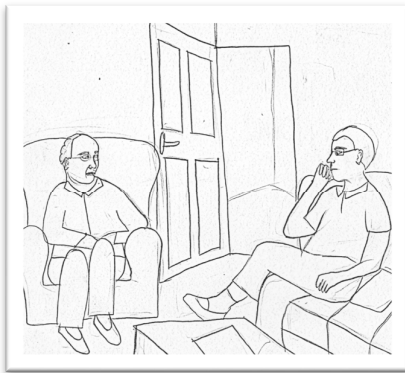
45 Sometimes, following open class repair initiation, a self-repair attempt by the PD
46 speaker does not provide the CP with enough information to increase the strength of
47 RI, and further, non-specific repair initiation ensues. In all cases, the second OCRI
48 takes a different form from the first. This may constitute a lexical difference ('mm?'
49 then 'pardon?' for example) or the use of a non-verbal RI the second time. It might
50 also take the form of repeating the lexical item but upgrading its delivery, either by
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3 increasing gaze or intensifying intonation. An example encompassing both these
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5 types of upgrade is illustrated in Extract 2.
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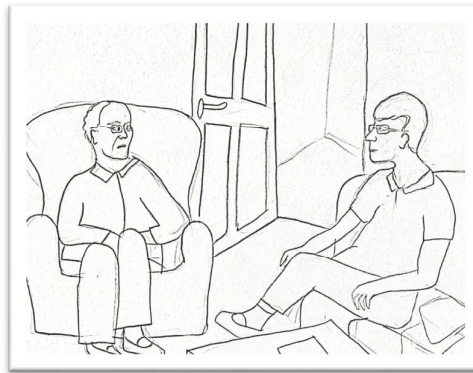
8 **Extract 2**

9 **Tom: Golf**

10 **04:16 – 04:2**



26 *Figure 3: Lines 1-4, Tom* is on the left*



30 *Figure 4: Line 5*

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- 1 James: watch the golf to↑night
2 Tom: (1.3) (I don't know if I shall)
3 James: → =mm, ((*sound of engine starts up*))
4 Tom: (watched it last night)
5 James: → mm? ((*juts head forward and raises eyebrows*))
6 Tom: watched it la:st ↓night,
7 James: ((*releases gesture*)) yeah

1
2
3
4
5 James is having trouble hearing/understanding Tom's* response to his question at
6 line 1. Just after he initiates repair at line 3, some background noise starts up which
7 appears to affect his understanding of Tom's self-repair turn (line 4). It is unusual for
8 repair to involve more than one attempt for this participant pair. When James initiates
9 repair for the second time at line 5, he accompanies this with a gesture, jutting his
10 head forward and raising his eyebrows as well as increasing the pitch rise on this
11 utterance. He maintains this gesture until the end of Tom's successful self-repair turn
12 at line 6. Intensifying gaze both enables James to pick up nonverbal clues that may
13 help him to better understand Tom and also contributes to mobilising a response
14 from Tom.
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27 In two multiple repair sequences, OCRIs are also upgraded to using a prompt to
28 modify speech. In the following example, Harry* is telling Joan about the route he
29 was asked to take in his recent driving test.
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3 **Extract 3**
4 **Harry: Driving Test**
5 **00:58-01:26**
6
7



