

Problematic topic transitions in dysarthric conversation

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Abstract

Purpose: This study examined the nature of topic transition problems associated with acquired progressive dysarthric speech in the everyday conversation of people with motor neurone disease.

Method: Using conversation analytic methods, a video collection of five naturally occurring problematic topic transitions was identified, transcribed and analysed. These were extracted from a main collection of over 200 other-initiated repair sequences and a sub-set of 15 problematic topic transition sequences. The sequences were analysed with reference to how the participants both identified and resolved the problems.

Result: Analysis revealed that topic transition by people with dysarthria can prove problematic. Conversation partners may find transitions problematic not only because of speech intelligibility but also because of a sequential disjuncture between the dysarthric speech turn and whatever topic has come prior. In addition the treatment of problematic topic transition as a complaint reveals the potential vulnerability of people with dysarthria to judgements of competence.

Conclusion: These findings have implications for how dysarthria is conceptualized and how specific actions in conversation, such as topic transition, might be suitable targets for clinical intervention.

Keywords: *Dysarthria, conversation analysis, neurodegenerative diseases*

Introduction

People with moderate-to-severe speech intelligibility problems arising from motor speech problems (dysarthria) and their communication partners can experience a range of difficulties in everyday conversation (Bloch & Wilkinson, 2009; Griffiths, Barnes, Britten, & Wilkinson, 2011; Rutter, 2009). Such difficulties, or what we will call troubles, are rooted in unintelligible speech but can also relate to the understandability of the talk (Bloch & Wilkinson, 2004, 2013); that is, how a turn or utterance is understood in relation to whatever has come prior. Is it also conceivable that troubles with dysarthria in conversation may not be randomly distributed but may be associated with a specific place or activity in that conversation.

Troubles and repair in dysarthria

In everyday conversations involving unimpaired speakers, speech and language rarely are produced

without problems or errors. It is common to experience troubles in speaking, hearing or understanding talk in conversation (Schegloff, 1997). Participants themselves display these problems or troubles by asking for repeats, asking for clarification of meaning and re-starting words already underway. The term *repair* describes the practices used by participants to highlight and then deal with or manage troubles within interaction. Repair itself is designed for efficiency and successful resolution of problems when they arise (Schegloff, 1979). The practices of repair and the troubles on which they operate in non-impaired speakers have been well documented in terms of organization (Schegloff, Jefferson, & Sacks, 1977), format (Drew, 1997) and operations (Schegloff, 2013). One of the key organizational features is the distinction between repair initiation and repair completion. This distinction reflects the potential involvement of the speaker of a trouble source (self) and/or the recipient of a trouble (other). Involvement of either or both participants in repair reveals much of the nature of the problem

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1 and how participants organize their actions to
2 achieve resolution.

3 Dysarthria in conversation is manifest through
4 the occurrence of troubles and their repair. It is
5 for this reason that, to date, repair has been a cen-
6 tral feature of interest in research on the everyday
7 conversation practices of people with dysarthria.
8 This is important because, whilst most non-speech
9 impaired troubles are typically resolved in the
10 same turn of talk or at the next opportunity
11 after that turn (Schegloff et al., 1977), troubles
12 with dysarthric speech can extend over a large
13 number of turns (Bloch & Wilkinson, 2009, 2013).
14 This may have implications for understanding
15 and treating the impact of dysarthria in different
16 interactions.

17 To date the conversations of two groups of
18 people with dysarthric speech have been investi-
19 gated: those with developmental dysarthria arising
20 from cerebral palsy (Clarke & Wilkinson, 2007;
21 Clarke, Bloch, & Wilkinson, 2013; Collins & Markova,
22 1999) and those with acquired dysarthria arising
23 from neurological diseases such as motor neurone
24 disease (MND) (Bloch & Wilkinson, 2004, 2009,
25 2011, 2013), Parkinson's disease (Griffiths
26 et al., 2011; 2012; Saldert, Ferm, & Bloch, 2014),
27 multiple sclerosis (Rutter, 2009, 2010)
28 and Huntington's disease (Saldert & Hartelius,
29 2011). For the acquired group in particular
30 the management of problems is notable with refer-
31 ence to adult peer judgements of competence and
32 responsibility.

33 Previous work demonstrates that trouble sources
34 identified by a recipient using an other-initiation of
35 repair (OIR) are a regular feature of conversations
36 featuring speakers with dysarthria (Bloch, 2006;
37 Bloch & Wilkinson, 2004, 2009; Collins & Mark-
38 ova, 1995). It has been established that dysarthric
39 troubles in conversation are not only a result of
40 unintelligible speech. Rather, the problems that
41 recipients can be seen to experience in these con-
42 versations have been described more generally as
43 problems with understandability (Bloch & Wilkin-
44 son, 2004); that is, a difficulty for a recipient in
45 understanding something about a prior turn as dis-
46 played by his/her launching of some type of other-
47 initiated repair activity. While the intelligibility
48 issues created by dysarthria are regularly a signifi-
49 cant factor in creating difficulties with the under-
50 standability of these turns, other features of these
51 turns can also be seen to be important. For exam-
52 ple, it has been noted that, in conversation gener-
53 ally, an important issue in a listener understanding
54 a turn is that s/he grasps the sequential relationship
55 between that turn and the turns immediately pre-
56 ceding it (Drew, 1997). This can be a problem for
57 speakers with dysarthria and their recipients,
58 including utterances produced using AAC (aug-
59 mentative and alternative communication) devices
60 such as VOCA's (voice output communication aids).

61 In these cases, recipients may have difficulty under- 61
62 standing a VOCA-produced utterance due to the 62
63 fact that, even when each of the words is intelligible 63
64 to them, the slowness in producing the utterance 64
65 means they cannot always understand the sequen- 65
66 tial relationship between that utterance and what 66
67 has preceded it (Bloch & Wilkinson, 2004). Further 67
68 problems relating to the understandability of the 68
69 speaker with dysarthria's turn can arise if the recip- 69
70 ient misinterprets or fails to grasp what it is about 70
71 the speaker with dysarthria's turn which is making 71
72 it difficult to understand (Bloch & Wilkinson, 72
73 2009). This can lead to additional problems in 73
74 completing the repair, with these problems intensi- 74
75 fied if in turn the speaker with dysarthria does not 75
76 perceive that the recipient is having difficulty in 76
77 understanding what the exact nature of the trouble 77
78 is (Bloch & Wilkinson, 2009). 78
79

80 *Topic organization and topic change in conversation*

81 Topic in conversation is commonly understood as 81
82 a particular subject or thing being talked about, 82
83 such as the weather or holidays; that is, the prop- 83
84 erty of content. Whilst the status of topic remains 84
85 problematic in its own right for studies of conversa- 85
86 tion (Schegloff, 1979), it may be considered 'an 86
87 achievement of conversationalists, something orga- 87
88 nized and made observable in patterned ways that 88
89 can be described' (Maynard, 1980, p. 263). From 89
90 this perspective, topic in conversation can be 90
91 understood as a participant organized process or 91
92 procedure rather than simply what is being talked 92
93 about. We may then usefully question how topic 93
94 works in conversation rather than just what topics 94
95 are talked about. 95
96

97 Topic change or the transition between topics is 97
98 open to analysis (Button & Casey, 1988/89) given 98
99 that participants need to observably organize tran- 99
100 sitions such as figurative speech (Drew & Holt, 100
101 1998), openings such as 'so' (Bolden, 2009) or 101
102 topic initial elicitors such as 'anything else to report' 102
103 (Button & Casey, 1984). Topic change may be dis- 103
104 junctive/bounded (Sacks, 1992) or progress in a 104
105 more step-wise fashion (Jefferson, 1984a). Irre- 105
106 spective of how it operates, identifying topic initia- 106
107 tion may not always be obvious, particularly as 107
108 topics often flow from one to another without a 108
109 new topic being introduced explicitly (Button & 109
110 Casey, 1985). 110
111

112 It is also the case that topic initiation may be par- 112
113 ticularly vulnerable to problems. Schegloff (1979) 113
114 observes that, of first sentences (sic) in topic-initial 114
115 turns or in topic shift position, it is the case that they 115
116 very regularly have self-repair in them (and at a spec- 116
117 ific point, i.e., the word that keys the new topic 117
118 being initiated). Additionally, if first sentence in top- 118
119 ic-initial or topic shift position does not have self- 119
120 initiated repair, then with great frequency the 120

1 next-turn involves the initiation of repair by some
 2 other. This raises the question of whether certain
 3 places within conversation are more vulnerable to
 4 troubles than others and, if so, how participants
 5 manage these troubles.

6 We have observed that attempts at topic-transi-
 7 tion by speakers with dysarthria can be prone to
 8 troubles, as indicated by conversation partner
 9 responses. In addition, we note that recipients of
 10 these attempted transitions often employ explicit
 11 meta-communicative statements as part of their
 12 repair work such as ‘are we talking about X or Y?’
 13 Such statements display topic as both the trouble
 14 source and a potential route to resolution. This has
 15 parallels with the analysis of topic talk featuring
 16 other disorders such as aphasia (Barnes, Candlin,
 17 & Ferguson, 2013; Laakso & Klippi, 1999; Wilkin-
 18 son, Lock, Bryan, & Sage, 2011) and dementia
 19 (Garcia & Joanne, 1997; Orange, Lubinski, & Hig-
 20 ginbotham, 1996).

21
 22 *Fault and responsibility in repair*
 23

24 One further aspect of dysarthric conversation that
 25 has, to date, received little attention is that of fault
 26 and responsibility. Robinson (2006) highlights the
 27 sensitivity of trouble responsibility in conversation
 28 and the potential role that either or both partici-
 29 pants may play in its ownership and management.
 30 Robinson focuses on open class repairs (Drew,
 31 1997) in which different accounts are provided such
 32 as an apology + account as in I’m sorry I couldn’t
 33 hear you there’s so much noise, thus invoking the
 34 recipient’s hearing as the fault. He argues that the
 35 apology-based OIR format is a context-sensitive
 36 practice for managing trouble responsibility by
 37 communicating repair-initiators’ stance that trouble
 38 responsibility belongs to themselves, rather than to
 39 their addressees.

40 For OIR in particular the notion of who is to
 41 blame for the trouble may have both organizational
 42 and moral consequences. In the case of people with
 43 communication disabilities this moral vulnerability
 44 may be of heightened importance (Barnes & Fergu-
 45 son, 2014). It may also reflect on the perceived com-
 46 petence of the co-participant.

47 In summary, it is well established that people
 48 with dysarthria and their communication partners
 49 experience problems in managing intelligibility.
 50 These problems arise because of speech/hearing
 51 signal disruptions but can also include difficulties
 52 in establishing the relationship between one turn
 53 and another. Topic transition boundaries may be
 54 particularly vulnerable to problematic understand-
 55 ings. These problems may also be prone to chal-
 56 lenges of competency. In what follows we present
 57 a set of Extracts in order to examine different
 58 features of naturally occurring problematic topic
 59 transitions within an environment of dysarthric
 60 conversations.

Methods 61

Design 62

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 64 The present research utilized a longitudinal qualita-
 65 tive approach based on the methods and principles
 66 of Conversation Analysis (Sidnell, 2010).
 67

Sampling and participants 68

69
 70 The data presented here were obtained as part of a
 71 larger ethnographic study program examining interac-
 72 tion between people with progressive neurological dis-
 73 eases and close family members. Purposive sampling
 74 was used to select 12 participants. The study popula-
 75 tion was people with dysarthric speech and a con-
 76 firmed diagnosis of either motor neurone disease
 77 (MND), Parkinson’s disease or multiple sclerosis
 78 (MS). People with clinically diagnosed cognitive and/
 79 or language disorders were excluded from the study. A
 80 summary of three participants, whose data appear in
 81 this paper, follows with pseudonyms used to preserve
 82 anonymity. These three were chosen to represent dif-
 83 ferent dyad profiles of dysarthria in interaction (Bloch,
 84 2013), ranging from moderate to severe dysarthria.
 85

86 Mary, 65, was diagnosed with MND ~ 24 months
 87 prior to the study and was recorded in conversation
 88 at home with her husband Stan, 70. Extract 2 was
 89 selected from recording 3 (9-months into the study)
 90 and Extract 3 from recording 4 (12-months into the
 91 study). During these periods, Mary presents with
 92 moderately hypernasal speech with reduced respira-
 93 tory support and variable precision of tongue func-
 94 tion for sound production. Her voice has a strangled
 95 quality and her pitch range is reduced. Mary’s palat-
 96 al, laryngeal and tongue functions are notably
 97 reduced on all clinical assessment parameters. Dur-
 98 ing both recordings she makes use of a LightWriter??
 99 voice output communication aid (VOCA) to aug-
 100 ment her existing communication abilities.

101 Alex, 38, was diagnosed with MND ~ 12 months
 102 prior to data collection and was recorded in conver-
 103 sation at his nursing home with his mother Molly,
 104 61. Extract 4 was selected from recording 2 (6-months
 105 into the study) and Extract 6 from recording 4
 106 (12-months into the study). Alex has significantly
 107 impaired motor speech abilities and both upper and
 108 lower limb mobility problems. He neither reports nor
 109 displays any language or cognitive difficulties. At
 110 recording 2 he retains some residual speech ability
 111 (restricted to single word output due to respiratory
 112 limitations) but by recording 4 his expressive output
 113 is reliant on an onscreen virtual keyboard (EZ Keys
 114 by Words+) operated via a head-switch.