23 *Figure 5: Harry* is on the on the left*

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26
27
- 28 1 Joan: Did you ↓do anything in the (.) car ↓park out there?
- 29 2 Harry: ↓No (1.1) >(when we were ↑in the car park 'e said ↑back)
- 30 3 Joan: → you what,
- 31 4 Harry: >(when we were ↑in the ↓car park 'e said,)<
- 32 5 Joan: → will you talk a bit ↑louder please.
- 33 6 Harry: went ↑out (in) the ↓car park, (1.3) ↓went down ('e said) ↑turn left. (1.0)
- 34 7 Keep goin ↑straight as I ↓tell yer, (0.9) (when I got to) ↑top (0.8) ↓there
- 35 8 (was) ↑two (roundabouts) to go rou:nd (0.8) take ye ↑take ye ↑take ye
- 36 9 (third exit)
- 37 10 Joan: now ↑where's all this taking you
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48
49 Harry's response, at line 2 is unclear and delivered at a fast rate. Elsewhere in the
50 data, as at line 3, Joan often uses 'you what,' as an OCRI, as opposed to a repeat +
51 'wh' word form. In this case, however, its use does not yield a successful self-repair
52 attempt by Harry. At line 5, Joan issues a request for Harry to modify his speech by
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3 raising the volume. This kind of request also acts as a RI and, in SLT terms, might
4
5 be described as a 'prompt'. At lines 6-9, Harry does not necessarily increase his
6
7 volume, but he does slow his rate of speech. Interestingly in another example or
8
9 repair that did not lead to a multiple repair sequence, orienting to the video camera,
10
11 a CP demonstrated her sensitivity to the issues of implied incompetence wound up in
12
13 using this type of RI. She whispered her prompt and could only just be heard to say
14
15 'speak up will you?', suggesting that this type of practice, being outside the rules of
16
17 normal conversation, should be avoided. Despite this, prompting in the context of
18
19 everyday conversation can be an effective strategy. As part of the larger study (see
20
21 Griffiths, 2013) these kinds of self-repair turns were examined informally, using Praat
22
23 software (Boersma and Weenink, 2014) to look at their phonetic properties. It was
24
25 observed that when asked to speak up or slow down, PD speakers could modify
26
27 their speech in some way to result in a successful self-repair, although not always in
28
29 the exact manner suggested by the CP. It might just be the prompting action itself
30
31 that cues the PD speaker to draw on whatever residual phonetic resources are
32
33 available to him/her as an individual. Prompts to modify speech are not on the
34
35 Schegloff et al (1977) spectrum as RIs but constitute a form that is more specific
36
37 than an OCRI in focussing PD speakers on not just the need for a repeat but the
38
39 need to produce that repeat in a markedly different manner compared to the first
40
41 attempt. By highlighting the *manner* in which the next repair attempt should be done,
42
43 prompts differ from the other 'stronger than OCRI' forms on the spectrum, which all
44
45 offer to the speaker more information about what *content* the recipient has
46
47 understood of the speaker's trouble source turn. At the same time it is not as specific
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49 as a closed class RI as it doesn't locate a specific repairable element of the
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51 repairable turn.
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Repair on separate elements of the repairable turn in stages

As well as offering RIs in order of increasing specificity CPs are seen on occasion to initiate repair on first one element of the repairable turn then another, partitioning it out for attention. In Extract 3, Peter* raises the possibility of Karen renting out her house. At line 4 Peter makes a first attempt to convey that Steven reckons Karen could make one thousand two hundred pounds a month by renting her property.

Extract 4

Peter: a one point two

53:15 – 53:38



Figure 6: Peter* is on the on the left

- 1 Peter: .hh >whad about< renting ↑you:r ↑house, >for a period.
- 2 Karen: (2.4) ((raises both hands and smooths her hair)) u:m (1.1) I think in a
- 3 house that si:ze =I ↑don't know. (1.4) ptk u:m
- 4 Peter: Steven. reng you may get- (1.0) a one point ↑two.
- 5 (2.1)
- 6 Karen: → a wha:t
- 7 Peter: one point thousand two hundred. a month.
- 8 Karen: → Steven.
- 9 Peter: yeah

1
2
3 10 (0.8)

4
5 11 Karen: mmm.
6
7

8
9 Karen's first repair initiation, a 'repeat + 'wh-word' form (line 6), aims to elicit a repeat
10 of the noun phrase, establishing what it was Steven said she could get. This
11 achieved, at line 8, she then concentrates on repairing the person referent, the 'who'
12 element of the repairable turn using a repeat in order to check her hearing of
13 'Steven'.
14
15

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19 This illustrates how repair initiation can progress in stages, with the CP first initiating
20 repair on one element of the repairable turn then another, in a 'I've got that bit, now I
21 want to understand that bit' fashion.
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26 27 **Deviant case**

28
29 There is one sequence for which this hierarchy of ordering RIs according to
30 increasing strength does not fit. In Extract 5, a later segment of the 'driving test'
31 sequence introduced earlier, Harry* has just described and had recognised, a road
32 he drove along during his driving test. Now at line 1 he conveys more information to
33 Joan about the road in question: the Griffins live there.
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41 **Extract 5**
42 **Harry: Griffins**
43 **02:27 – 02:39**
44



Figure 7: Harry* is on the on the left

- 1 Harry: that's where the: er- >Gri↑ffins< ↓live up there,
 2 Joan: → where the ↑what
 3 Harry: >↑Griffins< ↓live up there, >↑Gri↓ffins<
 4 (0.9)
 5 Joan: → who?
 6 Harry: Griffins.
 7 (1.0)
 8 Joan: the Griffins. o:h the Griffins. ye:s. the Gri↓ffins live up there, yeah.