115 Jean, 68, was diagnosed with MND ~ 18 months
 116 prior to data collection and was recorded in conver-
 117 sation at home with her daughter Ali, 37. Extract 1
 118 was selected from recording 1 (at the start of the
 119 study) and Extract 5 was selected from recording 2
 120 (3-months into the study). Throughout the study

Jean presents with a severe mixed spastic-flaccid dysarthria characterized by aphonia, poor breath support and overall articulatory weakness. Aside from gross vocalization, Jean's speech is non-functional.

The communication abilities of all communication partners in the study are observed to be within normal limits with no reported language, cognitive or sensory problems.

Procedure

Approval for the study was awarded by a UK National Health Service (NHS) Research Ethics Committee. Participants were then recruited through their NHS speech-language pathology service. The couples were loaned standard video camera equipment and were instructed in its use. They were asked to record themselves for ~ 30 minutes within an agreed 1-week sampling period. It was requested that the recording take place during a regular opportunity for everyday conversation such as at a meal or coffee time. This process was repeated at 3-monthly intervals \pm 1 week over a 12-month period. This design was used to capture any potential changes over time. Features of change will be presented in future publications.

Analysis

The video data were transcribed according to common CA conventions (Jefferson, 1984b) and then different patterns of interaction were identified through numerous reviews of the data and transcripts. This inductive, data-led process was led by the first author with contributions from several group data sessions with other CA researchers. A collection of over 200 other-initiated repairs was identified. Within this collection a topic initiation and transition sub-set was examined. A more detailed analysis of problematic topic transition talk followed. This involved scrutiny of the placement, design and organization of 15 problematic topic transition sequences. Five of these sequences were then selected to exemplify different phenomena within the data. Each transcript was developed by the authors during a series of data sessions through which any errors in hearing or viewing were identified, examined and corrected as required. This resulted in a 100% agreement between the authors. These five sequences are presented below.

Results

We will present an unproblematic example followed by five sequences featuring attempted topic-transition turns by people with dysarthria. We will also consider where these turns occur and the ways in which conversation partners signal the nature of the trouble. We will show that the troubles are characterized by a disjunctive relationship between the current turn's topic and whatever has come immediately prior.

These troubles are situated at the point where the person with dysarthria is attempting to introduce something designed to be heard as distinct from the prior topic. Further, in many of the Extracts the conversation partner invokes topic ambiguity as part of the repair activity, displaying an explicit orientation to topic in order to progress to resolution of the trouble. A key to the CA transcription conventions used below is provided in the Supplementary Appendix to be found online at <http://informahealthcare.com/doi/abs/10.3109/17549507.2014.979879>.

Unproblematic topic transition

Extract 1—going back to

In the first Extract, Ali and Jean have been talking about a friend's grandchildren and school dates. Ali then signposts a clear topic transition through her announcement 'going back to' (line 10).

Extract 1

1	Ali	oh right >she hadn't been able to see	82
2		the grandchildren< ((nods))	83
3	Jean	((nods))	84
4		(0.5)	84
5	Ali	>since start o school<° OH: right	85
6		((nods))	86
7	Jean	m: :	86
8		(3.0)	87
9	Jean	°ur: [a°]	88
10	→ Ali	[°m°]: .h ↑Go <u>in</u> back ta (.)	88
11	Jean	°m°=	89
12	→ Ali	=>the potty trainin<	90
13	Jean	m: ((nods))	91
14		(1.0)	91
15	Ali	you jus:t (0.8) you just put em in	92
16		their (0.2) pants don't you	93

The talk in Extract 1 begins with Ali's receipt of a prior written contribution by Jean. 'Oh right' at lines 01 and 05 reveals the newsworthiness of Jean's contribution. A 3-second silence is followed by Jean's turn initiation, but is interrupted by Ali with her own talk at line 10. With 'going back to' Ali displays an explicit reference to talk that has come previously, but not immediately prior, in the conversation. This misplacement marker (Schegloff & Sacks, 1973) alerts Jean not to hear or understand the following talk as fitting with what has just been said.

Ali then pauses, providing an opportunity for Jean to produce a brief acknowledgement turn and to display her understanding that more is to follow, specifically a topic of talk that has already been addressed previously in this or a recent conversation. Ali then specifies the topic itself: potty training (line 12). This announcement is followed by Jean giving the go-ahead to proceed before Ali offers her comment on the topic in hand.

Here Ali's use of a misplacement marker links her current talk to a previous topic and designs it to be heard by Jean as disjunctive from that just addressed, namely talk about grandchildren. In this way, both Jean and Ali are ready to proceed with talk about potty training. The risk of topic disjuncture as a potential trouble source has been minimized

1 through the organized management of topic transi-
 2 tion.

3
 4 *Problematic topic transition*

5
 6 *Extract 2—double glazing*

7 In Extract 2, Mary, with moderate/severe dysarthria,
 8 attempts to introduce a new topic to the conversa-
 9 tion. This arises following prior topic closing talk by
 10 Stan. The prior topic concerns the current installa-
 11 tion of double-glazing at Stan and Mary’s house.
 12 The new topic relates to a craft-box she has made
 13 and bought home from her day-centre, St Floribus.
 14 Mary’s turn and topic initiation is clearly shown by
 15 Stan to be unintelligible and results in an extended
 16 repair sequence. On understanding that Mary is
 17 attempting to introduce a new topic Stan makes a
 18 mock-tease complaint about the lack of relevance to
 19 the prior topic of double-glazing.
 20

21
 22 *Extract 2*

23 01 Stan and er (2.9) yeah I’ll be glad to see it all
 24 02 finished.
 25 03 (0.3)
 26 04 Mary m: m
 27 05 (1.2)
 28 06 Stan then we cun move on to other things=
 29 07 Mary =m:
 30 08 (1.9)
 31 09 Mary ((opens mouth)) °h [(0.2) w]hat
 32 10 Stan [coz er]
 33 11 (2.0)
 34 12 Mary what a nice(0.7)(box)(0.7)(f:rom saint floribus)
 35 13 (1.1)
 36 14 Mary (a: bo brought (0.4) home.)
 37 15 (1.4)
 38 16 Mary [with the glitter]
 39 17 [(mimes box shape)]
 40 18 (1.3)
 41 19 Mary [m:] or
 42 20 [(mimes box shape)]
 43 21 (2.0)
 44 → 22 Stan °in the° sorry >I didn’t get [that]<
 45 23 Mary [m] m:
 46 24 Stan say it again.
 47 25 Mary ((moves glass, reaches to VOCA))
 48 26 [(four syllables)]
 49 27 Stan [(mimes VOCA to M)]
 50 28 (2.5)
 51 → 29 Stan what (.) y-you’re on about sunt floribus?=
 52 30 Mary =m m m:=
 53 → 31 Stan =what about sunt floribus.=
 54 32 Mary =(VOCA-on)# °ha]
 55 33 [(1.2) # #]
 56 → 34 Stan [what’s this got to do with my (1.1) my double]
 57 35 glazing=
 58 36 Mary =(smiles and looks to S) [°h-°no°]
 59 37 [(shakes head)]
 60 38 Stan [h-heh?]
 61 39 [(smiles)]
 62 40 Mary [n°ho-thing:]
 63 41 [(shakes head)]