At line 2 Joan initiates repair using a 'repeat + wh-word' form, however the structure does not fit the repairable turn. She has only understood 'that's where the' and, assuming that the missing noun phrase identifies an object, tries to locate the 'what' when the appropriate form in this case would be to locate the 'who'. Harry, responding to Joan's cue that it is not the start of his turn that was problematic, repeats the troublesome part, and as if anticipating further repair initiation, repeats again the collective person referent 'Griffins'. Perhaps this second repeat of the name is also done to emphasise to Joan that it is a name that is in question, not a thing. She still has trouble understanding but her closed class RI at line 5 shows that she is likely to have heard at least the word 'live' as she now knows a person referent needs clarifying. In response to this, Harry delivers the only element of his repairable turn that still needs clarifying and the repair sequence is complete.

Instead of increasing the specificity of repair initiation, in this sequence, Joan does the opposite, progressing from using a 'repeat + wh-word' form to a 'closed class' form. It is suggested that the reason for this deviance from the general pattern is that

1
2
3 her first RI did not fit the repairable. Unknown to her, she did not yet have enough
4 information to enable her to use a 'repeat + wh-word' form. If she had tried an OCRI
5 or a partial repeat ('where the..') it's possible that only one RI would have been
6 needed.
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9
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11 ***Where increasing the specificity goes wrong***

12 Although multiple repair is not the focus of their paper, Bloch and Wilkinson (2009)
13 describe a phenomenon whereby a CP uses the 'wrong kind' of RI. Mary, who has
14 severe dysarthria as a result of MND, is asked by her CP (Stan) what kind of cancer
15 their acquaintance has. Stan suggests different candidate types: 'cancer of the spine
16 was it, no cancer of the hip was it?' Mary's response lacks intelligibility and sounds
17 like 'mine mm'. After a 2 second pause, Stan then initiates repair, using a 'repeat +
18 wh question' form; 'mind the what?' based on his not yet confirmed candidate
19 understanding of Mary's turn. He has misinterpreted both the word (spine) and the
20 action Mary is carrying out (correcting). He uses a more specific RI than an open
21 class one, at a point where he does not yet have the right syntactic knowledge to
22 warrant this. Mary then repeats 'spine' and further repair initiation is needed, in the
23 form of a repeat ('spine?') before Mary confirms this candidate understanding with a
24 head nod and the conversation moves on. A similar phenomenon has been
25 observed in the current data.
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45 In addition to the deviant case already described, there are 2 multiple repair
46 sequences that fit the overall pattern of RIs increasing in specificity and yet this in
47 itself causes a problem. The following extract is presented as an example. Joan asks
48 Harry* to help her complete her shopping list (Extract 6, lines 1-3). He begins to read
49 aloud from the list (line 4), then after a pause, offers up as a new item, 'fairy liquid,
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yes'. This is delivered at a fast speech rate and Joan has trouble understanding, as reflected by her open class repair initiation at line 6.

Extract 5
Harry: Fairy liquid
14.8 – 44.2



Figure 8: Harry* is on the on the right

- 1 Joan: now um. I'm doing a list here for. (2.0) ((picks up pen and list)) hh Morrison's.
 2 is there anything else we want, d'you think? ((passes list to Harry))
- 3 Harry: (I dunno.) (crunchy oats) flour eggs bread milk () (2.2) >fairy liquid< yes.
- 4 Joan: → mm,
- 5 Harry: >fairy< liquid.
 6 (1.1)
- 7 Joan: → it's what?
- 8 Harry: ↑>fairy< liquid.
 9 (0.5)
- 10 Joan: we don't need a lot
- 11 Harry: ↓no
 12 (1.9)
- 13 Joan: we need fish