48 Following the closure of the prior topic (lines 01–07)
 49 there is a lengthy silence in the talk at line 08 before
 50 Mary takes an audible in-breath. In the pause
 51 between this breath and her saying ‘what’, Stan over-
 52 laps with his own turn initiation. There is then fur-
 53 ther silence before Mary re-starts her turn. What
 54 Mary says is largely unintelligible, as evidenced by
 55 the lack of uptake by Stan in next turn positions (13,
 56 15 and 21) as well as Mary’s self-repair attempt
 57 mimes (lines 17 and 20). The upshot is Stan’s other
 58 initiation of repair (line 22). His request to ‘say it
 59 again’ adds weight to the interpretation that he can-

61 not continue without a repeat or reformulation of
 62 Mary’s prior utterance.

63 Mary now reaches for her VOCA, presumably to
 64 assist her self-repair attempt. Whilst this activity is
 65 underway, Stan offers a guess as to a possible refer-
 66 ence within Mary’s talk (line 29). The design of this
 67 candidate reference serves to contribute to the
 68 attempted repair resolution and to make explicit the
 69 nature of the trouble, namely the reference of Mary’s
 70 talk. Stan has been able to identify St Floribus as a
 71 possible reference in Mary’s first trouble source
 72 turn at line 12, but his talk at line 31 reveals his
 73 inability to understand to what the reference St Flo-
 74 ribus is contributing at that point. Mary begins to
 75 type on her VOCA but, given the non-vocal nature
 76 of this activity, it is possible for Stan to contribute
 77 further talk without verbal overlap (Clarke & Wilkin-
 78 son, 2007). He does exactly this at line 34 by asking
 79 Mary to justify or account for the relationship
 80 between her talk in progress, concerning St Flori-
 81 bus and the most recently addressed topic concern-
 82 ing double-glazing. This is despite the fact that it is
 83 Stan who has closed the prior topic down. The sur-
 84 rounding laughter by Stan and Mary’s laughed
 85 through response indicates that this question has
 86 been neither designed nor received as a serious
 87 enquiry. The idiomatic/teasing flavour of Stan’s
 88 mock justification request provides further evidence
 89 of his non-serious intent.

90 Implicit in Stan’s turn: ‘what’s this got to do with
 91 my double glazing’ is a complaint about Mary’s
 92 unannounced attempt to change what is being
 93 talked about. It is perhaps this absence of a hearable
 94 or explicitly marked signpost as displayed so clearly
 95 in Extract 1 that provides insight into Stan’s action.
 96 He is complaining, non-seriously, that Mary is
 97 doing something that is causing him a problem.
 98 This places responsibility for the trouble with Mary
 99 and calls her to account for it (Robinson, 2006).
 100 Mary’s retort with a humorous ‘nothing’ (line 40)
 101 is perhaps entirely fitting and avoids the need for
 102 her to justify this topic transition any further. It also
 103 enables her to return to the self-repair activity
 104 already underway.

105
 106 *Extract 3—the painting.* In Extract 3, Mary attempts
 107 to make reference to a jigsaw-painting craft activi-
 108 ty with which she has recently engaged. Her first
 109 attempt to establish this topic talk is unsuccessful
 110 but she returns to the same topic following
 111 intervening talk, introduced by Stan, about her
 112 voice and swallowing problems. The subsequent
 113 return to jigsaw-painting talk proves problematic,
 114 with Stan invoking a prior topic as a possible
 115 interpretative reference point during the repair
 116 sequence.

117 The following episode appears at the very begin-
 118 ning of the recording, with no immediately prior talk.
 119 Stan has just sat down, having turned on the video
 120 camera to record.

1	Extract 3		
2	1	Mary	(the painting)
3	2		(0.2)
4	3	Stan	mm?
5	4		(0.8)
6	5	Mary	(painting)
7	6		(1.5)
8	7	Mary	(I did) (1.4) (yesterday)
9	8		(1.8)
10	9	Stan	your [voice is] very
11	10	Mary	[(2 syllables)]
12	11		(0.5)
13	12	Stan	croaky today.
14	13		(0.4)
15	14		((90.0 talk about Mary's voice & saliva))
16	15		(0.3)
17	16	Mary	(so I was saying) (1.1) about my (1.3)
18	17		[paint ing]
19	18		[(circles hand in air, looks to Stan)]
20	19		(1.0)
21	20	Mary	(the jig-s:[aw]]
22	21		[(looks to Stan)]
23	22		(1.0)
24	23	Stan	mm: mm
25	24		(0.5)
26	25	Mary	(2 syllables)((outlines square with hands))
27	26		(piece of) (0.9) (jigsaw.)
28	27		(1.2)
29	28	Mary	(blue around the)((outlines round shape))
30	29		[(edges)]
31	30		[(looks to S)]]
32	31		(1.9)
33	32	Mary	umm (2.0) (orange) (1.2)
34	33	Stan	I think you'd best use
35	34		[that] thing again coz I'm (1.1)
36	35		[(1 syllable)] ((picks up stick))
37	36	Stan	I'm not certain wass-what[you're saying mary]
38	37	Mary	["mm mm"]]
39	38		(0.3)
40	39	Stan	"h are you still talking about the (0.4)
41	40		[(0.2) this problem]you've got with the=
42	41	Mary	[(shakes head)] no:]
43	42	Stan	=salava?
44	43		(0.2)
45	44	Stan	no?
46	45		(0.6)
47	46	Mary	"no:"
48	47		(0.3)

At the beginning of this sequence Mary attempts to introduce a new topic. Given her level of dysarthria, which is more severe than the speech observed in Extract 2, she does this through the production of just two words: the painting. Through his open class repair initiator (Drew, 1997) Stan treats this as problematic, resulting in Mary's repeat of painting (line 05) and followed by a time reference, most probably to contextualize the trouble source. There are clear problems with intelligibility here and Stan's response at line 09 is not to pursue the repair to resolution but rather to change the topic trajectory entirely to offer an evaluation of Mary's voice quality. This in itself is interesting as it enables the participants to exit the repair sequence without having to resolve the trouble (Barnes and Ferguson, 2014). There is then a significant amount of talk about Mary's saliva and Stan's report of a nurse's advice about how saliva problems may be making Mary's voice worse.