1
2
3 Harry repeats the new item at line 7 but with a lack of phonetic upgrading seen
4 elsewhere in his data. In fact if anything his pitch and volume are both reduced and
5
6
7 his rate of speech does not change. He does however 're-do' the linguistic structure,
8
9 deleting the 'yes'. This does not lead to repair resolution and Joan tries a second RI
10
11 at line 9. This time she increases the specificity. It is hypothesised that she has
12
13 heard 'fairy' and believes that Harry is making a comment on the list being 'fairly'
14
15 something. 'It's what?' could be described as a 'repeat + wh-word form', although the
16
17 repeat element of the turn is an inferred repeat; Joan is repeating what she thinks
18
19 Harry has said, not what he actually said. At line 10, Harry provides a second
20
21 repeat, upgraded this time with increased pitch.
22
23

24
25 Joan still has trouble understanding. If she is expecting his next self-repair turn (line
26
27 10), to be in the category of adjectives, this is not surprising. She appears to gloss
28
29 over the trouble at line 12, producing a turn that moves the conversation on and
30
31 Harry abandons his attempts to get fairy liquid on the list. In this sequence, rather
32
33 like the deviant case, Joan upgrades the strength of the repair initiation at a point
34
35 where she does not yet have enough knowledge of the syntactic category the
36
37 repairable item falls into. This hampers her processing of Harry's subsequent self-
38
39 repair attempt. Context is important when interpreting disordered speech and if
40
41 listeners are primed to expect to hear an adjective when in fact the utterance is a
42
43 noun, this is likely to impact on intelligibility.
44
45
46

47
48 In a move designed to restore intersubjectivity and get the conversation 'back on
49
50 track' as quickly as possible, Joan increases the strength of her repair initiation in
51
52 this example. Unfortunately she ends up using the wrong type of RI at the wrong
53
54 time. She could have done more groundwork by using less specific RIs until repair
55
56 was achieved or until she was at least sure of the elements the repairable turn
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1
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3 contained. Without this groundwork there is a danger that repair will get abandoned
4
5 and the PD speaker's contribution left unacknowledged, which could be argued to
6
7 present more of a risk to social solidarity than continuing to resolve the trouble.
8
9

10 ***An extended Multiple Repair Sequence***

11
12 In Extract 7, Rosie tries to discover what Greg* would like to drink. This sequence is
13
14 now examined in order to highlight some of the common features of all three
15
16 extended multiple repair sequences found in the data.
17
18

19 ***Extract 7***

20 ***Greg: A whole pint of something***
21 ***03:20 – 04:14***
22



38 Figure 9: Greg* is on the left

- 39
40
41
42 1 Rosie: ((wiping his mouth then putting tissue on table)) would you like a ↓drink
43
44 2 Greg: °yes°
45
46 3 (1.3)
47
48 4 Rosie: what ↓drink would y'like
49
50 5 Greg: (1.9) (pint)
51
52 6 Rosie: → pardon? ((leans in close and puts her ear near his mouth))
53
54 7 Greg: (1.2) (pint)
55
56 8 (1.1) ((Rosie reaches for tissue and wipes his mouth))
57
58 9 Rosie: → what would you ↑like to drink?
59
60

- 1
2
3 10 Greg: whole pint of (lemon ade)
4
5 11 Rosie: → a whole pint of something,
6
7 12 Greg: ye:s.
8
9 13 Rosie: → a whole pint ov: >lemon< ↑squash
10
11 14 Greg: no um (3.6) ((wipes his mouth))
12
13 15 Rosie: → o↑range
14
15 16 Greg: no
16
17 17 Rosie: → ↓no, wa↑ter
18
19 18 Greg: °water, ↓no°
20
21 19 Rosie: → beer,
22
23 20 (1.7)
24
25 21 → d'you want a beer?
26
27 22 Greg: no
28
29 23 Rosie: → ↓no coke
30
31 24 (4.9) ((Greg moves his mouth minimally but no voicing occurs))
32
33 25 Rosie: → you'd like a drink of ↓what
34
35 26 Greg: () water
36
37 27 Rosie: water. water. o↑kay ↓↓ cn do ↑that ↓with some ice in, ((Rosie moves
38
39 28 away from table))