It is at line 88 that Mary attempts to return to her prior, yet to be established, topic talk about her jigsaw-painting. She does this by initiating her turn with 'so' (see Bolden, 2009; Raymond, 2004) and an explicit reference to her prior attempt—I was saying (line 88). This has parallels with Extract 1 in that she attempts to signpost to something that has come earlier but not immediately prior in the conversation. Of course the difficulty in this instance is

that what Mary has said earlier remains an unresolved trouble source and not something to which Stan can be easily cued in terms of content or sequential position.

As previously, Mary's attempt at establishing the topic does not receive an immediate uptake by Stan and results in numerous attempts to make herself understood by expanding the descriptive properties of the jigsaw (lines 92–104). Stan's on-going problems with understanding are made clear with his talk at lines 105–108. Initially he refers to the use of 'that thing again' (line 106), referring to a wooden pointer stick that Mary uses to press keys on her VOCA. Through this talk Stan is not attempting to interpret what he has heard, but suggesting a technical resolution to his on-going difficulties. Mary accepts this suggestion by picking up the stick. As with Extract 2 Stan takes the next turn rather than allowing Mary the opportunity to attempt a VOCA mediated self-repair. Through his turn at line 111 he displays on-going difficulty with Mary's speech and then offers a potential reference: 'are you still talking about ...'. The difficulty here is one of ambiguity. Here he is invoking the most immediately known and shared topic talk, saliva, as a possible reference point. Stan's use of 'still' indicates that Mary's problematic talk might be a continuation of something already known and current. One presumable benefit of establishing topic in this way is to significantly reduce the range of possible topic choices to which Mary might be referring. Mary's monitoring of Stan's turn in progress is displayed by her negation of his proposal before he even mentions the saliva problem.

Through the use of 'still talking' Stan appears to be aware of a potential ambiguity; that is, he is asking Mary to accept or reject the possibility that she is either trying to continue to talk about a prior known topic or to introduce something new and yet to be understood.

Extract 4—'cream or patches'. In making sense of problems associated with dysarthric speech we have focused on topic transition attempts by speakers with dysarthria. It is entirely possible, however, for problems to be associated with topic transitions initiated by conversation partners. In Extract 4 a difficulty with sequentiality arises in part due to Molly's topic transition. It is Alex's on-going reference to the prior topic of talk that leads to difficulties for Molly in understanding to what he is referring.

Immediately prior to this Extract Alex has complained to Molly about his eye-cream. He has alleged that nursing staff have not been applying it as regularly as prescribed and that there may be a breakdown in communication between staff covering different shifts. At the start of the Extract Molly aligns her stance with Alex's by providing her own assessment.

1 Extract 4
 2 01 Molly I don't think em half of them know what the
 3 02 other [half's do]ing
 4 03 Alex [uhuh]
 5 04 (0.6)
 6 05 Molly you remind me to put your patch on?
 7 06 (0.9)
 8 07 Alex ((looks back to M))=
 9 08 Molly =when this is finished.
 10 09 (0.6)
 11 10 Alex (2 syllables) (one)
 12 11 (0.4)
 13 12 Molly one,
 14 13 (1.1)
 15 14 Alex (1 syllable)
 16 15 (0.2)
 17 16 Molly on,
 18 17 (1.0)
 19 18 Alex 'h:
 20 19 (0.3)
 21 20 Molly want one on both [sides?]
 22 21 Alex [((head shake))(ar:: a: one)
 23 22 (0.2)
 24 23 Molly you want one,
 25 24 (0.2)
 26 25 Alex ((slight head shake))(2 syllables)
 27 26 (0.2)
 28 27 Molly One
 29 28 (0.6)
 30 29 Alex (1 syllable)
 31 30 (0.4)
 32 31 Molly en?
 33 32 (0.2)
 34 33 Alex ((slight head shake))(and)
 35 34 (0.3)
 36 35 Molly and?
 37 36 (1.3)
 38 37 Alex a
 39 38 (0.2)
 40 39 Molly a
 41 40 (1.0)
 42 41 Alex half
 43 42 (0.2)
 44 43 Molly one and a half?
 45 44 (0.4)
 46 45 Alex (days)
 47 46 (0.2)
 48 47 Molly days
 49 48 (0.2)
 50 49 Alex ((moves left lower lip down))
 51 50 (1.3)
 52 51 Alex [(es)]
 53 → 52 Molly [what] your (.) the cream [we're on]
 54 → 53 Alex [((lower lip mv't))]
 55 54 Molly about ↑now still?

36 Molly's idiomatic assessment at the start of this
 37 Extract is a possible attempt to close down the prior
 38 eye-cream complaint talk. At line 5 she produces a
 39 request regarding Alex's patch, a gradual release
 40 medication placed on the neck area to help manage
 41 excess saliva. This change from eye-cream to patch
 42 represents a transition from complainable/evaluation
 43 to future action. With no obvious uptake, Molly
 44 appends her request with a time reference at line 08.
 45 In what follows Alex and Molly jointly produce the
 46 word 'one' (lines 10 and 12) followed by what Molly
 47 interprets as 'on' (line 16). She subsequently offers
 48 an anticipatory completion (Bloch, 2011) 'want one
 49 on both sides?' (line 20) which Alex immediately
 50 negates. Molly, thus, reveals her interpretation of
 51 Alex's current action as a request for one patch on
 52 both sides of his neck. This interpretation appears to
 53 be a reasonable sequential fit with the current topic
 54 of patches.

55 On seeing Alex's negation and restart (line 21),
 56 Molly repeats 'you want one' but this is again
 57 negated. The ensuing sequence of talk produces 'one
 58 and a half days' (lines 25–47). It is at line 52 that
 59 Molly displays her on-going uncertainty about the
 60 current topic of talk. Her reference to 'cream' shows

that her earlier understanding of patches may be 61
 incorrect. 62

Extracts 2, 3 and 4 above have featured dysar- 63
 thric speech output as one of the underlying con- 64
 tributors to problems in understanding. These 65
 difficulties have been compounded by their role in 66
 topic transitions. We also recognize, however, that 67
 people with progressive neurological conditions 68
 may use other modalities either in combination 69
 with speech or as a replacement when speech pro- 70
 duction becomes too effortful. In the final two 71
 Extracts topic transition troubles arise through the 72
 use of finger spelling and of an on-screen emulated 73
 keyboard system. In both cases the person with dys- 74
 arthria has a functional alternative means of word 75
 creation, but the couples involved still encounter 76
 topic transition difficulties. 77

Extract 5—Mike's coming Friday. In this Extract Jean 79
 attempts to initiate, through fingerspelling, a new 80
 topic with the name 'Mike'. Ali shows an under- 81
 standing of this after a repeat by Jean, but then com- 82
 plains later on: 'give me a clue before you start 83
 spelling ...'. 84