40
41 The 10 RIs are marked with arrows. Overall, this sequence fits the pattern of Ris
42 increasing in specificity. Rosie moves from an OCRI (line 6) to a repeat form (line 11)
43 to a number of understanding checks in the form of candidate solutions (lines 13, 15,
44 17, 19, 21 and 23). However, amongst this overall sequence, at lines 9 and 25,
45 Rosie uses a different form of RI, not described in the Schegloff et al (1977)
46 hierarchy, that we have labelled 'Repeating/rephrasing the first pair part (FPP)'. This
47 will be explained in the following analysis.
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2
3 When Rosie's OCRI (line 6) fails, she issues a rephrasing of the original question
4 (line 9). An important feature of the turn-taking system in ordinary conversation is
5 'adjacency', whereby 'first pair parts (FPPs)' such as questions or invitations are
6 routinely followed by 'second pair parts (SPPs)' such as answers, acceptances and
7 so on, with nothing intervening (Schegloff, 2007). At line 9, Rosie is rephrasing the
8 original FPP. This action could be said to double up as a RI as well as a question, as
9 it is being used to resolve rather than gloss over the original trouble source. It
10 appears to work, as at line 10 Greg replies that he'd like a whole pint of lemonade.
11 However it is only with the benefit of repeated listening when transcribing, that his
12 response becomes clear. In real time, Rosie's RI did not work for her as she still
13 cannot understand his response. She follows up with what looks like a partial 'repeat
14 + wh word' at line 11, with 'something' taking the place of a 'wh' word and displaying
15 that it is the drink name Greg needs to focus on repairing. Instead of repeating the
16 drink name he simply confirms with an elongated 'ye:s' at line 12 suggesting that this
17 is not a straightforward agreement but that maybe he is still trying to process his next
18 response.

19
20
21 There then follows a series of understanding checks of the 'offering candidates' type,
22 each rejected apart from 'beer' at line 19 which gets no response. Rosie re-offers up
23 this choice for confirmation at line 21 but this time constructs it as if it is being
24 presented for the first time: 'd'you want a beer?' (line 21). This strategy has the feel
25 of going back to the beginning and making the conversation sound fresh again.

26
27
28 When a further candidate solution fails (line 23), Rosie tries the strategy of deleting
29 the entire preceding repair sequence by rephrasing the original FPP again at line 25.
30 'What drink would y'like' (line 4) has become 'you'd like a drink of what' (line 25).
31 This restructuring has made the request for the drink name ('what') more recent and
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3 is likely to help with Greg's cognitive difficulties. He now indicates that he would like
4
5 water (line 26) and Rosie understands and accepts this. The repair sequence is
6
7 resolved. Greg, however, has moved from a position of requesting lemonade to now
8
9 requesting water. Antaki et al (2008) offer some insights that might help to explain
10
11 this in their study on how choices around meals, holiday and leisure planning are
12
13 presented to adults with intellectual disabilities. Offering a series of choices (in this
14
15 case candidate repair solutions), each to be accepted or rejected, can be effective in
16
17 some cases. A danger arises however when one of the choices is accepted, and yet
18
19 the series of choices continues in an effort to make sure that the 'chooser' has been
20
21 completely understood. These checks may induce the chooser to switch decision.
22
23 This may be the result of confusion due to cognitive overload, or may be a result of
24
25 the chooser reacting to a sense that their first choice was somehow wrong: 'After
26
27 all, what seems to be the re-issue of a question may indicate that there was
28
29 something wrong with the answer '(Antaki et al., 2008:1171). By the end of Extract 7
30
31 Greg seems to switch decision, although Rosie has made it clear at line 11 that she
32
33 didn't actually hear 'lemonade', so the switch is less likely to be due to him taking the
34
35 hint that his answer was somehow inappropriate. Somewhere during the long
36
37 sequence of questioning, he may well have forgotten what he actually wanted or
38
39 become unable to retrieve the lexical item. He also may simply be going along with
40
41 the easiest option in order to end the sequence and restore normality.
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Either way, offering a series of candidates in this example was not effective. What was effective in bringing the sequence to a close was repeating/rephrasing the original question (FPP), which allowed the conversation to progress but at the cost of Greg getting what he really wanted and sequentially deleting what has gone before.

1
2
3 However, elsewhere in Greg's data, Rosie uses this strategy with more positive
4
5 benefits for securing Greg's participation.
6
7

8 **Conclusions and implications**

9

10 When multiple repair initiation takes place, this study has demonstrated a general
11
12 tendency for CPs to use RIs of increasing specificity in the order outlined by
13
14 Schegloff et al (1977). Sometimes, PD speakers' self-repair attempts do not provide
15
16 enough information to enable CPs to increase the specificity of their RIs and in these
17
18 cases, repeated non-specific RIs are used (e.g. Extract 1, lines 3 and 5). In all
19
20 instances where one OCRI follows another, the second takes a different form to the
21
22 first, either lexically, becoming non-verbal or by upgrading the delivery by increasing
23
24 gaze or intensifying prosody. Prompts to modify speech can also follow OCRIs.
25
26
27

28 A series of understanding checks in the form of candidate solutions may not be a
29
30 very effective method of resolving extended repair sequences, especially where the
31
32 PD speaker has cognitive difficulties. Extract 7 showed how using serial
33
34 understanding checks, in the form of candidate solutions (e.g.
35
36 Beer?...Coke?...Water?) risks PD speakers becoming cognitively overloaded and
37
38 abandoning what they originally intended to communicate. In order to lessen this
39
40 risk, when 'offering candidates' as part of the repair sequence, CPs could be advised
41
42 to add to their armoury of resources, an effective strategy described by Antaki et al
43
44 (2008). In their study it was noted that one of the 'carers', when offering a choice of 2
45
46 items, first asked the question e.g. 'what would you like for lunch?' then held up his
47
48 fists one after the other in synchrony with the presented choices, as a visual
49
50 cue/reminder. Variations on this strategy are described in the aphasia literature
51
52 (Lasker et al., 1997). Choices can be provided in written form to supplement verbal
53
54 presentation. Alternatively, choices can be presented one at a time, each choice
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1
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3 coinciding with the speaker pointing to a place on a page (marked with 1- 2- 3- etc)
4
5 visually representing that choice. These strategies can enable people with severe
6
7 aphasia, with varying levels of comprehension deficit, to make choices through
8
9 pointing. However, despite the known cognitive and language processing deficits
10
11 associated with PD, these kinds of adaptations do not feature in the standard advice
12
13 for communicating with people with PD and there is little guidance for SLTs in
14
15 managing the cognitive/linguistic aspects. Looking to the literature on other
16
17 communication disorders, such as aphasia, could inform intervention planning.
18
19

20
21 Repeating or rephrasing the original FPP is a strategy that has been seen to be
22
23 effective in moving out of multiple repair or at least splitting up an extended repair
24
25 sequence into shorter units, thus making the conversation feel less of a prolonged
26
27 struggle to resolve one trouble source.
28

29
30 CPs may successfully initiate repair on separate syntactic elements of a repairable
31
32 utterance in stages. They may also, in their efforts to promote progressivity, increase
33
34 the specificity of their repair initiation before they have adequate knowledge
35
36 regarding the syntactic elements of the repairable turn to inform this. An extended
37
38 sequence can result from the CP increasing the specificity of repair initiation too
39
40 early.
41

42
43 The regular occurrence of multiple repair sequences in the data suggests that, when
44
45 trouble is not straightforward to resolve, CPs do not easily give up trying to enable
46
47 both themselves and the PD speakers to regain joint understandingⁱ and thereby
48
49 spontaneous involvement in conversation. The instances of multiple repair described
50
51 show that glossing over the trouble or going with a best guess are not strategies that
52
53 are readily employed to avoid further repair initiation. Rather, there is plenty of
54
55 evidence to suggest that CPs 'stick with it' despite the negative social implications
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3 associated with repair initiation and prolonged repair sequences, perhaps because in
4 these conversations, joint intersubjectivity in interaction (and therefore full and
5 meaningful participation) is a 'prized outcome' (Heritage, 2007) that can over-ride
6 concerns over the need for progressivity.
7
8
9