Extract 5
 1 Ali I'll give her a call (0.4) and tell he:r ta giver
 2 your right number (.) make sure she sends it to
 3 the right phone 'h okay I'll give her ring
 4 (5 syllables) (0.6) when finished
 5 Jean uh: uh [uh: uh]
 6 [((finger spells 'W'))]
 7 Ali wednesday=
 8 Jean =((shakes head))[uh uh:]
 9 [((lifts hands & shakes head))]
 10 ((looks at Ali and finger spells 'M' 'I' 'K' 'E'))
 11 (1.6)
 12 Jean [((finger spells 'M' then looks at Ali))]
 13 Ali ["um"
 14 em:
 15 Jean ((finger spells 'I' then looks at Ali))=
 16 Ali ie
 17 ((finger spells ['K'] then looks at Ali))
 18 Ali [mike.]
 19 Jean ((points to Ali with R index finger and nods))=
 20 [uh: h:urm:]
 21 [(with fingers pointing towards self)]
 22 okay ((nods head))
 23 Jean ur:(1.0)ur [ur: ur
 24 [((looks at Ali & finger spells 'F'))]
 25 Ali friday
 26 Jean [ur:
 27 [((nods head with right thumb up))]
 28 ((gestures hand towards self)) ur ur:=
 29 → Ali =give me a clue before you start spelling will=
 30 [((signs 'clue' and gesture action of signing))]
 31 → ya then I (.) got an idea
 32 Jean ((laughs and slaps right hand on lap))
 33 Ali [it's about a name (.) mike] (.)thad
 34 [i(signs name and then finger spell 'M')]
 35 give me an idea
 36 Jean ((laughs))=
 37 Ali =>I'm thinkin< what's that micky I thought mat-
 38 (.) monkey [HAhahahahaha HUH huh huh]
 39 Jean [('har har')]
 40 Ali >you know what my spelling's like< [((laughs))]
 41 Jean [((laughs))]
 42 Ali mike's coming (.) Friday
 43 Jean ur: ur ur: hu:m

At the start of this Extract Ali talks about the 114
 correction of an incorrect phone number that has been 115
 given to one of Jean's friends. Jean vocalizes before 116
 finger spelling the letter 'W'. This is interpreted by 117
 Ali as 'Wednesday'. Jean rejects this interpretation 118
 before re-starting her finger spelling with five 119
 consecutive letters: 'm' 'i' 'k' and 'e' (line 10). 120

1 A considerable silence follows, which Jean treats as
 2 problematic through her subsequent re-doing of her
 3 prior finger spelling activity with one letter sign at a
 4 time. This spelling works in collaboration with Ali,
 5 who verbally interprets each letter name as it becomes
 6 visible (see Bloch 2005 for similarities with verbal
 7 spelling). Ali's interpretations function as legibility
 8 checks for each element of the construction in prog-
 9 ress. As Jean completes the sign for 'K' (line 17), Ali
 10 says 'Mike'. This is affirmed by Jean with a finger
 11 point and head nod movement. Jean then proceeds
 12 to point to herself and then finger spell 'F' which Ali
 13 interprets as 'Friday'. Jean confirms this interpreta-
 14 tion as correct before gesturing with a movement
 15 that indicates herself. We later learn that this gesture
 16 is an attempt to progress the utterance already
 17 underway.

18 Rather than treating Jean's gesture as a contribu-
 19 tion to an ongoing utterance, Ali, at line 29, voices
 20 a complaint about the prior episode of interaction.
 21 She begins with a request for Jean to give her 'a clue'
 22 before she starts spelling and that this will give her
 23 'an idea', presumably about to what it is that Jean is
 24 referring. Ali then proceeds to describe her confu-
 25 sion in more detail including taking some responsi-
 26 bility for the trouble with reference to her own
 27 spelling (line 40). It is then, at line 42, that Ali shows
 28 a complete understanding of Jean's prior utterance,
 29 possibly to enable the talk to proceed.

30 Of interest in this Extract is the placement of the
 31 complaint, which is subsequently treated by both
 32 participants as non-serious. Ali appears to explain
 33 the problem as an unannounced name spelling
 34 trouble. Her suggested future remedy is for Jean to
 35 produce the sign for 'name' prior to finger spelling
 36 a name itself. The benefit here is presumably to cue
 37 Ali semantically into whatever is to follow. It is
 38 noted that the complaint does not appear immedi-
 39 ately after the name 'Mike' has been verbalized and
 40 presumably understood by Ali. Rather, Ali's com-
 41 plaint comes somewhat later in the sequence after
 42 Jean has completed her utterance in progress with
 43 a reference to herself and Friday. The evidence here
 44 is that Ali waits for an opportunity to evaluate Jean's
 45 finger spelling understandability only once the
 46 utterance has been finished, even though there are
 47 several opportunities for her to do so before utter-
 48 ance completion.

49 *Extract 6—rubbish fire.* In the final Extract, topic
 50 transition is examined in the context of AAC system
 51 output. With speech no longer functional it is com-
 52 mon for people with MND to rely largely on an AAC
 53 device (Ball, Fager, & Fried-Oken, 2012). In this
 54 case the use of an on-screen virtual keyboard oper-
 55 ated by head switches enables Alex to successfully
 56 produce words and phrases. However, as with natu-
 57 ral speech in earlier Extracts, difficulties emerge in
 58 the use of AAC within an on-going conversation.
 59 Immediately prior to this Extract, Molly and Alex

have been talking about a fire drill held in Alex's
 nursing home the day before.

Extract 6

```

01 Molly right (0.3) oka:y
02 Alex # # # # (3.0) # # # # (1.5) # [f] # # (2.5)
03 # [u] # (2.9) # (4.8) # # # # (1.0) # [rubbish]# =
04 Molly =((looks to Alex and back to screen))=
05 Alex = # # [f] # # # [i] =
06 Molly = rubbish [ fire? ] =
07 [ ((looks to Alex)) ]
08 Alex = # =
09 Molly = ((looks back to screen)) =
10 Alex = (1.0) # [l] (1.9) # =
11 Molly = °rubbish,°=
12 Alex = # (1.8) # # # (1.0) # # # (1.5) # # (0.8)
13 # (0.5) # # # (1.0) # # [w] # # (2.9) # [← ] #
14 # [ # [m] # ]
15 Molly [ >rubbish film? < ] =
16 Alex = # # =
17 Molly = what [iwas (.) the fire drill?]
18 [ ((looks to Alex)) ]
19 (0.8)
20 Alex ((very small movement of lower right lip))=
21 → Molly = so you've changed the subject again haven't
22 [you. ((looks back to screen))]
23 Alex [((smiles))]
  
```

The Extract begins with Molly acknowledging the
 occurrence of a recent fire test at Alex's nursing
 home (line 01). Alex then proceeds to type onscreen,
 via his head switch, the letters 'f' and 'i' (line 05)
 which Molly attempts to complete with 'rubbish
 fire?' (line 06). This anticipatory completion is plau-
 sible given both the prior context of fire tests and the
 probability of word endings based on the letters 'f'
 and 'i'. Molly's completion attempt appears to be
 designed as a clarification request, signalled by its
 questioning intonation. Following her completion
 Molly looks to Alex but he provides no response and
 continues to type selecting 'l' and 'm' (lines 10–14)
 punctuated by a typing error: 'w'. Molly then reads
 aloud the visual display 'rubbish film' (line 15). The
 word 'film' reveals Molly's earlier attempted anti-
 cipatory completion of 'fire' to be incorrect.