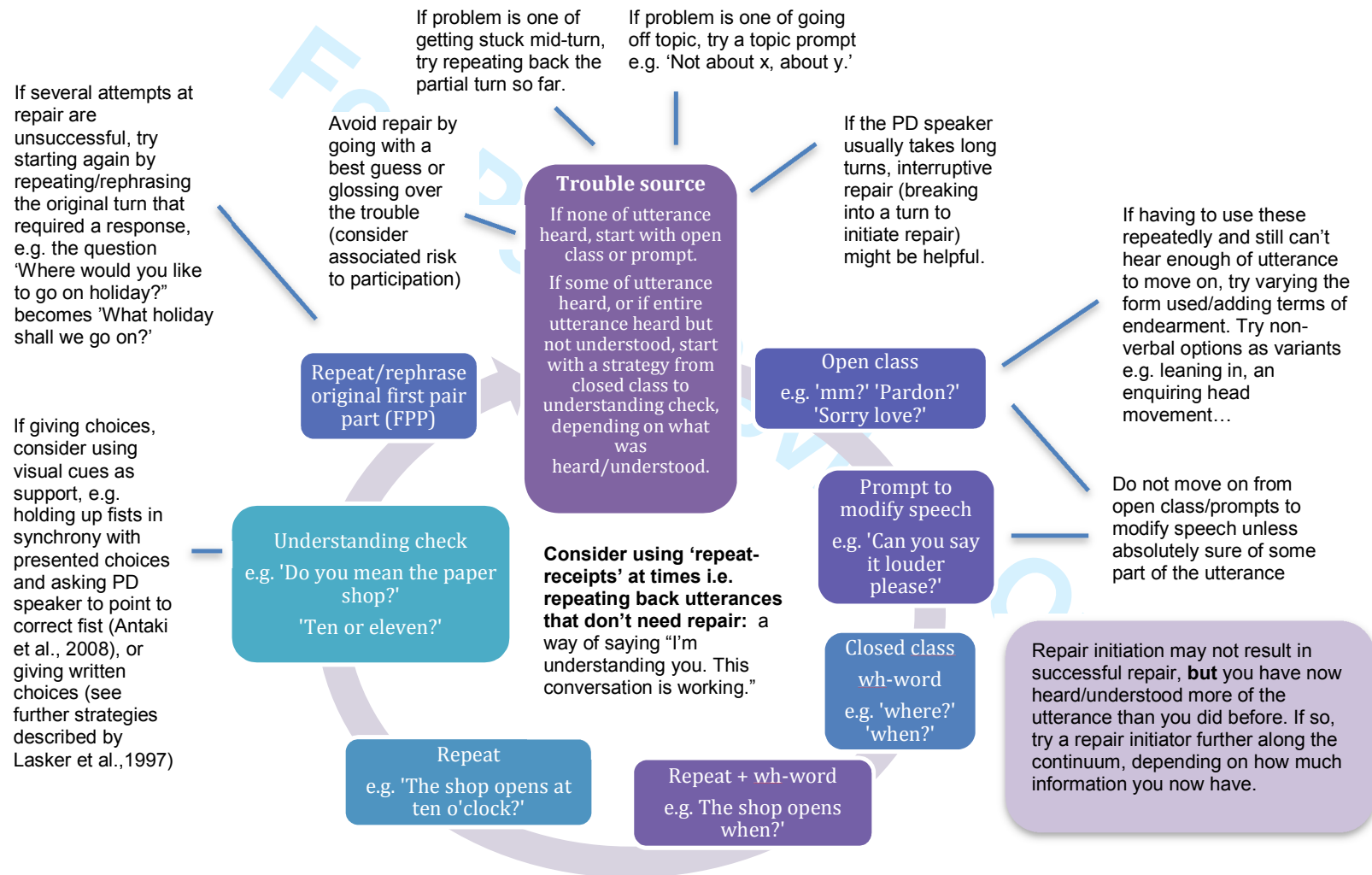
10 11 ***Ideas for intervention***

12
13
14 There is a need to develop new communication assessments that can reveal the
15 complexity of experience for people with PD outside the clinic and interventions
16 targeting improved participation in talk. Based on the findings of this examination of
17 multiple repair, figure 10 shows a prototype adapted menu and hierarchy of repair
18 initiation based on the original Schegloff et al (1977) model. An option for resolving
19 multiple repair covered here, such as prompting to modify speech, has been added
20 to the hierarchy of RIs as one that is stronger than an OCRI in indicating how self-
21 repair should unfold. The strategy of repeating the FFP might prove helpful in some
22 cases, i.e. 'if all else fails go back to the beginning' and therefore also appears on
23 this revised hierarchy.
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36 This kind of resource, further elaborated and accompanied by an instruction manual,
37 could be used as a tool by SLTs to inform individualised therapy. It could aid SLTs
38 when examining video recorded episodes of informal conversations showing repair
39 in action and form the basis of discussions with PD clients and their CPs. Various
40 options could be explained, along with their relative benefits to progressivity against
41 risks in terms of the social implications.
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49 This prototype is presented here in its current early form, as it is expected that
50 clinicians, given the lack of current available resources, might find it helpful when
51 planning conversation-focussed therapies. However, further work will need to be
52 done in terms of developing this into a feasible and acceptable resource.
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Figure 10: Prototype adapted menu and hierarchy of repair initiation based on Schegloff et al (1977)



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2
3 During a dissemination exercise, a small group of four people with PD (not the
4 original participants) reported that they liked the idea of encouraging CPs to vary the
5 form of OCRI if more than one is needed, including the use of non-verbal methods of
6 repair initiation like leaning forward to indicate trying to hear. They also expressed a
7 preference to be prompted by CPs to modify their speech rather than CPs avoiding
8 the problem. This is interesting, given that there was some evidence both from the
9 data and anecdotally from talking to relatives of those with PD, that although prompts
10 can be successful in avoiding long repair trajectories, CPs may be reluctant to use
11 them except as a last resort.
12

13
14 *Six local SLTs (some of whom were the original recruiters) also took part in a*
15 *dissemination group.* They liked the idea of using videos of everyday interaction
16 combined with a repair initiation menu to guide individually tailored therapy for this
17 client group. It was felt that a training video for SLTs could be produced alongside a
18 manual and a checklist and that any future tool should be written for SLTs who are
19 not necessarily familiar with CA terminology. One attendee stressed that maximising
20 the CP's hearing should be a first priority in therapy as this exacerbates the
21 problems and is often overlooked. All felt that addressing the use of prompting to
22 modify speech should definitely be part of intervention and that CPs should be
23 educated that despite the negative social implications, prompting can be beneficial.
24

25
26 This study has contributed to a growing understanding of how delays in progression
27 and repair are managed in communication disability and the implications of these for
28 participation. Findings such as those reported here can allow SLTs work with PwPD
29 at the level of participation, raising awareness of current strategies-in-use and
30 strategies with potential to be trialled. For instance, if PD speakers would prefer
31 more prompts, CPs could be supported in trying them out. They could experiment
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3 with wording that is most acceptable to all. 'Speak up please' might not feel
4 acceptable whereas 'sorry - your volume's gone a bit.' might feel better for example.
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7 Previous CA and dysarthria studies have tended to recruit participants with
8 measurably moderate to severe intelligibility impairments (e.g. Bloch and Wilkinson,
9 2004; Bloch and Beeke, 2008; Rutter, 2009; Bloch, 2011). Including a range of
10 participants, some of whom might be described as 'high functioning' in terms of the
11 measurable aspects of speech, this study has allowed an exploration of the day-to-
12 day impact on communication of these 'mild' difficulties.
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20 The number of participants was modest, and there was no attempt to investigate
21 interaction outside the home setting, with unfamiliar people, therefore the study does
22 not allow for wide ranging generalisation. Stronger claims of generalisation could
23 accumulate over time through a process of aggregation, as further studies reveal
24 similar patterns (Svennevig and Skovholt, 2005).
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31 In terms of the future research agenda, this study forms part of an essential
32 development phase of developing and evaluating complex interventions (Craig et al.,
33 2008), providing the initial groundwork before 'feasibility and piloting' 'evaluation' and
34 'implementation' can be addressed. There are indications that a clinical resource for
35 SLTs, supporting their use of video material, with an observation checklist based on
36 the findings of this study, would be well received as long as it was accessible to
37 those with no prior CA training. There is still a great deal of work to be done if the
38 ideas for intervention are to be further developed and eventually embedded in
39 clinical practice.
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12 **Appendix A**

13 **Table 3: Jefferson (2004) transcription conventions**

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Symbol	Explanation
(0.8)	Numbers in parentheses = length of silence in tenths of a second
[Start of overlapping talk
]	End of overlapping talk
.	Falling intonation
,	Rising intonation, suggesting continuation.
?	Rising intonation. Questioning inflection, but not necessarily a question
<u>word</u>	Underlining = stress/emphasis
°°	Degree signs = talk between these is markedly quieter than the surrounding talk
↑	Up arrow = sharp intonation rise
↓	Down arrow = sharp intonation fall
.hh	Audible in-breath
(())	Double parentheses enclose description of environment or non-verbal behaviour
()	Empty parentheses enclose unintelligible talk
(word)	Words in parentheses indicate transcriber's 'best guess' utterance
> <	Talk between symbols is rushed
:	Prolongation/stretching out of sound
=	Contiguous utterances with no interval between talk
£	Smile voice

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