Molly now attempts to make sense of 'rubbish
 film' with reference to the aforementioned fire drill.
 Alex provides a non-verbal rejection of this link (line
 20) before Molly makes a complaint. This complaint
 centres on Alex having changed the subject again,
 presumably referring to a change without Molly's
 awareness.

Molly's completion reveals an attempt to establish a
 sequential link between current and prior talk. In terms
 of action it transpires that Alex is offering an evaluation
 of a movie he watched the prior evening: 'rubbish film
 yesterday', with 'rubbish' being used in its adjective
 form. However, Molly's initial understanding is of
 'rubbish' in its noun form (see also Bloch and Wilkin-
 son, 2013). This leads to her error in anticipating 'fire'
 as Alex's intended talk. Thus, two difficulties for the
 participants become apparent from this analysis: estab-
 lishing an utterance ending and, of more interactional
 impact, establishing a topic transition. It is also noted
 that in saying 'again' (line 21), Molly is enhancing
 the complaint by invoking a repeat offence. Molly
 appears to be using similar previous unmarked topic
 transitions as additional evidence to add weight to the
 moral worthiness of her present, albeit non-serious,

1 complainable, as evidenced by Alex’s smile at line 23.
 2 In summary, Molly is saying here: you have changed
 3 the topic/subject without indicating to me that you are
 4 doing so and this gives cause for non-serious com-
 5 plaint/teasing. So, in addition to topic transitions as a
 6 problem for people with moderate-to-severe dysarthria
 7 speech we also have evidence that such problems can
 8 arise for people using AAC systems.
 9

11 **Discussion**

13 In this paper we have used the principles of Conver-
 14 sation Analysis to examine topic transitions within
 15 the context of dysarthric speech and AAC produc-
 16 tion. Specifically, we have analysed episodes of inter-
 17 action from three dyads where there is a problematic
 18 understanding of topic reference. In each Extract the
 19 nature of the trouble source, produced by the person
 20 with dysarthria, is characterized by a break in sequen-
 21 tiality between the current turn’s topic and that
 22 which has come immediately prior. Further, in many
 23 of the Extracts the co-participant invokes topic ambi-
 24 guity as part of the repair activity, displaying an
 25 explicit orientation to topic in order to progress to
 26 resolution.

27 In exploring why topic transitions in dysarthria
 28 prove problematic we can look to a number of fea-
 29 tures, including speech intelligibility, reduction in
 30 the use of transition markers, ambiguous references
 31 and disjunctive markers. In the first instance there is
 32 the occurrence of unintelligible or at least partially
 33 intelligible speech. The importance of this should
 34 not be under-estimated. In Extracts 2, 3 and 4 the
 35 speech of the person with dysarthria is clearly treated
 36 as problematic by the recipient. This is revealed
 37 through other-initiated repair constructions such as
 38 ‘I didn’t get that’ (Extract 2) and ‘I’m not certain
 39 what you’re saying’ (Extract 3).

40 Looking beyond speech intelligibility, however, we
 41 can also see a reduction in or absence of explicit
 42 transition markers. In Extract 1 there is a clear con-
 43 struction being used to signpost the direction and
 44 reference of the talk to follow. Ali (Extract 1) says
 45 ‘going back to’ as a preface to ‘the potty training’.
 46 There are no such topic transition markers in Extracts
 47 2, 4, 5 and 6. In each of these Extracts, the speaker
 48 with dysarthria constructs a turn or contribution
 49 that neither marks a clear break from the immedi-
 50 ately prior topic talk nor looks forward to display that
 51 a new topic is being initiated. In these terms the risk
 52 of a problematic understanding relating to topic
 53 transition may be increased. However, it is not the
 54 case that dysarthric speech/AAC output equates to
 55 a complete absence of topic transition work. In
 56 Extract 3 Mary does attempt to do just this: ‘so I was
 57 saying about my painting’. The problem with this
 58 attempt is that it is unintelligible as well as making
 59 reference to prior talk that Stan has yet to under-
 60 stand. So, aside from Mary’s overall intelligibility the

61 action of topic transition has yet to be established. 61
 62 Stan’s trouble is not only that he cannot adequately 62
 63 hear Mary’s speech, but also what it is she is attempt- 63
 64 ing to do with her turn. 64

65 The unproblematic transition marker in Extract 1 65
 66 is characterized by orientation to topic shift or change 66
 67 in the form of word selection. It also features changes 67
 68 in intonation and placement with reference to prior 68
 69 talk. It is likely that topic transition is far more vul- 69
 70 nerable to problematic understandings when these 70
 71 additional features are also compromised, particu- 71
 72 larly given the importance of prosody to topic shift- 72
 73 ing (Couper-Kuhlen, 2004; Zellers, 2012). 73

74 In addition to the absence of topic transition 74
 75 markers we note ambiguity of reference as a specific 75
 76 problem, specifically when the topic is not clear. This 76
 77 is displayed in some instances as the repair sequence 77
 78 is played out. In Extract 4, for example, Alex’s pro- 78
 79 duction of ‘one’ is initially treated by Molly as a pro- 79
 80 noun reference to patch: ‘want one (patch) on both 80
 81 sides?’, with patches having been topicalized by her 81
 82 earlier topic transition turn. Molly subsequently real- 82
 83 izes that Alex is using ‘one’ to reference time as in 83
 84 ‘one and half days’ since he has had any eye-cream. 84
 85 In this case the meaning of Alex’s ‘one’ can only be 85
 86 correctly understood in the context of his own prior 86
 87 topic talk of eye-cream, not Molly’s more recently 87
 88 introduced topic of patches. A similar issue arises 88
 89 with Alex’s AAC output (Extract 6). One of the rea- 89
 90 sons these problems arise is due to the nature of the 90
 91 turn constructions. Unlike the other dyads, Alex and 91
 92 Molly have adapted their turn designs to minimize 92
 93 the risks associated with lengthy dysarthric speech 93
 94 turns (Bloch, 2005). In reducing his verbal output 94
 95 to single or paired letter names or words, the speech 95
 96 sounds in each turn are more available for examina- 96
 97 tion by Molly and, as a result, are more directly 97
 98 repairable (Collins & Markova, 1995). Further, 98
 99 Molly has the option of offering an anticipatory 99
 100 completion (Bloch, 2011) of these constructions. 100
 101 The risk, however, is an incorrect completion and it 101
 102 is this problem associated with the wrong comple- 102
 103 tion of an utterance in progress that characterizes the 103
 104 troubles in Extracts 4 and 6. Clarke and Wilkinson 104
 105 (2008) provide a similar example in which the antic- 105
 106 ipatorily completed ‘green’ is initially treated as an 106
 107 adjective before being amended to ‘greens’ to con- 107
 108 firm its noun status within an ongoing VOCA utter- 108
 109 ance. The evidence indicates that words constructed 109
 110 over several turns are more prone to these types of 110
 111 troubles, particularly with respect to the co-partici- 111
 112 pant’s opportunity to anticipate the word prior to its 112
 113 completion. 113

114 Finally, we note that all of the transitions analysed 114
 115 in this paper are disjunctive (Button & Casey, 1985); 115
 116 that is, the attempted topic changes are not gradual 116
 117 but have clear boundaries. These topic breaks 117
 118 between the trouble source turns and the immedi- 118
 119 ately prior talk appear to add to the difficulties expe- 119
 120 rienced by the participants. 120

1 Problematic topic transition as a complainable

2 The evidence we have presented indicates that troubles in dysarthric talk are repaired rather than abandoned (Barnes & Ferguson, 2014), but, while the focus of this paper is not on trouble resolution *per se*, it is possible to comment on topic transition orientation by the co-participants. In all of the trouble Extracts (2–6) we note that the co-participant makes explicit reference to topic. Specifically they treat the problem as complainable or worthy of critical comment in some way. In Extracts 3 and 4 topic reference is used in pursuit of the repair resolution as evidenced by the co-participant seeking clarification, as in Extract 4, ‘the cream we’re on about now still?’. However, in Extracts 2, 5 and 6, the reference to topic change is more accusatory, albeit in a non-serious manner. These Extracts are interesting in that they reveal one way in which topic transition problems are experienced. In each of these cases there is an element of complainability, as in Extract 2: ‘what’s that got to do with my double-glazing?’. This may well resonate with Robinson’s (2006) examination of accountability. The non-serious nature of these interactions deserves further investigation, particularly in relation to face-saving and the moral treatment of competence in communication disability.

27 Whilst the extracts presented in this paper and the dyads from which they have been drawn are necessarily selective, the authors consider them representative of the whole data set. The incidence of troubles and repair will vary across each conversation and each dyad, but the evidence here shows that participants are organized in their identification and resolution of troubles, even when these problems lead to lengthy repair sequences.

38 Implications and conclusions

39 In this paper we have focused on problematic topic transition within an environment of dysarthric speech in conversation. We have shown how attempts to change or shift topic are vulnerable to problematic sequential understandings and how participants resolve such problems. We have also considered the ways in which responsibility for these problems are raised. There is evidence that people with severely dysarthric speech do attempt topic change (see Extract 3) and we have preliminary data to show that some participants can adapt their action-design following feedback from their conversation partner. In Extract 5, for example, Ali asks her mother Jean to give her a clue before she starts finger spelling. We observe that later in the same conversation Jean does indeed signal ‘name’ prior to finger spelling a person’s name. These initial observations will be reported in future publications following further data analysis. Further work is required to establish the role of topic organization in dysarthria therapy and its viability as an

61 outcome measure, but there is encouraging evidence from the field of aphasia indicating that problematic topic transition is amenable to successful intervention (Wilkinson et al., 2011).

62 We have noted that topic transition may not just rely on words, but also appropriate timing, prosody and non-verbal actions. People with associated physical disabilities and those using AAC systems may face additional but not insurmountable challenges. The degree to which people with dysarthria can integrate more explicit topic transition actions in their talk remains to be seen.

73 The organization of topic remains an elusive concept that defies easy categorization and boundaries. Nevertheless, the evidence presented here shows that topic management in talk can have a significant impact on the relative success or otherwise of dysarthria and AAC-in-interaction. We show here that the organization of talk is vulnerable to problems within a specific environment. It is likely that further analysis of talk using the methods of CA, particularly with reference to change over time, will reveal other environments in the organization of conversation that are equally if not more prone to troubles.

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Supplementary material available online

Supplementary Appendix to be found online at <http://informahealthcare.com/doi/abs/10.3109/17549507.2014.979879>.

1 *Supplementary material for Bloch, S. et al. (2014). Problematic topic transitions in dysarthric conversation.* 61
 2 *International Journal of Speech-Language Pathology*, 2014; doi: 10.3109/17549507.2014.979879. 62
 3 63
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Appendix: Key to transcription symbols

[a large left-hand bracket links an ongoing utterance with an overlapping utterance or non-verbal action point where the overlap/simultaneous non-verbal action begins.
]	a large right-hand bracket marks where overlapping utterances/simultaneous non-verbal action stops overlapping.
=	an equals sign marks where there is no interval between adjacent utterances.
(.)	a full stop in single brackets indicates an interval of less than one tenth of a second in the stream of talk.
(0.6)	a number in single brackets indicates the length, in tenths of a second, of a pause in the talk.
oh:	a colon indicates an extension of the sound or syllable it follows (more colons prolong the stretch).
.	a full stop indicates a stopping fall in tone, <i>not necessarily the end of a sentence</i> .
,	a comma indicates a continuing intonation.
?	a question mark indicates a rising inflection, <i>not necessarily a question</i> .
!	an exclamation mark indicates an animated tone, <i>not necessarily an exclamation</i> .
but-	a single dash indicates a halting, abrupt cut-off to a word or part of a word.
↑↓	marked rising and falling shifts in intonation are indicated by upward and downward pointing arrows immediately <i>prior</i> to the rise or fall.
<u>stress</u>	underlining indicates emphasis.
°no°	degree signs indicate a passage of talk which is <i>quieter</i> than surrounding talk.
TALK	capital letters indicate talk delivered at a <i>louder volume</i> than surrounding talk.
heh	indicates discernible aspiration or laughter (the more hs the longer the aspiration/laughter).
fu(h)n	an h in single brackets marks discernible aspiration or laughter <i>within</i> a word in an utterance.
°h	discernible inhalation (the more hs the longer the inhalation).
>talk<	lesser than/greater than signs indicate sections of an utterance delivered at a <i>greater speed</i> than the surrounding talk.
((nods))	italicized text in double brackets represents a gloss or description of some non-verbal aspect of the talk, and is linked to simultaneous talk with large brackets (see above).
(dog)	single brackets containing either a word, phrase or syllable count (if utterance is very unclear) mark where target item(s) is/are in doubt.
#	indicates an onscreen AAC selection.
[u]	bold text in square brackets represents AAC onscreen letter or word display.